ESCC QUALIFIED PARTS LIST (QPL)

ESCC/RP/QPL005-169

Updated February 2017

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	General Information	
As affected		
Section/Page No.	**Description**	
Section 10	Index of Resistors	Amended
10-09-002A-D	Type PUR, PFRR; PRAHR/CNWHR from Vishay SA Sfernice	Extended
Section 08	Index of Microcircuits	Amended
08-80-003	Type MH1RT from Microchip-Atmel	Revised
08-80-004	Types ATC18RHA, ATF280F and ATF280F from Microchip-Atmel	Revised
08-80-005	Type ATMX150RHA from Microchip-Atmel	Revised
Section 13	Index of Wires and Cables	Amended
13-01-011-1	Crosslinked, Modifed ETFE, Type Silver-Plated Copper, Lightweight from Tyco Electronics	Extended

	General Information	
As affected		
Section/Page No.	**Description**	
Section 01	Index of Capacitors	Amended
01-01-005	Type ll, High Capacitance from AVX (N.I)	Extended
01-01-006	Type ll, Types CNC 31 to CNC 34 from AVX (N.I.)	Extended
01-02-004-1	Type ll, High Voltage from AVX (N.I)	Extended
Section 08	Index of Microcircuits	
08-80-001-2 A-E	Digital CMOS 4000B Series from ST Microelectronics	Amended
Section 10	Index of Resistors	
10-11-003	Single & Double Layer from IRCA	Amended Extended

	General Information	
As affected		
Section/Page No.	**Description**	
Section 04	Index of Diodes	Amended
04-02-002-1	Type STPS20100 from ST Microelectronics	Extended
04-02-003-1	Types BYW81, BYV54 from ST Microelectronics	Extended
Section 05	Index of Filters	Amended
05-02-001	SAW Filters (transversal band pass/resonator/notch/low loss impedance element) from Kongsberg Norspace	Added (QML)
Section 08	Index of Microcircuits	Amended
08-80-003	Type MH1RT from Atmel	Added (QML)
08-80-004	Types ATC18RHA, ATF280F and ATF280F from Atmel	Added (QML)
08-80-005	Type ATMX150RHA from Atmel	Added (QML)

	General Information	
As affected		
Section/Page No.	**Description**	
Section 08	Index of Microcircuits	Amended
08-90-001	PWM, based on types ST1843 and ST1845 from STMicroelectronics	Added
Section 09	Index of Relays	Amended
09-02-004	Type EL215 from REL STPI	Extended
Section 13	Index of Wire and Cables	Amended
13-01-012-2	Fluoropolymer, Lightweight based on Type CSWL from WL Gore	Extended
13-02-003-2	Symmetric, Quad, Spacewire from WL Gore	Extended

	General Information	
As affected		
Section/Page No.	**Description**	
Section 09 09-02-001	Index of Relays Type TL from REL STPI	Amended Extended
Section 12 12-05-003-1	Index of Transistors Types STRH100N10, STRH40N6, STRH100N6 and STRH8N10 from ST Microelectronics	Amended Extended

	General Information	
As affected		
Section/Page No.	**Description**	
Section 01	Index of Capacitors	Amended
01-02-002-1	Type ll from AVX/TPC	Revised
Section 04	Index of Diodes	Amended
04-02-001-4	Types 1N5819U and 1N5822U from STMicroelectronics	Extended
04-05-001-3	Schottky, BAS40, BAS70, BXY42-44 from Infineon	Amended
Section 06	Index of Fuses	Amended
06-01-002	Type HCSF from Schurter	Extended
Section 07	Index of Inductors	Amended
07-01-003	Types MSCI 10K 12K, 20K and H01 from Exxelia Magnetics	Amended
07-02-002	Types SESI and CMC from Exxelia Magnetics	Amended
Section 10	Index of Resistors	Amended
10-07-001	Types SMV-PW and SM*-PT from Isabellenhütte	Extended
Section 12	Index of Transistors	Amended
12-01-002-3A-B	Types NPN from STMicroelectronics	Extended
12-02-002-3A-B	Types PNP from STMicroelectronics	Extended
Section 13	Index of Wires and Cables	Amended
13-01-004-2	Polyimide, Types SPL from WL Gore	Extended

	General Information	
As affected		
Section/Page No.	**Description**	
Section 02	Index of Connectors	Amended
02-01-001-1	D*M Series, Rectangular from C&K Components	Revised
02-05-003-1	MDMA, Rectangular from C&K Components	Revised
02-05-004-1	8MCG, Rectangular from Souriau	Extended
Section 05	Index of Filters	Amended
05-01-001-A-B	Types SFC, SFL, SFP from Exxelia Technologies	Extended
Section 06	Index of Fuses	Amended
06-01-002	Type MGA-s from Schurter	Extended
Section 07	Index of Inductors	Amended
07-01-001	Types MSCI 10K, 12K, 20K and H01 from Microspire	Extended
Section 12	Index of Transistors	
12-05-003-2	Type BUY**CS** from Infineon	Amended
12-06-003-1	Types STRH40P10 from STMicroelectronics	Amended
Section 14	Index of Miscellaneous	Amended
14-16-99	Thermostatic, Biometallic from Comepa	Extended

	General Information	
As affected		
Section/Page No.	**Description**	
Section 13 13-01-008	Index of Wires and Cables PTFE, Polyimide/PFA insulated based on Type SPP from WL Gore	Amended Extended

	General Information	
As affected		
Section/Page No.	**Description**	
Section 04	Index of Diodes	Amended
04-05-001-3	Schottky, BAS40, BAS70, BXY42 - 44 from Infineon	Extended
04-16-002-2	PIN, BXY 42 from Infineon	Deleted
04-16-003	PIN, BXY 43 and 44 from Infineon	Deleted
Section 09	Index of Relays	Amended
09-01-002	Type GP5 from Leach Niort	Amended
09-01-004-3	Type M300 from Leach Sarralbe	Extended
09-02-002	Type GP2 from Leach Niort	Amended
09-02-003-3	Type M402 from Leach Sarralbe	Extended
09-02-006	Type D from Leach Niort	Amended
09-03-001	Type GP250 from Leach Niort	Amended
Section 12	Index of Transistors	Amended
12-16-001	Type CFY67, High Electron Mobility from Infineon	Extended
Section 13	Index of Wires and Cables	Amended
13-01-003	PTFE, Types MTV-BTV From Nexans	Extended
13-02-001	PTFE/Polyimide, Type 50 CIS from Nexans	Extended
Section 14	Index of Miscellaneous	Amended
14-30-10-005	Isolators and circulators, Type BK1XXX and BK3XXX from Cobham	Added

	General Information	
As affected		
Section/Page No.	**Description**	
Section 02	Index of Connectors	Amended
02-01-001-2	D*M Series, Rectangular from Souriau	Extended
02-02-001-1	D*MA Series Rectangular from Souriau	Extended
Section 04	Index of Diodes	Amended
04-01-003-3	Types BAY6642 from Infineon	Deleted
Section 12	Index of Transistors	Amended
12-02-002-3A-B	Types PNP from ST Microelectronics	Revised
12-05-003-3	Type BUY15CS from Infineon	Added
12-10-001	Type BFY 193 from Infineon	Extended
12-10-002	Types BFY405,-420 and –450 from Infineon	Extended
12-10-003	Types BFY640 from Infineon	Deleted
12-10-004	Types BFY640B and BFY650B from Infineon	Deleted
12-10-005	Types BFY640, 640B,650B and 740B from Infineon	Extended
Section 13	Index of Wires and Cables	Amended
13-01-013-1	Extra thin, fluoropolymer, Lightweight, based on type CSC from WL Gore	Extended

	General Information	
As affected		
Section/Page No.	**Description**	
Section 01	Index of Capacitors	Amended
01-05-001-1	Type HT86PS, High Voltage from Exxelia	Extended
Section 02	Index of Connectors	Amended
02-02-005	Series I, Circular, Crimp from Souriau	Extended
02-02-006	Series II, Circular, Crimp from Souriau	Extended
02-02-007-1	Series III, Circular, Miniature from Souriau	Extended
02-02-008	Series III, Hermetic from Souriau	Extended
02-05-001-1	MDM Series, Rectangular from C&K Components	Amended
Section 03	Index of Crystals	Amended
03-01-001-1	TO-5 Can from Rakon Fr	Deleted
03-01-002	TO-8 Can from Rakon Fr	Deleted
Section 13	Index of Wires and Cables	Amended
13-02-002-1	Coaxial, Triaxial, Balanced Shielded Line from WL Gore	Extended
Section 14	Index of Miscellaneous	Amended
14-30-10-002-2	Coaxial Loads, 0 to 22 GHz from Radiall	Extended
14-30-10-004	Attenuators, Type R413	Extended

	General Information	
As affected		
Section/Page No.	**Description**	
Section 01	Index of Capacitors	Amended
01-03-004	Type Taj from AVX (CZ)	Extended
01-05-004-1	Types PM907S and PM948S from Exxelia Technologies	Added
Section 02	Index of Connectors	Amended
02-04-003	SMA, SMA 2.92, TNC and SMP from Rosenberger	Extended
Section 09	Index of Relays	Amended
09-01-001	Type T** from REL STPI	Extended
09-02-003	Type EL415 from REL STPI	Extended
Section 13	Index of Wires and Cables	Amended
13-01-001-1	Polyimide, Types FA-3901-1, FA 3901-2 from Draka Fileca	Extended
13-01-009	PTFE, Polyimide/ PFA Insulated Sheilded Type SPM from WL GORE	Extended
13-01-010-1	Polyimide, Insulated, Shielded, Type SPLD, Drain Wire from GORE	Extended

TABLE OF CONTENTS

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-ST-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. Please refer to our escies.org website.

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. Please refer to our escies.org website.

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
18	Optoelectronics

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 K	Type ll, High Capacitance	AVX (N.I.)
	01-01-005-1	315 B	Type II, Types CNC 31 to CNC 34	Exxelia Technologies
	01-01-006	262 G	Type ll, High Voltage	AVX (N.I.)
	01-01-007	306 B	Type II, Types CNC 53 to CNC 56	Exxelia Technologies
01-02			Ceramic, Fixed, Chip	
	01-02-001-1	109 M	Type l	AVX/TPC
	01-02-001-2	323 A	Type I, Types CEC2S to CEC14S	Exxelia Technologies
	01-02-002-1A-C	110 M rev1	Type ll	AVX/TPC
	01-02-002-2	324 A	Type II, Types CNC2S to CNC14S	Exxelia Technologies
	01-02-004-1	264 G	Type ll, High Voltage	AVX (N.I.)
	01-02-004-3	331	Type ll, Types TTP 0603, 0805, 1206, 1210, 1812	AVX (N.I.)
01-03			Tantalum, (Solid), Fixed, Electrolytic	
	01-03-004	196 G	Type TAJ	AVX (CZ)
	01-03-005	327 A	Low ESR, Type TES	AVX (CZ)
01-05			Fixed, Film	
	01-05-001-1	251 H	Type HT86PS, High Voltage	Exxelia Technologies
	01-05-003-1	270 F	Type PM94S	Exxelia Technologies
	01-05-004-1	338	Type PM907S and PM948S	Exxelia Technologies
01-11			Semiconductor	
	01-11-001	286 C	Type 101M, 201M, 400M and 401M	Cobham Microwave

Types covered by similarity: ±20% tolerance		Remarks: Capacitors no longer use a varnish finish.		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3001 Detail ESCC 3001/030	AVX Limited Coleraine Northern Ireland	Qualification	UK Space Agency	Jul 1996
Characteristics: E12 series Qualified Range: 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 Operating Temperature Range (^{o}C): -55 to +125				

Types covered by similarity: E6 ±20% tolerance		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3001 Detail ESCC 3001/037	Exxelia Technologies Chanteloup en Brie France	Qualification	CNES	Nov 2011
Characteristics: E12 ±10% tolerance Qualified Range: Variants 01 to 16. 16V : 2.2 to 68 µF 25V: 1.2 to 39 µF DIL format with equal number of leads per side Lead material : type A with type 10 finish (electro-deposited 98% Ag min.) Operating Temperature Range (°C): -55 to +125				

Types covered by similarity: ±20% tolerance		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3001 Detail ESCC 3001/034	AVX Limited Coleraine Northern Ireland	Qualification	UK Space Agency	Sep 2000
Characteristics: E12 series Qualified Range: Variants 01 to 22 are qualified ±10% tolerance Operating Temperature Range (^{o}C): -55 to +125				

Types covered by similarity: E6: ±20% tolerance		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3001 Detail ESCC 3001/038	Exxelia Technologies Chanteloup en Brie France	Qualification	CNES	Mar 2011
Characteristics: Qualified Range: Variants 01 to 04, 08 to 11, 15 to 18 and 22 to 25 are qualified All values 50V to 500V E12: ±10% tolerance Operating Temperature Range (°C): -55 to +125				

Types covered by similarity:

Tolerance (±): 0.5pF; 2, 5, 20%

Remarks: Variant 01 removed

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification 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

Characteristics: Operating Temp. Range (°C), -55 to +125
Variants 03 and 06 are qualified
Values covered by ESCC Specifications defined below.

