









**ESCC QUALIFIED PARTS LIST**  
**REP005**



Updated 15-June-2008







	<b>General Information</b>	
As affected		
<b>Section/Page No.</b>	<b>Description</b>	
Section 01 01-01-005	index of Capacitors Type II, High Capacitance from AVX (N.I.)	Amended Extended
Section 05 05-01-001A	Index of Filters Types SFC, SFL, SFP from Eurofarad	Amended Extended
Section 06 06-01-001	Index of Fuses Type MGA-S from Schurter	Amended Added
Section 07 07-01-001	Index of Inductors Types MSC1, 10000, 12000, 20000 from Microspire	Amended Extended
Section 14 14-03-003	Index of Miscellaneous Thermostatic, Bimetallic from Comepa	Amended Extended
		
		<b>Qualified Parts List</b>
		<b>DOCUMENT CHANGES</b>
		<b>Change Date: 15 June 2008</b>



	<b>General Information</b>	
As affected		
<b>Section/Page No.</b>	<b>Description</b>	
Section 02 02-01-001-2 02-02-001-2	Index of Connectors D*M Series, Rectangular from SOURIAU D*MA Series, Rectangular from SOURIAU	Amended Extended Extended
Section 04 04-02-002-1 04-02-003-1	Index of Diodes Type STPS20H100 from STMicroelectronics Types BYW-81, BYV52, BYV-54 from STMicroelectronics	Amended Amended
Section 07 07-01-001	Index of Inductors Types MSC1, 10000, 12000, 20000 from Microspire	Amended
Section 10 10-08-002	Index of Resistors Type P HR from Vishay S.A. Sfernice	Amended Extended
Section 12 12-01-002-3A-B 12-01-003-1 12-02-002-3A-B	Index of Transistors Types NPN from STMicroelectronics Types 2N2369A from STMicroelectronics Types PNP from STMicroelectronics	Amended Amended Amended
Section 13 13-01-001-2 13-01-003 13-02-001	Index of Wires and Cables Polyimide, Types 1871-1872 from Nexans PTFE, Types MTV-BTV from Nexans PTFE/Polyimide, Types 50 CIS from Nexans	Amended Extended Extended Extended
Section 14 14-03-003	Index of Miscellaneous Thermostatic, Bimetallic from Comepa	Amended
 	<b>Qualified Parts List</b>	
	<b>DOCUMENT CHANGES</b>	
<b>Change Date: 15 May 2008</b>		

	<b>General Information</b>			
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<b>Section/Page No.</b>	<b>Description</b>			
Section 01 01-05-001-1	Index of Capacitors Type HT86PS, High Voltage from Eurofarad	Amended Extended		
Section 13 13-01-001-2 13-01-003 13-02-001	Index of Wires and Cables Polyimide, Types 1871-1872 from Nexans PTFE, Types MTV-BTV from Nexans PTFE/Polyimide, Types 50 CIS from Nexans	Amended Amended Amended		
 			<b>Qualified Parts List</b> <b>DOCUMENT CHANGES</b>	<b>Change Date: 15 April 2008</b>


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<b>Section/Page No.</b>	<b>Description</b>	
Section 01 01-03-004	Index of Capacitors Type TAJ from AVX (GB)	Amended Extended
Section 02 02-02-005 02-02-006 02-02-007-1 02-02-008	Index of Connectors Series I, Circular, Crimp from SOURIAU Series II, Circular, Crimp from SOURIAU Series III, Circular, Miniature from SOURIAU Series III, Hermetic from SOURIAU	Amended Extended Extended Extended Extended
Section 03 03-01-001-1 03-01-002	Index of Crystals TO-5 Can from RAKON (F) TO-8 Can from RAKON (F)	Amended Extended Extended
Section 04 04-05-001-3 04-05-002-2 04-05-003	Index of Diodes Schottky, BAS 70 from Infineon PIN, BXY 42 from Infineon PIN, BXY 43 and 44 from Infineon	Amended Re-qualified Re-qualified Re-qualified
Section 10 10-08-002 10-10-001	Index of Resistors Type P HR from Vishay S.A. Sfernice Single-in-Line from Vishay S.A. Sfernice	Amended Amended Extended
Section 12 12-10-001 12-10-002 12-15-001 12-16-001	Index of Transistors Types BFY 193 from Infineon Types BFY 405-450 from Infineon Types CLY 32 from Infineon Types CFY66 & 67, High Electron Mobility, Low Noise from Infineon	Amended Re-qualified Re-qualified Re-qualified Re-qualified
Section 13 13-01-010-1	Index of Wires and Cables Polyimide, Insulated, Shielded, Type SPLD, Drain Wire from GORE	Amended Extended
Section 14 14-01-002-2 14-01-004	Index of Miscellaneous Coaxial Loads, 0 to 22 GHz from Radiall Attenuators, Type R413 from Radiall	Amended Extended Extended
 		<b>Qualified Parts List</b>
		<b>Change Date: 15 March 2008</b>



	<b>General Information</b>	
As affected		
<b>Section/Page No.</b>	<b>Description</b>	
Section 01 01-01-005	Index of Capacitors Type II, High Capacitance from AVX (N.I.)	Amended
Section 02 02-01-001-2 02-02-001-2	Index of Connectors D*M Series, Rectangular from SOURIAU D*MA Series Rectangular from SOURIAU	Amended Amended
Section 04 04-02-002-1 04-02-003-1 04-05-002-4A-B 04-07-001	Index of Diodes Type STPS20H100 from STMicroelectronics Types BYW-81, BYV52, BYV54 from STMicroelectronics PIN, Fast Switching from Chelton Photodiode, Sensor from OSI	Amended Amended Amended Extended Amended
Section 05 05-01-001-A	Index of Filters Types SFC, SFL, SFP from Eurofarad	Amended
Section 08 08-02-001-2 08-02-002-1	Index of Microcircuits 4000 B Series from ST Microelectronics 54HCMOS Series from ST Microelectronics	Amended Extended Extended
Section 09 09-01-002 09-01-005 09-02-002 09-02-006 09-03-001	Index of Relays Type GP5 from LEACH Type E from LEACH Type GP2 from LEACH Type D from LEACH Type GP250 from LEACH	Amended Extended Extended Extended Extended Extended
Section 12 12-01-002-3A 12-01-003-1 12-02-002-3A	Index of Transistors Types NPN from STMicroelectronics Type 2N369A from STMicroelectronics Types PNP from STMicroelectronics	Amended Amended Amended
Section 13 13-01-001  13-01-009  13-01-010-1	Index of Wires and Cables Polyimide, Types FA-3901-1, FA-3901-2 from Draka Fileca PTFE, Polyimide/PFA insulated, Shielded, Type SPM from GORE Polyimide, Insulated, Shielded, Type SPLD, Drain Wire from GORE	Amended Extended Extended Amended
Section 14 14-01-002-2 14-01-004	Index of Miscellaneous Coaxial Loads, to 22 GHz from Radiall Attenuators, Type R413 from Radiall	Amended Amended
 		<b>Qualified Parts List</b>
		<b>Change Date: 15 February 2008</b>



	<b>General Information</b>	
As affected		
<b>Section/Page No.</b>	<b>Description</b>	
Section 01 01-04-001-2	Index of Capacitors Type CLR 79 from Arcotronics	Amended
Section 04 04-05-002-4A-B	Index of Diodes PIN, Fast Switching from Chelton	Amended
Section 08 08-02-001-2 08-02-002-1	Index of Microcircuits 4000 B Series from ST Microelectronics 54HCMOS Series from ST Microelectronics	Amended Amended
Section 09 09-01-002 09-01-005 09-02-002 09-02-006 09-03-001	Index of Relays Type GP5 from LEACH Type E from LEACH Type GP2 from LEACH Type D from LEACH Type GP250 from LEACH	Amended Amended Amended Amended Amended
Section 13 13-01-001  13-01-009	Index of Wires and Cables Polyimide, Types FA-3901-1, FA-3901-2 from Draka Fileca PTFE, Polyimide/PFA insulated, Shielded, Type SPM from GORE	Amended  Amended
		<b>Qualified Parts List</b>
		<b>Change Date: 15 January 2008</b>



	General Information	
As affected		
Section/Page No.	Description	
Section 02 02-04-001 02-04-002	Index of Connectors SMA Series from Radiall SMA 2.9 from Radiall	Amended Extended Added
Section 04 04-07-001	Index of Diodes Photodiode, Sensor from OSI	Amended Added
 	<b>Qualified Parts List</b>	
<b>Change Date: 15 December 2007</b>		







	<b>General Information</b>
As affected	This is the current QPL for November
<b>Section/Page No.</b>	<b>Description</b>
 <b>QPL</b>	<b>Qualified Parts List</b> <b>DOCUMENT CHANGES</b>
	<b>Change Date: 15 November 2007</b>

	<b>General Information</b>			
As affected				
<b>Section/Page No.</b>	<b>Description</b>			
Section 02 02-04-001	Index of Connectors SMA Series from Radiall	Amended		
Section 10 10-02-006	Index of Resistors Surface Mount, Type MS1 from Vishay Selb	Amended Extended		
Section 13 13-01-005-1	Index of Wires and Cables Crosslinked PTFE, Sliver-Plated Copper from Tyco Electronics	Amended Extended		
 			<b>Qualified Parts List</b> <b>DOCUMENT CHANGES</b>	<b>Change Date: 15 October 2007</b>

	<b>General Information</b>
As affected	This is the current ESCC QPL for September 2007
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 	<b>Qualified Parts List</b> <b>DOCUMENT CHANGES</b>
	<b>Change Date: 15 September 2007</b>

	<b>General Information</b>	
As affected	ITT Cannon is now known as C&K Components SAS	
<b>Section/Page No.</b>	<b>Description</b>	
Section 01 01-05-003-1	Index of Capacitors Type PM94S from Eurofarad	Amended Extended
Section 02 02-01-001-1	Index of Connectors D*M Series, Rectangular from C&K Components	Amended Extended
02-02-001-1	D*MA Series, Rectangular from C&K Components	Extended
02-02-005	Series I, Circular, Crimp from SOURIAU	Amended
02-02-006	Series II, Circular, Crimp from SOURIAU	Amended
02-02-007-1	Series III, Circular, Miniature from SOURIAU	Amended
02-02-008	Series III,.Hermetic from SOURIAU	Amended
02-03-001-2	HE 801 from Hypertac UK	Amended
02-03-004-1	IHD INTERPOSER from Hypertac	Added
02-05-001-1	MDM Series, Rectangular from C&K Components	Extended
02-05-002-1	MTB Series, Rectangular from C&K Components	Extended
Section 10 10-09-001-1	Index of Resistors Single & Double Layer from IRCA	Amended Extended
 		<b>Qualified Parts List</b>
		<b>DOCUMENT CHANGES</b>
		<b>Change Date: 15 August 2007</b>

	<b>General Information</b>	
As affected		
<b>Section/Page No.</b>	<b>Description</b>	
Section 01 01-03-004	Index of Capacitors Type TAJ from AVX (GB) <span style="float: right;">Amended</span>	
Section 10 10-02-006	Index of Resistors Surface mount, Type MS1 from Vishay Electronic (Selb) <span style="float: right;">Amended</span>	
Section 13 13-01-009	Index of Wires and Cables PTFE, Polyimide/PFA insulated, Shielded, Type SPM <span style="float: right;">Amended</span> from GORE	
 	<b>Qualified Parts List</b> <b>DOCUMENT CHANGES</b>	
	<b>Change Date: 15 July 2007</b>	

	<b>General Information</b>	
As affected		
<b>Section/Page No.</b>	<b>Description</b>	
Section 01 01-05-001-1 01-05-002-1 01-05-003-1	Index of Capacitors Type HT86PS, High Voltage from Eurofarad Type KM94S from Eurofarad Type PM94S from Eurofarad	Amended Amended Amended
Section 07 07-01-001	Index of Inductors Types MSC1 1000, 12000, 20000 from Microspire	Amended
Section 08 08-02-001-2 08-02-002-2	Index of Microcircuits 4000 B Series from ST Microelectronics 54HCMOS Series from ST Microelectronics	Amended Amended
Section 09 09-01-005 09-02-006	Index of Relays Non-Latching, Type E from LEACH Latching, Type D from LEACH	Amended Amended
Section 10 10-04-001 10-08-002 10-09-001-1 10-10-001	Index of Resistors Type RNC 90 from Vishay SA Sfernice Type P HR from Vishay SA Sfernice Single & Double Layer Heaters from IRCA Single-in-Line Networks from Vishay SA Sfernice	Amended Amended Amended Amended
Section 13 13-01-001-2 13-01-003 13-02-001	Index of Wires and Cables Polyimide, Types 1871-1872 from Nexans PTFE, Types MTV-BTV from Nexans PTFE/Polyimide Type 50CIS from Nexans	Amended Amended Amended
Section 14 14-03-003	Index of Miscellaneous Thermostatic, Bimetallic from COMEPA	Amended
 	<b>Qualified Parts List</b>	
	<b>DOCUMENT CHANGES</b>	
<b>Change Date: 15 June 2007</b>		

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'A'	Qualified Components List	4

## 1. FOREWORD

This document contains a list of components that have been qualified to the rules of the ESCC System and are intended for use in ESA and other spacecraft and associated equipment in accordance with the requirements of the ECSS Standard ESCC-Q-60.

It is permitted to advertise the ESCC qualification status of a product provided such publicity or advertisement does not state or imply that the product is the only qualified or capability approved one of that particular type, range or family.

## 2. PROCURORS' RESPONSIBILITY

When procuring ESCC qualified or capability approved components, the procurer is responsible for ensuring that the qualification or capability approval status is valid and that delivered components fulfill the specified requirements of the applicable ESCC specifications. The procurer is advised to utilise the ESCC non-conformance system in the event that a qualified or capability approved manufacturer delivers non-conforming components.

## 3. USE OF TABLES

### 3.1 Publication

The individual entries are published in sections within this document and are presented by manufacturer on the web, the starting point for which is:

<https://escies.org/public/escq/qpl>

### 3.2 Type Designation

The referenced type (style) designations are derived from industrial standards (i.e., JEDEC PRO-ELECTRON, MIL, IEC and CECC). The purpose is to identify the similarity of a listed qualified component to a standard type designation.

### 3.3 Components Characteristics

The electrical characteristics are listed for guidance only and, unless otherwise stated, are specified at +25°C. The precise characteristics of the qualified component are defined in the referenced ESCC specification.

### 3.4 Manufacturer

Plant locations are indicated in the individual listing; contact information is given in full on the appropriate web pages accessed from:

<https://escies.org/public/escq/qpl>

## 4. REVISION PROCEDURE

Amendments to earlier issues of the QPL implemented herein are indicated by the date on the front page and by the content of the "Document Changes" pages. The latter provides the changes over a one year period. The same issue date appears on the table at the start of each Section on the Appendix irrespective of whether changes have been made in a particular section. This indicates the information has been reviewed and is current. Finally, it should be noted that the ESA/SCC System is superseded by the ESCC (European Space Components Coordination ) System.





## 5. TABLE OF QUALIFIED COMPONENTS

Components qualified to the ESCC System are grouped by component type designations. Individual components are listed within the relevant sections as indicated in Table 5.1

**TABLE 5.1**

Section	Component Types
01	Capacitors
02	Connectors
03	Crystals
04	Diodes
05	Filters
06	Fuses
07	Inductors
08	Microcircuits
09	Relays
10	Resistors
11	Thermistors
12	Transistors
13	Wires and Cables
14	Miscellaneous


**APPENDIX A**


**Qualified Components List**


**Section 01****Component Type: Capacitors**


Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
01-01			Ceramic, Fixed	
	01-01-005	231 E	Type II, High Capacitance	AVX (N.I.)
	01-01-006	262 B	Type II, High Voltage	AVX (N.I.)
01-02			Ceramic, Fixed, Chip	
	01-02-001-1	109 H	Type I	AVX/TPC
	01-02-002-1	110 H	Type II	AVX/TPC
	01-02-004-1	264 B	Type II, High Voltage	AVX (N.I.)
01-03			Tantalum, (Solid), Fixed, Electrolytic	
	01-03-004	196 C	Type TAJ	AXV (GB)
01-04			Tantalum (Non-Solid), Fixed, Electrolytic, Hermetically Sealed	
	01-04-001-2	173 E	Type CLR 79	Arcotronics
01-05			Fixed, Film	
	01-05-001-1	251 D	Type HT86PS, High Voltage	Eurofarad
	01-05-002-1	269 A	Type KM94S	Eurofarad
	01-05-003-1	270 B	Type PM94S	Eurofarad

**SECTION 01-\*\*: INDEX OF CAPACITORS****REP005 Updated on 15-June-08**

Types covered by similarity:  ±20% tolerance		Remarks: Capacitors no longer use a varnish finish.		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3001  Detail ESCC 3001/030	AVX Limited Coleraine Northern Ireland	Qualification  Extension  Extension  Extension  Extension	DRA  DERA  DERA  QinetiQ  QinetiQ  BNSC	Jul 1996  Jul 1999  Jul 2001  Oct 2003  Mar 2006  Jun 2008
<p>Characteristics: E12 series</p> <p>Qualified Range:</p> <p>Variants 01 to 74 capacitance range for 50V, 100V and 200V, as per Detail Specification Variants 01 to 52, and 59 to 60, for 500V are qualified ±10% tolerance</p> <p>Operating Temperature Range (°C): -55 to +125</p>				
 <b>ESCC</b> <small>European Space Components Coordination</small> <b>QPL</b>	<p>CAPACITORS, CERAMIC, TYPE II, HIGH CAPACITANCE, BASED ON CASE STYLES BR, CV, AND CH</p>	Current Validity of Qualification		Page
		Certificate  231 E	Valid Until  June 2010	01-01  005

Types covered by similarity:  ±20% tolerance		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3001  Detail ESCC 3001/034	AVX Limited Coleraine Northern Ireland	Qualification  Extension  Extension	DERA  QinetiQ  QinetiQ	Sep 2000  Aug 2002  Mar 2006
<p>Characteristics: E12 series</p> <p>Qualified Range:</p> <p>Variants 01 to 22 are qualified ±10% tolerance</p> <p>Operating Temperature Range (°C): -55 to +125</p>				
	<p>CAPACITORS, CERAMIC, TYPE II, HIGH VOLTAGE, 1.0 TO 5.0 KV, BASED ON CASE STYLES VR, CV, AND CH</p>	Current Validity of Qualification		Page
		Certificate  262 B	Valid Until  March 2008	01-01  006

Types covered by similarity:  Variants 01 and 06 are qualified Values covered by ESCC Specifications defined below. Tolerance ( $\pm$ ): 0.5pF; 2, 5, 20%								Remarks:				
Procurement Specifications				Manufacturer				Nature of Approval	Supervising Authority	Date		
Generic ESCC 3009  Detail ESCC 3009/003 3009/004 3009/005 3009/006 3009/022				AVX/TPC St Apollinaire France				Qualification	CNES	Feb 1983		
								Extension	CNES	Sep 1986		
								Requalification	CNES	Apr 1992		
								Extension	CNES	Jan 1995		
								Extension	CNES	Jun 1998		
								Extension	CNES	Nov 2000		
								Extension	CNES	Jun 2003		
								Requalification	CNES	Feb 2005		
								Extension	CNES	May 2007		
Characteristics: Operating Temp. Range ( $^{\circ}$ C), -55 to +125												
Style	Model	Detail Spec.	Variants	Capacitance Range (pF)	Rated Volt. (V)	Tolerance ( $\pm\%$ )	TC (ppm/ $^{\circ}$ C)					
0805	A_12C	3009/003	01, 06	4.7 to 9.1 10 to 1500	50, 100 50, 100	0.5pF 1, 2, 5, 10	$\pm 30$					
1206	A_20C	3009/022	01, 06	10 to 3900	50, 100	1, 2, 5, 10	$\pm 30$					
1210	A_13C	3009/004	01, 06	22 to 6800	50, 100	1, 2, 5, 10	$\pm 30$					
1812	A_14C	3009/005	01, 06	100 to 15000	50, 100	1, 2, 5, 10	$\pm 30$					
2220	A_15C	3009/006	01,06	470 to 33000	50, 100	1, 2, 5, 10	$\pm 30$					
 <b>ESCC</b> <small>European Space Components Coordination</small> <b>QPL</b>								CAPACITORS, CERAMIC, FIXED, CHIP, TYPE I		Current Validity of Qualification		Page
										Certificate	Valid Until	01-02
								109 H	May 2009	001-1		

Types covered by similarity: Tolerance ( $\pm\%$ ): 10, 20%		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3009  Detail ESCC 3009/008 3009/009 3009/010 3009/011 3009/023	AVX/TPC St Apollinaire France	Qualification Extension Requalification Extension Extension Extension Extension Extension Requalification Extension	CNES CNES CNES CNES CNES CNES CNES CNES CNES CNES CNES	Feb 1983 Sep 1986 Oct 1992 Mar 1995 Jun 1998 Nov 2000 Jun 2003 Feb 2005 May 2007
Characteristics:  See Table on next page  Operating Temperature Range ( $^{\circ}\text{C}$ ), -55 to +125				
	CAPACITORS, CERAMIC, FIXED, CHIP, TYPE II	Current Validity of Qualification		Page
		Certificate  110 H	Valid Until  May 2009	01-02  002-1A