Style	Model	Detail Spec.	Variants	Capacitance Range (pF)	Rated Volt. (V)	Tolerance (±%)	TC (ppm/°C)
0805	A_12C	3009/003	03, 06	4.7 to 9.1 10 to 1 500	50, 100 50, 100	0.5pF 1, 2, 5, 10	 ±30
1206	A_20C	3009/022	03, 06	10 to 3 900	50, 100	1, 2, 5, 10	±30
1210	A_13C	3009/004	03, 06	22 to 6 800 8 200 to 10 000	50, 100 50	1, 2, 5, 10	±30
1812	A_14C	3009/005	03, 06	100 to 15 000	50, 100	1, 2, 5, 10	±30
2220	A_15C	3009/006	03, 06	470 to 33 000	50, 100	1, 2, 5, 10	±30

Types covered by similarity: Tolerance (±): <10pF; 0.25– 0.5-1pF; ≥10pF; 1, 2, 5, 10%		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3009 Detail ESCC 3009/003 3009/004 3009/005 3009/006 3009/022 3009/037	Exxelia Technologies Chanteloup en Brie France	Qualification	CNES	Oct 2012
Characteristics: Variant 06 is qualified See Table on next page Operating Temp. Range (°C), -55 to +125				

Characteristics:

Style	Model	Detail Spec.	Variants	Capacitance Range (pF)			Rated Volt. (V)	Tol. (±%)
0805	CEC2S	3009/003	06	10 10 1 1	to to to to	2 700 2 200 1 800 1 200	16 25 50 100	<10pF 0.25—0.5 –1 (pF)
1210	CEC4S	3009/004	06	10 10 10 10	to to to To	15 000 13 000 12 000 6 800	16 25 50 100	≥10pF 1, 2, 5, 10
1812	CEC6S	3009/005	06	100 100 100 100	to to to to	33 000 30 000 22 000 12 000	16 25 50 100	
2220	CEC7S	3009/006	06	470 470 470 470	to to to to	68 000 56 000 47 000 27 000	16 25 50 100	
1206	CEC12S	3009/022	06	10 10 1 1	to to to to	6 800 6 200 5 600 3 900	16 25 50 100	
0603	CEC14S	3009/037	06	10 10 1 1	to to to to	1 000 680 560 330	16 25 50 100	

Types covered by similarity: Tolerance (±%): 10, 20%		Remarks: Variant 01 deleted		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3009 Detail ESCC 3009/008 3009/009 3009/010 3009/011 3009/023	AVX/TPC St Apollinaire France	Qualification	CNES	Feb 1983
Characteristics: See Table on next page Operating Temperature Range (°C), -55 to +125				

ESCC European Space Components Coordination QPL	CAPACITORS, CERAMIC, FIXED, CHIP, TYPE II	Certificate 110 M rev1	Page 01-02 002-1A

Characteristics:

Style	Model	Detail Spec.	Variants	Capacitance Range (pF)			Rated Volt. (V)	Tol. (±%)
0805	A_12G	3009/008	03, 06	820 820 820	to to to	47 000 27 000 10 000	25 50 100	5, 10, 20 5, 10, 20 5, 10, 20
0805	A612Z	3009/008	07	2 700 2 700 2 700 330	to to To to	100 000 100 000 47 000 15 000	25 50 100 200	5, 10, 20
1210	A_13G	3009/009	03, 06	3 900 3 900 3 900	to to to	220 000 150 000 47 000	25 50 100	5, 10, 20 5, 10, 20 5, 10, 20
1210	A613Z	3009/009	07	3 900 3 900 3 900 680	to to to to	470 000 330 000 220 000 68 000	25 50 100 200	5, 10, 20
1812	A_14G	3009/010	03, 06	6 800 6 800 6 800	to to to	470 000 270 000 82 000	25 50 100	5, 10, 20 5, 10, 20 5, 10, 20
1812	A614Z	3009/010	07	22 000 22 000 22 000 3 300	to to to to	1 000 000 680 000 470 000 150 000	25 50 100 200	5, 10, 20
2220	A_15G	3009/011	03, 06	18 000 18 000 18 000	to to to	1 000 000 680 000 180 000	25 50 100	5, 10, 20 5, 10, 20 5, 10, 20
2220	A615Z	3009/011	07	100 000 100 000 100 000 6 800	to To To to	2 200 000 1 500 000 1 000 000 330 000	25 50 100 200	5, 10, 20

Characteristics:

Style	Model	Detail Spec.	Variants	Capacitance Range (pF)			Rated Volt. (V)	Tol. (±%)
1206	A_20G	3009/023	03, 06	2 200 2 200 2 200	to to to	100 000 68 000 22 000	25 50 100	5, 10, 20 5, 10, 20 5, 10, 20
1206	A620Z	3009/023	07	3 300 3 300 3 300 470	to to To to	220 000 150 000 100 000 47 000	25 50 100 200	5, 10, 20

Types covered by similarity:

Tolerance (±%): 10, 20%

Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3009 Detail ESCC 3009/008 3009/009 3009/010 3009/011 3009/023 3009/038 3009/039	Exxelia Technologies Chanteloup en Brie France	Qualification	CNES	Oct 2012

Characteristics:

Style	Model	Detail Spec.	Variants	Capacitance Range (pF)			Rated Volt. (V)	Tol. (±%)
0805	CNC2S	3009/008	06	6 800 6 800 100 68	to to to to	150 000 100 000 47 000 10 000	16 25 50 100	5, 10, 20
			07	6 800 6 800 100 68	to to to to	220 000 150 000 100 000 47 000	16 25 50 100	5, 10, 20

Table continues on next page

Operating Temperature Range (°C), -55 to +125

ESCC European Space Components Coordination

QPL

CAPACITORS,

CERAMIC, FIXED,

CHIP, TYPE II

Certificate

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Characteristics:

Style	Model	Detail Spec.	Variants	Capacitance Range (pF)			Rated Volt. (V)	Tol. (±%)
0805	CNC2 04S	3009/039	02	6 800 6 800 100 68	to to to to	150 000 100 000 47 000 10 000	16 25 50 100	5, 10, 20
			14	6 800 6 800 100 68	to to to to	390 000 150 000 100 000 47 000	16 25 50 100	5, 10, 20
1210	CNC4S CNC4 04S	3009/009 3009/039	06 04	33 000 33 000 2 200 2 200	to to to to	560 000 330 000 220 000 56 000	16 25 50 100	5, 10, 20
	CNC4S CNC4 04S	3009/009 3009/039	07 16	33 000 33 000 2 200 2 200	to to to to	820 000 560 000 390 000 220 000	16 25 50 100	5, 10, 20
1812	CNC6S CNC6 04S	3009/010 3009/039	06 05	100 000 100 000 3 900 3 900	to to to to	1 200 000 680 000 470 000 120 000	16 25 50 100	5, 10, 20
	CNC6S CNC6 04S	3009/010 3009/039	07 17	100 000 100 000 3 900 3 900	to to to to	1 800 000 1 200 000 820 000 470 000	16 25 50 100	5, 10, 20
2220	CNC7S CNC7 04S	3009/011 3009/039	06 06	150 000 150 22 000 22 000	to to to to	2 700 000 1 500 000 1 000 000 270 000	16 25 50 100	5, 10, 20
	CNC7S CNC7 04S	3009/011 3009/039	07 18	150 000 150 000 22 000 22 000	to to to to	3 900 000 2 200 000 1 800 000 1 000 000	16 25 50 100	5, 10, 20
1206	CNC12S	3009/023	06	10 000 10 000 470 470	to to to to	270 000 180 000 82 000 27 000	16 25 50 100	5, 10, 20
			07	10 000 10 000 470 470	to to to to	390 000 270 000 180 000 120 000	16 25 50 100	5, 10, 20

Characteristics:

Style	Model	Detail Spec.	Variants	Capacitance Range (pF)			Rated Volt. (V)	Tol. (±%)
1206	CNC12 04S	3009/039	03	10 000 10 000 470 470	to to to to	270 000 180 000 82 000 27 000	16 25 50 100	5, 10, 20
			15	10 000 10 000 470 470	to to to to	1 000 000 270 000 180 000 120 000	16 25 50 100	5, 10, 20
0603	CNC14S	3009/038	06	390 390 10 10	to to to to	33 000 22 000 10 000 2 700	16 25 50 100	5, 10, 20
			07	390 390 10 10	to to to to	39 000 33 000 22 000 12 000	16 25 50 100	5, 10, 20
0603	CNC14 04S	3009/039	01	390 390 10 10	to to to to	33 000 22 000 10 000 2 700	16 25 50 100	5, 10, 20
			13	390 390 10 10	to to to to	100 000 33 000 22 000 12 000	16 25 50 100	5, 10, 20

Types covered by similarity:

±20% tolerance

Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3009 Detail ESCC 3009/034	AVX Limited Coleraine Northern Ireland	Qualification	UK Space Agency	Feb 2001

Characteristics: E12 series

Qualified Range:
Variants 01 to 12 are qualified
Terminations:
Variants 01 to 12: metallised pads

Operating Temperature Range (°C):-55 to +125

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	t0	2 700	10

Types covered by similarity: Capacitance tolerances 5%, 10%, 20%		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3009 Detail ESCC 3009/041	AVX Limited Coleraine Northern Ireland	Qualification	ESA	April 2015
Characteristics: E12 value series Qualified Range: Variant 02 0603, Cn as in Detail specification, 5%, 10%, 20% tolerances, 16V, 25V, 50V, 100V rated Variant 03 0805, Cn as in Detail specification, 5%, 10%, 20% tolerances, 16V, 25V, 50V, 100V rated Variant 04 1206, Cn as in Detail specification, 5%, 10%, 20% tolerances, 16V, 25V, 50V, 100V rated Variant 05 1210, Cn as in Detail specification, 5%, 10%, 20% tolerances, 16V, 25V, 50V, 100V rated Variant 06 1812, Cn as in Detail specification, 5%, 10%, 20% tolerances, 16V, 25V, 50V, 100V rated Terminations: Cu and Ag-loaded epoxy + Ni barrier+ Sn/Pb plating finish (10% Pb minimum) Operating Temperature Range (°C):-55 to +125				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3012 Detail ESCC 3012/001	AVX Czech Republic sro Tantalum Division Lanskroun Czech Republic	Qualification	ESA	Jun 1993

Characteristics:
 	
Variants 01 to 07 and 11 to 17 are qualified
 	
Termination finish:
• A and B case sizes are available in NILO only, e.g.,
  • Variant 01 (A case), Variant 02 (B case)
• C, D, E case sizes are available as Copper only, e.g.,
  • Variant 13 (C case), Variant 14 (D case), Variant 17 (E case)				

Types covered by similarity: All CV product combinations allowed in 3012/004 are qualified		Remarks:		
Procurement Specifications	**Manufacturer**	**Nature of Approval**	**Supervising Authority**	**Initial Qualification Date**
Generic ESCC 3012 Detail ESCC 3012/004	AVX Czech Republic sro Tantalum Division Lanskroun Czech Republic	Qualification	ESA	Oct 2013

Variants 01 to 05. Case styles A (1206), B (1210), C (2312), D (2917), E (2917)

Capacitance C_n (µF)	Rated Voltage U_R							
	6.3V	10V	12V	16V	20V	25V	35V	50V
1						A 3000		B 2000
3.3					A 2500		B 1000	C 1000
4.7				A 2000		B 1000	C 600	D 200
10		A 1800			B 1000	C 600	D 120	
22	A 900			B 600	C 400		D 100	
33		B 650			C 300	D 65	E 65	
47	B 500			C 350	D 55	E 65		
100		C 200		D 55	E 45			
150	C 300	D 45		E 40				
220		D 35	E 35					
330	D 35	E 35						
470	E 30							

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3006 Detail ESCC 3006/022	Exxelia Technologies Chanteloup en Brie France	Qualification	CNES	Aug 1998

Characteristics: Operating Temperature Range, (°C): -55 to +125

All values defined by the ESCC Detail Specification

Capacitance Range (nF)			Tol. (±%)	U_R(kV)
33	to	2 200	10	1.5
15	to	1 500	10	2.5
15	to	1 000	10	3.5
6.8	to	470	10	5.0
2.2	to	220	10	7.5
1.0	to	100	10	10.0
3.3	to	68	10	12.5
1.5	to	33	10	15.0
0.68	to	15	10	20.0

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	Initial Qualification Date
Generic ESCC 3006 Detail ESCC 3006/024	Exxelia Technologies Marmoutier France	Qualification	CNES	Aug 2002

Characteristics: E12 Series

Sizes Available 01, 02, 03, 04

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

Where B= 6, 8, 10, 12, 14, 15 depending on capacitance value

Operating Temperature Range, (°C):
-55 to +125

Capacitance Range (µF)			Tol. (±%)	U_R(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

ESCC European Space Components Coordination
QPL

CAPACITORS,

FIXED, SURFACE MOUNT, D.C. SELF-HEALING, NON-INDUCTIVE, POLYTEREPH-THALATE DIELECTRIC,

BASED ON TYPE PM94S

Certificate

270 F

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3006 Detail ESCC 3006/025 ESCC 3006/026	Exxelia Technologies Marmoutier France	Qualification	CNES	Mar 2016
Characteristics: Operating Temperature Range, (°C): -55 to +125 All variants in the ESCC Detail specifications 3006/025 and 3006/026 are qualified.				