Characteristics:

Style	Model	Detail Spec.	Variants	Capacitance Range (pF)			Rated Volt. (V)	Tol. (±%)
0805	A_12G	3009/008	01, 06	10000	to	47000	25	5, 10, 20
				3900	to	27000	50	5, 10, 20
				820	to	10000	100	5, 10, 20
0805	A612Z	3009/008	07	27000	to	68000	25, 50	5, 10, 20
				10000	to	47000	100	
1210	A_13G	3009/009	01, 06	47000	to	220000	25	5, 10, 20
				33000	to	120000	50	5, 10, 20
				3900	to	47000	100	5, 10, 20
1210	A613Z	3009/009	07	100000	to	330000	25, 50	5, 10, 20
				47000	to	220000	100	
1812	A_14G	3009/010	01, 06	82000	to	470000	25	5, 10, 20
				56000	to	270000	50	5, 10, 20
				6800	to	82000	100	5, 10, 20
1812	A614Z	3009/010	07	220000	to	680000	25, 50	5, 10, 20
				82000	to	470000	100	
2220	A_15G	3009/011	01, 06	180000	to	1000000	25	5, 10, 20
				100000	to	680000	50	5, 10, 20
				18000	to	180000	100	5, 10, 20
2220	A615Z	3009/011	07	470000	to	1500000	25, 50	5, 10, 20
				180000	to	1000000	100	
1206	A_20G	3009/023	01, 06	27000	to	100000	25	5, 10, 20
				12000	to	68000	50	5, 10, 20
				2200	to	22000	100	5, 10, 20
1206	A620Z	3009/023	07	47000	to	150000	25, 50	5, 10, 20
				27000	to	100000	100	



CAPACITORS,  
CERAMIC, FIXED,  
CHIP, TYPE II

Current Validity of Qualification

Certificate

110 H

Valid Until


May 2009


Page



01-02


002-1B





Types covered by similarity:  ±20% tolerance				Remarks:																																
Procurement Specifications		Manufacturer		Nature of Approval	Supervising Authority	Date																														
Generic ESCC 3009  Detail ESCC 3009/034		AVX Limited Coleraine Northern Ireland		Qualification  Extension  Extension	DERA  QinetiQ  QinetiQ	Feb 2001  Apr 2003  May 2006																														
<p>Characteristics: E12 series</p> <p>Qualified Range: Variants 01 to 24 are qualified</p> <p>Terminations: Variants 01 to 12: metallised pads Variants 13 to 24: solder coating (62/36/2 SN/Pb/Ag)</p> <p>Operating Temperature Range (°C):-55 to +125</p>		<table border="1"> <thead> <tr> <th>Style</th> <th>Rated Voltage (kV)</th> <th colspan="2">Capacitance Range (pF)</th> <th>Tol. (±%)</th> </tr> </thead> <tbody> <tr> <td rowspan="3">1812</td> <td>1.0</td> <td>3 900</td> <td>to 22 000</td> <td>10</td> </tr> <tr> <td>2.0</td> <td>1 500</td> <td>to 1 800</td> <td>10</td> </tr> <tr> <td>3.0</td> <td>820</td> <td>to 1 000</td> <td>10</td> </tr> <tr> <td rowspan="3">1825</td> <td>1.0</td> <td>27 000</td> <td>to 56 000</td> <td>10</td> </tr> <tr> <td>2.0</td> <td>2 200</td> <td>to 6 800</td> <td>10</td> </tr> <tr> <td>3.0</td> <td>820</td> <td>to 2 700</td> <td>10</td> </tr> </tbody> </table>				Style	Rated Voltage (kV)	Capacitance Range (pF)		Tol. (±%)	1812	1.0	3 900	to 22 000	10	2.0	1 500	to 1 800	10	3.0	820	to 1 000	10	1825	1.0	27 000	to 56 000	10	2.0	2 200	to 6 800	10	3.0	820	to 2 700	10
Style	Rated Voltage (kV)	Capacitance Range (pF)		Tol. (±%)																																
1812	1.0	3 900	to 22 000	10																																
	2.0	1 500	to 1 800	10																																
	3.0	820	to 1 000	10																																
1825	1.0	27 000	to 56 000	10																																
	2.0	2 200	to 6 800	10																																
	3.0	820	to 2 700	10																																
		<p>CAPACITORS, FIXED, CHIP, CERAMIC, TYPE II, HIGH VOLTAGE, BASED ON 1812 and 1825</p>		<p>Current Validity of Qualification</p> <table border="1"> <tr> <td>Certificate</td> <td>Valid Until</td> </tr> <tr> <td>264 B</td> <td>May 2008</td> </tr> </table>		Certificate	Valid Until	264 B	May 2008	<p>Page</p> <p>01-02</p> <p>004-1</p>																										
Certificate	Valid Until																																			
264 B	May 2008																																			

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3012	AVX Limited Paignton England	Qualification	DRA	Jun 1993
Detail ESCC 3012/001		Extension	DERA	Apr 2001
		Extension	QinetiQ	Apr 2003
		Extension	BNSC	Mar 2008
Characteristics:				
Variants 01 to 07 and 11 to 17 are qualified				
	<p style="text-align: center;">CAPACITORS, LEADLESS SURFACE MOUNTED, TANTALUM, SOLID ELECTROLYTE, TYPE TAJ</p>	Current Validity of Qualification		Page
		Certificate 196 C	Valid Until March 2010	01-03 004

Types covered by similarity:  ±20% tolerance					Remarks: Closure of the facility has been announced.					
Procurement Specifications				Manufacturer		Nature of Approval		Supervising Authority	Date	
Generic ESCC 3003				ARCOTRONICS Towcester England		Qualification		RAE	Sep 1990	
Detail ESCC 3003/005						Extension		DRA	Aug 1993	
						Extension		DERA	Nov 1997	
						Extension		DERA	Feb 2000	
						Extension		QinetiQ	Aug 2002	
						Extension		QinetiQ	Mar 2006	
Characteristics: Variants 02 to 05 are qualified										
Detail Spec.	Capacitance Range (µF)			Rated Volt. (V)	Capacitance Range (µF)			Rated Volt. (V)		
3003/005	30	to	2 200	6	12	to	470	40		
	68	to	2 200	6.3	5	to	430	50		
	25	to	850	8	8.2	to	330	60		
	20	to	1 800	10	10	to	330	63		
	15	to	1 200	15	3.5	to	250	75		
	33	to	1 200	16	4.7	to	100	100		
	10	to	850	25	2.7	to	82	125		
	8	to	560	30						
Operating Temperature Range, (°C): -55 to +125 Case sizes: A, B, C and D										
 			CAPACITORS, TANTALUM, NON-SOLID, ELECTROLYTE, FIXED, CLR 79				Current Validity of Qualification			Page
							Certificate  173 E		Valid Until  March 2008	01-04  001-2

Types covered by similarity:  All values defined by the ESCC Detail Specification 20% tolerance by variant where applicable			Remarks:																																										
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date																																								
Generic ESCC 3006  Detail ESCC 3006/022		EUROFARAD Lagny sur Marne France	Qualification  Extension  Extension  Extension  Extension	CNES  CNES  CNES  CNES  CNES	Aug 1998  Jan 2001  Aug 2003  Dec 2005  Apr 2008																																								
Characteristics: Operating Temperature Range, (°C): -55 to +125																																													
<table border="1"> <thead> <tr> <th colspan="2">Capacitance Range (pF)</th> <th>Tol. (±%)</th> <th>U<sub>R</sub>(V)</th> </tr> </thead> <tbody> <tr> <td>33 000</td> <td>to 2 200 000</td> <td>10</td> <td>1 500</td> </tr> <tr> <td>15 000</td> <td>to 1 500 000</td> <td>10</td> <td>2 500</td> </tr> <tr> <td>15 000</td> <td>to 1 000 000</td> <td>10</td> <td>3 500</td> </tr> <tr> <td>6 800</td> <td>to 470 000</td> <td>10</td> <td>5 000</td> </tr> <tr> <td>2 200</td> <td>to 220 000</td> <td>10</td> <td>7 500</td> </tr> <tr> <td>1 000</td> <td>to 100 000</td> <td>10</td> <td>10 000</td> </tr> <tr> <td>3 300</td> <td>to 68 000</td> <td>10</td> <td>12 500</td> </tr> <tr> <td>1 500</td> <td>to 33 000</td> <td>10</td> <td>15 000</td> </tr> <tr> <td>680</td> <td>to 15 000</td> <td>10</td> <td>20 000</td> </tr> </tbody> </table>		Capacitance Range (pF)		Tol. (±%)	U <sub>R</sub> (V)	33 000	to 2 200 000	10	1 500	15 000	to 1 500 000	10	2 500	15 000	to 1 000 000	10	3 500	6 800	to 470 000	10	5 000	2 200	to 220 000	10	7 500	1 000	to 100 000	10	10 000	3 300	to 68 000	10	12 500	1 500	to 33 000	10	15 000	680	to 15 000	10	20 000				
Capacitance Range (pF)		Tol. (±%)	U <sub>R</sub> (V)																																										
33 000	to 2 200 000	10	1 500																																										
15 000	to 1 500 000	10	2 500																																										
15 000	to 1 000 000	10	3 500																																										
6 800	to 470 000	10	5 000																																										
2 200	to 220 000	10	7 500																																										
1 000	to 100 000	10	10 000																																										
3 300	to 68 000	10	12 500																																										
1 500	to 33 000	10	15 000																																										
680	to 15 000	10	20 000																																										
		CAPACITORS, FIXED, RECONSTITUTED MICA, HIGH VOLTAGE, BASED ON TYPE HT86PS		Current Validity of Qualification		Page																																							
				Certificate  251 D	Valid Until  April 2010	01-05  001-1																																							

Types covered by similarity:  All values defined by the ESCC Detail Specification ±2% (E48 Series), 5% (E24 Series), 10% (E12 Series) tolerance by variant where applicable		Remarks: Maintenance of qualification testing under-way.																			
Procurement Specifications		Manufacturer		Nature of Approval	Supervising Authority	Date															
Generic ESCC 3006  Detail ESCC 3006/023		EUROFARAD Lagny sur Marne France		Qualification  Extension	CNES  CNES	Aug 2002  Apr 2005															
<p>Characteristics: E96 Series</p> <table border="1"> <thead> <tr> <th colspan="3">Capacitance Range (nF)</th> <th>Tol. (±%)</th> <th>U<sub>R</sub>(V)</th> </tr> </thead> <tbody> <tr> <td>4.64</td> <td>to</td> <td>1 000</td> <td>1.0</td> <td>50</td> </tr> <tr> <td>1.0</td> <td>to</td> <td>470</td> <td>1.0</td> <td>100</td> </tr> </tbody> </table> <p>Sizes 01, 02, 03 available  Maximum dimensions (mm):  01: 8.0 x 7.5 x 4.5  02: 8.5 x 8.5 x 7.5  03: 10.7 x 10.7 x 7.5  Operating Temperature Range (°C): -55 to +125</p>							Capacitance Range (nF)			Tol. (±%)	U <sub>R</sub> (V)	4.64	to	1 000	1.0	50	1.0	to	470	1.0	100
Capacitance Range (nF)			Tol. (±%)	U <sub>R</sub> (V)																	
4.64	to	1 000	1.0	50																	
1.0	to	470	1.0	100																	
		CAPACITORS, FIXED, SURFACE MOUNT, D.C. SELF-HELAING, NON-INDUCTIVE, POLYPHENYLENE SULPHIDE DIELECTRIC, BASED ON TYPE KM94S			Current Validity of Qualification		Page														
					Certificate  269 A	Valid Until  April 2007	01-05  002-1														

Types covered by similarity:  All values defined by the ESCC Detail Specification ±20% (E6 Series) tolerance by variant where applicable		Remarks:																																							
Procurement Specifications		Manufacturer		Nature of Approval	Supervising Authority	Date																																			
Generic ESCC 3006  Detail ESCC 3006/024		EUROFARAD Lagny sur Marne France		Qualification  Extension  Extension	CNES  CNES  CNES	Aug 2002  Apr 2005  Aug 2007																																			
<p>Characteristics: E12 Series</p> <p>Sizes Available 01, 02, 03, 04</p> <p>Maximum dimensions (mm): 01: 10.7 x 10.7 x B 02: 15.5 x 15.5 x B 03: 16.5 x 15.5 x B 04: 18.5 x 17.0 x B</p> <p>Where B= 6, 8, 10, 12, 14, 15 depending on capacitance value Operating Temperature Range, (°C): -55 to +125</p> <table border="1" data-bbox="676 721 1384 995"> <thead> <tr> <th colspan="3">Capacitance Range (µF)</th> <th>Tol. (±%)</th> <th>U<sub>R</sub>(V)</th> </tr> </thead> <tbody> <tr> <td>2.2</td> <td>to</td> <td>47</td> <td>10</td> <td>50</td> </tr> <tr> <td>1.5</td> <td>to</td> <td>22</td> <td>10</td> <td>63</td> </tr> <tr> <td>0.56</td> <td>to</td> <td>12</td> <td>10</td> <td>100</td> </tr> <tr> <td>0.33</td> <td>to</td> <td>5.6</td> <td>10</td> <td>200</td> </tr> <tr> <td>0.22</td> <td>to</td> <td>4.7</td> <td>10</td> <td>250</td> </tr> <tr> <td>0.10</td> <td>to</td> <td>1.8</td> <td>10</td> <td>400</td> </tr> </tbody> </table>							Capacitance Range (µF)			Tol. (±%)	U <sub>R</sub> (V)	2.2	to	47	10	50	1.5	to	22	10	63	0.56	to	12	10	100	0.33	to	5.6	10	200	0.22	to	4.7	10	250	0.10	to	1.8	10	400
Capacitance Range (µF)			Tol. (±%)	U <sub>R</sub> (V)																																					
2.2	to	47	10	50																																					
1.5	to	22	10	63																																					
0.56	to	12	10	100																																					
0.33	to	5.6	10	200																																					
0.22	to	4.7	10	250																																					
0.10	to	1.8	10	400																																					
		<p>CAPACITORS, FIXED, SURFACE MOUNT, D.C. SELF-HEALING, NON-INDUCTIVE, POLYTEREPHALATE DIELECTRIC, BASED ON TYPE PM94S</p>			Current Validity of Qualification		Page																																		
					Certificate  270 B	Valid Until  August 2009	01-05  003-1																																		

## Section 02


## Component Type: Connectors

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
02-01			Multipin, Solder Contacts	
	02-01-001-1	71 L	D*M Series, Rectangular	C&K COMPONENTS
	02-01-001-2	155 H	D*M Series, Rectangular	SOURIAU
02-02			Multipin, Crimp Contacts	
	02-02-001-1	72 L	D*MA Series, Rectangular	C&K COMPONENTS
	02-02-001-2	156 G	D*MA Series, Rectangular	SOURIAU
	02-02-003	25 K	DBAS Series, Circular	Deutsch
	02-02-005	220 D	Series I, Circular, Crimp	SOURIAU
	02-02-006	221 D	Series II, Circular, Crimp	SOURIAU
	02-02-007-1	222 D	Series III, Circular, Miniature	SOURIAU
	02-02-008	223 C	Series III, Hermetic	SOURIAU
02-03			Printed Circuit Board	
	02-03-001-1	99 J	HE 801 Series	HYPERTAC
	02-03-001-2	217 D	HE 801 Series	HYPERTAC UK
	02-03-002-1	149 G	KMC Series	HYPERTAC
	02-03-003-1	250 C	MHD Series	HYPERTAC
	02-03-004-1	281	IHD INTERPOSER	HYPERTAC
02-04			R.F. Coaxial	
	02-04-001	68 J	SMA Series	Radiall
	02-04-002	283	SMA 2.9	Radiall
02-05			Micro-miniature, Crimp Contacts	
	02-05-001-1	140 J	MDM Series, Rectangular	C&K COMPONENTS
	02-05-002-1	141 J	MTB Series, Rectangular	C&K COMPONENTS





## SECTION 02-\*\*: INDEX OF CONNECTORS


REP005 Updated on 15-Jun-08


Types covered by similarity:  Range defined in the corresponding Detail Specifications.		Remarks:											
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date								
<p>Generic ESCC 3401</p> <p>Detail ESCC 3401/001 3401/004 3401/022 3401/040</p>		<p>C&amp;K COMPONENTS Dole France</p>	<p>Qualification</p> <p>Extension</p> <p>Extension</p> <p>Extension</p> <p>Extension</p> <p>Extension</p> <p>Extension</p> <p>Extension</p> <p>Extension</p> <p>Extension</p> <p>Extension</p> <p>Extension</p> <p>Extension</p>	<p>CNES</p> <p>CNES</p> <p>CNES</p> <p>CNES</p> <p>CNES</p> <p>CNES</p> <p>CNES</p> <p>CNES</p> <p>CNES</p> <p>CNES</p> <p>CNES</p> <p>CNES</p>	<p>Feb 1981</p> <p>Jun 1983</p> <p>Sep 1986</p> <p>Oct 1988</p> <p>Jun 1989</p> <p>Sep 1991</p> <p>Apr 1994</p> <p>Jan 1997</p> <p>Jan 2000</p> <p>Apr 2003</p> <p>Aug 2005</p> <p>Aug 2007</p>								
<p>Characteristics:</p> <p>Range of Contacts: 9, 15, 25, 37 and 50 contacts size 20 for standard arrangements 3W3, 5W1 to 47W1 combined contact arrangements 15, 26, 44, 62, 78 and 104 contacts size 22 for high density contact arrangements</p> <p>Mounting Type: Blank: standard mounting holes Y: floating mount E: captive nuts</p> <p>Gold-plated non-magnetic coating Coaxial contact arrangements: 3401/004 variants 01 to 20 Power contact arrangements: 3401/040 variants 01 to 12 Operating Temperature Range (°C): -55 to +125</p>													
		<p>CONNECTORS, ELECTRICAL, SOLDER AND WIRE WRAP CONTACTS, RECTANGULAR RECEPTACLE AND PLUG, BASED ON TYPE D*M</p>		<table border="1"> <tr> <td colspan="2">Current Validity of Qualification</td> <td rowspan="2">Page</td> </tr> <tr> <td>Certificate</td> <td>Valid Until</td> </tr> <tr> <td>71 L</td> <td>August 2009</td> <td>02-01 001-1</td> </tr> </table>		Current Validity of Qualification		Page	Certificate	Valid Until	71 L	August 2009	02-01 001-1
Current Validity of Qualification		Page											
Certificate	Valid Until												
71 L	August 2009	02-01 001-1											





Types covered by similarity: Complete range as defined in the Detail Specifications except high density 104 contacts arrangement, coaxial and power contacts and arrangement 3401/022: variants 01 to 16, 44 to 57, 65 to 80 3401/072: variants 01 to 04, 41 to 45		Remarks:			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC	3401	SOURIAU Connection Technology Marolles en Brie France	Qualification	CNES	Sep 1988
Detail ESCC	3401/001		Extension	CNES	Apr 1991
	3401/022		Extension	CNES	Jan 1994
	3401/072		Extension	CNES	Jul 1996
			Extension	CNES	Oct 1997
			Extension	CNES	Mar 2000
			Extension	CNES	Apr 2003
			Extension	CNES	Mar 2006
			Extension	CNES	May 2008
Characteristics:  Range of Contacts: Size 20: 9, 15, 25, 37 and 50 contacts. Range of Contacts: Size 22:15, 26, 44, 62, 78 contacts.  Mounting Type= blank: standard mounting holes Y: floating mount E: captive nuts  Gold-plated non-magnetic coating  Operating Temperature Range (°C): -55 to +125					
	CONNECTORS, ELECTRICAL, SOLDER AND WIRE WRAP CONTACTS, NON-REMOVABLE, RECTANGULAR RECEPTACLE AND PLUG, BASED ON TYPE D*M		Current Validity of Qualification		Page
			Certificate	Valid Until	02-01
			155 H	May 2010	001-2



Types covered by similarity:  Range defined in the corresponding Detail Specifications.		Remarks:			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3401		C&K COMPONENTS Dole France	Qualification	CNES	Feb 1981
			Extension	CNES	Jun 1983
Detail ESCC 3401/002			Extension	CNES	Sep 1986
3401/005			Extension	CNES	Oct 1988
3401/020			Extension	CNES	Jun 1989
3401/021			Extension	CNES	Sep 1991
Characteristics:			Extension	CNES	Apr 1994
Range of Contacts: 9, 15, 25, 37 and 50 contacts size 20* for standard contact arrangements			Extension	CNES	Jan 1997
*Accepts wire sizes AWG # 20 to 24 (standard bucket: variants 01 and 02)			Extension	CNES	Jan 2000
*Accepts wire sizes AWG # 26 and 28 (reduced bucket: variants 03 and 04)			Extension	CNES	Apr 2003
*Accepts wire size AWG # 18 and 20 (large bucket: variants 05 to 06)		Extension	CNES	Aug 2005	
15, 26, 44, 62, 78 and 104 contacts size 22** for high density contact arrangements		Extension	CNES	Aug 2007	
** Accepts wire sizes AWG # 22 to 26 (standard bucket: variants 07 to 08)					
Gold-plated non-magnetic coating					
Operating Temperature Range (°C): -55 to +125					
Connector Savers: For usage with above connector range					
	<p style="text-align: center;">CONNECTORS, ELECTRICAL, CRIMP CONTACTS, RECTANGULAR RECEPTACLE AND PLUG, BASED ON TYPE D*MA</p>	Current Validity of Qualification		Page	
		Certificate  72 L	Valid Until  August 2009	02-02  001-1	


Types covered by similarity:  Complete range as defined in the Detail Specifications except high density 104 contacts arrangement 3401/022: variants 01 to 16, 44 to 57, 65 to 80 3401/072: variants 01 to 04, 41 to 45		Remarks:			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
<p>Generic ESCC 3401</p> <p>Detail ESCC 3401/002 3401/005 3401/020 3401/021 3401/022 3401/072</p>		<p>SOURIAU Connection Technology Marolles en Brie France</p>	<p>Qualification</p> <p>Extension</p> <p>Extension</p> <p>Extension</p> <p>Extension</p> <p>Extension</p> <p>Extension</p> <p>Extension</p>	<p>CNES</p> <p>CNES</p> <p>CNES</p> <p>CNES</p> <p>CNES</p> <p>CNES</p> <p>CNES</p> <p>CNES</p>	<p>Sep 1988</p> <p>Apr 1991</p> <p>Jan 1994</p> <p>Jul 1996</p> <p>Mar 2000</p> <p>Apr 2003</p> <p>Mar 2006</p> <p>May 2008</p>
<p>Characteristics:</p> <p>Connectors:- *Accepts wire sizes AWG # 20 to 24 (standard bucket: variants 01 and 02) *Accepts wire sizes AWG # 26 and 28 (reduced bucket: variants 03 and 04) *Accepts wire size AWG # 22, 24 and 26 (contact AWG # 22 for high density, contact arrangements, variants 07 and 08)</p> <p>Range of Contacts: 9, 15, 25, 37 and 50 contacts size 20 for standard contact arrangements 15, 26, 44, 62, 78 contacts size 22 for high density contact arrangements</p> <p>Gold-plated non-magnetic coating</p> <p>Operating Temperature Range (°C): -55 to +125</p> <p>Connector Savers- For usage with above connector range</p>					
		<p>CONNECTORS AND CONNECTOR SAVER, ELECTRICAL, CRIMP CONTACTS, REMOVABLE RECTANGULAR RECEPTACLE AND PLUG, BASED ON TYPE D*MA</p>		<p>Current Validity of Qualification</p>	
			Certificate	Valid Until	Page
			156 G	May 2010	02-02 001-2

Types covered by similarity:  All variants defined in the Detail Specifications.				Remarks: Maximum Ratings are stated for one isolated contact.																			
Procurement Specifications			Manufacturer		Nature of Approval	Supervising Authority	Date																
Generic ESCC 3401  Detail ESCC 3401/008 3401/009 3401/012			Cie DEUTSCH Evreux France		Qualification	CNES	Jul 1979																
					Extension	CNES	Nov 1982																
					Extension	CNES	Nov 1985																
					Extension	CNES	Oct 1989																
					Extension	CNES	Apr 1992																
					Extension	CNES	Aug 1994																
					Extension	CNES	Feb 1997																
					Extension	CNES	May 1999																
					Extension	CNES	Aug 2001																
					Extension	CNES	Nov 2004																
					Extension	CNES	May 2007																
Characteristics: <table border="1"> <tr> <td>Wire Sizes (AWG) #</td> <td>8</td> <td>10</td> <td>12, 14</td> <td>16, 20</td> <td>20, 24</td> <td>18, 22</td> <td>26, 30</td> </tr> <tr> <td>Max Rating (A)</td> <td>46</td> <td>33</td> <td>23</td> <td>13</td> <td>7.5</td> <td>10</td> <td>2.0</td> </tr> </table> <p>Variants 01 to 20 are qualified</p> <p>Cylindrical Multicontacts Range of shell sizes: 3, 7, 12, 19, 27, 37, 61 contacts in wire size AWG # 20 and solder gauge 8 Other arrangements with contacts size AWG 22, 20, 16, 12 and 8</p> <p>Operating Temperature Range (°C): -65 to +200</p>								Wire Sizes (AWG) #	8	10	12, 14	16, 20	20, 24	18, 22	26, 30	Max Rating (A)	46	33	23	13	7.5	10	2.0
Wire Sizes (AWG) #	8	10	12, 14	16, 20	20, 24	18, 22	26, 30																
Max Rating (A)	46	33	23	13	7.5	10	2.0																
 <b>ESCC</b> <small>European Space Components Coordination</small> <b>QPL</b>		CONNECTORS, MINIATURE, ELECTRICAL, CIRCULAR, PUSH-PULL COUPLING, REMOVABLE CRIMP CONTACTS, BASED ON TYPE DBAS				Current Validity of Qualification		Page															
						Certificate	Valid Until	02-02															
						25 K	May 2009	003															


Types covered by similarity: All connector variants are qualified  For 3401/058, variants 01 to 14 are qualified For 3401/062, variants 01 to 27 are qualified		Remarks:													
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date										
Generic ESCC	3401	SOURIAU Connection Technology Marolles en Brie France	Qualification	CNES	May 1995										
Detail ESCC	3401/052		Extension	CNES	Mar 1998										
	3401/058		Extension	CNES	Jul 2001										
	3401/062		Extension	CNES	Jun 2005										
<p>Characteristics:</p> <table border="1"> <thead> <tr> <th>Contact Size</th> <th>Ratings (A)</th> </tr> </thead> <tbody> <tr> <td>8</td> <td>46.0</td> </tr> <tr> <td>12</td> <td>23.0</td> </tr> <tr> <td>16</td> <td>13.0</td> </tr> <tr> <td>20</td> <td>7.5</td> </tr> </tbody> </table> <p>Range: # 20 with standard contact arrangements 3, 6, 10, 19, 26, 32, 41, 53, 61 # 22 with high density arrangements 6, 13, 22, 37, 55, 66, 79, 100, 128</p> <p>Other arrangements with contact sizes: 20, 16, 12, 8 Receptacle and Plug Shell Sizes: 09, 11, 13, 15, 17, 19, 21, 23, 25 Operating Temperature Range (°C): -65 to +200</p>		Contact Size	Ratings (A)	8	46.0	12	23.0	16	13.0	20	7.5				
Contact Size	Ratings (A)														
8	46.0														
12	23.0														
16	13.0														
20	7.5														
		CONNECTORS, ELECTRICAL, CIRCULAR, BAYONET COUPLING, SCOOP-PROOF, REMOVABLE CRIMP CONTACTS, BASED ON TYPE MIL-C-38999, SERIES I		Current Validity of Qualification		Page									
				Certificate	Valid Until	02-02									
				220 D	March 2010	005									


Types covered by similarity:  For 3401/044, all variants are qualified For 3401/045, variants 01 to 08 are qualified For 3401/062, variants 01 to 27 are qualified		Remarks:											
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date								
Generic ESCC 3401  Detail ESCC 3401/044 3401/045 3401/062		SOURIAU Connection Technology Marolles en Brie France	Qualification Extension Extension Extension Extension	CNES CNES CNES CNES CNES	May 1995 Mar 1998 Jul 2001 Jun 2005 Mar 2008								
Characteristics: <table border="1" data-bbox="98 775 595 951"> <thead> <tr> <th>Contact Size</th> <th>Ratings (A)</th> </tr> </thead> <tbody> <tr> <td>12</td> <td>23.0</td> </tr> <tr> <td>16</td> <td>13.0</td> </tr> <tr> <td>20</td> <td>7.5</td> </tr> </tbody> </table> <p>Range: # 20 with standard contact arrangements 3, 6, 10, 18, 26, 32, 41, 55, 61          # 22 with high density arrangements 6, 13, 22, 37, 55, 66, 79, 100, 128</p> <p>Other arrangements with contact sizes: 20, 16, 12          Receptacle and Plug Shell Sizes: 08, 10, 12, 14, 16, 18, 20, 22, 24          Operating Temperature Range (°C): -65 to +200</p>						Contact Size	Ratings (A)	12	23.0	16	13.0	20	7.5
Contact Size	Ratings (A)												
12	23.0												
16	13.0												
20	7.5												
		CONNECTORS, ELECTRICAL, CIRCULAR, BAYONET COUPLING, REMOVABLE CRIMP CONTACTS, BASED ON TYPE MIL-C-38999, SERIES II		Current Validity of Qualification		Page							
				Certificate	Valid Until	02-02							
				221 D	March 2010	006							


<b>Types covered by similarity:</b> 3401/058 variants 01 to 14 are qualified 3401/062 variants 28 to 54 are qualified 3401/066 variants 01 and 02 are qualified, arrangements 11-99, 23-55, 11-02, 15-15, 17-02, 21-75, 25-04, 25-08 and 25-20 3401/058 crimp contacts and 3401/066 triax contacts to be mounted on 3401/056 connectors 3401/070 connector receptacles with PCB contacts				<b>Remarks:</b>																														
<b>Procurement Specifications</b>		<b>Manufacturer</b>		<b>Nature of Approval</b>	<b>Supervising Authority</b>	<b>Date</b>																												
Generic ESCC 3401  Detail ESCC 3401/056 3401/058 3401/062 3401/066 3401/070		SOURIAU Connection Technology Marolles en Brie France		Qualification Extension Extension Extension Extension	CNES CNES CNES CNES CNES	May 1995 Mar 1998 Jul 2001 Jun 2005 Mar 2008																												
<b>Charac- teristics:</b>	<table border="1"> <thead> <tr> <th>Crimp Contact Size</th> <th>Ratings (A)</th> <th>PCB Contact Size</th> <th>Ratings (A)</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>80.0</td> <td>16</td> <td>10.0</td> </tr> <tr> <td>8</td> <td>46.0</td> <td>20</td> <td>5.0</td> </tr> <tr> <td>12</td> <td>23.0</td> <td>22</td> <td>3.0</td> </tr> <tr> <td>16</td> <td>13.0</td> <td></td> <td></td> </tr> <tr> <td>20</td> <td>7.5</td> <td></td> <td></td> </tr> <tr> <td>22</td> <td>5.0</td> <td></td> <td></td> </tr> </tbody> </table>		Crimp Contact Size	Ratings (A)	PCB Contact Size	Ratings (A)	4	80.0	16	10.0	8	46.0	20	5.0	12	23.0	22	3.0	16	13.0			20	7.5			22	5.0						
	Crimp Contact Size	Ratings (A)	PCB Contact Size	Ratings (A)																														
4	80.0	16	10.0																															
8	46.0	20	5.0																															
12	23.0	22	3.0																															
16	13.0																																	
20	7.5																																	
22	5.0																																	
Range: # 20 with standard contact arrangements (3, 4, 5, 6, 7, 8, 10, 18, 19, 26, 32, 41, 53, 55, 61 contacts) # 22 with high density arrangements (6, 13, 22, 37, 55, 66, 79, 100, 128 contacts)  Other arrangements with contact sizes:# 20, 16, 12, 8, 4 Receptacle and Plug Shell Sizes: 09, 11, 13, 15, 17, 19, 21, 23, 25. Triax contact= (layout 09-01 only)  Operating Temperature Range (°C): -65 to +200																																		
  		CONNECTORS, MINIATURE, ELECTRICAL, CIRCULAR, TRIPLE- START SELF-LOCKING COUPLING, SCOOP-PROOF, REMOVABLE AND NON-REMOVABLE CONTACTS BASED ON TYPE MIL-C-38999, SERIES III			<b>Current Validity of Qualification</b>		<b>Page</b>																											
				Certificate 222 D	Valid Until March 2010	02-02 007-1																												


Types covered by similarity:		Remarks:							
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date				
Generic ESCC 3401		SOURIAU Connection Technology Marolles en Brie France	Qualification	CNES	May 1995				
Detail ESCC 3401/057			Requalification	CNES	Jul 2001				
			Extension	CNES	Jun 2005				
			Extension	CNES	Mar 2008				
Characteristics: <table border="1" data-bbox="98 775 595 919"> <thead> <tr> <th>Contact Size</th> <th>Ratings (A)</th> </tr> </thead> <tbody> <tr> <td>8, 12, 16 20, 22D</td> <td>33, 17, 10 5.0, 3.0</td> </tr> </tbody> </table> <p>Range: # 20 with standard contact arrangements (3, 6, 10, 19, 26, 32, 41, 53, 61 contacts) # 22 with high density arrangements (6, 13, 22, 37, 55, 66, 79, 100, 128 contacts)</p> <p>Receptacle Shell 09, 11, 13, 15, 17, 19, 21, 23, 25</p> <p>Sizes: Receptacle (contacts # 8, 12, 16, 20, 22D) and Feedthrough (contacts # 8, 12, 16, 20, 22D)</p> <p>Operating Temperature Range (°C): -65 to +200</p>		Contact Size	Ratings (A)	8, 12, 16 20, 22D	33, 17, 10 5.0, 3.0				
Contact Size	Ratings (A)								
8, 12, 16 20, 22D	33, 17, 10 5.0, 3.0								
 <p>CONNECTORS, MINIATURE, ELECTRICAL, CIRCULAR, TRIPLE-START SELF-LOCKING COUPLING, SCOOP-PROOF, HERMETIC RECEPTABLE AND FEEDTHROUGH, BASED ON TYPE MIL-C-38999, SERIES III</p>		Current Validity of Qualification		Page					
		Certificate 223 C	Valid Until March 2010	02-02 008					





Types covered by similarity:  All variants are qualified		Remarks:			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3401  Detail ESCC 3401/016 3401/017		HYPERTAC SA Saint-Aubin-Lès-Elbeuf France	Qualification Extension Extension Extension Extension Extension Extension Extension Extension Extension Extension Extension	CNES CNES CNES CNES CNES CNES CNES CNES CNES CNES CNES CNES	Nov 1982 May 1985 May 1988 Apr 1991 Jan 1994 Mar 1996 Mar 1998 Jan 2002 Jun 2004 Mar 2007
Characteristics: Shell specifications and sizes: 3401/016 Contact: 3401/017 Crimp wire-wrap solder and savers, 1 to 22 and 64 to 70  2 rows: 17, 29, 41, 53, 65, 72, 84, 96, 120 contacts 3 rows: 62, 80, 98, 160 contacts  Contact Ratings: 5 A (1 contact AWG 22) 1.5 A (>31 contacts, AWG 22)  Operating Temperature Range (°C): -55 to +125					
		CONNECTORS, ELECTRICAL, REMOVABLE CONTACTS, CRIMP WIRE-WRAP SOLDER AND SAVER, PRINTED CIRCUIT BOARD, BASED ON TYPE HE 801		Current Validity of Qualification	
			Certificate 99 J	Valid Until March 2009	Page 02-03 001-1


Types covered by similarity:  See ESCC Detail Specifications listed below		Remarks: Maintenance of qualification testing is under-way.			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3401		HYPERTAC LTD London England	Qualification	DRA	Jul 1994
			Extension	DRA	Nov 1996
Detail ESCC 3401/016			Extension	DERA	Nov 1998
3401/017			Extension	QinetiQ	Apr 2002
			Extension	QinetiQ	Mar 2005
<p>Characteristics:</p> <p>Shell specifications and sizes: 3401/016</p> <p>Range of components: 17 to 160 way connectors</p> <p>PCB, 90°, crimp, wire-wrap and saver contacts</p> <p>Guiding/locking device numbers: 26, 27, 28, 29, 33, 34, 35, 36, 40, 41, 43, 46, 54, 55, 71, 72, 76, 77, 78</p> <p>Contact Ratings: 5 A (1 contact AWG 22) 1.5 A (&gt;31 contacts, AWG 22)</p> <p>Operating Temperature Range (°C): -55 to +125</p>					
	<p>CONNECTORS, ELECTRICAL, REMOVABLE CONTACTS, CRIMP WIRE-WRAP SOLDER AND SAVER, PRINTED CIRCUIT BOARD, BASED ON TYPE HE 801</p>		Current Validity of Qualification		Page
			Certificate  217 D	Valid Until  March 2007	02-03  001-2



Types covered by similarity: As defined in Table 1(a) of ESCC Detail Specifications listed below		Remarks:			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3401  Detail ESCC 3401/039		HYPERTAC LTD Saint-Aubin-Lès-Elbeuf France	Qualification Extension Extension Extension Extension Extension Extension Extension	CNES CNES CNES CNES CNES CNES CNES CNES	Mar 1987 May 1990 Jan 1993 Oct 1995 Mar 1998 Jan 2002 Jun 2004 Mar 2007
Characteristics: 3 rows 26, 44, 62, 80, 98, 144 contacts  Contact Ratings: 2 A (1 contact)  Operating Temperature Range (°C): -55 to +125					
		CONNECTORS, ELECTRICAL, NON-REMOVABLE SOLDER AND WIRE-WRAP CONTACTS AND SAVERS, PRINTED CIRCUIT BOARD, BASED ON TYPE KMC	Current Validity of Qualification		Page
			Certificate 149 G	Valid Until March 2009	02-03 002-1

Types covered by similarity: As defined in Table 1(a) of ESCC Detail Specifications listed below		Remarks:				
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date	
Generic ESCC 3401 Detail ESCC 3401/065		HYPERTAC LTD Saint-Aubin-Les-Elbeuf France	Qualification Extension Extension Extension	CNES CNES CNES CNES	Aug 1998 Jan 2002 Jun 2004 Mar 2007	
<p>Characteristics:</p> <p>Contact: 52, 100, 152, 200, 252, 300, 352 and 400  Contact Codes: 10, 11, 12, 30, 31, 43, 45, 47 and 91  Guiding and Locking Devices Codes: 110, 111, 121, 124, 134 and 201</p> <p>Operating Temperature Range (°C): -55 to +125</p>						
		<p>CONNECTORS AND SAVERS,  ELECTRICAL, RECTANGULAR, NON-REMOVABLE,  PRINTED CIRCUIT BOARD,  BASED ON TYPE MHD</p>		<p>Current Validity of Qualification</p>		Page
		Certificate	Valid Until	250 C	March 2009	02-03 003-1


Types covered by similarity: All design envelops specified in Table 1(a) of ESCC Detail Specification		Remarks:				
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date	
Generic ESCC 3401  Detail ESCC 3401/076		HYPERTAC LTD Saint-Aubin-Les-Elbeuf France	Qualification	CNES	Aug 2007	
Characteristics: Max. number of rows 11 Max. number of contacts: 660  Locking and Guiding Devices: -Through holes only -M2 studs with locking nuts and washers -Locating pins not available  Rated current: 1A each contact Total contact compression range: 0.1 to 0.65 mm per contact Compression force: 1.6N per contact Torque for locking devices: 10 Ncm  Operating Temperature Range (°C): -55 to +125						
		CONNECTORS, ELECTRICAL, CRIMP CONTACTS, Z-AXIS INTERPOSER, PRINTED CIRCUIT BOARD, BASED ON TYPE RX		Current Validity of Qualification		Page
				Certificate	Valid Until	02-03
				281	August 2009	004-1

Types covered by similarity:  See ESCC Detail Specifications - Hermetically sealed receptacle		Remarks:			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3402	Detail ESCC 3402/001 3402/002 3402/003	RADIALL La Verpilliere France	Qualification	CNES	Feb 1981
			Extension	CNES	Apr 1983
			Extension	CNES	Apr 1986
			Extension	CNES	Nov 1989
			Extension	CNES	Jul 1992
			Extension	CNES	Nov 1994
			Extension	CNES	May 1998
			Extension	CNES	Aug 2002
			Extension	CNES	Jan 2005
			Extension	CNES	Dec 2007
Characteristics: Frequency Range 0-18 GHz 3402/001 Pin contact (Plug). Variants 01 to 44 3402/002 socket contact (Receptacle). Variants 01 to 71 3402/003 Adapters. Variants 01 to 09 Crimp- or solder-type contact for flexible and semi-rigid cables, contacts for micro strip Gold-plated beryllium copper non-magnetic or stainless steel Operating Temperature Range (°C): See Detail Specifications					
	CONNECTORS, RF, COAXIAL, SOLDER AND CRIMP CONTACTS, MALE, FEMALE ADAPTORS AND CONNECTING PIECES, BASED ON TYPE SMA		Current Validity of Qualification		Page
			Certificate	Valid Until	02-04
			68 J	December 2009	001