Types covered by similarity:

Unless otherwise stated in Table 1(a) of the Detail Specification, 10% and 20% tolerance are available.

Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 5010 Detail ESCC 5711/002	COBHAM MICROWAVE Les Ulis France	Qualification	CNES	Dec 2008

Characteristics: Operating Temperature Range, (°C): $^{-}55$ to $^{+}150$

All variants defined by the ESCC Detail Specification.

Type	Capacitance Range (pF)	U_R(V)
400M106A & C 400M10xA & 107C 400M108A & C 400M110A & C 400M113J & 114J	8.2, 10, 12, 15 18, 22, 27, 33, 39 47, 56, 68 81, 100 10	40
101M106A & C 101M10xA & 107C 101M108A & C	3.9, 4.7, 5.6, 6.8 10, 12, 15 22, 27, 33, 39	100
201M106C 201M106A 201M10xA & 107C 201M108A & C 201M111J & 112J	2.2, 2.7, 3.3 0.1X (201M106C, -107C, -108C) + 210M106C 3.9, 4.7, 5.6, 6.8, 8.2 10, 12, 15, 18 0.25 & 0.4	200
401M111J 401M112J	0.125 0.2	400

Section 02 **Component Type: Connectors**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
02-01			Multipin, Solder Contacts	
	02-01-001-1	71 Q Rev 1	D*M Series, Rectangular	C&K COMPONENTS
	02-01-001-2	155 M	D*M Series, Rectangular	SOURIAU
02-02			Multipin, Crimp Contacts	
	02-02-001-1	72 Q	D*MA Series, Rectangular	C&K COMPONENTS
	02-02-001-2	156 L	D*MA Series, Rectangular	SOURIAU
	02-02-003	25 P	DBAS Series, Circular	Deutsch
	02-02-005	220 H	Series I, Circular, Crimp	SOURIAU
	02-02-006	221 H	Series II, Circular, Crimp	SOURIAU
	02-02-007-1	222 H	Series III, Circular, Miniature	SOURIAU
	02-02-008	223 G	Series III, Hermetic	SOURIAU
	02-02-009	288 C	ACB1 Series	Axon' Cables
	02-02-010	337	Fast-locking Screw Lock Assemblies	C&K COMPONENTS
02-03			Printed Circuit Board	
	02-03-001-1	99 N	HE 801 Series	Smiths Connectors Hypertac
	02-03-002-1	149 L	KMC Series	Smiths Connectors Hypertac
	02-03-003-1	250 G	MHD Series	Smiths Connectors Hypertac
	02-03-004-1	281 D	IHD INTERPOSER	Smiths Connectors Hypertac
02-04			R.F. Coaxial	
	02-04-001	68 N	SMA Series	Radiall
	02-04-002	283 D	SMA 2.9	Radiall
	02-04-003	329 A	SMA, SMA 2.92, TNC and SMP	Rosenberger
02-05			Micro-miniature, Crimp Contacts	
	02-05-001-1	140 N Rev 1	MDM Series, Rectangular	C&K COMPONENTS
	02-05-002-1	141 N	MTB Series, Rectangular	C&K COMPONENTS
	02-05-003-1	290 C Rev 1	MDMA, Rectangular	C&K COMPONENTS
	02-05-004-1	301 C	8MCG, Rectangular	SOURIAU

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3401 Detail ESCC 3401/001 3401/004 3401/022 3401/040 3401/072 3401/080	C&K COMPONENTS Dole France	Qualification	CNES	Feb 1981

Characteristics:	Shell Size: E, A, B, C, D, F
Range of Contacts:	9, 15, 25, 37 and 50 size 20 contacts for standard density layout 3W3 to 8W8, 5W1 to 47W1 combined contact arrangements 15, 26, 44, 62, 78 and 104 size 22 contacts for high density layout
Mounting Type:	Blank: standard mounting holes; Y: floating mount; E: captive nuts
Range of Connectors:	3401/001: Variants 01 & 02
Range of Contacts:	3401/004: Variants 01 to 25; 3401/022: 01 to 97; 3401/040: 01 to 17; 3401/080: 01 3401/072: Variants 05 to 19, 25 to 39, 46 to 55, 61 to 65, 72, 73, 76 to 80

Termination contacts: solder bucket, straight PCB, 90 ^{o} PCB
Gold-plated non-magnetic coating
Coaxial contact arrangements: 3401/004 variants 01 to 25: Power contact arrangements: 3401/040 variants 01 to 17

Operating Temperature Range (°C): -55 to +125

ESCC European Space Components Coordination QPL	CONNECTORS, ELECTRICAL, SOLDER AND WIRE WRAP CONTACTS, RECTANGULAR RECEPTACLE AND PLUG, BASED ON TYPE D*M	Certificate 71 Q Rev 1	Page 02-01 001-1

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3401 Detail ESCC 3401/001 3401/022 3401/072	SOURIAU Connection Technology Marolles en Brie France	Qualification	CNES	Sep 1988

Characteristics:	Complete range as defined in the Detail Specifications are qualified except for • high density 104 contacts arrangement • coaxial and power contacts and arrangement
Range of Connectors:	3401/001: variants 01 to 02
Range of Contacts:	Size 20 : 9, 15, 25, 37 and 50 contacts, Size 22: 15, 26, 44, 62, 78 contacts 3401/022: variants 01 to 16 & 44 to 57 & 65 to 80 3401/072: variants 01 to 65
Mounting Type=	blank: standard mounting holes; Y: floating mount; E: captive nuts
Gold-plated non-magnetic coating	
Operating Temperature Range (°C): -55 to +125	

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3401 Detail ESCC 3401/002 3401/005 3401/020 3401/021	C&K COMPONENTS Dole France	Qualification	CNES	Feb 1981

Characteristics:	Complete range defined in the corresponding Detail Specifications are qualified Shell Size: E, A, B, C, D, F
Range of Connectors:	3401/002: variants 01 and 02 9, 15, 25, 37 and 50 size 20* contacts for standard density layout
Range of Contacts: 3401/005: variants 01 to 08 3401/020 variants 01 & 02 3401/021: variants 01 & 02	*Accepts wire sizes : AWG # 20 to 24 (standard bucket: variants 01 and 02) per 3401/005 : AWG # 26 and 28 (reduced bucket: variants 03 and 04) per 3401/005 :AWG # 18 and 20 (large bucket: variants 05 to 06) per 3401/005 15, 26, 44, 62, 78 and 104 size 22** contacts for high density layout ** Accepts wire sizes AWG # 22 to 26 (standard bucket: variants 07 to 08) per 3401/005

Mounting Type: Blank: standard mounting holes; Y: floating mount; E: captive nuts
Gold-plated non-magnetic coating
Connector Savers: For usage with above connector range

Operating Temperature Range (°C): -55 to +125

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3401 Detail ESCC 3401/002 3401/005 3401/020 3401/021 3401/022 3401/072	SOURIAU Connection Technology Marolles en Brie France	Qualification	CNES	Sep 1988

Characteristics:	Complete range as defined in the Detail Specifications except high density 104 contacts arrangement are qualified Accessories variants qualified: 3401/022: variants 01 to 16, 44 to 57, 65 to 80 3401/072: variants 01 to 65
Range of Connectors:- 3401/002: variants 1 & 2 3401/005: variants 1 to 8 3401/021 & 22: variants 1 & 2	*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# 18 and 20 (large bucket: variants 05 and 06) *Accepts wire size AWG # 22, 24 and 26 (contact AWG # 22 for high density, contact arrangements, variants 07 and 08)
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
Gold-plated non-magnetic coating	Connector Savers- For usage with connector range defined above
Operating Temperature Range (°C): -55 to +125	

Types covered by similarity:		Remarks:		
Procurement Specifications	**Manufacturer**	**Nature of Approval**	**Supervising Authority**	**Initial Qualification Date**
Generic ESCC 3401 Detail ESCC 3401/008 3401/009 3401/012 3401/064	Cie DEUTSCH Evreux France	Qualification	CNES	Jul 1979
Characteristics: 3401/008: Variant 01 3401/009: Variants 01 to 20; 3401/012: Variants 01 to 04; 3401/064: Variants 01 to 41 Circular Multicontact connectors Standard contact arrangements with 3, 7, 12, 19, 27, 37 or 61 contacts in wire size AWG # 20 Special contact arrangements with contacts size AWG 22, 20, 16, 12 and 8 Operating Temperature Range (°C): -65 to +200				

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3401 Detail ESCC 3401/052 3401/058 3401/062	SOURIAU Connection Technology Marolles en Brie France	Qualification	CNES	May 1995

Characteristics: All connector variants are qualified
For 3401/058, variants 01 to 14 are qualified
For 3401/062, variants 01 to 27 are qualified

Contact Size	Ratings (A)
4	80
8	46.0
12	23.0
16	13.0
20	7.5
22	5.0

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

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

ESCC European Space Components Coordination QPL	CONNECTORS, ELECTRICAL, CIRCULAR, BAYONET COUPLING, SCOOP-PROOF, REMOVABLE CRIMP CONTACTS, BASED ON TYPE MIL-C-38999, SERIES	Certificate 220 H	Page 02-02 005

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3401 Detail ESCC 3401/044 3401/045 3401/062	SOURIAU Connection Technology Marolles en Brie France	Qualification	CNES	May 1995

Characteristics: 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

Contact Size	Ratings (A)
12	23.0
16	13.0
20	7.5
22	5.0

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

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

ESCC European Space Components Coordination
QPL

CONNECTORS,
ELECTRICAL, CIRCULAR, BAYONET COUPLING,
REMOVABLE CRIMP CONTACTS,
BASED ON TYPE MIL-C-38999, SERIES II

Certificate
221 H

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3401 Detail ESCC 3401/056 3401/058 3401/062 3401/066 3401/070	SOURIAU Connection Technology Marolles en Brie France	Qualification	CNES	May 1995

Charac-teristics:
3401/056 all variants are qualified
3401/058 variants 01 to 14 are qualified
3401/062 variants 28 to 54 are qualified
3401/066 variants 01 and 02 are qualified
3401/058 crimp contacts and 3401/066 triax contacts to be mounted on 3401/056 connectors
3401/070 connector receptacles with PCB contacts

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 contacts

Operating Temperature Range (°C): $^{-}$65 to $^{+}$200

ESCC European Space Components Coordination
QPL

CONNECTORS, MINIATURE, ELECTRICAL, CIRCULAR, TRIPLE-START SELF-LOCKING COUPLING, SCOOP-PROOF, REMOVABLE AND NON-REMOVABLE CRIMP CONTACTS
BASED ON TYPE MIL-C-38999, SERIES III

Certificate
222 H

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3401 Detail ESCC 3401/057	SOURIAU Connection Technology Marolles en Brie France	Qualification	CNES	May 1995