Types covered by similarity:		Remarks:			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3402  Detail ESCC 3402/021 3402/022 3402/023		RADIALL La Verpilliere France	Qualification	CNES	Dec 2007
Characteristics: Frequency Range 0-40 GHz 50 Ohms  3402/021 Pin contact (Plug). Variants 01 to 07 3402/022 Socket contact (Receptacle). Variants 01 to 05 3402/023 Adapters. Variants 01 to 03 Crimp- or solder-type contact for flexible and semi-rigid cables, contacts for micro strip Gold-plated beryllium copper non-magnetic or stainless steel  Operating Temperature Range (°C): -65 to +165					
	CONNECTORS, RF, COAXIAL, SOLDER AND CRIMP CONTACTS, MALE, FEMALE  ADAPTORS AND CONNECTING PIECES, BASED ON TYPE SMA 2.9		Current Validity of Qualification		Page
			Certificate	Valid Until	02-04
			283	December 2009	002

Types covered by similarity:		Remarks:			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC	3401	C&K COMPONENTS Dole France	Qualification	CNES	Oct 1986
			Extension	CNES	Oct 1988
Detail ESCC	3401/029		Extension	CNES	Jun 1989
	3401/041		Extension	CNES	Sep 1991
	3401/032		Extension	CNES	Apr 1994
Characteristics:			Extension	CNES	Jan 1997
9 - 15 - 21- 25 - 31 - 37 - 51 Contacts			Extension	CNES	Oct 1999
Terminations: Wire sizes AWG 26 and 28 and uninsulated solid gold-plated wire AWG 25			Extension	CNES	Apr 2003
Max. rating for 1 isolated contact:- AWG 26 and uninsulated wire terminal: 2.5 A AWG 28: 1.5 A			Extension	CNES	Nov 2005
Nickel or Gold Plated Shells			Extension	CNES	Aug 2007
Operating Temperature Range (°C): -55 to +125					
 	CONNECTORS, ELECTRICAL, CRIMP CONTACT, RECTANGULAR, MICROMINIATURE, BASED ON TYPE MDM	Current Validity of Qualification		Page	
		Certificate	Valid Until	02-05	
		140 J	August 2009	001-1	





Types covered by similarity:		Remarks:			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3401	Detail ESCC 3401/031  Characteristics: Shell sizes: 5 through 81 Terminations: Wire sizes AWG 26 and 28 and uninsulated solid gold-plated wire AWG 25  Max. rating for 1 isolated contact: AWG 26 and uninsulated wire terminal: 2.5 A AWG 28: 1.5 A  Operating Temperature Range (°C): -55 to +125	C&K COMPONENTS Dole France	Qualification	CNES	Oct 1986
			Extension	CNES	Oct 1988
			Extension	CNES	Jun 1989
			Extension	CNES	Sep 1991
			Extension	CNES	Apr 1994
			Extension	CNES	Jan 1997
			Extension	CNES	Oct 1999
			Extension	CNES	Apr 2003
			Extension	CNES	Nov 2005
			Extension	CNES	Aug 2007
	CONNECTORS, ELECTRICAL, CRIMP CONTACT, SINGLE-IN-LINE, MICROMINIATURE, BASED ON TYPE MTB	Current Validity of Qualification		Page	
		Certificate	Valid Until	02-05	
		141 J	August 2009	002-1	

**Section 03****Component Type: Crystals**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
03-01			Crystals	
	03-01-001-1	33 J	TO-5 Can	RAKON (F)
	03-01-002	34 J	TO-8 Can	RAKON (F)

**SECTION 03-\*\*: INDEX OF CRYSTALS****REP005 Updated on 15-Jun-08**



Types covered by similarity:  All variants are qualified.		Remarks:			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3501  Detail ESCC     3501/001 3501/008 3501/011 3501/012 3501/018		RAKON France Argenteuil France	Qualification Extension Extension Extension Extension Extension Extension Extension Extension Extension Extension Extension Extension Extension	CNES CNES CNES CNES CNES CNES CNES CNES CNES CNES CNES CNES CNES CNES	Oct 1979 Jun 1983 Oct 1986 Jul 1989 Jan 1995 Nov 1996 Apr 2000 Nov 2002 Jun 2005 Mar 2008
Characteristics: TO-5 Can (T 807)  Frequency Range: 15 - 140 MHz					
		CRYSTALS, TO-5 CAN	Current Validity of Qualification		Page
			Certificate	Valid Until	03-01
			33 J	March 2010	001-1



Types covered by similarity:  All variants are qualified.		Remarks:			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3501  Detail ESCC      3501/002 3501/009 3501/019		RAKON France Argenteuil France	Qualification Extension Extension Extension Extension Extension Extension Extension Extension Extension Extension Extension Extension	CNES CNES CNES CNES CNES CNES CNES CNES CNES CNES CNES CNES CNES	Oct 1979 Jun 1983 Oct 1986 Jul 1989 Jan 1995 Apr 1997 Apr 2000 Nov 2002 Jun 2005 Mar 2008
Characteristics: TO-8 Can (T 1507)  Frequency Range: 2.5 - 20 MHz					
		CRYSTALS, TO-8 CAN	Current Validity of Qualification		Page
			Certificate	Valid Until	03-01
			34 J	March 2010	002


**Section 04****Component Type: Diodes**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
04-02			Power	
	04-02-002-1	272 A	Type STPS20H100	STMicroelectronic
	04-02-003-1	274 A	Types BYW-81, BYV52, BYV54	STMicroelectronic
04-05			Microwave, Silicon	
	04-05-001-3	227 B	Schottky, BAS 70	Infineon
	04-05-002-2	224 C	PIN, BXY 42	Infineon
	04-05-002-4A-B	259 B	PIN, Fast Switching	Chelton
	04-05-003	236 C	PIN, BXY 43 and 44	Infineon
	04-05-003 1A-B	200 C	PIN and Varactors	Tyco M/A Com
	04-05-003-2	225 C	Varactor, DH 267	Chelton
	04-05-003-3	273 A	Varactor, Tuning, DH 76xxx	Chelton
04-07			Diodes, Optoelectronics	
	04-07-001	282	Photodiode, Sensor	OSI


**SECTION 04-\*\*: INDEX OF DIODES****REP005 Updated on 15-Jun-08**


Types covered by similarity:		Remarks: Maintenance of qualification testing has been completed.			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 5000  Detail ESCC 5106/016		ST Microelectronics Rennes France	Qualification  Extension	CNES  CNES	Nov 2002  Mar 2006
Characteristics: Variants 01 to 07 are qualified Maximum Ratings: $V_{RRM}$ : 100 V $I_o$ : 2 x 20 A $T_J$ : + 175°C Package Type TO254, SMD.5 and SMD1 Operating Temperature Range (°C): -55 to +175					
  	DIODES, POWER, SCHOTTKY BARRIER, BASED ON TYPE STPS20H100		Current Validity of Qualification		Page
			Certificate	Valid Until	04-02
		272 A		March 2008	002-1

Types covered by similarity:		Remarks: Maintenance of qualification testing has been completed.			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 5000  Detail ESCC      5103/029 5103/030 5103/031		ST Microelectronics Rennes France	Qualification  Extension	CNES  CNES	Aug 2003  Mar 2006
Characteristics: 5103/029 variants 01 to 05 are qualified 5103/030 variant 01 is qualified 5103/031 variant 01 is qualified Maximum Ratings: $V_{RRM}$ :            200 V $I_O$ :                 40 A for BYV 54-200, 30 A for BYV52-200, 15 and 30 A for BYW-81-200 $T_J$ :                 + 150°C Package Type    TO254 and SMD.5 Operating Temperature Range (°C): -55 to +150					
  	DIODES, SILICON, POWER RECTIFIER, HIGH EFFICIENCY, FAST RECOVERY, BASED ON TYPES BYW81, BYV52 AND BYV54		Current Validity of Qualification		Page
			Certificate	Valid Until	04-02
			274 A	March 2008	003-1

Types covered by similarity: Variant 03		Remarks:				
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date	
Generic ESCC 5010  Detail ESCC 5512/020		INFINEON Technologies AG München Germany	Qualification Extension Requalification	DARA DLR DLR	Sep 1995 Jan 2000 Mar 2008	
Characteristics: Maximum Ratings: $V_{RR}$ : -70 V $I_F$ : 70 mA $I_{FSM}$ : 85 mA <sub>pk</sub> @ t<10ms, duty cycle=10% D.C Parameters: $I_R = 100$ nA max @ $V_R = -56$ V $V_{F1} = 0.44$ V max. @ $I_F = 1.0$ mA At room temp. $V_{BR} = 70$ V min @ $I_R = -10$ μA $V_{F2} = 0.78$ V max. @ $I_F = 10$ mA $V_{F3} = 1.00$ V max. @ $I_F = 15$ mA  Package Type      T1 $P_{tot}=0.25$ W @ $T_{case}= 125$ °C Operating Temperature Range (°C): -55 to +150						
 <b>ESCC</b> European Space Components Coordination <b>QPL</b>		DIODES, MICROWAVE, SILICON, SCHOTTKY, GENERAL PURPOSE, BASED ON TYPE BAS 70			Current Validity of Qualification	Page
					Certificate 227 B	Valid Until March 2010



Types covered by similarity: Variant 02		Remarks:				
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date	
Generic ESCC 5010  Detail ESCC 5513/017		INFINEON Technologies AG München Germany	Qualification Extension Extension Requalification	DARA DLR DLR DLR	Jun 1995 Jan 2000 Jan 2004 Mar 2008	
Characteristics: Maximum Ratings: $V_R$ : -50 V $I_{FM}$ : 5.0 A @ $t_p=1.0 \mu s$ , duty cycle = 0.001% D.C Parameters: $I_{R1} = 10 \mu A$ max @ $V_R = -50 V$ $I_{R2} = 5 nA$ max @ $V_R = -40 V$ $V_F = 1.1 V$ max. @ $I_F = 100 mA$ Package Type T1 $P_D = 350mW$ Operating Temperature Range ( $^{\circ}C$ ): -55 to +175						
		DIODES, MICROWAVE, SILICON, PIN, BASED ON TYPE BXY 42- MESA		Current Validity of Qualification		Page
				Certificate	Valid Until	04-05
				224 C	March 2010	002-2

Types covered by similarity:		Remarks: New package BH 155 introduced																												
Procurement Specifications Issues in effect on certification date		Manufacturer	Nature of Approval	Supervising Authority	Date																									
Generic ESCC 5010  Detail ESCC Please refer to the next page		CHELTON Les Ulis France	Qualification Extension Extension	CNES CNES CNES	Mar 2000 Dec 2003 Feb 2008																									
Characteristics: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th><math>V_{Rmax} @ I_R = 10\mu A</math></th> <th><math>R_{SF} (\Omega) (max.)</math></th> <th><math>\tau_L (ns)</math></th> <th><math>C_T</math></th> </tr> </thead> <tbody> <tr> <td>DH 50033</td> <td>- 30</td> <td>1.8</td> <td>40 max.</td> <td>0.25</td> </tr> <tr> <td>DH 50101</td> <td>- 100</td> <td>1.9</td> <td>300 max.</td> <td>0.19</td> </tr> <tr> <td>DH 50151</td> <td>- 150</td> <td>2.0</td> <td>160 min.</td> <td>0.19</td> </tr> <tr> <td>DH 50251</td> <td>- 250</td> <td>2.4</td> <td>265 min.</td> <td>0.19</td> </tr> </tbody> </table> <p>Operating Temperature Range (°C): -55 to +125</p>							$V_{Rmax} @ I_R = 10\mu A$	$R_{SF} (\Omega) (max.)$	$\tau_L (ns)$	$C_T$	DH 50033	- 30	1.8	40 max.	0.25	DH 50101	- 100	1.9	300 max.	0.19	DH 50151	- 150	2.0	160 min.	0.19	DH 50251	- 250	2.4	265 min.	0.19
	$V_{Rmax} @ I_R = 10\mu A$	$R_{SF} (\Omega) (max.)$	$\tau_L (ns)$	$C_T$																										
DH 50033	- 30	1.8	40 max.	0.25																										
DH 50101	- 100	1.9	300 max.	0.19																										
DH 50151	- 150	2.0	160 min.	0.19																										
DH 50251	- 250	2.4	265 min.	0.19																										
		DIODES, MICROWAVE, SILICON, PIN, FAST SWITCHING		Current Validity of Qualification		Page																								
				Certificate 259 B	Valid Until February 2010	04-05 002-4A																								

Types covered by similarity:

ESCC Spec. No.	Component Type
5513/031	DH 50151 to DH 50157, Variants 01 to 56
5513/032	DH 50033 to DH 50037, Variants 01 to 40
5513/033	DH 50201 to DH 50209, Variants 01 to 70
5513/034	DH 50251 to DH 50256, Variants 01 to 41
5513/036	DH 50052 to DH 50057, Variants 01 to 48
5513/037	DH 50071 to DH 50077, Variants 01 to 56
5513/038	DH 50101 to DH 50107, Variants 01 to 56



DIODES,  
MICROWAVE, SILICON, PIN, FAST SWITCHING

Current Validity of Qualification

Certificate

259 B


Valid Until


February 2010

Page

04-05

002-4B

Types covered by similarity: Variants 01 - 08 are qualified.		Remarks:																					
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date																		
Generic ESCC 5010  Detail ESCC 5513/030		INFINEON Technologies AG München Germany	Qualification Extension Extension Requalification	DARA DLR DLR DLR	Oct 1996 Jan 2000 Jan 2004 Mar 2008																		
Characteristics:  <table border="0" style="width: 100%;"> <tr> <td style="width: 30%;"></td> <td style="width: 35%;">BXY 43 (variants 01-04)</td> <td style="width: 35%;">BXY 44 (variants 05-08)</td> </tr> <tr> <td>Maximum Ratings:</td> <td><math>V_R = -150\text{ V}</math></td> <td><math>-200\text{ V}</math></td> </tr> <tr> <td></td> <td><math>I_F = 400\text{ mA}</math></td> <td></td> </tr> <tr> <td></td> <td><math>P_D = 500\text{ mW}</math></td> <td></td> </tr> <tr> <td>D.C Parameters:</td> <td><math>I_R = 100\text{ nA max @ } V_R = -150\text{ V}</math></td> <td><math>5\text{ nA @ } V_R = -100\text{ V}</math></td> </tr> <tr> <td></td> <td><math>V_F = 1.0\text{ V max.}</math></td> <td><math>1.05\text{ V max. @ } I_F = 100\text{ mA}</math></td> </tr> </table> Package Type T, T1, Teller, Pill, Flatpack Operating Temperature Range (°C): -55 to +150							BXY 43 (variants 01-04)	BXY 44 (variants 05-08)	Maximum Ratings:	$V_R = -150\text{ V}$	$-200\text{ V}$		$I_F = 400\text{ mA}$			$P_D = 500\text{ mW}$		D.C Parameters:	$I_R = 100\text{ nA max @ } V_R = -150\text{ V}$	$5\text{ nA @ } V_R = -100\text{ V}$		$V_F = 1.0\text{ V max.}$	$1.05\text{ V max. @ } I_F = 100\text{ mA}$
	BXY 43 (variants 01-04)	BXY 44 (variants 05-08)																					
Maximum Ratings:	$V_R = -150\text{ V}$	$-200\text{ V}$																					
	$I_F = 400\text{ mA}$																						
	$P_D = 500\text{ mW}$																						
D.C Parameters:	$I_R = 100\text{ nA max @ } V_R = -150\text{ V}$	$5\text{ nA @ } V_R = -100\text{ V}$																					
	$V_F = 1.0\text{ V max.}$	$1.05\text{ V max. @ } I_F = 100\text{ mA}$																					
		DIODES, MICROWAVE, SILICON, PIN, PLANAR BASED ON TYPES BXY 43 AND 44		Current Validity of Qualification		Page																	
				Certificate	Valid Until	04-05																	
				236 C	March 2010	003																	

Types covered by similarity:		Remarks:			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 5010  Detail ESCC      See types covered by similarity		Tyco Electronics Ltd M/A - COM Division Milton Keynes England	Qualification	DRA	Dec 1993
			Extension	DERA	Oct 1997
			Extension	QinetiQ	Mar 2002
			Extension	QinetiQ	Feb 2006
Characteristics:  Operating Temperature Range (°C): -65 to +125 and 150					
	DIODES, MICROWAVE, SILICON, PIN AND VARACTORS		Current Validity of Qualification		Page
			Certificate	Valid Until	04-05
			200 C	February 2008	003-1A

Types covered by similarity:

ESCC Spec. No.	Component Type
5513/007	ML4207 to ML 4209, variants 01-03, 06, 08-13, 17, 19, 21-27, 30, 32-37, 41, 43, 45-51, 54, 56-61, 65, 67, 69-72
5513/009	ML4610, ML4617 to ML4619, variants 01-03, 06, 08-13, 17, 19, 21-23, 25-28, 31, 33-38, 42, 44, 46-48, 50-53, 56, 58-63, 67, 69, 71-73, 75-78, 81, 83-88, 92, 94, 96-99
5513/010	ML4611, ML4612, ML4614, ML4615, variants 01-03, 06, 08-13, 17, 19, 21-23, 25-28, 31, 33-38, 42, 44, 46-48, 50-53, 56, 58-63, 67, 69, 71-73, 75-78, 81, 83-88, 92, 94, 96-99
5513/014	ML4622 to ML4624, variants 01-03, 06, 08-13, 17, 19, 21-23, 25-28, 31, 33-38, 42, 45-47, 49-52, 55, 57-58, 61, 63
5513/015	ML4627 to ML4629, variants 01-03, 06, 08-13, 17, 19, 21-23, 25-28, 31, 33-38, 42, 45-47, 49-52, 55, 57-58, 61, 63
5512/001	ML4402, ML4404 to ML4409 and ML40721, variants 01-03,05, 07-12, 14-18, 20, 22-27, 29-33, 35, 37-42, 44-48, 50, 52-57, 59-63, 65, 67-72, 74-78, 80, 82-84, 86, 88, 90-92
5512/003	ML4310 to ML4319, variants 01-02, 05-06, 09-13, 16-17, 20-24, 27-28, 31-35, 38-39, 42-46, 49-50, 53-57, 60-61, 64-68, 71-72, 75-79, 83-85, 89-91, 95
5512/004	ML4331 to ML4335, variants 01-02, 05-06, 09-13, 16-17, 20-24, 27-28, 31-35, 38-39, 42-46, 49-50, 53-55
5512/005	ML4336 to ML4343, variants 01-02, 06-08, 12-14, 18-20, 24-26, 30-32, 36-38, 42-44, 48
5512/006	ML4351 to ML4354, variants 01-02, 05-06, 09-13, 16-17, 20-24, 27-28, 31-35, 38-39, 42-44
5512/007	ML4355 to ML4365, variants 01-02, 06-08, 12-14, 18-20, 24-26, 30-32, 36-38, 42-44, 47-48, 51-52, 55-56



DIODES,  
MICROWAVE, SILICON, PIN AND VARACTORS

Current Validity of Qualification

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200 C


Valid Until



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04-05

003-1B

Types covered by similarity: The variants are based on the following types				Remarks:																																				
Variants 10 to 16: DH 267		Variants 20 to 26: DH 292																																						
Variants 30 to 36: DH 256		Variants 40 to 46: DH 252																																						
Variants 50 to 56: DH 294																																								
Procurement Specifications		Manufacturer		Nature of Approval	Supervising Authority	Date																																		
Generic ESCC 5010		CHELTON Les Ulis France		Qualification	CNES	Jun 1995																																		
Detail ESCC 5512/016				Extension	CNES	Aug 1998																																		
				Extension	CNES	Jun 2003																																		
				Extension	CNES	Mar 2007																																		
<p>Characteristics:</p> <table border="0"> <tr> <td>Variants</td> <td>CT(max.)</td> <td>Based on Type</td> <td rowspan="8"> Maximum Ratings: <math>V_R = -15\text{ V to }-45\text{ V}</math>  <math>I_F = 250\text{ to }1000\text{ mA at }T_{amb} = +75\text{ }^\circ\text{C}</math>  <math>P_{tot} = +0.5\text{ to }1.25\text{ W at }T_{amb}</math>  Operating Temperature Range (<math>^\circ\text{C}</math>): <math>-55\text{ to }+150</math> </td> </tr> <tr> <td>01 to 15</td> <td>0.4 pF</td> <td>DH 267</td> </tr> <tr> <td>16</td> <td>0.5 pF</td> <td>DH 267</td> </tr> <tr> <td>20 to 25</td> <td>0.6 pF</td> <td>DH 292</td> </tr> <tr> <td>26</td> <td>0.7 pF</td> <td>DH 292</td> </tr> <tr> <td>30 to 35</td> <td>1.2 pF</td> <td>DH 256</td> </tr> <tr> <td>36</td> <td>1.3 pF</td> <td>DH 256</td> </tr> <tr> <td>40 to 45</td> <td>2.1 pF</td> <td>DH 252</td> </tr> <tr> <td>46</td> <td>2.2 pF</td> <td>DH 252</td> </tr> <tr> <td>50 to 55</td> <td>7.1 pF</td> <td>DH 294</td> </tr> <tr> <td>56</td> <td>7.2 pF</td> <td>DH 294</td> </tr> </table>							Variants	CT(max.)	Based on Type	Maximum Ratings: $V_R = -15\text{ V to }-45\text{ V}$ $I_F = 250\text{ to }1000\text{ mA at }T_{amb} = +75\text{ }^\circ\text{C}$ $P_{tot} = +0.5\text{ to }1.25\text{ W at }T_{amb}$ Operating Temperature Range ( $^\circ\text{C}$ ): $-55\text{ to }+150$	01 to 15	0.4 pF	DH 267	16	0.5 pF	DH 267	20 to 25	0.6 pF	DH 292	26	0.7 pF	DH 292	30 to 35	1.2 pF	DH 256	36	1.3 pF	DH 256	40 to 45	2.1 pF	DH 252	46	2.2 pF	DH 252	50 to 55	7.1 pF	DH 294	56	7.2 pF	DH 294
Variants	CT(max.)	Based on Type	Maximum Ratings: $V_R = -15\text{ V to }-45\text{ V}$ $I_F = 250\text{ to }1000\text{ mA at }T_{amb} = +75\text{ }^\circ\text{C}$ $P_{tot} = +0.5\text{ to }1.25\text{ W at }T_{amb}$ Operating Temperature Range ( $^\circ\text{C}$ ): $-55\text{ to }+150$																																					
01 to 15	0.4 pF	DH 267																																						
16	0.5 pF	DH 267																																						
20 to 25	0.6 pF	DH 292																																						
26	0.7 pF	DH 292																																						
30 to 35	1.2 pF	DH 256																																						
36	1.3 pF	DH 256																																						
40 to 45	2.1 pF	DH 252																																						
46	2.2 pF	DH 252																																						
50 to 55	7.1 pF	DH 294																																						
56	7.2 pF	DH 294																																						
		DIODES, MICROWAVE, SILICON, MULTIPLIER VARACTOR BASED ON TYPES DH 267 AND DH 294		Current Validity of Qualification		Page																																		
				Certificate 225 C	Valid Until March 2009	04-05 003-2																																		