Characteristics: All variants are qualified

Contact Size	Ratings (A)
8, 12, 16 20, 22D	33, 17, 10 5.0, 3.0

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)

Receptacle Shell Sizes: 09, 11, 13, 15, 17, 19, 21, 23, 25

Receptacle (contacts # 8, 12, 16, 20, 22D) and Feedthrough (contacts # 8, 12, 16, 20, 22D)

Operating Temperature Range (°C): $^{-}$65 to $^{+}$200

ESCC European Space Components Coordination QPL	CONNECTORS, MINIATURE, ELECTRICAL, CIRCULAR, TRIPLE-START SELF-LOCKING COUPLING, SCOOP-PROOF, HERMETIC RECEPTABLE AND FEEDTHROUGH, BASED ON TYPE MIL-C-38999, SERIES III	Certificate 223 G	Page 02-02 008

Types covered by similarity: Variants 01, 03 to 05, 07 to 09, 11 to 13, 15 to 18		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3401 Detail ESCC 3401/079	AXON' CABLE S.A. Montmirail France	Qualification	CNES	May 2009
Characteristics: Variants 01 to 18 are qualified Variants 01 to 08: Plug 3 and 4 Lugs, Straight and Right Angle with pin contact Variants 09 to 18: Bulkhead Jacks, 3 and 4 Lugs, Straight and Right Angle with solder contact All cables are 77Ω MIL-STD– 1553B Data Bus twisted shielded pairs Working Voltage: 200 Vrms Rated Current (contact): 1A Operating Temperature Range (°C): $^{-}$55 to $^{+}$150				

Types covered by similarity: Variants 01 TO 06. Variant 06 is mandatory where applicable		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3401 Detail ESCC 3401/085	C&K Components Dole France	Qualification	CNES	Jan 2016
Characteristics: Variants All Variants are qualified. Variant 06 is mandatory where applicable Operating Temperature Range (°C): $^{-}$55 to $^{+}$125				

Types covered by similarity:		Remarks:		
Procurement Specifications	**Manufacturer**	**Nature of Approval**	**Supervising Authority**	**Initial Qualification Date**
Generic ESCC 3401 Detail ESCC 3401/016 3401/017	Smiths Connectors - Hypertac Saint-Aubin-Lès-Elbeuf France	Qualification	CNES	Nov 1982
Characteristics: All variants are qualified 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				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3401 Detail ESCC 3401/039	Smiths Connectors - Hypertac Saint-Aubin-Lès-Elbeuf France	Qualification	CNES	Mar 1987
Characteristics: 3 rows contacts: 26, 44, 62, 80, 98, 144 Contact codes: 10, 30, 31, 40, 50, 51 and 91 Guiding and locking devices codes: 110, 121, 143, 201, 202, 204, 206, 703 Contact Ratings: 2 A (1 contact) Operating Temperature Range (°C): -55 to +125				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3401 Detail ESCC 3401/065	Smiths Connectors - Hypertac Saint-Aubin-Les-Elbeuf France	Qualification	CNES	Aug 1998
Characteristics: 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 Operating Temperature Range (°C): -55 to +125				

Types covered by similarity:		Remarks:		
Procurement Specifications	**Manufacturer**	**Nature of Approval**	**Supervising Authority**	**Initial Qualification Date**
Generic ESCC 3401 Detail ESCC 3401/076	Smiths Connectors - Hypertac Saint-Aubin-Les-Elbeuf France	Qualification	CNES	Aug 2007

Characteristics: All design envelops specified in Table 1(a) of ESCC Detail Specification are qualified

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 N-cm

Operating Temperature Range (°C): $^{-}$55 to $^{+}$125

ESCC European Space Components Coordination QPL	CONNECTORS, ELECTRICAL, CRIMP CONTACTS, Z-AXIS INTERPOSER, PRINTED CIRCUIT BOARD, BASED ON TYPE RX	Certificate 281 D	Page 02-03 004-1

Types covered by similarity: - Hermetically sealed receptacle		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3402 Detail ESCC 3402/001 3402/002 3402/003	RADIALL Saint-Quentin-Fallavier France	Qualification	CNES	Feb 1981
Characteristics: Frequency Range 0-18 GHz 3402/001 Pin contact (Plug). Variants 01 to 47 (except 11, 19, 31 –not in use) 3402/002 socket contact (Receptacle). Variants 01 to 85 (except 33, 35, 52 –not in use) 3402/003 Adapters. Variants 01 to 14 Crimp– or solder-type contact for flexible and semi-rigid cables, contacts for micro strip Shell material and finish: Berylium copper gold plated, copper or nickel underplate; stainless steel, electro-passivated or gold plated. Operating Temperature Range (°C): See Detail Specifications				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3402 Detail ESCC 3402/021 3402/022 3402/023	RADIALL Saint-Quentin-Fallavier France	Qualification	CNES	Dec 2007
Characteristics: Frequency Range 0-40 GHz 50 Ohms 3402/021 Pin contact (Plug). Variants 01 to 05 and 07 3402/022 Socket contact (Receptacle). Variants 01 to 05 3402/023 Adapters. Variants 01 to 06 Crimp– or solder-type contact for flexible and semi-rigid cables, contacts for micro strip Shell material and finish: passivated amagnetic stainless steel. Operating Temperature Range (°C): -65 to +165				

Types covered by similarity: See below the range of qualified variants for each specification		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3402 Detail ESCC 3402/001, 3402/002, 3402/003 (SMA range) 3402/008, 3402/009, 3402/010 (TNC range) 3402/021, 3402/022, 3402/023 (SMA 2.9 range) 3402/024, 3402/025, 3402/026 (SMP range)	Rosenberger Fridolfing Germany	Qualification	DLR	Dec 2013
Qualified variants: 3402/001: 1 to 10, 12 to 18, 20 to 30, 32 to 35, 37 to 47 3402/002: 1 to 24, 27 to 32, 34, 36 to 51, 53 to 61, 65 to 71 3402/003: 1 to 6, 8 to 14 3402/008: 1 to 7; 3402/009: 1 to 5; 3402/010: 1 to 5 3402/021: 1 to 5, 7; 3402/022: 1 to 5; 3402/023: 1 to 6 3402/024: 1 to 26, 28 to 35; 3402/025: 1 to 14; 3402/026: 1 to 13				

Types covered by similarity:	Remarks: 3401/029 termination types GMR7580 and GMR7590 are NOT qualified.

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3401 Detail ESCC 3401/029 3401/041 3401/032 3401/087	C&K COMPONENTS Dole France	Qualification	CNES	Oct 1986

Characteristics:

Layout: 9 - 15 - 21- 25 - 31 - 37 - 51 Contacts, Non removable crimp contacts
Variants: 3401/029: 01 and 02
3401/041: 01 to 07
3401/032: 03, 04, 07 to 17
3401/087: 01 to 56
Termination types:
AWG 25: Uninsulated rigid wire. Bent and straight PCB - Max rated: 2.5 A
AWG 26: ESCC 390101302, ESCC 390100256 - Max rated: 2.5 A
AWG 28: ESCC 390101301, ESCC 390100261 - Max rated: 1.5 A

Nickel or Gold Plated Shells, Operating Temperature Range (°C): -55 to +125

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3401 Detail ESCC 3401/031	C&K COMPONENTS Dole France	Qualification	CNES	Oct 1986
Characteristics: Shell sizes: 5 through 81 contacts, Non removable crimp contacts Variants: 3401/031: 01&02 Termination Types: AWG 25: Uninsulated rigid wire. Bent PCB - Max rated: 2.5 A AWG 26: ESCC 390101302 - Max rated: 2.5 A AWG 28: ESCC 390101301 - Max rated: 1.5 A Operating Temperature Range (°C): -55 to +125				

Types covered by similarity: Contact sizes 21, 31		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3401 Detail ESCC 3401/077 3401/078	C&K COMPONENTS Dole France	Qualification	CNES	Jun 2009
Characteristics: All variants are qualified Range of contacts: 9 - 15 - 21- 25 - 31 - 37—51 Accepts wires AWG 24 or 2x28 in crimping barrel AWG 24 Accepts wires AWG 26 and 28 in crimping barrel AWG 26 Max. rating for 1 isolated contact:- AWG 24 wire: 3.5 A AWG 26 wire and uninsulated AWG 25 solid wire: 2.5 A AWG 28 wire: 1.5 A Nickel or Gold Plated Shells Working Voltage (Max.) 150Vrms Operating Temperature Range (°C): $^{-}$55 to $^{+}$125				

ESCC European Space Components Coordination QPL	CONNECTORS, ELECTRICAL, RECTANGULAR, MICROMINIATURE, REMOVABLE CRIMP CONTACT, BASED ON TYPE MDMA	Certificate 290 C Rev 1	Page 02-05 003-1

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3401 Detail ESCC 3401/081 3401/082 3401/083 3401/084	SOURIAU Connection Technology Marolles en Brie France	Qualification	CNES	Jun 2010
Characteristics: 3401/081: Shell variant 01 (glass-fibre reinforced thermoplastic), variant 02 (aluminium alloy). Contacts arrangements 7, 13, 25, 51, 104 contacts. Contacts termination OL3 (straight PCB), 1A7N (90^0 PCB 2.54mm spacing), 1B7N (90^0 PCB 2.54mm spacing). Gold-plated shells. 3401/082: Shell variant 01 (glass-fibre reinforced thermoplastic), variant 02 (aluminium alloy). Contacts arrangements 7, 13, 25, 51, 104 contacts. 3401/083: Contacts variant 01 (male crimp barrel 26), 02 (female crimp barrel 26), 03 (male crimp barrel 24), 04 (female crimp barrel 24). Accepts wires AWG 24, 26, 28 3401/084: Accessories variants 01 to 62. Operating Temperature Range (°C): $^{-}55$ to $^{+}125$				

Section 03 **Component Type: Crystals**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
03-01			Crystals	
	03-01-001-2	333	TO-5 Can	RAKON (F)
	03-01-001-3	308 B	TO-5 Can	KVG (D)
	03-01-002-2	334	TO-8 Can	RAKON (F)
	03-01-002-3	309 B	TO-8 Can	KVG (D)

Types covered by similarity:

All variants previously specified in (retired) specifications: 3501/001, 3501/008, 3501/011, 3501/012

Remarks: Upon receipt of a request for any retired Variant, the Manufacturer will allocate a new Specific Crystal Identification Number in accordance with 3501/018. It will have identical crystal characteristics to those of the retired variant.

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3501 Detail ESCC 3501/018	RAKON France Pont Sainte Marie France	Qualification (Previously qualified in Argenteuil site)	CNES	Sept 2015 (Oct 1979)

Characteristics: All variants are qualified.
TO-5 Can (T 807)

Frequency Ranges:

	AT (MHz)	SC (MHz)
P1	14 to 35	15 to 38
P3	20 to 100	22 to 110
P5	45 to 140	55 to 140

Types covered by similarity: All variants previously specified in (retired) specifications: 3501/001, 3501/008, 3501/011, 3501/012		Remarks: Upon receipt of a request for any retired Variant, the Manufacturer will allocate a new Specific Crystal Identification Number in accordance with 3501/018. It will have identical crystal characteristics to those of the retired variant.		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3501 Detail ESCC 3501/018	KVG Quartz Crystal Technology GmbH Neckarbischofsheim Germany	Qualification	DLR	Apr 2011
Characteristics: All variants are qualified. TO-5 Can (T 807) Frequency Range: 8 - 140 MHz				

Types covered by similarity:

All variants previously specified in (retired) specifications: 3501/002 and 3501/009

Remarks: Upon receipt of a request for any retired Variant, the Manufacturer will allocate a new Specific Crystal Identification Number in accordance with 3501/019. It will have identical crystal characteristics to those of the retired variant.

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3501 Detail ESCC 3501/019	RAKON France Pont Sainte Marie France	Qualification (Previously qualified in Argenteuil site)	CNES	Sept 2015 Oct 1979

Characteristics: All variants are qualified.