Types covered by similarity: All variants are qualified.				Remarks:																											
Procurement Specifications			Manufacturer		Nature of Approval	Supervising Authority	Date																								
Generic ESCC 5010			CHELTON Les Ulis France		Qualification	CNES	Jun 2003																								
Detail ESCC 5512/023					Extension	CNES	Mar 2007																								
<p>Characteristics:</p> <table border="0"> <tr> <td>Maximum Ratings:</td> <td colspan="2"><math>V_R = 20</math> at <math>I_R = 10 \mu A</math> and</td> <td colspan="5"></td> </tr> <tr> <td></td> <td colspan="2"><math>T_{amb} = +25 \text{ }^\circ C</math></td> <td colspan="5"></td> </tr> <tr> <td>Operating Temperature Range (<math>^\circ C</math>):</td> <td colspan="7">-55 to +155</td> </tr> </table>								Maximum Ratings:	$V_R = 20$ at $I_R = 10 \mu A$ and								$T_{amb} = +25 \text{ }^\circ C$							Operating Temperature Range ( $^\circ C$ ):	-55 to +155						
Maximum Ratings:	$V_R = 20$ at $I_R = 10 \mu A$ and																														
	$T_{amb} = +25 \text{ }^\circ C$																														
Operating Temperature Range ( $^\circ C$ ):	-55 to +155																														
Variants	$C_j$ (typ.) (4 V)	Based on Type																													
01 to 09	1.0 pF	DH 76010																													
10 to 18	1.50 pF	DH 76015																													
19 to 27	2.20 pF	DH 76022																													
28 to 36	2.30 pF	DH 76033																													
37 to 45	4.70 pF	DH 76047																													
46 to 54	6.80 pF	DH 76068																													
55 to 63	10.00 pF	DH 76100																													
64 to 72	15.00 pF	DH 76150																													
 			DIODES, MICROWAVE, SILICON, HYPER-ABRUPT JUNCTION TUNING VARACTOR BASED ON TYPES DH 76xxx			Current Validity of Qualification		Page																							
						Certificate 273 A	Valid Until March 2009	04-05 003-3																							




Types covered by similarity: .		Remarks:				
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date	
Generic ESCC 5000  Detail ESCC 5403/001		OSI Optoelectronics AS Horten Norway	Qualification	ESTEC	Dec 2007	
Characteristics:  Maximum Ratings: $\lambda=410\text{ nm to }800\text{nm}$ at $I_R = 150\text{ mA/W to }480\text{mA/W}$ $V_B=60\text{V}$ at $I_R=10\text{ }\mu\text{A}$ $I_D=300\text{pA}$ at $V_R=-5\text{V}$ $\text{FOV}=40.4^\circ$  Operating Temperature Range ( $^\circ\text{C}$ ): -45 to +110						
		DIODES, PHOTODIODE, SENSOR, PHOTVOLTAIC, BLUE ENHANCED BASED ON TYPE AE9493 IN METAL CAN		Current Validity of Qualification		Page
				Certificate	Valid Until	04-07
				282	December 2009	001

**Section 05****Component Type: Filters**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
05			Feedthrough	
	05-01-001-A-B	252 D	Types SFC, SFL, SFP	Eurofarad

**SECTION 05-\*\*: INDEX OF FILTERS****REP005 Updated on 15-Jun-08**

Types covered by similarity:		Remarks:					
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date		
Generic ESCC 3008  Detail ESCC Please refer to the next page		EUROFARAD Lagny sur Marne France	Qualification Extension Extension Extension Extension	CNES CNES CNES CNES CNES	Aug 1998 Apr 2001 Nov 2003 Mar 2006 Jun 2008		
Characteristics: All variants specified in the Detail Specifications are qualified. Operating Temperature Range (°C): -55 to +125							
		CAPACITOR FILTERS, FEEDTHROUGH, ELECTROMAGNETIC INTERFERENCE SUPPRESSION, HERMETICALLY AND NON-HERMETICALLY SEALED, PI-, C-, AND L- TYPES, BASED ON TYPES SFC, SFL AND SFP			Current Validity of Qualification		Page
					Certificate	Valid Until	05-01
					252 D	June 2010	001A

Types covered by certificate:

Style	Detail Specification	Variants	Capacitance Range (nF)	Rated Current (A)	Rated Voltage (V)
SFP 040	3008/014	01 to 40	0.75 to 44.8	10 (DC 7 LF)	70 to 250
SFP 060	3008/021	01 to 14	2.4 to 89.6	10	35 to 500
SFP 035	3008/025	01 to 20	2.4 to 35.2	10	35 to 200
SFP 100	3008/028	01 to 06	0.16 to 1312.0	10	50 to 300
SFP 060	3008/030	01 to 28	2.4 to 89.6	10	35 to 500
Capacitance Range (pF)					
SFC 030	3008/020	01 to 12	470 to 22000	1.0 to 5.0	25 to 200
SFC 060	3008/026	01 to 06	680 to 220000	10	25 to 200
SFC 100	3008/027	01 to 06	1000 to 1000000	10	25 to 200
SFC 035	3008/031	01 to 06	470 to 22000	10	25 to 200
SFC 040	3008/032	01 to 12	470 to 22000	10	25 to 200
SFC 060	3008/033	01 to 12	680 to 220000	10	25 to 200
Capacitance Range (nF)					
SFL 100	3008/029	01 to 48	17.6 to 1600	5, 10, 15	40 to 300



CAPACITOR FILTERS, FEEDTHROUGH, ELECTROMAGNETIC INTERFERENCE SUPPRESSION, HERMETICALLY AND NON-HERMETICALLY SEALED, PI-, C-, AND L- TYPES, BASED ON TYPES SFC, SFL AND SFP

Current Validity of Qualification

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001B

**Section 06****Component Type: Fuses**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
06-01	001	284	Type MGA-S	Schurter


**SECTION 06-\*\*: INDEX OF FUSES****REP005 Updated on 15-Jun-08**

Types covered by similarity: Variants 02 to 09		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 4008  Detail ESCC 4008/001	Schurter Lucerne Switzerland	Qualification	ESTEC	Jun 2008
<p>Characteristics: Variants 01 to 12 are qualified.</p> <p>Rated Voltage (VAC or VDC): 125/125, 63/125 and 32/125 by variant</p> <p>Rated Current (VAC and VDC): 0.14 to 3.5 A by variant</p> <p>AC Interrupt Current (A): 50 at maximum rated voltage, power factor &gt; 0.95</p> <p>DC Interrupt Current (A): at maximum rated voltage, time constant ≤ 1 ms</p> <p>Variants 01 to 10: 300, Variants 11 and 12: 50</p> <p>Operating Temperature Range, (°C): -50 to +125 (90% I<sub>R</sub> to 107% I<sub>R</sub>)</p>				
	<p>FUSES, SURFACE MOUNT, THIN FILM, 0.14 TO 3.5 AMPS, BASED ON TYPE MGA-S</p>	Current Validity of Qualification		Page
		Certificate 284	Valid Until June 2010	06-01 001


**Section 07****Component Type: Inductors**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
07			PowerFixed, RF	
	07-01-001	241 D	Types MSCI, 10000, 12000, 20000	Microspire
	07-01-002	276 A	Types SESI	Microspire

**SECTION 07-\*\*: INDEX OF INDUCTORS****REP005 Updated on 15-Jun-08**

Types covered by similarity:							Remarks:			
Procurement Specifications				Manufacturer			Nature of Approval		Supervising Authority	Date
Generic ESCC 3201				MICROSPIRE Illange France			Qualification		CNES	Apr 1997
Detail ESCC 3201/008							Extension		CNES	Nov 2000
							Extension		CNES	Mar 2003
							Extension		CNES	Dec 2005
				Extension		CNES	Jun 2008			
Characteristics: Variants 01 to 05 are qualified										
Series No.	Range (μH)	Tolerance (±%)	Q min.	Min. SRF f <sub>r</sub> (MHz)	Max. DCR, R <sub>dc</sub> (Ω)	Rated DC Current, I <sub>R</sub> (mA)	Case Size			
10k	0.010-10	2.0, 5.0, 10	60 - 42	1000 - 33	0.025 - 3.3	750 - 87	A			
12k	12 - 1000	2.0, 5.0, 10	56 - 12	26 - 1.5	2.0 - 120	110 - 15	B			
20k	0.010 - 1000	10	75 - 30	1000 - 1.7	0.04 - 80	1000 - 25	C			
H01	0.380 - 100	15	N/A	N/A	0.016 - 3.3	1500 - 100	C			
Dielectric Withstanding Voltage (DWV): 200 Vrms										
Operating Temperature Range (°C): -55 to +125										
			INDUCTORS, FIXED, RF, MINIATURE, MOULDED, SURFACE MOUNT, BASED ON SERIES MSC1 10k, 12k AND 20k				Current Validity of Qualification			Page
							Certificate 241 D		Valid Until June 2010	07-01 001




Types covered by similarity: All other variants in the range.					Remarks:			
Procurement Specifications			Manufacturer		Nature of Approval	Supervising Authority	Date	
Generic ESCC 3201			MICROSPIRE Illange France		Qualification Extension	CNES CNES	Apr 2004 May 2007	
Detail ESCC 3201/009								
Characteristics: Variants 01 to 05 are qualified								
Series No.	Range (µH)	Tolerance (±%)	Max. DCR, R <sub>dc</sub> (Ω)	Rated DC Current, I <sub>R</sub> (A)	Peak Current, I <sub>P</sub> (A)			
14	3.3 - 330	10, 20	15 - 1575	5.8 - 0.57	8.0 - 0.8			
15, 15W	1.5 - 330	10, 20, 30	5.0 - 630	14 - 0.74	19 - 1.0			
18	6.8 - 330	10, 20	7.5 - 250	110 - 15	13.6 - 1.9			
9.1	1.0 - 1000	10, 20, 30	8.5 - 5865	6.0 - 0.2	11.0 - 0.34			
<p>Inductance measured at 0.25V, 100kHz.  Peak current is the maximum current for a square pulse of duration &lt;10s  Dielectric Withstanding Voltage (DWV): 500 Vrms  Operating Temperature Range (°C): -55 to +125</p>								
 <b>ESCC</b> European Space Components Coordination <b>QPL</b>			INDUCTORS, POWER, MOULDED, SURFACE MOUNT, BASED ON SERIES SESI			Current Validity of Qualification		Page
						Certificate 276 A	Valid Until May 2009	07-01 002

**Section 08****Component Type: Microcircuits**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
08-02			Digital C-MOS	
	08-02-001-2 A to E	73 L	4000 B Series	ST Microelectronics
	08-02-002-2 A to F	190 G	54HCMOS Series	ST Microelectronics

**SECTION 08-\*\*: INDEX OF MICROCIRCUITS****REP005 Updated on 15-Jun-08**

Types covered by similarity: See next pages		Remarks: Refer to: <a href="https://escies.org/public/escsc/comp_no.html">https://escies.org/public/escsc/comp_no.html</a> for information concerning the ESCC Component Number and its marking.			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 9000  Detail ESCC      See types covered by similarity		ST Microelectronics Rennes France	Qualification	CNES	Apr 1981
			Extension	CNES	Jan 1981
			Extension	CNES	Dec 1984
			Extension	CNES	May 1987
			Extension	CNES	Apr 1990
			Extension	CNES	Oct 1992
			Extension	CNES	Apr 1995
			Extension	CNES	Apr 1997
			Extension	CNES	Apr 1999
			Extension	CNES	May 2001
		Extension	CNES	Nov 2002	
		Extension	CNES	Nov 2005	
		Extension	CNES	Feb 2008	
Characteristics: Package Types: Ceramic Dual-in-Line Ceramic Flat Pack Leadless Chip Carrier SOIC 14, 16, 24					
	MICROCIRCUITS, DIGITAL, C-MOS-B, 4000B SERIES		Current Validity of Qualification		Page
			Certificate	Valid Until	08-02
			73 L	February 2010	001-2A

Types covered by similarity:

ESCC Spec. No.	Component Type	Component Type
9201/041	Quad 2-input NOR gate	4001B
9201/042	Dual 4-input NOR gate	4002B
9202/039	4-bit full adder	4008B
9201/043	Quad 2-input NAND gate	4011B
9201/044	Dual 4-input NAND gate	4012B
9203/023	Dual D-type flip-flop	4013B
9306/014	8-stage synchronous static shift register	4014B
9306/015	Dual 4-stage static shift register with serial input/parallel input	4015B
9202/050	Quad bilateral switch	4016B
9204/020	Decade counter/divider	4017B
9204/021	Presetable divide-by-N counter	4018B
9202/051	Quad AND/OR select gate	4019B
9204/022	14-stage ripple carry binary counter/divider	4020B
9306/016	8-stage static shift register	4021B
9204/023	Octal counter/divider	4022B
9201/045	Triple 3-input NAND gates	4023B
9204/024	7-stage ripple carry binary counter/divider	4024B
9201/046	Triple 3-input NOR gate	4025B
9406/001	Ripple carry decade counter/divider	4026B
9203/022	Dual J-K master slave flip-flop	4027B



MICROCIRCUITS, DIGITAL,  
C-MOS-B, 4000B SERIES

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001-2B

Types covered by similarity:

ESCC Spec. No.	Component Type	Component Type
9205/010	BCD-to-decimal or binary-to-octal decoder	4028B
9204/025	Presetable up/down counter binary or BCD decade	4029B
9201/047	Quad 2-input exclusive OR gates	4030B
9306/017	64-stage static shift register	4031B
9306/025	8-stage static bidirectional parallel/serial input/output bus register with 3 state output	4034B
9306/018	4-bit universal shift register	4035B
9204/026	12-stage ripple carry binary counter/divider	4040B
9202/040	Quad true/complement buffer with unbuffered outputs	4041UB
9202/041	Quad clocked D latch	4042B
9202/042	Quad NOR 3-state R/S latches	4043B
9202/043	Quad NAND 3-state R/S latch	4044B
9202/044	Micropower phase-locked loop	4046B
9207/003	Low power monostable/astable multivibrator	4047B
9202/045	Hex buffer/converter (inverting type)	4049UB
9202/046	Hex buffer/converter (non-inverting type)	4050B
9202/047	Analogue multiplexer/demultiplexer	4051B
9202/048	Analogue multiplexer/demultiplexer	4052B
9202/049	Triple 2-channel analogue multiplexer/demultiplexer	4053B
9209/001	4-bit magnitude comparator	4063B
9204/052	14-stage ripple-carry binary counter/divider and oscillator	4060B



MICROCIRCUITS, DIGITAL,  
C-MOS-B, 4000B SERIES

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001-2C

Types covered by similarity:

ESCC Spec. No.	Component Type	Component Type
9408/005	Quad bilateral switch	4066B
9408/009	Analogue multiplexer/demultiplexer	4067B
9201/061	8-input NAND gate	4068B
9401/010	Hex inverter	4069UB
9201/048	Quad exclusive OR gate	4070B
9201/063	Quad 2-input OR gate	4071B
9201/082	Dual 4-input OR gate	4072B
9201/064	Triple 3-input AND gate	4073B
9201/065	Triple 3-input OR gate	4075B
9306/022	4-bit D-type register with 3-state output	4076B
9201/055	Quad exclusive NOR gate	4077B
9201/062	8-input OR/NOR gate	4078B
9201/052	Quad 2-input AND gate	4081B
9201/066	Dual 4-input AND gate	4082B
9201/067	Dual 2-wide 2-input AND/OR inverter gate	4085B
9409/002	Quad 2-input NAND gate with Schmitt trigger input	4093B
9306/026	8-stage shift and store bus register with synchronous serial outputs and 3-state parallel output	4094B
9206/003	Dual monostable multivibrator	4098B
9202/058	8-bit addressable latch	4099B
9401/006	Strobed hex inverter/buffer	4502B



MICROCIRCUITS, DIGITAL,  
C-MOS-B, 4000B SERIES

Current Validity of Qualification

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08-02

001-2D

Types covered by similarity:

ESCC Spec. No.	Component Type	Component Type
9401/030	Hex non-inverting buffers with 3-state output	4503B
9202/063	Dual 4-bit latch with 3-state output	4508B
9408/006	8-channel multiplexer with 3-state output	4512B
9408/012	4-bit latch/4-to-16 decoder	4514B
9205/011	4-bit latch/4-to-16 line decoder	4515B
9204/045	Synchronous quad presettable up/down binary counter	4516B
9204/028	Dual binary up counter	4520B
9202/065	8-bit priority encoder	4532B
9207/007	Dual monostable multivibrator with reset	4538B
9408/011	Dual 1-of-4 decoder/demultiplexer	4555B
9408/025	Dual 1-of-4 decoder/demultiplexer (output low on select)	4556B
9204/036	Presettable 8-bit synchronous down-counter	40103B
9306/033	FIFO register with 3-state output	40105B
9409/005	Hex Schmitt-trigger	40106B
9401/013	Dual 2-input NAND buffer/driver	40107B
9407/003	Quad low-to-high 3-state voltage level shifter	40109B
9204/054	Programmable 4-bit binary counter with asynchronous clear	40161B
9204/046	Programmable 4-bit binary counter with synchronous clear	40163B
9203/038	Hex D-type flip-flop	40174B
9204/041	Presettable binary up/down counter (dual clock with reset)	40193B
9408/017	Quad 2-lin-to-1-line data selector/multiplexer with 3-state output	40257B



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Current Validity of Qualification

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001-2E

Types covered by similarity: See next pages		Remarks: Refer to: <a href="https://escies.org/public/escsc/comp_no.html">https://escies.org/public/escsc/comp_no.html</a> for information concerning the ESCC Component Number and its marking.			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 9000  Detail ESCC      See types covered by similarity		ST Microelectronics Rennes France	Qualification	CNES	Nov 1992
			Extension	CNES	Apr 1995
			Extension	CNES	Apr 1997
			Extension	CNES	Apr 1999
			Extension	CNES	May 2001
			Extension	CNES	Nov 2002
			Extension	CNES	Nov 2005
			Extension	CNES	Feb 2008
Characteristics: Qualified Packages: <ul style="list-style-type: none"> <li>• Ceramic Dual-in-Line</li> <li>• Ceramic Flat Pack</li> <li>• Leadless Chip Carrier</li> <li>• SOIC 14, 16, 20, 24</li> </ul> <b>NOTES</b> 1. These parts have successfully passed radiation testing to 50 krad.					
	MICROCIRCUITS, DIGITAL, MONOLITHIC, HIGH SPEED CMOS, 54HC AND 54HCT SERIES	Current Validity of Qualification		Page	
		Certificate	Valid Until	08-02	
		190 G	February 2010	002-2A	



## Types covered by similarity:

ESCC Spec. No.	Component Type	Component Type	Note
9201/105	Quad 2-input NAND gate	54HC 00	1
9201/113	Quad 2-input NOR gate	02	1
9201/114	Quad 2-input NAND gate with open drain output	03	1
9401/033	Hex inverter	04	1
9201/106	Quad 2-input positive AND gate	08	1
9201/107	Triple 3-input NAND gate	10	1
9201/117	Triple 3-input AND gate	11	1
9409/007	Hex Schmitt trigger inverter	14	1
9201/118	Dual 4-input NAND gate	20	1
9201/108	Dual 4-input AND gate	21	1
9201/109	Triple 3-input NOR gate	27	1
9201/110	8-input NAND gate	30	1
9201/111	Quad 2-input OR gate	32	1
9203/071	Dual negative-edge triggered J-K flip-flops with clear	73	1
9203/050	Dual D-type flip-flop with preset and clear	74	1
9203/065	Quad 4-bit bistable D-type latch	75	1
9209/004	4-bit magnitude comparator	85	1
9201/119	Quad 2-input exclusive OR gate	86	1
9203/072	Dual J-K negative-edge triggered flip-flop with direct clear	107	1



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002-2B

## Types covered by similarity:

ESCC Spec. No.	Component Type	Component Type	Note
9306/048	Dual J-K positive edge triggered flip-flop with preset and clear	54HC 109	1
9203/051	Dual J-K negative edge triggered flip-flop with preset and clear	112	1
9207/006	Dual positive or negative edge Schmitt-retriggerable monostable multivibrator with clear	123	1
9401/039	Quad bus buffer with 3 state output	125	1
9401/046	Quad bus buffer with 3 state output	126	1
9201/120	Quad 2-input NAND gate with Schmitt-trigger input	132	1
9205/013	3-to-8 line decoder/demultiplexer with address latch and inverted output	137	1
9408/046	3-to-8 line decoder/demultiplexer with inverted output	138	1
9205/017	Dual 2-to-4 line decoder/demultiplexer with inverted output	139	1
9410/017	8-line to 3-line priority encoder	148	1
9408/054	8-line to 1-line data selector/multiplexer	151	1
9408/038	Dual 4-line to 1-line data selectors/multiplexer	153	1
9205/023	4-to-16 line decoder/demultiplexer with inverted output	154	1
9408/057	Quad 2-line to 1-line data selector/multiplexer	157	1
9408/059	Quad 2-line to 1-line data selector/multiplexer with inverted output	158	1
9204/062	Synchronous presettable 4-bit decade counter with direct clear	160	1
9204/059	Asynchronous 4-bit binary counter	161	1
9204/073	Synchronous 4-bit binary counter	163	1
9306/041	8-bit SIPO shift register	164	1
9306/042	8-bit PISO shift register	165	1



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002-2C

## Types covered by similarity:

ESCC Spec. No.	Component Type	Component Type	Note
9306/043	8-bit PISO shift register	54HC 166	1
9306/052	Hex D-type edge-triggered flip-flop with clear	174	1
9203/052	Quad D-type edge-triggered flip-flop with clear	175	1
9204/066	Synchronous 4-bit up/down binary counter	191	1
9204/065	Synchronous 4-bit up/down binary counter (dual clock with clear)	193	1
9306/047	4-bit PIPO shift register	194	1
9306/053	4-bit PIPO shift register with overriding clear	195	1
9205/021	3-line to 8-line decoder/demultiplexer with address latch	237	1
9401/034	Octal bus buffer with inverted 3-state output	240	1
9401/035	Octal bus buffer with 3-state output	241	1
9405/011	Quad bus transceiver with inverted 3-state output	242	1
9405/012	Quad bus transceiver with 3-state output	243	1
9401/048	Octal bus buffer with 3-state output	244	1
9405/013	Octal bus transceiver with 3-state output	245	1
9408/048	1-to-8 data selector/multiplexer with 3-state output	251	1
9408/058	Dual 4-line to 1-line data selector/multiplexer with 3-state output	253	1
9408/047	Quad 2-line to 1-line data selector/multiplexer with 3-state output	257	1
9203/073	8-bit addressable latch	259	1
9203/053	Octal D-type edge-triggered flip-flop with clear	273	1
9208/003	9-bit odd/even parity generator/checker	280	1



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002-2D

Types covered by similarity:

ESCC Spec. No.	Component Type	Component Type	Note
9202/075	4-bit binary full adder with fast carry	54HC 283	1
9401/052	Hex bus buffer with 3-state output	365	1
9401/044	Hex bus buffer with 3-state output	367	1
9203/059	Octal D-type transparent latch with 3-state output	373	1
9203/060	Octal D-type edge-triggered flip-flop with 3-state output	374	1
9201/121	Quad 2-input exclusive OR gate	386	1
9204/074	Dual 4-bit negative edge-triggered binary counter	393	1
9401/049	Octal bus buffer with inverted 3-state output	540	1
9401/047	Octal bus buffer with 3-state output	541	1
9202/072	Octal D-type transparent latch with 3-state output	573	1
9203/054	Octal D-type edge-triggered flip-flop with 3-state output	574	1
9204/071	8-bit binary counter with 3-state output register	590	1
9306/051	8-bit shift register with 3-state output register	595	1
9306/054	8-bit PISO shift register	597	1
9209/005	8-bit identify comparator	688	1
9201/130	Dual 4-input NOR gate	4002	1
9204/070	Asynchronous negative-edge-triggered 14-bit binary counter	4020	1
9204/069	Asynchronous negative edge-triggered 12-bit binary counter	4040	1
9401/037	Hex buffer/converter with inverted output	4049	1
9401/038	Hex buffer/converter	4050	1



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Types covered by similarity:

ESCC Spec. No.	Component Type	Component Type	Note
9408/064	Analogue multiplexer/demultiplexer	54HC 4051	1
9408/065	Analogue multiplexer/demultiplexer (triple 2-channel)	4053	1
9204/076	Asynchronous negative-edge-triggered 14-bit binary counter and oscillator	4060	1
9408/052	Quad bilateral switch	4066	1
9201/124	Dual 4-input OR gate	4072	1
9201/129	Triple 3-input OR gate	4075	1
9201/123	8-input OR/NOR gate	4078	1
9306/050	8-bit SIPO shift latch register with 3-state output	4094	1
9205/019	4-to-16 line decoder/latch	4514	1
9203/070	Dual D-type flip-flop with preset and clear	54HCT 74	1
9401/045	Octal buffer with inverted 3-state output	240	1
9402/009	Octal bus buffer with 3-state output	244	1
9405/014	Octal bus transceiver with 3-state output	245	1
9203/064	Octal D-type transparent latch with 3-state output	373	1
9203/066	Octal D-type edge-triggered flip-flop with 3-state output	374	1
9401/055	Hex inverter (single stage) with unbuffered output	54HCU04	1



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**Section 09****Component Type: Relays**


Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
09-01			Non-Latching 28Vdc Contact Rating	
	09-01-002	02 J	Type GP5	LEACH
	09-01-005	239 C	Type E	LEACH
	09-01-006	279	Type 317	STPI
09-02			Latching, 28Vdc Contact Rating	
	09-02-002	13 J	Type GP2	LEACH
	09-02-006	240 C	Type D	LEACH
	09-02-007	280	Type 3*7B	STPI
09-03			Latching, 50Vdc Contact Rating	
	09-03-001	93 H	Type GP250	LEACH



**SECTION 09-\*\*: INDEX OF RELAYS****REP005 Updated on 15-Jun-08**



Types covered by similarity: Variants 01 to 08 are qualified Coil Voltages 6 and 12 Vdc		Remarks:				
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date	
Generic ESCC 3601	Detail ESCC 3601/003	LEACH International Europe Niort France	Qualification	CNES	Apr 1978	
			Extension	CNES	Oct 1980	
			Extension	CNES	Jan 1984	
			Extension	CNES	Oct 1986	
			Extension	CNES	Jul 1992	
			Extension	CNES	Jun 1995	
			Extension	CNES	Dec 1998	
Characteristics:			Extension	CNES	Nov 2001	
Contact Rating 2 A at 28 Vdc			Extension	CNES	Jun 2005	
Contact Configuration 2 PDT			Extension	CNES	Feb 2008	
Package Type Half-crystal can						
Coil Voltage 26.5 Vdc						
Operating Temperature Range (°C): -65 to +125						
 	RELAY, NON-LATCHING, ELECTROMAGNETIC, TYPE GP 5		Current Validity of Qualification		Page	
			Certificate	Valid Until	09-01	
		02 J	February 2010	002		


Types covered by similarity: Variants 01 to 11 are qualified		Remarks:				
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date	
Generic ESCC 3601  Detail ESCC 3601/012		LEACH International Europe Niort France	Qualification Extension Extension Extension	CNES CNES CNES CNES	Apr 1997 Sep 2000 Jan 2004 Feb 2008	
Characteristics:  Contact Rating 1 A at 28 Vdc Contact Configuration 2 PDT Package Type 1/6 crystal can Coil Voltage 6, 12, 26.5 Vdc Operating Temperature Range (°C): -65 to +125						
		RELAY, NON-LATCHING, ELECTROMAGNETIC, TYPE E		Current Validity of Qualification		Page
				Certificate	Valid Until	09-01
				239 C	February 2010	005




Types covered by similarity: Variants 01 to 06 are qualified Coil voltages 6 and 12 Vdc		Remarks:				
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date	
Generic ESCC 3601  Detail ESCC 3601/007		STPI Paris France	Qualification	CNES	Apr 2007	
Characteristics:  Contact Rating 15 A at 28 Vdc Contact Configuration 2 PDT Size (mm. max.) 26x26x14 Package Type 1/2 can Coil Voltage 6, 12, 28 Vdc Operating Temperature Range (°C): -65 to +125						
		RELAY, NON-LATCHING, ELECTROMAGNETIC, TYPE 317		Current Validity of Qualification		Page
				Certificate 279	Valid Until April 2009	09-01 006

Types covered by similarity: Variants 01 to 08 are qualified Coil Voltages 6 and 12 Vdc		Remarks:				
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date	
Generic ESCC 3602	Detail ESCC 3602/003	LEACH International Europe Niort France	Qualification	CNES	Jan 1979	
			Extension	CNES	Feb 1981	
			Extension	CNES	Jan 1984	
			Extension	CNES	Oct 1986	
			Extension	CNES	Jul 1992	
			Extension	CNES	Jun 1995	
			Extension	CNES	Dec 1998	
Characteristics:			Extension	CNES	Nov 2001	
Contact Rating 2 A at 28 Vdc			Extension	CNES	Jun 2005	
Contact Configuration 2 PDT			Extension	CNES	Feb 2008	
Package Type Half-size crystal can						
Coil Voltage 26.5 Vdc						
Operating Temperature Range (°C): -65 to +125						
 	RELAY, LATCHING, ELECTROMAGNETIC, TYPE GP 2		Current Validity of Qualification		Page	
			Certificate	Valid Until	09-02	
		13 J	February 2010	002		

Types covered by similarity:		Remarks:			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC	3602	LEACH International Europe Niort France	Qualification	CNES	Apr 1997
			Extension	CNES	Sep 2000
Detail ESCC	3602/019		Extension	CNES	Jan 2004
			Extension	CNES	Feb 2008
Characteristics:					
Contact Rating            1 A at 28 Vdc					
Contact Configuration   2 PDT					
Package Type             1/6 crystal can					
Coil Voltage               6, 12, 26.5 Vdc					
Operating Temperature Range (°C): -65 to +125					
 	RELAY, LATCHING, ELECTROMAGNETIC, TYPE D		Current Validity of Qualification		Page
			Certificate	Valid Until	09-02
		240 C	February 2010	006	


Types covered by similarity: Variants 01 to 09 and 11 to 19 are qualified Coil Voltages 6 and 12 Vdc		Remarks:																																													
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date																																										
Generic ESCC	3602	STPI Paris France	Qualification	CNES	Apr 2007																																										
Detail ESCC	3602/004 3602/009																																														
<p>Characteristics:</p> <table border="0"> <tr> <td>3602/004</td> <td></td> <td>3602/009</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Contact Rating</td> <td>15 A at 28 Vdc</td> <td>Contact Rating</td> <td>15 A at 28 Vdc</td> <td></td> <td></td> </tr> <tr> <td>Contact Configuration</td> <td>4 PDT</td> <td>Contact Configuration</td> <td>2 PDT</td> <td></td> <td></td> </tr> <tr> <td>Size (mm. max.)</td> <td>26x26x26</td> <td>Size (mm. max.)</td> <td>26x26x13.34</td> <td></td> <td></td> </tr> <tr> <td>Package Type</td> <td>can</td> <td>Package Type</td> <td>1/2 can</td> <td></td> <td></td> </tr> <tr> <td>Coil Voltage</td> <td>28 Vdc</td> <td>Coil Voltage</td> <td>28 Vdc</td> <td></td> <td></td> </tr> <tr> <td colspan="2">Operating Temperature Range (°C): -65 to +125</td> <td colspan="2">Operating Temperature Range (°C): -65 to +125</td> <td></td> <td></td> </tr> </table>						3602/004		3602/009				Contact Rating	15 A at 28 Vdc	Contact Rating	15 A at 28 Vdc			Contact Configuration	4 PDT	Contact Configuration	2 PDT			Size (mm. max.)	26x26x26	Size (mm. max.)	26x26x13.34			Package Type	can	Package Type	1/2 can			Coil Voltage	28 Vdc	Coil Voltage	28 Vdc			Operating Temperature Range (°C): -65 to +125		Operating Temperature Range (°C): -65 to +125			
3602/004		3602/009																																													
Contact Rating	15 A at 28 Vdc	Contact Rating	15 A at 28 Vdc																																												
Contact Configuration	4 PDT	Contact Configuration	2 PDT																																												
Size (mm. max.)	26x26x26	Size (mm. max.)	26x26x13.34																																												
Package Type	can	Package Type	1/2 can																																												
Coil Voltage	28 Vdc	Coil Voltage	28 Vdc																																												
Operating Temperature Range (°C): -65 to +125		Operating Temperature Range (°C): -65 to +125																																													
		RELAY, NON-LATCHING, ELECTROMAGNETIC, TYPE 3*7B		Current Validity of Qualification		Page																																									
				Certificate	Valid Until	09-02																																									
				280	April 2009	006																																									


Types covered by similarity: Variants 01 to 08 are qualified Coil Voltage 12 Vdc		Remarks:			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3602	Detail ESCC 3602/010  Characteristics:  Contact Rating 2 A at 50 Vdc (100000 ops) Contact Configuration 2 PDT Package Type Half-size crystal can Coil Voltage 26.5 Vdc Operating Temperature Range (°C): -65 to +125	LEACH International Europe Niort France	Qualification	ESTEC	Feb 1982
			Extension	CNES	Jul 1984
			Extension	CNES	Sep 1987
			Extension	CNES	Jul 1992
			Extension	CNES	Jun 1995
			Extension	CNES	Dec 1998
			Extension	CNES	Nov 2001
			Extension	CNES	Jun 2005
			Extension	CNES	Feb 2008
			RELAY, LATCHING, ELECTROMAGNETIC, TYPE GP 250		Current Validity of Qualification Certificate 93 H      Valid Until February 2010 Page 09-03 001

**Section 10****Component Type: Resistors**


Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
10-02			Fixed, Film	
	10-02-006	256 D	Surface Mount, Type MS1	Vishay Electronic (Selb)
10-04			Fixed, Film, High Precision	
	10-04-001	116 J	Type RNC 90	Vishay S.A. Sfernice
10-08			Chip	
	10-08-002	265 C	Type P HR	Vishay S.A. Sfernice
10-09			Flexible, Foil, Heaters	
	10-09-001-1	184 G	Single & Double Layer	IRCA
10-10			Network	
	10-10-001	235 E	Single-in-Line	Vishay S.A. Sfernice


**SECTION 10-\*\*: INDEX OF RESISTORS****REP005 Updated on 15-Jun-08**


Types covered by similarity: Tolerance ( $\pm\%$ ) = 0.1, 0.5, 1.0 Variants 01 to 08 inclusive are qualified				Remarks:																																						
Procurement Specifications		Manufacturer		Nature of Approval	Supervising Authority	Date																																				
Generic ESCC 4001		VISHAY Electronic Division Draloric Selb Germany		Qualification	DLR	Oct 1999																																				
Detail ESCC 4001/022				Extension	DLR	Oct 2001																																				
				Extension	DLR	Oct 2003																																				
				Extension	DLR	Nov 2005																																				
				Extension	DLR	Oct 2007																																				
Characteristics: Critical R = 160 k $\Omega$																																										
<table border="1"> <thead> <tr> <th>Range (<math>\Omega</math>)</th> <th>Tol. (<math>\pm\%</math>)</th> <th>TC (<math>\pm</math>ppm/<math>^{\circ}</math>C)</th> <th>Value Series</th> </tr> </thead> <tbody> <tr> <td>43.2 - 1.00 M</td> <td>0.1</td> <td>50</td> <td>E96</td> </tr> <tr> <td>10.0 - 1.000 M</td> <td>0.5</td> <td></td> <td></td> </tr> <tr> <td>2.21 - 5.11 M</td> <td>1.0</td> <td></td> <td></td> </tr> <tr> <td>43.2 - 1.00 M</td> <td>0.1</td> <td>25</td> <td>E96</td> </tr> <tr> <td>10.0 - 1.00 M</td> <td>0.5</td> <td></td> <td></td> </tr> <tr> <td>10.0 - 1.00 M</td> <td>1.0</td> <td></td> <td></td> </tr> <tr> <td>43.2 - 0.221 M</td> <td>0.1</td> <td>15</td> <td>E96</td> </tr> <tr> <td>10.0 - 0.511 M</td> <td>0.5</td> <td></td> <td></td> </tr> </tbody> </table>		Range ( $\Omega$ )	Tol. ( $\pm\%$ )	TC ( $\pm$ ppm/ $^{\circ}$ C)	Value Series	43.2 - 1.00 M	0.1	50	E96	10.0 - 1.000 M	0.5			2.21 - 5.11 M	1.0			43.2 - 1.00 M	0.1	25	E96	10.0 - 1.00 M	0.5			10.0 - 1.00 M	1.0			43.2 - 0.221 M	0.1	15	E96	10.0 - 0.511 M	0.5							
Range ( $\Omega$ )	Tol. ( $\pm\%$ )	TC ( $\pm$ ppm/ $^{\circ}$ C)	Value Series																																							
43.2 - 1.00 M	0.1	50	E96																																							
10.0 - 1.000 M	0.5																																									
2.21 - 5.11 M	1.0																																									
43.2 - 1.00 M	0.1	25	E96																																							
10.0 - 1.00 M	0.5																																									
10.0 - 1.00 M	1.0																																									
43.2 - 0.221 M	0.1	15	E96																																							
10.0 - 0.511 M	0.5																																									
Operating Temperature Range, ( $^{\circ}$ C): -55 to +125																																										
		RESISTORS, FILM, FIXED, SURFACE MOUNT, NON-HERMETICALLY SEALED, BASED ON TYPE MS1			Current Validity of Qualification		Page																																			
					Certificate 256 D	Valid Until October 2009	10-02 006																																			

Types covered by similarity:  Tolerance ( $\pm\%$ ) = 0.02, 0.05, 0.1, 0.2, 0.5, 1% Variants 03, 04, 08 are qualified						Remarks: Maintenance of qualification testing is underway. New package fabrication is now located at Nice.																		
Procurement Specifications				Manufacturer		Nature of Approval	Supervising Authority	Date																
Generic ESCC 4001  Detail ESCC 4001/011				VISHAY S.A. Division Sfernice Nice France		Qualification	CNES	Dec 1983																
Characteristics: Critical R = 160 k $\Omega$				<table border="1"> <thead> <tr> <th>Style</th> <th>Detail Spec.</th> <th>Variant</th> <th>Range (<math>\Omega</math>)</th> <th>Tol. (<math>\pm\%</math>)</th> <th>TC (<math>\pm</math>ppm/<math>^{\circ}</math>C)</th> <th>Power Rating (W)</th> <th>Max. Voltage (V)</th> </tr> </thead> <tbody> <tr> <td>RNC 90 (RS92N)</td> <td>4001/011</td> <td>07</td> <td>50 - 100k</td> <td>0.02 0.05 0.1 0.2 0.5 1.0</td> <td><math>\pm 5, \leq 125^{\circ}\text{C}</math> <math>\pm 10, \leq 125^{\circ}\text{C}</math> <math>\pm 10, &gt; 125^{\circ}\text{C}</math> and <math>\leq 175^{\circ}\text{C}</math></td> <td>0.5 @ 70 <math>^{\circ}\text{C}</math> 0.3 @ 125 <math>^{\circ}\text{C}</math></td> <td>300</td> </tr> </tbody> </table>		Style	Detail Spec.	Variant	Range ( $\Omega$ )	Tol. ( $\pm\%$ )	TC ( $\pm$ ppm/ $^{\circ}$ C)	Power Rating (W)	Max. Voltage (V)	RNC 90 (RS92N)	4001/011	07	50 - 100k	0.02 0.05 0.1 0.2 0.5 1.0	$\pm 5, \leq 125^{\circ}\text{C}$ $\pm 10, \leq 125^{\circ}\text{C}$ $\pm 10, > 125^{\circ}\text{C}$ and $\leq 175^{\circ}\text{C}$	0.5 @ 70 $^{\circ}\text{C}$ 0.3 @ 125 $^{\circ}\text{C}$	300	Extension	CNES	Oct 1986
						Style	Detail Spec.	Variant	Range ( $\Omega$ )	Tol. ( $\pm\%$ )	TC ( $\pm$ ppm/ $^{\circ}$ C)	Power Rating (W)	Max. Voltage (V)											
RNC 90 (RS92N)	4001/011	07	50 - 100k	0.02 0.05 0.1 0.2 0.5 1.0	$\pm 5, \leq 125^{\circ}\text{C}$ $\pm 10, \leq 125^{\circ}\text{C}$ $\pm 10, > 125^{\circ}\text{C}$ and $\leq 175^{\circ}\text{C}$	0.5 @ 70 $^{\circ}\text{C}$ 0.3 @ 125 $^{\circ}\text{C}$	300																	
						Extension	CNES	Nov 1989																
						Extension	CNES	Jul 1992																
						Requalification	CNES	Apr 1994																
						Extension	CNES	Sep 1996																
						Extension	CNES	Jan 1999																
						Extension	CNES	Jul 2001																
						Extension	CNES	Nov 2003																
						Extension	CNES	Apr 2006																
Operating Temperature Range, ( $^{\circ}\text{C}$ ): -55 to +175																								
			RESISTORS, FILM, FIXED, NON-HERMETICALLY SEALED, BASED ON TYPE RNC 90				Current Validity of Qualification		Page															
							Certificate  116 J	Valid Until  April 2008	10-04  001															