TO-8 Can (T 1507)

Frequency Ranges:

	AT (MHz)	SC (MHz)
P1	3 to 20	3 to 22
P3	10 to 30	10 to 33
P5	15 to 65	16 to 71

Types covered by similarity: All variants previously specified in (retired) specifications: 3501/002 and 3501/009		Remarks: Upon receipt of a request for any retired Variant, the Manufacturer will allocate a new Specific Crystal Identification Number in accordance with 3501/019. It will have identical crystal characteristics to those of the retired variant.		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3501 Detail ESCC 3501/019	KVG Quartz Crystal Technology GmbH Neckarbischofsheim Germany	Qualification	DLR	Apr 2011
Characteristics: All variants are qualified. TO-8 Can (T 1507) Frequency Range: 2.5 - 26 MHz				

Section 04 **Component Type: Diodes**

04-01			Switching	
	04-01-003-2	311 B	Types 1N6640U and1N6642U	STMicroelectronics
04-02			Power Rectifier	
	04-02-001-3	297 C	Types 1N5806U and 1N5811U	STMicroelectronics
	04-02-001-4	302 C	Types 1N5819U and 1N5822U	STMicroelectronics
	04-02-002-1	272 G	Type STPS20100	STMicroelectronics
	04-02-003-1	274 F	Types BYW-81 and BYV54	STMicroelectronics
04-05			RF/Microwave, Silicon Schottky	
	04-05-001-3	227 F	Schottky, BAS40, BAS70, BXY42-44	Infineon
04-13			RF/Microwave, Varactors	
	04-13-003 1A-B	200 G	PIN and Varactors	API Technologies - RF2M Division
	04-13-003-2A-B	225 F	Multiplier and PIN, DH 2xx and DH 50xxx	Cobham Microwave
	04-13-003-3	273 E	Varactor, Tuning, DH 76xxx	Cobham Microwave

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 5000 Detail ESCC 5101/026 5101/027	ST Microelectronics Rennes France	Qualification	CNES	May 2011

Characteristics:

Type	Variants	V_{BR} (V)	V_{RWM} (V)	I_{FSM} (A)	Case
1N6640U	07, 08	75	75	2	LCC2-D
1N6642U	07, 08	100	100	2	LCC2-D

Operating Temperature Range (°C): $^{-}$65 to $^{+}$175

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 5000 Detail ESCC 5101/013 5101/014	ST Microelectronics Rennes France	Qualification	CNES	Nov 2009

Characteristics:

ESCC	Type	Variants	V_{BR} (V)	V_{RWM} (V)	I_{FSM} (A)	Case
5101/014	1N5806U	13, 14	160	150	33	LCC2-A
5101/013	1N5811U	11, 12	160	150	100	LCC2-B

Operating Temperature Range (°C): $^{-}$65 to $^{+}$175

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 5000 Detail ESCC 5106/020 5106/021	ST Microelectronics Rennes France	Qualification	CNES	Sep 2010

Characteristics: Variants 01 and 02 of 5106/020 and Variants 02 and 03 of 5106/021 are qualified

Type	V_{RWM} (V)	dV/dt (V/µs)	I_R (µA) @ V_R= 40	I_{FSM} (A)	I_O (A) @ Tamb
1N5819U	40	10 000	15 (DC)	25	1
1N5822U	40	10 000	80 (pulse)	80	3

Operating Temperature Range (°C): $^{-}$65 to $^{+}$150
Package Type: LCC2-B

DIODES, POWER SCHOTTKY,

BASED ON TYPES 1N5819U AND 1N5822U

Certificate

302 C

Types covered by similarity: see next page		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 5000 Detail ESCC 5106/016 5106/017 5106/018 5106/019	ST Microelectronics Rennes France	Qualification	CNES	Nov 2002
Characteristics: Maximum Ratings for 5106/016: V_{RRM}: 100 V I_O: 2 x 20 A dV/dt 10 000 V/µs T_J: $^{+}$175°C Package Types TO254, SMD.5 and SMD1 Operating Temperature Range (°C): $^{-}$65 to $^{+}$175				

ESCC European Space Components Coordination QPL	DIODES, POWER, SCHOTTKY BARRIER, BASED ON TYPE STPS20100	Certificate 272 G	Page 04-02 002-1A

Types covered by similarity:

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ESCC COMP. NO.	VARANTS	RANGE OF COMPONENTS	BASED ON	Test Vehicle/s
5106/016	05,06,07,11	TO-254, SMD0.5, SMD1	STPS20100	33125118ZR
5106/017	01, 02	SMD0.5	STPS1045S	33125209ZN
5106/018	02	SMD1	STPS6045	
5106/019	03, 05	TO254, SMD1	STPS40100	

Types covered by similarity:		Remarks:		
Procurement Specifications	**Manufacturer**	**Nature of Approval**	**Supervising Authority**	**Initial Qualification Date**
Generic ESCC 5000 Detail ESCC 5103/029 5103/031	ST Microelectronics Rennes France	Qualification	CNES	Aug 2003

Characteristics:

5103/029 variants 05 07 and 08 are qualified (types BYW81-200)
5103/031 variant 02 to 05 are qualified (types BYV54-200)
Maximum Ratings:

V_{RRM}:	200 V
I_O:	40 A for BYV 54-200, 15 and 30 A for BYW-81-200
T_J:	$^{+}$150°C
Package Types	TO254, TO254AA and SMD0.5

Operating Temperature Range (°C): $^{-}$55 to $^{+}$150

ESCC European Space Components Coordination QPL	DIODES, SILICON, POWER RECTIFIER, HIGH EFFICIENCY, FAST RECOVERY, BASED ON TYPES BYW81 AND BYV54	Certificate 274 F	Page 04-02 003-1

Types covered by similarity:		Remarks: Revision F includes devices previously qualified under Certificates 224 and 236.		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 5010 Detail ESCC 5512/020 ESCC 5513/017 ESCC 5513/030	INFINEON Technologies AG Neubiberg Germany	Qualification	DLR	Sep 1995
Characteristics: Variants 01 and 03 are qualified 5512/020 Variants 01 and 02 are qualified 5513/017 Variants 01, 02, 05, and 06 are qualified 5513/030				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 5010 Detail ESCC See types covered by similarity	API Technologies - RF2M Milton Keynes England	Qualification	UK Space Agency	Dec 1993
Characteristics: Operating Temperature Range (°C): -65 to +125 and 150				

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

Types covered by similarity:		Remarks: Certificate 259C has been merged with this certificate beginning February 2012.		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 5010 Detail ESCC Please refer to the next page	COBHAM MICROWAVE Villebon Sur Yvette France	Qualification	CNES	Jun 1995
Characteristics: Refer to the Detail Specifications Operating Temperature Range (°C): $^{-}$55 to $^{+}$125				

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
5512/016	DH 267, Variants 10 to 15 and 16
5512/016	DH 292, Variants 20 to 25 and 26
5512/016	DH 256, Variants 30 to 35 and 36
5512/016	DH 252, Variants 40 to 45 and 46
5512/016	DH 294, Variants 50 to 55 and 56

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 5010 Detail ESCC 5512/023	COBHAM MICROWAVE Villebon Sur Yvette France	Qualification	CNES	Jun 2003

Characteristics: All variants are qualified.

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

Maximum Ratings: V_R = 20 at I_R = 10 µA and T_{amb} = +25 °C

Operating Temperature Range (°C): -55 to +155

Section 05 **Component Type: Filters**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
05-01			Feedthrough	
	05-01-001-A-B	252 H	Types SFC, SFL, SFP	Exxelia Technologies
05-02			SAW	
	05-02-001	313 B	SAW Filters (transversal band pass/ resonator/notch/low loss impedance element)	Kongsberg Norspace

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3008 Detail ESCC Please refer to the next page	Exxelia Technologies Chanteloup en Brie France	Qualification	CNES	Aug 1998
Characteristics: All variants specified in the Detail Specifications are qualified. Operating Temperature Range (°C): -55 to $^{+}$125				

Types covered by certificate:

Domain	Style	Detail Specification	Variants	Capacitance Range (nF)	Rated Current (A)	Rated Voltage (V)
SFC, Hermetic, Glass Fill	SFC 060	3008/026	01 to 06	0.68 to 220	10	25 to 200
	SFC 100	3008/027	01 to 06	1.0 to 1000	10	25 to 200
SFP, Hermetic, Glass Fill	SFP 060	3008/021	01 to 14	2.4 to 89.6	10	35 to 500
	SFP 100	3008/028	01 to 06	0.16 to 1 312.0	10	50 to 300
SFL, Hermetic, Glass Fill	SFL 100	3008/029	01 to 48	17.6 to 1 600	5, 10, 15	40 to 300
				Capacitance Range (pF)		
SFC, Non-Hermetic, Resin Fill	SFC 035	3008/031	01 to 06	470 to 22 000	10	25 to 200
	SFC 040	3008/032	01 to 12	470 to 22 000	10	25 to 200
	SFC 060	3008/033	01 to 12	680 to 220 000	10	25 to 200
SFP, Non-Hermetic, Resin Fill	SFP 035	3008/025	01 to 20	2 400 to 35 200	10	35 to 200
	SFP 040	3008/014	01 to 40	750 to 4 800	10 (DC 7 LF)	70 to 250
	SFP 060	3008/030	01 to 28	2 400 to 89 600	10	35 to 500
				Capacitance Range (pF)		
SFC, Mixed fill, for soldering	SFC 030V	3008/020	01 to 12	470 to 22 000	1.0 to 5.0	25 to 200

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3502 Detail ESCC 3502/002	Kongsberg Norspace Norway	Qualification	ESA/ESTEC	Aug 2011
Characteristics:				

ESCC QPL	SAW FILTERS (TRANSVERSAL BAND PASS/RESONATOR/NOTCH/ LOW LOSS IMPEDANCE ELEMENT)	Certificate 313 B	Page 05-01 002

Section 06 **Component Type: Fuses**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
06-01			Thin film	
	06-01-001	284 D	Type MGA-S	Schurter
	06-01-002	336 A	Type HCSF	Schurter

Types covered by similarity: Variants 02 to 07, 09, 10, 11		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 4008 Detail ESCC 4008/001	Schurter Lucerne Switzerland	Qualification	ESA	Jun 2008
Characteristics: Variants 01 to 12 are qualified. Rated Voltage (VAC or VDC): 125/125, 63/125 and 32/125 by variant Rated Current (VAC and VDC): 0.14 to 3.5 A by variant AC Interrupt Current (A): 50 at maximum rated voltage, power factor> 0.95 DC Interrupt Current (A): at maximum rated voltage, time constant ≤ 1 ms Variants 01 to 10: 300, Variants 11 and 12: 50 Operating Temperature Range, (°C): -50 to +125 (90% I_R to 107% I_R)				

Types covered by similarity: Variants 24, 26, 28 , 32 are qualified (5A, 7.5A, 10A, 15A)		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 4008 Detail ESCC 4008/002	Schurter Lucerne Switzerland	Qualification	ESA	Jan 2016
Characteristics: Variants 24, 26, 28 , 32 are qualified. Operating Temperature Range, (°C): -50 to +125 (T_{amb} 106% I_R to 80% I_R)				

ESCC European Space Components Coordination QPL	FUSES, SOLID STATE, THIN FILM, BASED ON TYPE HCSF	Certificate 336 A	Page 06-01 002

Section 07 **Component Type: Inductors**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
07-01			Fixed, RF	
	07-01-001	241 H	Types MSCl 10K, 12K, 20K and H01	Exxelia Magnetics
07-02			Power	
	07-02-002	276 E	Types SESI and CMC	Exxelia Magnetics

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3201 Detail ESCC 3201/008	Exxelia Magnetics (Microspire) Illange France	Qualification	CNES	Apr 1997

Characteristics: Variants 01 to 05 are qualified

Series No.	Range (µH)	Tolerance (±%)	Q min.	Min. SRF f_r (MHz)	Max. DCR, R_{dc} (Ω)	Rated DC Current, I_R (mA)
10k	0.010- 10	2.0, 5.0, 10	60 - 42	1000 - 33	0.025 - 3.3	750 - 87
12k	12 - 1000	2.0, 5.0, 10	56 - 12	26 - 1.5	2.0 - 120	110 - 15
20k	0.010 - 1000	10	75 - 30	1000 - 1.7	0.04 - 80	1000 - 25
H01	0.380 - 100	15	30	8	0.029 - 3.8	1500 - 100

Dielectric Withstanding Voltage (DWV): 200 Vrms

Operating Temperature Range (°C): -55 to +125

Types covered by similarity:	Remarks: Termination finish shall be Sn90Pb10

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3201 Detail ESCC 3201/009 3201/010	Exxelia Magnetics (Microspire) Illange France	Qualification	CNES	Apr 2004

Characteristics: 3201/009 Variants 01 to 08 are qualified
3201/010 Variants 01, 03 and 05 are qualified