Types covered by similarity: Variants 01, 02 and 03 are qualified						Remarks:		
Tolerance ( $\pm\%$ )		$R \leq 100 \Omega$	$\pm 0.1/0.05 \%$					
		$100 < R \leq 250 \Omega$	$\pm 0.1/0.05/0/02 \%$					
		$R > 250 \Omega$	$\pm 0.1/0.05/0.02/0.01 \%$					
Procurement Specifications				Manufacturer		Nature of Approval	Supervising Authority	Date
Generic ESCC 4001				VISHAY S.A. Division Sfernice Nice France		Qualification	CNES	May 2001
Detail ESCC 4001/023						Extension	CNES	Oct 2003
						Extension	CNES	Feb 2006
						Extension	CNES	May 2008
Characteristics:								
Style	Range ( $\Omega$ )	Tol. ( $\pm\%$ )	TC ( $\pm\text{ppm}/^\circ\text{C}$ )	Critical R ( $\Omega$ )	Rated Dissipation (W)	Type Variant		
0603	50 - 0.2 M	0.01, 0.02, 0.05	$\pm 10, \pm 25$	12.25k	0.1	01		
0805	50 - 0.25 M	0.01, 0.02, 0.05	$\pm 10, \pm 25$	45k	0.125	02		
1206	50 - 1.0 M	0.01, 0.02, 0.05	$\pm 10, \pm 25$	40k	0.25	03		
Operating Temperature Range, ( $^\circ\text{C}$ ): -55 to +155 Lead material is Type E with Type 4 finish								
			RESISTORS, FILM, FIXED, CHIP, THIN FILM, BASED ON TYPE P HR			Current Validity of Qualification		Page
						Certificate 265 C	Valid Until May 2010	10-08 002


Types covered by similarity:		Remarks:			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 4009  Detail ESCC 4009/002		IRCA RICA Division Vitorio Veneto Italy	Qualification	ESTEC	Apr 1992
Characteristics:  Single layer and double layer heaters Maximum Ohmic density      200 $\Omega/\text{cm}^2$ Tolerances $\pm 2, 3, 5, 10 \%$ Resistance                        1 $\Omega$ to 5000 Heating Area                      1.6 to 1300 $\text{cm}^2$ Terminal Lead                    20, 22, 24, 26, 28, 30 AWG Temperature coefficient        (10-6/ $^{\circ}\text{C}$ ): 175 Operating Temperature Range, ( $^{\circ}\text{C}$ ): -65 to +200			Extension	ESTEC	May 1994
			Extension	ESTEC	Mar 1996
			Extension	ESTEC	Feb 1998
			Extension	ESTEC	Apr 2000
			Extension	ESTEC	Aug 2002
Extension	ESTEC		Dec 2004		
Extension	ESTEC	Aug 2007			
		RESISTORS, HEATERS,  FLEXIBLE SINGLE AND DOUBLE LAYER	Current Validity of Qualification		Page
			Certificate	Valid Until	10-09
			184 G	August 2009	001-1

Types covered by similarity:						Remarks:		
Procurement Specifications				Manufacturer		Nature of Approval	Supervising Authority	Date
Generic ESCC 4005				VISHAY S.A. Division Sfernice Nice France		Qualification	CNES	Oct 1996
Detail ESCC 4005/003						Extension	CNES	Apr 1999
						Extension	CNES	Jul 2001
						Extension	CNES	Dec 2003
						Extension	CNES	Feb 2006
Characteristics: Variants 01 to 07 in 6, 8, 9 and 10 pin packages are qualified						Extension	CNES	Mar 2008
Detail Spec.	Range ( $\Omega$ )	Tol. ( $\pm\%$ )	TC ( $10^{-6}/^{\circ}\text{C}$ )	Power Rating (mW)	Limiting Element Voltage ( $U_L$ )			
4005/003	46.4 to 1.0 M	$R \leq 100 \Omega, \pm 2.0 \Omega$ $R > 100 \Omega, \pm 2.0 \Omega$	$\pm 150$	180 for individual R 100 for parallel Rs	100 V			
Operating Temperature Range, ( $^{\circ}\text{C}$ ): -55 to +175								
				RESISTORS, NETWORKS, THICK FILM, SINGLE-IN-LINE PACKAGES		Current Validity of Qualification		Page
						Certificate 235 E	Valid Until March 2010	10-10 001

**Section 11****Component Type: Thermistors**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
11-01			NTC	
	11-01-001	266 C	Type G15K4D489 and *K3A35*	Betatherm

**SECTION 11-\*\*: INDEX OF THERMISTORS****REP005 Updated on 15-Jun-08**

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 4006	Betatherm Ireland Galway Ireland	Qualification	ESTEC	Jul 2001
Detail ESCC 4006/013		Extension	ESTEC	Jan 2002
4006/014		Extension	ESTEC	Sep 2004
		Extension	ESTEC	Nov 2006
Characteristics: 4006/013: Variants 01 to 05 are qualified. 4006/014: Variant 08 is qualified.  Operating Temperature Range, (°C): -55 to +115 for 4006/013 and -60 to +160 for 4006/014				
	THERMISTORS, (THERMALLY SENSITIVE RESISTORS), NTC, BASED ON TYPES G15K4D489 AND *K3A35*	Current Validity of Qualification		Page
		Certificate 266 C	Valid Until November 2008	11-01 001

## Section 12


## Component Type: Transistors

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
12-01			Low Power, NPN	
	12-01-002-3A-B	233 F	Types NPN	ST Microelectronics
	12-01-003-1	106 K	Type 2N2369A	ST Microelectronics
12-02			Low Power, PNP	
	12-02-002-3A-B	234 F	Types PNP	ST Microelectronics
12-10			RF/Microwave, NPN, Low Power, Low Noise	
	12-10-001	230 C	Types BFY 193	Infineon
	12-10-002	245 C	Types BFY 405-450	Infineon
12-15			Microwave, Gallium Arsenide, Power	
	12-15-001	246 B	Types CLY 32	Infineon
12-16			Microwave, Gallium Arsenide	
	12-16-001	213 C	Types CFY66 & 67, High Electron Mobility, Low Noise	Infineon




## SECTION 12-\*\*: INDEX OF TRANSISTORS



REP005 Updated on 15-Jun-08


Types covered by similarity:					Remarks: Maintenance of qualification testing has been completed.							
Procurement Specifications				Manufacturer		Nature of Approval		Supervising Authority	Date			
Generic ESCC 5000  Detail ESCC Please refer to the next page				ST Microelectronics Rennes France		Qualification		CNES	Sep 1996			
						Extension		CNES	Sep 1997			
						Extension		CNES	Aug 1998			
						Extension		CNES	Nov 1999			
Characteristics:						Extension		CNES	Nov 2001			
Maximum Rating:						Extension		CNES	Dec 2003			
						Extension		CNES	Mar 2006			
	2N2222A	2N2484	2N2219A		2N5551	2N3700	2N3019	2N5154	BUX 77	2N2920A		
V <sub>CBO</sub> (V):	75	60	75	BV <sub>CBO</sub> (V)	180	140	140	100	100	60		
V <sub>CEO</sub> (V):	40	60	40	BV <sub>CEO</sub> (V)	160	80	80	80	80	60		
Packages:	TO-18, TO-39, TO-66, TO-77, TO-257, LCCC3, LCCC6 and SMD.5											
Operating Temperature Range (°C), -65 to +200												
				<p style="text-align: center;">TRANSISTORS, LOW AND HIGH POWER, NPN</p>					Current Validity of Qualification			Page
									Certificate		Valid Until	12-01
									233 F		March 2008	002-3A

ESCC Specification No.	Component Type	Package	Qualified Variants
5201/001	2N 2484	TO-18, LCCC3	01, 02, 04, 05
5201/002	2N 2222A	TO-18, LCCC3	01, 02, 04, 05
5201/019	2N 5551	TO-18, LCCC3, TO-39	01, 02, 04, 05, 06, 07
5201/003	2N 2219 A	TO-39	01, 02
5201/004	2N 3700	TO-18, LCCC3	01, 02, 04, 05
5203/010	2N 5154, BFX 34	TO-39, TO-257, SMD.5	01, 02, 04, 05, 06
5203/016	BUX 77ESY	TO-257	06, 07
5207/002	2N 2920A	TO-77, and LCCC6	06, 03, 12, 15
5201/011	2N3019	TO-39	03, 04


 <b>ESCC</b> <small>European Space Components Coordination</small> <b>QPL</b>	<p style="text-align: center;">TRANSISTORS, LOW AND HIGH POWER, NPN</p>	Current Validity of Qualification		Page 12-01 002-3B
		Certificate 233 F	Valid Until March 2008	






Types covered by similarity:		Remarks: Maintenance of qualification testing has been completed.			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 5000  Detail ESCC 5201/006		ST Microelectronics Rennes France	Qualification	CNES	Feb 1983
Characteristics: Variants 01, 02, 04 and 05 are qualified $h_{FE}$ min/max: 40/120 at $I_C = 10$ mA $t_{on}$ : 12 ns $V_{CE SAT}$ : 0.5V at $I_C = 100$ mA $t_{off}$ : 18 ns Maximum Ratings: $P_D$ : 360 mW at $T_{amb} +25$ C $B_{VCBO}$ : 40 V $B_{VCEO}$ : 15 V $I_C$ : 500 mA, 10 $\mu$ sec pulse  Package Types: TO-18 and LCCC3 Operating Temperature Range ( $^{\circ}$ C): - 65 to +200			Extension	CNES	Jul 1987
			Extension	CNES	Apr 1990
			Extension	CNES	Aug 1992
			Extension	CNES	Jun 1995
			Extension	CNES	Sep 1996
			Extension	CNES	Sep 1997
			Extension	CNES	Nov 1999
			Extension	CNES	Nov 2001
			Extension	CNES	Dec 2003
		Extension	CNES	Mar 2006	
 	TRANSISTORS, LOW POWER, NPN, TYPE 2N 2369A	Current validity of Qualification		Page	
		Certificate	Valid Until	12-01	
106 K	March 2008	003-1			


Types covered by similarity:		Remarks: Maintenance of qualification testing has been completed.						
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date			
Generic ESCC 5000  Detail ESCC Please refer to the next page		ST Microelectronics Rennes France	Qualification  Extension  Extension  Extension  Extension  Extension  Extension	CNES  CNES  CNES  CNES  CNES  CNES  CNES	Sep 1996  Sep 1997  Aug 1998  Nov 1999  Nov 2001  Jan 2004  Mar 2006			
Characteristics:								
	2N2905A	2N2907A	2N3350	2N3810	2N4033	2N5153	BUX 78	2N5401
$BV_{CBO}(V)$	60	60	60	60	80	100	100	160
$BV_{CEO}(V)$	60	60	45	60	80	80	80	150
Packages:	TO-18, TO-39, TO-77, TO-78, TO-257, LCCC3, LCCC6 and SMD.5							
Operating Temperature Range (°C), -65 to +200								
		TRANSISTORS, LOW AND HIGH POWER, PNP			Current Validity of Qualification		Page	
					Certificate	Valid Until	12-02	
					234 F	March 2008	002-3A	


ESCC Specification No.	Component Type	Package	Qualified Variants
5202/002	2N 2905A	TO-39	01, 02
5202/001	2N 2907A	TO-18, LCCC3	01, 02, 04, 05
5202/014	2N 5401	TO-18, LCCC3	01, 02, 04, 05
5204/002	2N 5153	TO-39, TO-257, SMD.5	01, 02, 04, 05, 06
5204/006	BUX 78ESY	TO-257	06, 07
5207/005	2N 3810	TO-78, LCCC6	01, 02, 07, 09
5207/003	2N 3350	TO-77, LCCC6	01, 02, 04, 05
5202/008	2N 4033	TO-39, LCCC3	02, 03, 04, 05

 <b>ESCC</b> <small>European Space Components Coordination</small> <b>QPL</b>	<p style="text-align: center;">TRANSISTORS, LOW AND HIGH POWER, PNP</p>	Current Validity of Qualification		Page 12-02 002-3B
		Certificate 234 F	Valid Until March 2008	

Types covered by similarity: All variants from 01 to 07 are qualified (BFY 180, 280, 181, 182, 183, 193 and 196)		Remarks:																																							
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date																																				
Generic ESCC 5010		Infineon Technologies AG München Germany	Qualification	DARA	Jun 1996																																				
Detail ESCC 5611/006			Extension	DLR	Jan 2000																																				
			Extension	DLR	Nov 2004																																				
			Requalification	DLR	Mar 2008																																				
<p>Characteristics for BFY 193</p> <table> <tr> <td><math>V_{CE0}</math> (V) max.</td> <td></td> <td>12</td> <td></td> <td></td> <td></td> </tr> <tr> <td><math>V_{CBO}</math> (V) max.</td> <td></td> <td>20</td> <td></td> <td></td> <td></td> </tr> <tr> <td><math>h_{FE}</math> min/max.</td> <td></td> <td>50/175</td> <td>@ <math>V_{CE} = 8.0</math> V, <math>I_C = 30</math> mA</td> <td></td> <td></td> </tr> <tr> <td>NF (dB) max.</td> <td>@ 2 GHz</td> <td>2.9</td> <td>@ <math>V_{CE} = 5.0</math> V, <math>I_C = 15</math> mA</td> <td></td> <td></td> </tr> <tr> <td>MAG/MSG (dB) min.</td> <td>@ 2 GHz</td> <td>12.5</td> <td>@ <math>V_{CE} = 5.0</math> V, <math>I_C = 40</math> mA</td> <td></td> <td></td> </tr> <tr> <td><math>f_T</math> (GHz) min.</td> <td>@ 500 MHz</td> <td>6.5</td> <td>@ <math>V_{CE} = 5.0</math> V, <math>I_C = 40</math> mA</td> <td></td> <td></td> </tr> </table> <p>Package: "Micro-X1"</p> <p>Total Power Dissipation (<math>P_{tot}</math>) = 580 mW</p> <p>Operating Temperature Range (<math>^{\circ}</math>C): <math>T_{op} = - 65</math> to <math>+200</math></p>						$V_{CE0}$ (V) max.		12				$V_{CBO}$ (V) max.		20				$h_{FE}$ min/max.		50/175	@ $V_{CE} = 8.0$ V, $I_C = 30$ mA			NF (dB) max.	@ 2 GHz	2.9	@ $V_{CE} = 5.0$ V, $I_C = 15$ mA			MAG/MSG (dB) min.	@ 2 GHz	12.5	@ $V_{CE} = 5.0$ V, $I_C = 40$ mA			$f_T$ (GHz) min.	@ 500 MHz	6.5	@ $V_{CE} = 5.0$ V, $I_C = 40$ mA		
$V_{CE0}$ (V) max.		12																																							
$V_{CBO}$ (V) max.		20																																							
$h_{FE}$ min/max.		50/175	@ $V_{CE} = 8.0$ V, $I_C = 30$ mA																																						
NF (dB) max.	@ 2 GHz	2.9	@ $V_{CE} = 5.0$ V, $I_C = 15$ mA																																						
MAG/MSG (dB) min.	@ 2 GHz	12.5	@ $V_{CE} = 5.0$ V, $I_C = 40$ mA																																						
$f_T$ (GHz) min.	@ 500 MHz	6.5	@ $V_{CE} = 5.0$ V, $I_C = 40$ mA																																						
		<p>TRANSISTORS, MICROWAVE, SMALL SIGNAL, BIPOLAR, BASED ON TYPE BFY 193</p>		Current validity of Qualification		Page																																			
				Certificate	Valid Until	12-10																																			
				230 C	March 2010	001																																			

Types covered by similarity: All variants are qualified (BFY 405, 420, 450)		Remarks:																																													
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date																																										
Generic ESCC 5010		Infineon Technologies AG München Germany	Qualification	DARA	Jun 1997																																										
Detail ESCC 5611/008			Extension	DLR	Jan 2000																																										
			Extension	DLR	Dec 2003																																										
			Requalification	DLR	Mar 2008																																										
<p>Characteristics for BFY 450</p> <table> <tr> <td><math>V_{CE0}</math> (V) max.</td> <td></td> <td>4.5</td> <td></td> <td></td> <td></td> </tr> <tr> <td><math>V_{CBO}</math> (V)max.</td> <td></td> <td>15</td> <td></td> <td></td> <td></td> </tr> <tr> <td><math>I_C</math> (mA) max.</td> <td></td> <td>100</td> <td></td> <td></td> <td></td> </tr> <tr> <td><math>I_B</math> (mA) max.</td> <td></td> <td>10</td> <td></td> <td></td> <td></td> </tr> <tr> <td><math>h_{FE}</math> min/max.</td> <td></td> <td>50/150</td> <td>@ <math>V_{CE} = 1.0</math> V, <math>I_C = 20</math>mA</td> <td></td> <td></td> </tr> <tr> <td>NF (dB) max.</td> <td>@ 1.8 GHz</td> <td>2.0</td> <td>@ <math>V_{CE} = 2.0</math> V, <math>I_C = 10</math>mA</td> <td></td> <td></td> </tr> <tr> <td><math>f_T</math> (GHz) min.</td> <td>@ 1.0 GHz</td> <td>18</td> <td>@ <math>V_{CE} = 3.0</math> V, <math>I_C = 90</math>mA</td> <td></td> <td></td> </tr> </table> <p>Package: "Micro-X"</p> <p>Total Power Dissipation (<math>P_{tot}</math>) = 450 mW</p> <p>Operating Temperature Range (°C): <math>T_{op} = - 65</math> to +175</p>						$V_{CE0}$ (V) max.		4.5				$V_{CBO}$ (V)max.		15				$I_C$ (mA) max.		100				$I_B$ (mA) max.		10				$h_{FE}$ min/max.		50/150	@ $V_{CE} = 1.0$ V, $I_C = 20$ mA			NF (dB) max.	@ 1.8 GHz	2.0	@ $V_{CE} = 2.0$ V, $I_C = 10$ mA			$f_T$ (GHz) min.	@ 1.0 GHz	18	@ $V_{CE} = 3.0$ V, $I_C = 90$ mA		
$V_{CE0}$ (V) max.		4.5																																													
$V_{CBO}$ (V)max.		15																																													
$I_C$ (mA) max.		100																																													
$I_B$ (mA) max.		10																																													
$h_{FE}$ min/max.		50/150	@ $V_{CE} = 1.0$ V, $I_C = 20$ mA																																												
NF (dB) max.	@ 1.8 GHz	2.0	@ $V_{CE} = 2.0$ V, $I_C = 10$ mA																																												
$f_T$ (GHz) min.	@ 1.0 GHz	18	@ $V_{CE} = 3.0$ V, $I_C = 90$ mA																																												
 		<p>TRANSISTORS, MICROWAVE, SMALL SIGNAL, BIPOLAR, BASED ON TYPE BFY 450</p>		Current validity of Qualification		Page																																									
				Certificate	Valid Until	12-10																																									
				245 C	March 2010	002																																									

Types covered by similarity:		Remarks:			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 5010  Detail ESCC 5614/006		Infineon Technologies AG München Germany	Qualification Extension Requalification	DLR DLR DLR	Nov 1997 Jan 2000 Mar 2008
Characteristics for CLY 32 $V_{DS}$ (V) max.                  14 $V_{DG}$ (V)max.                    16 $V_{GS}$ (V)max.                     -6.0 $P_{Out}$ (dBm) min.              32 @ $V_{DS} = 9.0$ V, $f=2.3$ GHz, $P_{IN} = 21.5$ dBm, power matched $n_{add}$ (%) min.                    45 @ $V_{DS} = 9.0$ V, $f=2.3$ GHz, $P_{IN} = 21.5$ dBm, power matched Package: MWP 25 Total Power Dissipation ( $P_{tot}$ ) = 6.75 W Operating Temperature Range ( $^{\circ}C$ ): $T_{ch} = - 65$ to +175					
	TRANSISTORS, MICROWAVE, METAL SEMICONDUCTOR FIELD EFFECT, POWER, GALLIUM ARSENIDE BASED ON TYPE CLY 32		Current validity of Qualification		Page 12-15 001-1
			Certificate 246 B	Valid Until March 2010	

Types covered by similarity: All variants are qualified				Remarks:			
Procurement Specifications		Manufacturer		Nature of Approval	Supervising Authority	Date	
Generic ESCC 5010  Detail ESCC 5613/002 ESCC 5613/004		Infineon Technologies AG München Germany		Qualification Extension Extension Requalification	DARA DLR DLR DLR	Apr 1994 Jan 2000 Dec 2003 Mar 2008	
Characteristics (@ 12 GHz):							
		NFmin. (dB)	Ga (dB)				
5613/002 lattice matched	variants 1 & 3 variants 2 & 4	0.8 1.0	10 9.5				
5613/004 pseudo-morphic	variants 1 & 3 Variants 2 & 4	0.8 1.0	11 10.5				
Package: Micro-X							
Total Power Dissipation ( $P_{tot}$ ) = 200 mW derated from +31 °C $T_{amb}$							
Operating Temperature Range (°C): $T_{stg}$ = - 65 to +150							
 <b>ESCC</b> European Space Components Coordination <b>QPL</b>		TRANSISTORS, HIGH ELECTRON MOBILITY, GALLIUM ARSENIDE, MICROWAVE, LOW NOISE, SMALL SIGNAL, BASED ON TYPES CFY 66 AND CFY 67			Current validity of Qualification		Page
					Certificate 213 C	Valid Until March 2010	

## Section 13

## Component Type: Wires and Cables


Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
13-01			Low Frequency	
	13-01-001-1	07 M	Polyimide, Types FA-3901-1, FA 3901-2	Draka Fileca
	13-01-001-2	09 M	Polyimide, Types 1871-1872	Nexans
	13-01-001-3	132 J	Polyimide, Types 3901002**B	Axon' Cable
	13-01-003	08 M	PTFE, Types MTV-BTV	Nexans
	13-01-004-1	138 G	Polyimide, Type SPC	Gore
	13-01-004-2	219 F	Polyimide, Types SPL	Gore
	13-01-004-3	268 B	Polyimide, Types 3901019**B	Axon' Cable
	13-01-005-1	159 H	Crosslinked PTFE, Type Silver-Plated Copper	Tyco Electronics
	13-01-005-2	267 C	Crosslinked PTFE, Type Silver-Plated Copper	Axon' Cable
	13-01-008	215 F	PTFE, Polyimide / PFA Insulated, Type SPP	Gore
	13-01-009	216 F	PTFE, Polyimide / PFA Insulated, Shielded, Type SPM	Gore
	13-01-010-1	229 F	Polyimide, Insulated, Shielded, Type SPLD, Drain Wire	Gore
	13-01-011-1	257 C	Crosslinked, Modified ETFE, Type Silver-Plated Copper, Lightweight	Tyco Electronics
13-02			Coaxial, RF, Flexible	
	13-02-001	24 N	PTFE/Polyimide, Type 50 CIS	Nexans
	13-02-002-1	255 D	Coaxial, Triaxial, Balanced Shielded Line	Gore





## SECTION 13-\*\*: INDEX OF WIRES AND CABLES


REP005 Updated on 15-Jun-08





Types covered by similarity:  FA 3901-1 All Variants Defined in the Detail Specification are qualified FA 3901-2 All Variants Defined in the Detail Specification are qualified		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3901  Detail ESCC 3901/001 3901/002	Draka Fileca Ste-Genevieve France	Qualification	CNES	Jan 1979
		Extension	CNES	Sep 1981
		Extension	CNES	Jan 1984
		Extension	CNES	Aug 1986
		Extension	CNES	Jan 1989
		Extension	CNES	Apr 1991
		Extension	CNES	Jun 1993
		Extension	CNES	Jun 1995
		Extension	CNES	Aug 1997
		Extension	CNES	Aug 1999
Characteristics:  Voltage Rating, maximum (Vrms):600 Temperature Range (°C): -100 to +200		Extension	CNES	Jan 2002
		Extension	CNES	Jan 2004
		Extension	CNES	Feb 2006
		Extension	CNES	Feb 2008
	<p style="text-align: center;">WIRES AND CABLES, LOW FREQUENCY, POLYIMIDE INSULATION BASED ON TYPES FA 3901-1, FA 3901-2</p>	Current validity of Qualification		Page
		Certificate  07 M	Valid Until  February 2010	13-01  001-1


Types covered by similarity:		Remarks:			
Medium weight 1871 - n/1871 - 871 (3901/001) Variants 24 to 47 are qualified Light weight 1872 - n/1872 - 872 (3901/002) Variants 31 to 73 are qualified					
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3901  Detail ESCC 3901/001 3901/002		Nexans Draveil France	Qualification	CNES	Jan 1979
			Extension	CNES	Sep 1981
			Extension	CNES	Dec 1983
			Extension	CNES	Mar 1987
			Extension	CNES	Jul 1989
			Extension	CNES	Sep 1991
			Extension	CNES	Aug 1993
			Extension	CNES	Sep 1995
			Extension	CNES	Aug 1997
			Extension	CNES	Aug 1999
		Extension	CNES	Aug 2001	
		Extension	CNES	Aug 2003	
		Extension	CNES	Nov 2005	
		Extension	CNES	May 2008	
Characteristics:  Voltage Rating, maximum (Vrms):600 Temperature Range (°C): -100 to +200					
	WIRES AND CABLES, LOW FREQUENCY, POLYIMIDE INSULATION BASED ON TYPES 1871 - 1872		Current validity of Qualification		Page
			Certificate	Valid Until	13-01
			09 M	May 2010	001-2


Types covered by similarity: All variants are qualified.		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3901  Detail ESCC 3901/001 3901/002	AXON' CABLE Montmirail France	Qualification Extension Extension Extension Extension Extension Extension Extension Extension Extension Extension Extension	ESTEC ESTEC ESTEC ESTEC ESTEC ESTEC CNES CNES CNES CNES	Dec 1985 Jul 1988 Jul 1990 Nov 1993 Jan 1996 May 1999 Jun 2002 Sep 2004 Oct 2004 Mar 2007
Characteristics:  Voltage Rating, maximum (Vrms):600 Temperature Range (°C): -100 to +200				
	WIRES AND CABLES, LOW FREQUENCY, POLYIMIDE INSULATION, BASED ON TYPES 3901001**B and 3901002**B	Current validity of Qualification		Page
		Certificate  132 J	Valid Until  March 2009	13-01  001-3

Types covered by similarity: Variants 01 to 77 are qualified -MTV - BTV -MTV/G - BTV/G -MTV/BF/G - BTV/BF/G		Remarks:			
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date	
Generic ESCC 3901  Detail ESCC 3901/013	Nexans Draveil France	Qualification	CNES	Jan 1979	
		Extension	CNES	Sep 1981	
Characteristics:  Voltage Rating, maximum (Vrms):600 Temperature Range (°C): -100 to +200		Extension	CNES	Dec 1983	
		Extension	CNES	Mar 1987	
		Extension	CNES	Jul 1989	
		Extension	CNES	Sep 1991	
		Extension	CNES	Aug 1993	
		Extension	CNES	Sep 1995	
		Extension	CNES	Aug 1997	
		Extension	CNES	Aug 1999	
		Extension	CNES	Aug 2001	
		Extension	CNES	Aug 2003	
Extension	CNES	Nov 2005			
Extension	CNES	May 2008			
	WIRES AND CABLES, LOW FREQUENCY, PTFE/POLYIMIDE INSULATION, BASED ON TYPES MTV-BTV		Current validity of Qualification		Page
			Certificate	Valid Until	13-01
		08 M	May 2010	003	


Types covered by similarity: Variants 01-66 are qualified		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3901  Detail ESCC 3901/009	W.L. Gore & Co Pleinfeld Germany	Qualification Extension Extension Extension Extension Extension Requalification Extension	DLR ESTEC DARA DARA DARA DLR DLR DLR	Aug 1986 Dec 1988 Jul 1991 Aug 1993 Feb 1996 Feb 1998 Nov 2004 Apr 2007
Characteristics:  Voltage Rating, maximum (Vrms):600 Temperature Range (°C): -150 to +150				
	<p style="text-align: center;">WIRES AND CABLES, LOW FREQUENCY, POLYIMIDE INSULATION, BASED ON TYPES SPC 2110</p>	Current validity of Qualification		Page
		Certificate  138 G	Valid Until  April 2009	13-01  004-1


Types covered by similarity: Variants 01-94 are qualified		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3901  Detail ESCC 3901/019	W.L. Gore & Co Pleinfeld Germany	Qualification Extension Extension Extension Extension Extension Extension	DARA DARA DLR DLR DLR DLR DLR	Nov 1994 Nov 1996 Oct 1998 Oct 2000 Nov 2002 Nov 2004 Oct 2006
Characteristics:  Voltage Rating, maximum (Vrms):600 Temperature Range (°C): -200 to +200				
	WIRES AND CABLES, LOW FREQUENCY, POLYIMIDE INSULATION, BASED ON TYPES SPL	Current validity of Qualification		Page
		Certificate  219 F	Valid Until  October 2008	13-01  004-2


Types covered by similarity: Variants of construction AWG 12 to 28 All variants are qualified with the exception of variants 01, 09, 17, 24, 25, 32, 48, 56, 64, 72, and 79		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3901  Detail ESCC 3901/019	AXON' CABLE Montmirail France	Qualification  Extension  Extension	CNES  CNES  CNES	Jun 2002  Sep 2004  Mar 2007
Characteristics:  AWG 12 to 28 inclusive are qualified  Voltage Rating, maximum (Vrms):600  Temperature Range (°C): -200 to +200				
	WIRES AND CABLES, LOW FREQUENCY, POLYIMIDE INSULATION, BASED ON TYPES 3901019**B	Current validity of Qualification		Page
		Certificate  268 B	Valid Until  March 2009	13-01  004-3


Types covered by similarity:  AWG 28 based variants are not qualified: variants 02, 12, 22, 32, 42, 52, 62 and 72 AWG 20 based variants are not qualified: variants 06, 16, 26, 36, 46, 56, 66 and 76		Remarks:  This product is not intended for manned space applications.			
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date	
Generic ESCC 3901  Detail ESCC 3901/012	Tyco Electronics Dorcan, Swindon England	Qualification	RAE	Feb 1989	
		Extension	RAE	Jul 1992	
Characteristics:  Maximum voltage: 600 Vrms Operating temperature range (°C): -100 to +200		Extension	DRA	Mar 1995	
		Extension	DERA	Sep 1997	
		Extension	DERA	Oct 1999	
		Extension	QinetiQ	Nov 2001	
		Extension	QinetiQ	Nov 2003	
		Extension	QinetiQ	Nov 2005	
		Extension	BNSC	Oct 2007	
	WIRES AND CABLES, LOW FREQUENCY, 600V, SILVER-PLATED COPPER, EXTRUDED CROSSLINKED FLUOROPOLYMER INSULATION, BASED ON TYPE 55/995X		Current validity of Qualification		Page
			Certificate  159 H	Valid Until  October 2009	13-01  005-1




Types covered by similarity: All variants are qualified.		Remarks: This product is not intended for manned space applications.		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3901  Detail ESCC 3901/012	AXON' CABLE Montmirail France	Qualification Extension Extension Extension	CNES CNES CNES CNES	Mar 2002 Feb 2003 Sep 2004 Mar 2007
Characteristics:  Wire code ISO 2635  Voltage Rating, maximum (Vrms) : 600  Temperature Range (°C): -100 to +200				
	<p style="text-align: center;">WIRES AND CABLES, LOW FREQUENCY, 600V, SILVER-PLATED COPPER, EXTRUDED CROSSLINKED FLUOROPOLYMER INSULATION, BASED ON TYPE 3901012**B</p>	Current validity of Qualification		Page
		Certificate  267 C	Valid Until  March 2009	13-01  005-2



Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3901  Detail ESCC 3901/017	W.L. Gore & Co. Pleinfeld Germany	Qualification Extension Extension Extension Extension Extension Extension	DARA DARA DLR DLR DLR DLR DLR	Jul 1994 Sep 1996 Aug 1998 Aug 2000 Aug 2002 Nov 2004 Aug 2006
Characteristics:  Voltage Rating, maximum (Vrms) : 600 Temperature Range (°C): -200 to +200  Expanded PTFE, extruded polyimide/fluorthermoplast insulation				
	POWER WIRES FOR CRIMPING, LOW FREQUENCY, BASED ON TYPE SPP	Current validity of Qualification		Page
		Certificate 215 F	Valid Until August 2008	13-01 008

Types covered by similarity: Variants 01 to 88 are qualified.		Remarks:			
Procurement Specifications		Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3901  Detail ESCC 3901/018		W.L. Gore & Co. Pleinfeld Germany	Qualification  Extension Extension Extension Extension Extension Extension	DARA  DARA DLR DLR DLR DLR DLR	Jul 1994  Sep 1997 Aug 1999 Aug 2001 Aug 2003 Nov 2005 Feb 2008
Characteristics:  Voltage Rating, maximum (Vrms) : 600 Temperature Range (°C): -200 to +200  Expanded PTFE, extruded polyimide/ FEP, sintered PTFE insulated wires. Expanded PTFE, extruded polyimide/fluorothermoplast insulated cables, shielded and jacketed.					
	WIRES AND CABLES, LOW FREQUENCY, INSULATED, POLYIMIDE/FLUOROTHERMOPLAST, BASED ON TYPE SPM		Current validity of Qualification		Page
			Certificate	Valid Until	13-01
			216 F	February 2010	009

Types covered by similarity: All variants (01 to 41) are qualified.		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3901  Detail ESCC 3901/021	W.L. Gore & Co. Pleinfeld Germany	Qualification	DARA	Feb1996
		Extension	DLR	Feb 1998
		Extension	DLR	Feb 2000
		Extension	DLR	Feb 2002
		Extension	DLR	Feb 2004
		Extension	DLR	Feb 2006
		Extension	DLR	Mar 2008
Characteristics:  Voltage Rating, maximum (Vrms) : 600 Temperature Range (°C): -200 to +200  .				
	POLYIMIDE INSULATED SHIELDED CABLES WITH DRAIN WIRE,  LOW FREQUENCY, BASED ON TYPE SPLD	Current validity of Qualification		Page
		Certificate  229 F	Valid Until  March 2010	13-01  010-1

<p>Types covered by similarity:  3901/020: All variants (01 - 80) except variants with wire sizes ISO 2635-004, 010 and 012 are not qualified  3901/022: All variants (01 - 72) except variants with wire sizes ISO 2635-004, 010 and 012 are not qualified.</p>		Remarks:			
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date	
<p>Generic  ESCC 3901</p> <p>Detail  ESCC 3901/020  ESCC 3901/022</p>	<p>Tyco Electronics  Dorcan, Swindon  England</p>	<p>Qualification</p> <p>Extension</p> <p>Extension</p> <p>Extension</p>	<p>DERA</p> <p>QinetiQ</p> <p>QinetiQ</p> <p>BNSC</p>	<p>Oct 1999</p> <p>Jan 2002</p> <p>Jan 2005</p> <p>Feb 2007</p>	
<p>Characteristics:  Wires and Cables variants consist of 1, 2, 3 and 4 cores with and without jackets and shields</p> <p>ESCC Detail Specification No. 3901/020 cables are silver-plated copper braided, and  ESCC Detail Specification No. 3901/022 cables are silver-plated copper spiral shielded,  Wire sizes are in accordance with ISO 2635.</p> <p>Maximum voltage: 600 Vrms  Operating temperature range (°C): -100 to +200</p>					
	<p>WIRES AND CABLES,  LOW FREQUENCY, 600VM SILVER-PLATED COPPER,  EXTRUDED CROSSLINKED MODIFIED ETFE, LIGHTWEIGHT</p>		Current validity of Qualification		Page
			Certificate	Valid Until	13-01
		257 C	February 2009	011-1	



Types covered by similarity: Variants 03 to 06, 10 to 12, 13 and 20 to 25 are qualified		Remarks:										
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date								
Generic ESCC 3902  Detail ESCC 3902/002	W.L. Gore Pleinfeld Germany	Qualification Extension Extension Extension Extension	DLR DLR DLR DLR DLR	Jan 1999 Feb 2001 Feb 2003 Mar 2005 Mar 2007								
<p>Characteristics:</p> <p>Variants encompass coaxial, triaxial, and balanced shielded line</p> <p>Operating Voltage (Continuous), maximum ratings, (Vrms):</p> <table> <tr> <td>Variants 03</td> <td>180</td> </tr> <tr> <td>Variants 04, 10, 21, 22, 23, 24</td> <td>200</td> </tr> <tr> <td>Variants 06, 25</td> <td>250</td> </tr> <tr> <td>All Other Variants</td> <td>300</td> </tr> </table> <p>AWG Range: 20, 22, 24, 26, 28, 30 dependent on variant</p> <p>Temperature range (°C): -200 to +180</p>		Variants 03	180	Variants 04, 10, 21, 22, 23, 24	200	Variants 06, 25	250	All Other Variants	300			
Variants 03	180											
Variants 04, 10, 21, 22, 23, 24	200											
Variants 06, 25	250											
All Other Variants	300											
 	<p>WIRES AND CABLES, RADIO FREQUENCY, FLEXIBLE, COAXIAL, TRIAXIAL AND SYMMETRIC, BASED ON TYPES GCX, GTX, GSC AND GBL</p>	Current validity of Qualification		Page								
		Certificate 255 D	Valid Until March 2009	13-02 002-1								


**Section 14****Component Type: Miscellaneous**


Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
14-01			Passive Devices, RF	
	14-01-002-2	185 D	Coaxial Loads, 0 to 22 GHz	Radiall
	14-01-004	178 E	Attenuators, Type R413	Radiall
14-02			Switches	
	14-03-003	275 B	Thermostatic, Bimetallic	COMEPA




**SECTION 14-\*\*: INDEX OF MISCELLANEOUS  
REP005 Updated on 15-Jun-08**



Types covered by similarity: All variants are qualified.					Remarks:		
Procurement Specifications			Manufacturer		Nature of Approval	Supervising Authority	Date
Generic ESCC 3403  Detail 3403/006			RADIALL La Verpilliere France		Qualification	CNES	Jul 1992
					Extension	CNES	Jun 1997
					Extension	CNES	Jan 2002
					Extension	CNES	Apr 2005
					Extension	CNES	Mar 2008
Characteristics:							
Type	Detail Spec.	Frequency Range ( GHz)	Rated Pin (W)	Impedance (Ω)			
3403/006	3403/006	0-22	1	50			
Type	VSWR max						
	0<f(GHz)≤4	4<f(GHz)≤12.4	12.4<f(GHz)≤18	18<f(GHz)≤22			
1	1.05	1.15	1.20	1.30			
2	1.05	1.15	1.20	1.25			
Operating Temperature Range (°C), -55 to +125							
		PASSIVE DEVICES, R.F. COAXIAL LOADS, 0-22 GHZ BASED ON TYPE R404			Current Validity of Qualification		Page
					Certificate	Valid Until	14-01
					185 D	March 2010	002-2

Types covered by similarity: Variants 01 to 31		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3403  Detail 3403/005	RADIALL La Verpilliere France	Qualification	CNES	Jan 1991
Characteristics: Frequency range (GHz): 0 - 22 Attenuation (dB): 0 - 20  Operating Temperature Range (°C), -55 to +125		Extension	CNES	Jan 1994
		Extension	CNES	Jun 1997
		Extension	CNES	Mar 2002
		Extension	CNES	Apr 2005
		Extension	CNES	Mar 2008
	R.F. ATTENUATORS FIXED, COAXIAL BASED ON TYPE R413	Current Validity of Qualification		Page
		Certificate  178 E	Valid Until  March 2010	14-01  004

Types covered by similarity: Variants 01 to 06 are qualified		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Date
Generic ESCC 3702  Detail 3702/001	COMEPA BAGNOLET France	Qualification  Requalification  Extension	CNES  CNES  CNES	Mar 2004  Aug 2005  Jun 2008
Characteristics: Range of Components: Grade 1 and Grade Y Maximum Ratings: Rated Current ( $I_R$ ): 4 A (30 Vdc resistive)  Operating Temperature Range ( $^{\circ}\text{C}$ ), -55 to +125				
	SWITCHES, THERMOSTATIC, BIMETALLIC, SPST, OPENING CONTACT, BASED ON TYPE TH 47	Current Validity of Qualification		Page
		Certificate  275 B	Valid Until  June 2010	14-03  003