3201/009

SESI	14	15	15W	18	9.1	22	32WR	32PR
Variant	01	02	03	04	05	06	07	08

3201/010

CMC	15	18	22
Variant	01	02	03

Operating Temperature Range (°C): $^{-}$55 to $^{+}$125

Section 08 **Component Type: Microcircuits**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
08-80			Digital C-MOS	
	08-80-001-2 A to E	73 Q	4000 B Series	ST Microelectronics
	08-80-002-2 A to F	190 L	54HCMOS Series	ST Microelectronics
	08-80-003	278 E rev1	MH1RT	Microchip Atmel
	08-80-004	312 B rev1	Types ATC18RHA, ATF280F and ATF280F	Microchip Atmel
	08-80-005	342 rev1	ATMX150RHA	Microchip Atmel
08-90			Linear Switching Regulator	
	08-90-001	344	Pulse Width Modulator, based on types ST1843 and ST1845	ST Microelectronics

Types covered by similarity: See next pages		Remarks: Various products have been terminated —last time buy 30th June 2017. Please refer to the next 4 pages. For more information contact ST Microelectronics REF: PCN/RNS/HR/17001		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 9000 Detail ESCC See types covered by similarity	ST Microelectronics Rennes France	Qualification	CNES	Apr 1981
Characteristics: Package Types: Ceramic Dual-in-Line Ceramic Flat Pack				

ESCC QPL	MICROCIRCUITS, DIGITAL, C-MOS-B, 4000B SERIES	Certificate 73 Q	Page 08-80 001-2A

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 *Product Terminated -Last time buy 30-Jun-17*
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
9204/020	Decade counter/divider	4017B
9204/021	Presettable 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 *Product Terminated -Last time buy 30-Jun-17*
9201/046	Triple 3-input NOR gate	4025B *Product Terminated -Last time buy 30-Jun-17*
9203/022	Dual J-K master slave flip-flop	4027B

Types covered by similarity:

ESCC Spec. No.	Component Type	Component Type
9205/010	BCD-to-decimal or binary-to-octal decoder	4028B
9204/025	Presettable up/down counter binary or BCD decade	4029B
9201/047	Quad 2-input exclusive OR gates	4030B
9306/025	8-stage static bidirectional parallel/serial input/output bus register with 3 state output	4034B *Product Terminated - Last time buy 30-Jun-17*
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 *Product Terminated -Last time buy 30-Jun-17*
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

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 *Product Terminated -Last time buy 30-Jun-17*
9201/052	Quad 2-input AND gate	4081B
9201/066	Dual 4-input AND gate	4082B
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

Types covered by similarity:

ESCC Spec. No.	Component Type	Component Type
	Hex non-inverting buffers with 3-state output	4503B
	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
9409/005	Hex Schmitt-trigger	40106B
9401/013	Dual 2-input NAND buffer/driffer	40107B
9407/003	Quad low-to-high 3-state voltage level shifter	40109B
9204/054	Programmable 4-bit binary counter with asynchronous clear	40161B
9203/038	Hex D-type flip-flop	40174B
9204/041	Presettable binary up/down counter (dual clock with reset)	40193B

Types covered by similarity: See next pages .		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 9000 Detail ESCC See types covered by similarity	ST Microelectronics Rennes France	Qualification	CNES	Nov 1992
Characteristics: Qualified Packages: • Ceramic Dual-in-Line • Ceramic Flat Pack **NOTES** 1. These parts have successfully passed radiation testing to 50 kRads.				

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
9203/050	Dual D-type flip-flop with preset and clear	74	1
9209/004	4-bit magnitude comparator	85	1
9201/119	Quad 2-input exclusive OR gate	86	1

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
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
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-to4 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	Synchrorous presettable 4-bit decade counter with direct clear	160	1
9204/059	Asynchronous 4-bit binary counter	161	1
9306/041	8-bit SIPO shift register	164	1
9306/042	8-bit PISO shift register	165	1

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
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
9401/048	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
9408/047	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

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
9401/044	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
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
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

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
9201/123	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
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

Types covered by similarity: .		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 9000 Detail ESCC 9202/076	Microchip-Atmel Nantes France	Qualification	CNES	Dec 2006
Characteristics:				

Types covered by similarity: .		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 9000 Detail ESCC 9202/080 9512/004 9304/165	Microchip-Atmel Nantes France	Qualification	CNES	Aug 2012
Characteristics: 9202/080: INTEGRATEC CIRCUITS, SILICON MONOLITHIC, CMOS CELL-BASED ARRAY BASED ON TYPE ATC18RHA 9512/004: INTEGRATEC CIRCUITS, SILICON, 32-BIT SPARC PROCESSOR, BASED ON TYPE AT697F 9304/165: INTEGRATEC CIRCUITS, SILICON MONOLITHIC, CMOS DIGITAL, FIELD PRO GRAMMABLE GATE ARRAY, 280000 GATES, BASED ON TYPE ATF280F				

Types covered by similarity: .		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 9000 Detail ESCC 9202/083	Microchip-Atmel Nantes France	Qualification	CNES	Aug 2016
Characteristics:				

Types covered by similarity: .		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 9000 Detail ESCC 9108/020 9108/021	ST Microelectronics Rennes France	Qualification	CNES	Nov 2016
Characteristics: Variants 01, 02				

Section 09 **Component Type: Relays**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
09-01			Non-Latching, 28Vdc Contact Rating	
	09-01-001	102 H	Type T**	REL STPI
	09-01-002	02 M	Type GP5	LEACH
	09-01-004	205 E	Type E 215	REL STPI
	09-01-004-3	318 B	Type M300	LEACH Sarralbe
09-02			Latching, 28Vdc Contact Rating	
	09-02-001	88 J	Type TL	REL STPI
	09-02-002	13 M	Type GP2	LEACH
	09-02-003	98 G	Type EL415	REL STPI
	09-02-003-3	317 B	Type M402	LEACH Sarralbe
	09-02-004	167 G	Type EL215	REL STPI
	09-02-004-3	310 B	Type M302	LEACH Sarralbe
	09-02-006	240 F	Type D	LEACH Niort
09-03			Latching, 50Vdc Contact Rating	
	09-03-001	93 L	Type GP250	LEACH

Types covered by similarity: Rated Coil Voltages 5, 6, 9, 12 and 18 Vdc		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3601 Detail ESCC 3601/002	REL-STPI St Jean de la Ruelle France	Qualification	CNES	Feb 1983
Characteristics: Variants 01 to 06 are qualified Contact Rating 1A at 28Vdc Contact Configuration 2PDT Package Type TO-5 Can Coil Voltage 5 - 26.5 Vdc Operating Temperature Range (°C): $^{-}$65 to $^{+}$125				

Types covered by similarity: Coil Voltages 6 and 12 Vdc			Remarks: Production of these relays will stop at this plant in February 2017.		
.	Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
	Generic ESCC 3601 Detail ESCC 3601/003	LEACH International Europe Niort France	Qualification	CNES	Apr 1978
	Characteristics: Variants 01 to 08 are qualified Contact Rating 2 A at 28 Vdc Contact Configuration 2 PDT Package Type Half-crystal can Coil Voltage 26.5 Vdc Operating Temperature Range (°C): -65 to +125				

ESCC European Space Components Coordination QPL	RELAY, NON-LATCHING, ELECTROMAGNETIC, TYPE GP 5	Certificate 02 M	Page 09-01 002

Types covered by similarity: Coil Voltage 12 Vdc .		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3601 Detail ESCC 3601/007	REL STPI St Jean de la Ruelle France	Qualification	CNES	Jan 1994
Characteristics: Variants 03, 04 and 06 are qualified Contact Rating 15 A at 28 Vdc Contact Configuration 2 PDT Package Type Half cubic inch can Coil Voltage 12 and 28 Vdc Operating Temperature Range (°C): $^{-}$65 to $^{+}$125				

ESCC European Space Components Coordination QPL	RELAY, NON-LATCHING, ELECTROMAGNETIC, TYPE E 215	Certificate 205 E	Page 09-01 004

Types covered by similarity: Coil Voltage 12 Vdc .		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3601 Detail ESCC 3601/007	LEACH Sarralbe France	Qualification	CNES	Feb 2012
Characteristics: Variants 03, 04 and 06 are qualified Contact Rating 15 A at 28 Vdc Contact Configuration 2 PDT Package Type Half cubic inch can Coil Voltage 12 and 28 Vdc Operating Temperature Range (°C): $^{-}$65 to $^{+}$125				

Types covered by similarity: Rated Coil Voltages 5, 6, 9, 12 and 18 Vdc			Remarks: As from September 2015, in relation to NCCS 2STPI501 , each delivery of TL26 parts shall be subject to an official prior agreement by the ESCC Executive during a MRB.		
.	Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3602 Detail ESCC 3602/002		REL-STPI Saint Jean de la Ruelle France	Qualification	CNES	Jan 1982
Characteristics:	Variants 01 to 06 are qualified				
Contact Rating	1 A at 28 Vdc				
Contact Configuration	2 PDT				
Package Type	TO-5 Can				
Coil Voltage	26.5 Vdc				
Operating Temperature Range (°C): $^{-}$65 to $^{+}$125					

Types covered by similarity: Coil Voltages 6 and 12 Vdc		Remarks: Production of these relays will stop at this plant in February 2017.		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3602 Detail ESCC 3602/003	LEACH International Europe Niort France	Qualification	CNES	Jan 1979
Characteristics: Variants 01 to 08 are qualified Contact Rating 2 A at 28 Vdc Contact Configuration 2 PDT Package Type Half-size crystal can Coil Voltage 26.5 Vdc Operating Temperature Range (°C): -65 to +125				
ESCC European Space Components Coordination QPL	RELAY, LATCHING, ELECTROMAGNETIC, TYPE GP 2	Certificate 13 M	Page 09-02 002	

Types covered by similarity: Coil voltage : 12 Vdc		Remarks:		
· Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3602 Detail ESCC 3602/004	REL STPI St Jean de la Ruelle France	Qualification	CNES	Nov 1982
Characteristics: Variants 04, 06 and 09 and 14, 16 and 19 are qualified Contact Rating 15 A at 28 Vdc Contact Configuration 4PDT Package Type Cubic inch can Coil Voltage 28 Vdc Operating Temperature Range (°C): $^{-}$65 to $^{+}$125				

Types covered by similarity: Coil voltage : 12 Vdc		Remarks:		
· Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3602 Detail ESCC 3602/004	LEACH Sarralbe France	Qualification	CNES	Feb 2012
Characteristics: Variants 04, 06 and 09 and 14, 16 and 19 are qualified Contact Rating 15 A at 28 Vdc Contact Configuration 4PDT Package Type Cubic inch can Coil Voltage 28 Vdc Operating Temperature Range (°C): $^{-}$65 to $^{+}$125				

ESCC QPL	RELAY, LATCHING, ELECTROMAGNETIC, TYPE M402	Certificate 317 B	Page 09-02 003-3

Types covered by similarity: Coil voltage : 12 Vdc		Remarks:		
· Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3602 Detail ESCC 3602/009	REL STPI St Jean de la Ruelle France	Qualification	CNES	Feb 1990
Characteristics: Variants 03, 04 and 06 and 13, 14 and 16 are qualified Contact Rating 15 A at 28 Vdc Contact Configuration 2PDT Package Type Half-cubic inch can Coil Voltage 28 Vdc Operating Temperature Range (°C): $^{-}$65 to $^{+}$125				

Types covered by similarity: Coil voltage : 12 Vdc		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3602 Detail ESCC 3602/009	LEACH Sarralbe France	Qualification	CNES	Apr 2011
Characteristics: Variants 03, 04 and 06 and 13, 14 and 16 are qualified Contact Rating 15 A at 28 Vdc Contact Configuration 2PDT Package Type Half-cubic inch can Coil Voltage 28 Vdc Operating Temperature Range (°C): $^{-}$65 to $^{+}$125				

ESCC European Space Components Coordination QPL	RELAY, LATCHING, ELECTROMAGNETIC, BASED ON TYPE M302	Certificate 310 B	Page 09-02 004-3

Types covered by similarity: Coil Voltages 6 and 12 Vdc		Remarks: Production of these relays will stop at this plant in February 2017.		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3602 Detail ESCC 3602/019	LEACH International Europe Niort France	Qualification	CNES	Apr 1997
Characteristics: Variants 01 to 11 are qualified Contact Rating 1 A at 28 Vdc Contact Configuration 2 PDT Package Type 1/6 crystal can Coil Voltage 26.5 Vdc Operating Temperature Range (°C): -65 to +125				

Types covered by similarity: Coil Voltage 12 Vdc		Remarks: Production of these relays will stop at this plant in February 2017.		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3602 Detail ESCC 3602/010	LEACH International Europe Niort France	Qualification	CNES	Feb 1982
Characteristics: Variants 01 to 06 are qualified 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				

Section 10 **Component Type: Resistors**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
10-07			Shunts	
	10-07-001	285 D	Types SMV-PW and SM*-PT	Isabellenhütte
10-08			Fixed, Film	
	10-08-006	256 H	Surface Mount, Type MS1	Vishay Electronic GmbH
	10-08-007	289 C	Surface Mount, Type TNPS	Vishay Electronic GmbH
10-09			Chip	
	10-09-002 A to D	287 È	Type PHR; PFRR; PRAHR/CNWHR	Vishay S.A., Sfernice
	10-09-003	314 B	Type CHP	Vishay S.A., Sfernice
10-11			Flexible, Foil, Heaters	
	10-11-001-1	184 L	Single & Double Layer	IRCA
	10-11-002	325 A	Single & Double Layer	Minco
	10-11-003	330 A	Single & Double Layer	IRCA

Types covered by similarity: Tolerance (%) = ±1		Remarks: the extension of qualification in 2014 did not maintain in the qualified scope the SMR type due to low sales.		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 4001 Detail ESCC 4001/027 4001/028	ISABELLENHÜTTE HEUSLER GmbH & Co. KG Dillenburg Germany	Qualification	DLR	Nov 2008
Characteristics: ESCC 4001/027 variants 01, 02 and 03 are qualified (SMP-PW, SMS-PW, SMT-PW) ESCC 4001028 variant 02 is qualified (SMV-PW) Operating Temperature Range, (°C): -55 to 170C				

Types covered by similarity:

Tolerance (±%) = 0.1, 0.5, 1.0

Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 4001 Detail ESCC 4001/022	VISHAY Electronic GmbH Division Draloric Selb Germany	Qualification	DLR	Oct 1999

Characteristics: Critical R = 160 kΩ

Range (Ω)	Tol. (±%)	TC (±ppm/°C)	Value Series
43.2 - 1.004 M 10.0 - 1.004 M 2.20 - 5.114 M	0.1 0.5 1.0	50	E96
43.2 - 1.004 M 10.0 - 1.004 M 10.0 - 1.004 M	0.1 0.5 1.0	25	E96
43.2 - 0.2213 M 10.0 - 0.5113 M	0.1 0.5	15	E96

Operating Temperature Range, (°C): -55 to +125

ESCC European Space Components Coordination QPL

RESISTORS,

FILM, FIXED, SURFACE MOUNT, NON-HERMETICALLY SEALED, BASED ON TYPE MS1

Certificate

256 H

Types covered by similarity:
Temperature Coefficient (±ppm/°C): 25, 50
Tolerance (±%) = 0.5, 1.0

Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 4001 Detail ESCC 4001/029	VISHAY Electronic Division Draloric Selb Germany	Qualification	DLR	May 2009

Characteristics: Variants 01 to 03 inclusive are qualified
E96 Series

Variant Number	Style (Note 1)	Resistance Range R_n		Tolerance (± %)	Value Series	Temperature Coefficient TC (± 10^{-6}/°C)	Critical Resistance (kΩ)	Weight max (g)
		Min (Ω)	Max (MΩ)					
01	0603	10	0.221	0.1, 0.5, 1	E96	15, 25, 50	56.25	0.002
02	0805	10	0.422	0.1, 0.5, 1	E96	15, 25, 50	180	0.006
03	1206	10	1	0.1, 0.5, 1	E96	15, 25, 50	160	0.008

Operating Temperature Range, (°C): -55 to +125

Types covered by similarity:		Remarks: Components under ESCC QML qualification. Refer to Technology Flow description in REP006.		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 4001 Detail ESCC 4001/023 ESCC 4001/025	VISHAY S.A. Division Sfernice Nice France	Qualification	CNES	Feb 2009

Characteristics and qualified variants: Refer to tables on the next page.

4001/023	PHR	High Stability and Precision Chip
4001/023	PFRR	High Stability and Precision Chip with Established Reliability Level R
4001/025	PRA/CNWHR	High Stability and Precision Surface Mount Array

Operating Temperature Range, (°C): -55 to +155
Lead material is E with either Type 2 or Type 4 finish. The terminal material and finish of some of these variants makes them unsuitable for solder assembly methods . They shall be assembled using glue or wire bond techniques. See Detail specifications.

Characteristics: Type PHR, Variants 01 to 08, 13 and 14 are qualified:

Detail Specification	Style	Critical R (kΩ)	Rated Dissipation (W)	Limiting Element Voltage (V)	Type Variant
4001/023	0402	18	0.050	30	13; 14
	0603	12.25	0.100	35	01; 05
	0805	45	0.125	75	02; 06
	1206	40	0.250	100	03; 07
	2010	45	0.500	150	04; 08

Variant	Style	Resistance Range (Note 1)		Tolerance (±%) (Note 2)	Temperature Coefficient (10^{-6}/°C) (Note 2)	Weight (g)
		Min (Ω)	Max (MΩ)			
01, 05	0603	10	0.200 (0.160 for TC « C »)	0.01; 0.02; 0.05; 0.1	±5; ±10; ±25	0.003
02, 06	0805	10	0.250	0.01; 0.02; 0.05; 0.1	±5; ±10; ±25	0.004
03, 07	1206	10	1.000	0.01; 0.02; 0.05; 0.1	±5; ±10; ±25	0.01
04, 08	2010	10	3.000	0.01; 0.02; 0.05; 0.1	±5; ±10; ±25	0.03
13, 14	0402	10	0.100 (0.067 for TC « C »)	0.01; 0.02; 0.05; 0.1	±5; ±10; ±25	0.002

NOTES

1.

Variant	Style	Critical Resistance (KΩ)
01 – 05	0603	12.25
02 – 06	0805	45
03 – 07	1206	40
04 – 08	2010	45
13 - 14	0402	18

2.

Resistance (Ω)	Avalaible Tolerances (±%)	Series
10 ≤ R < 50	0,1	Any value in the resistance range
50 ≤ R < 100	0,05 and 0,1	
100 ≤ R < 250	0,02; 0,05 and 0,1	
R ≥ 250	0,01; 0,02; 0,05 and 0,1	

Resistance (Ω)	Temperature Coefficient (ppm/°C)	Series
10 ≤ R < 20	E: 25 (- 55 °C; + 155 °C)	Any value in the resistance range
20 ≤ R < 50	Y: 10 (- 55 °C; + 155 °C)	
20 ≤ R < 50	Z: 5 (+ 22 °C; + 70 °C)	
R ≥ 50	C: 5 (- 55 °C; + 155 °C)	

Characteristics: Type PFRR, Variants 09 to 12 and 15 are qualified

Detail Specification	Style	Critical R (kΩ)	Rated Dissipation (W)	Limiting Element Voltage (V)	Type Variant
4001/023	0402	32	0.050	40	15
	0603	25	0.100	50	09
	0805	80	0.125	100	10
	1206	90	0.250	150	11
	2010	80	0.500	200	12

Style	Resistance Range (Ω)	Tolerance (±%)	Temperature Coefficient TC($\pm 10^{-6}$/°C)
0402; 0603; 0805; 1206; 2010	From 100 to ≤ 100K	0.05; 0.1	10; 25
0603; 0805; 1206; 2010	From 100 to ≤ 261K	0.05; 0.1	10; 25
0805; 1206; 2010	From 261K to ≤ 301K	0.05; 0.1	10; 25
1206; 2010	From 301K to ≤ 1M	0.05; 0.1	10; 25
2010	From 1M to 3M01	0.05; 0.1	10; 25

The Established Reliability Level R is evaluated according to the ESCC Basic Specification 26000.

Characteristics: Type PRAHR/CNWHR,, Variants 01 to 42 are qualified

Detail Specification	Style	Critical R (KΩ)	Rated Dissipation (W/resistor)	Limiting Element Voltage (V/resistor)	Type Variant	
					Same Ohmic Values	Different Ohmic Values
4001/025	PRA100	12.25	0.100	35	01 to 07	22 to 28
	PRA135	56.25	0.100	75	08 to 14	29 to 35
	PRA182	100	0.100	100	15 to 21	36 to 42

Style	Resistance Range (Ω)	Tolerance (±%)		Temperature Coefficient TC($\pm 10^{-6}$/°C)	
		Absolute	Relative	Absolute	Relative
PRA100; PRA135; PRA182	From 100 to 200K	0.1; 0.5; 1	0.05; 0.1	10	3; 5
PRA135; PRA182	From 200K to 250K	0.1; 0.5; 1	0.05; 0.1	10	3; 5
PRA182	From 250K to 1M	0.1; 0.5; 1	0.05; 0.1	10	3; 5

Number of Resistors per Array: 2 to 8

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 4001 Detail ESCC 4001/026	VISHAY S.A. Division Sfernice Nice France	Qualification	CNES	Oct 2011

Characteristics: Type CHPHR, Variants 01 to 10 are qualified. Type CHPFR, variants 11 to 20 are qualified.
The qualified is range restricted as below:

Style	Critica R (KΩ)	Rated Dissipation	Limited Element Voltage (V)	Type Variant
0603	25	0.100	50	01;06; 11, 16
0805	50	0.200	100	02;07; 12, 17
1206	160	0.250	200	03;08; 13, 18
2010	180	0.500	300	04;09; 14, 19
2512	112.5	0.800	300	05;10; 15, 20

Style	Range(Ω)	Tol. (±%)	TC(±ppm/°C)
0603;0805;1206;2010;2512	From 1 to < 10	2; 5	200
0603;0805;1206;2010;2512	From 10 to < 1M	1; 2; 5	100; 200
0603;0805;1206;2010;2512	From 1M to ≤ 10M	2; 5	200

Operating Temperature Range, (°C): -55 to +155. Lead material is E with either Type 2 or Type 4 finish

Types covered by similarity: Variants 01 through 48 are qualified		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 4009 Detail ESCC 4009/002	IRCA RICA Division Vitorio Veneto Italy	Qualification	ESA	Apr 1992

Characteristics:

Single, double layer and magnetically compensated heaters

Maximum Ohmic density	200 Ω/cm^2
Tolerances	±2, 3, 5, 10 %
Resistance	1 to 5000 Ω
Heating Area	1.6 to 1300 cm^2
Terminal Lead	20, 22, 24, 26, 28, 30 AWG
Temperature coefficient	(10^{-}6/°C): 175

Operating Temperature Range, (°C): $^{-}$65 to $^{+}$200

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 4009 Detail ESCC 4009/003	Minco SAS Aston France	Qualification	CNES	Mar 2013

Characteristics: Variants 01, 02 and 03 are qualified

Single, double layer heaters

Maximum Ohmic density	70 Ω/cm^2
Rated power density	0.38 (variants 01, 03), 0.54 (variant 02) W/cm^2
Resistance	1 to 5000 Ω
Heating Area	0.26 to 1000 cm^2
Terminal Lead	20 to 30 AWG
Resistance Tolerance	(%): ±1 to ±10

Operating Temperature Range, (°C): $^{-}$65 to $^{+}$150 for variants 01 and 03; 65 to $^{+}$200 for variant 02

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 4009 Detail ESCC 4009/004	IRCA RICA Division Vitorio Veneto Italy	Qualification	ESA	Jan 2015

Characteristics: All variants are qualified

Single, double layer heaters

Maximum Ohmic density	330 Ω/cm^2
Rated power density	0.38
Resistance	1 to 10000 Ω
Heating Area	1.66 to 1300 cm^2
Terminal Lead	20 to 30 AWG
Resistance Tolerance	(%): ±2 to ±10

Operating Temperature Range, (°C): $^{-}$65 to $^{+}$150

Section 11 **Component Type: Thermistors**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
11-01			NTC	
	11-01-001	266 H	Types G15K4D489 and *K3A35*	TE Connectivity MEAS -(Betatherm) Ltd.

Types covered by similarity:		Remarks: Refer to variants table 1(a) in the Detail Specifications for resistance to temperature characteristics.		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 4006 Detail ESCC 4006/013 4006/014	TE Connectivity MEAS (Betatherm) Galway Ireland	Qualification	ESA	Jul 2001
Characteristics: 4006/013: Variants 01 to 05 and 06 to 07 are qualified. 4006/014: Variants 08, 09 and 13 are qualified. Operating Temperature Range, (°C): 4006/013 : $^{-}$55 to $^{+}$115 4006/014 : $^{-}$60 to $^{+}$160 Please refer to the relevant Detail Specification for complete information on the qualified variants.				

Section 12 **Component Type: Transistors**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
12-01			Low Power, NPN	
	12-01-002-3A-B	233 L	Types NPN	STMicroelectronics
12-02			Low Power, PNP	
	12-02-002-3A-B	234 L	Types PNP	STMicroelectronics
12-05			MOSFET, Power, N-Channel	
	12-05-003-1	303 C	Types STRH100N10, STRH40N6, SRH100N6 and STRH8N10	STMicroelectronics
	12-05-003-2	319 B	Type BUY**CS***	Infineon
	12-05-003-3	339	Type BUY15CS	Infineon
12-06			MOSFET, Power, P-Channel	
	12-06-003-1	326 A Rev 1	Type STRH40P10 and STRH12P10	STMicroelectronics
12-10			RF/Microwave, NPN, Low Power, Low Noise	
	12-10-001	230 G	Types BFY193	Infineon
	12-10-002	245 G	Types BFY405, -420 and -450	Infineon
	12-10-005	322 A	Types BFY 640, 640B, 650B, 740B	Infineon
12-16			Microwave, Gallium Arsenide	
	12-16-001	213 G	Types CFY67, High Electron Mobility, Low Noise	Infineon

Types covered by similarity:

Remarks:

Procurement Specifications	Manufacturer
Generic ESCC 5000 Detail ESCC Please refer to the next page	ST Microelectronics Rennes France

Nature of Approval	Supervising Authority	Initial Qualification Date
Qualification	CNES	Sep 1996

Characteristics:

Maximum Rating:

	2N 2219	2N2222A	2N2484	2N3019		2N5551	2N3700	2N5154	BUX 77	2N2920A
V_{CBO}(V):	75	75	60	140	BV_{CBO}(V)	180	140	100	100	60
V_{CEO}(V):	40	50	60	80	BV_{CEO}(V)	160	80	80	80	60
Packages:	See next page									
Operating Temperature Range (°C), -65 to +200										

ESCC European Space Components Coordination
QPL

TRANSISTORS,
LOW AND HIGH POWER,
NPN

Certificate
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12-01
002-3A

ESCC Specification No.	Component Type	Package	Qualified Variants
5201/001	2N 2484	TO-18, LCCC3, LCCC3 +1	01, 02, 04, 05, 06, 07
5201/002	2N 2222A	TO-18, LCCC3, LCCC3 +1	01, 02, 04, 05, 11, 12
5201/019	2N 5551	TO-18, LCCC3, LCCC3 +1	01, 02, 04, 05, 08, 09
5201/004	2N 3700	TO-18, LCCC3, LCCC3 +1	01, 02, 04, 05, 06, 07
5203/010	2N 5154	TO-257, SMD.5, TO-39	01, 02, 04, 05, 06, 07
5203/016	BUX 77ESY	TO-257	06, 07
5207/002	2N 2920A	TO-77, LCCC6, FP-8	03, 06, 12, 15, 16, 17
5201/003	2N 2219	TO-39	01, 02
5201/011	2N 3019	TO-39	03, 04

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 5000 Detail ESCC Please refer to the next page	ST Microelectronics Rennes France	Qualification	CNES	Sep 1996

Characteristics:

	2N 2905A	2N2907A	2N3810	2N5153	BUX 78	2N5401
BV_{CBO}(V)	60	60	60	100	100	160
BV_{CEO}(V)	60	60	60	80	80	150
Packages:	See next page					
Operating Temperature Range (°C), -65 to +200						

ESCC European Space Components Coordination QPL	TRANSISTORS, LOW AND HIGH POWER, PNP	Certificate 234 L	Page 12-02 002-3A

ESCC Specification No.	Component Type	Package	Qualified Variants
5202/002	2N 2905A	TO-39	01, 02
5202/001	2N 2907A	TO-18, LCCC3, LCCC3 +1	01, 02, 04, 05,06, 07
5202/014	2N 5401	TO-18, LCCC3, LCCC3 +1	01, 02, 04, 05, 06, 07
5204/002	2N 5153	TO-39, TO-257, SMD.5	01, 02, 04, 05, 06, 07
5204/006	BUX 78ESY	TO-257	06, 07
5207/005	2N 3810	TO-78, LCCC6, FP	01, 02, 07, 09, 10, 11

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 5000 Detail ESCC 5205/021, ESCC 5205/022 ESCC 5205/023, ESCC 5205/024	STMicroelectronics Rennes France	Qualification	CNES	Oct 2010

Characteristics:	5205/021 & 5205/022	Variants 01 and 02 are qualified
	5205/023 & 5205/024	Variant 01 is qualified
Maximum Ratings for:	$V_{GS(th)}$	2 –4.5 min/max, I_D=1 mA
5205/021	$r_{DS(on)}$ (m Ω):	35, V_{GS}=12V, I_D=24A
	I_{DS} (A)	48, T_{case} (°C)= $^{+}$25
	V_{DS} (V_{dc}):	100 over T_{op} , V_{GS}= 0 V
	V_{GS} (V_{dc}):	± 20
	P_{TOT}:	170 W at T_{case} ≤$^{+}$25 C
Package Types:	TO-254AA, SMD.5 for STRH40N6 and STRH8N10	
Operating Temperature Range (°C): $^{-}$55 to $^{+}$150		

ESCC European Space Components Coordination QPL	TRANSISTORS, MOSFET, N-CHANNEL, POWER, BASED ON TYPES STRH100N10, STRH40N6, STRH100N6 AND STRH8N10	Certificate 303 C	Page 12-05 003-1

Types covered by similarity:	Remarks:
	These devices have a TID tested capability of 100 kRad (Si) SEE tested : LET (MeV-cm^2/mg) 56 @ V_{GS} = -10V, V_{DS} = 250V SOA and SE SOA derating graphs are incorporated in the Detail Specifications.

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 5000 Detail ESCC 5205/026 5205/027 5205/028 5205/030	Infineon Technologies AG Neubiberg Germany	Qualification	DLR	Aug 2012
Qualified variants: 5205/026— variant 01R 5205/027— variant 01R 5205/028 —variant 01R 5205/030 — variants 01R, 02R, 03R				

Types covered by similarity:

All Variants are qualified

Remarks:
These devices have a TID tested capability of 100 kRad (Si)
SEE tested : LET (MeV-cm^2/mg) 56 @ V_{GS} = -10V, V_{DS} = 250V
SOA and SE SOA derating graphs are incorporated in the Detail Specifications.

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 5000 Detail ESCC 5205/031	Infineon Technologies AG Neubiberg Germany	Qualification	DLR	May 2016

Characteristics: ESCC No.	5205/031
$r_{DS(ON)}$ (mΩ) @ 25 ^{O}C	150
Maximum Ratings:	
I_{DS} (A)	23
V_{DS} (V) max.	150
V_{GS} (V) max.	± 20
P_{tot} (W)	75
$R_{th(j-c)}$ (^{O}C/W)	1.66
Package:	SMD0.5, SMD2, TO-254AA, TO-257AA
Operating Temperature Range (°C): T_{op} = - 55 to +150	

ESCC European Space Components Coordination
QPL

TRANSISTORS,
POWER, MOSFET, N-CHANNEL, RADHARD
BASED ON TYPE BUY 15CS

Certificate
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Types covered by similarity:		Remarks: These devices have a TID tested capability of 100kRAD(Si).		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 5000 Detail ESCC 5205/025 and 5205/029	ST Microelectronics Rennes France	Qualification	CNES	Mar 2013
Characteristics: Variants 01 and 02 in each specification are qualified				

ESCC European Space Components Coordination QPL	TRANSISTORS, MOSFET, P-CHANNEL, POWER, TYPE STRH40P10 and STRH12P10	Certificate 326 A rev1	Page 12-06 003-1

Types covered by similarity: Variants 01 to 08.				Remarks:		
Procurement Specifications			Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 5010 Detail ESCC 5611/006			Infineon Technologies AG Neubiberg Germany	Qualification	DLR	Jun 1996
Characteristics for BFY 193						
V_{CEO} (V) max.		12				
V_{CBO} (V)max.		20				
h_{FE} min/max.		50/175	@ V_{CE} = 8.0 V, I_C = 30mA			
NF (dB) max.	@ 2 GHz	2.9	@ V_{CE} = 5.0 V, I_C = 15mA			
MAG/MSG (dB) min.	@ 2 GHz	12.5	@ V_{CE} = 5.0 V, I_C = 40mA			
f_T (GHz) min.	@ 500 MHz	6.5	@ V_{CE} = 5.0 V, I_C = 40mA			
Package: " Micro-X1"						
Total Power Dissipation (P_{tot}) = 580 mW						
Operating Temperature Range (°C): T_{op} = - 65 to +200						

Types covered by similarity: Variants 01, 02 and 03 are qualified.				Remarks:		
Procurement Specifications			Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 5010 Detail ESCC 5611/008			Infineon Technologies AG Neubiberg Germany	Qualification	DLR	Jun 1997
Characteristics for BFY 450						
V_{CEO} (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 = 20mA			
NF (dB) max.	@ 1.8 GHz	2.0	@ V_{CE} = 2.0 V, I_C = 10mA			
f_T (GHz) min.	@ 1.0 GHz	18	@ V_{CE} = 3.0 V, I_C = 90mA			
Package: “Micro-X”						
Total Power Dissipation (P_{tot}) = 450 mW						
Operating Temperature Range (°C): T_{op} = - 65 to +175						

Types covered by similarity:		Remarks: This certificate, from its issue B, release in May 2016, includes in its scope of qualification some devices previously listed in the QPL under certificates No. 320 and 321, which are no longer maintained.		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 5010 Detail ESCC 5611/009 5611/010 5611/011	Infineon Technologies AG Neubiberg Germany	Qualification	DLR	Sep 2012
Qualified variants: 5611/009: variants 01, 02, 03 5611/010: variants 01, 02, 03, 04 5611/011: variant 01				

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 5010 Detail ESCC 5613/004	Infineon Technologies AG Neubiberg Germany	Qualification	DLR	Apr 1994

Characteristics (@ 12 GHz):

All variants are qualified		NFmin. (dB)	Ga (dB)
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 $^{+}150$

ESCC European Space Components Coordination QPL	TRANSISTORS, HIGH ELECTRON MOBILITY, GALLIUM ARSENIDE, MICROWAVE, LOW NOISE, SMALL SIGNAL, BASED ON TYPE CFY 67	Certificate 213 G	Page 12-16 001

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Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
13-01			Low Frequency	
	13-01-001-1	07 R	Polyimide, Types FA-3901-1, FA 3901-2	Draka Fileca
	13-01-001-2	09 Q	Polyimide, Types 1871-1872	Nexans
	13-01-001-3	132 N	Polyimide, Types 3901002**B	Axon' Cable
	13-01-003	08 R	PTFE, Types MTV-BTV	Nexans
	13-01-003-2	292 C	PTFE/Polyimide, Types 3901013**B	Axon' Cable
	13-01-004-1	138 L	Polyimide, Type SPC	Gore
	13-01-004-2	219 L	Polyimide, Types SPL	Gore
	13-01-004-3	268 F	Polyimide, Types 3901019**B	Axon' Cable
	13-01-004-4	295 C	Polyimide, Types 3901019	Leoni
	13-01-005-1	159 M	Crosslinked PTFE, Type Silver-Plated Copper	Tyco Electronics
	13-01-005-2	267 G	Crosslinked PTFE, Type Silver-Plated Copper	Axon' Cable
	13-01-008	215 L	PTFE, Polyimide / PFA Insulated, Type SPP	Gore
	13-01-009	216 K	PTFE, Polyimide / PFA Insulated, Shielded, Type SPM	Gore
	13-01-009-2	294 C	PTFE, Polyimide/PFA Insulated, Shielded, Type 3901018	Leoni
	13-01-009-3	300 C	PTFE, Polyimide / PFA Insulated, Shielded, Type SPM	Axon' Cable
	13-01-010-1	229 K	Polyimide, Insulated, Shielded, Type SPLD, Drain Wire	Gore
	13-01-010-2	293 C	Polyimide, Insulated, Shielded, Drain Wire, Types 3901021**B	Axon' Cable
	13-01-010-3	296 C	Polyimide, Insulated, Shielded, Drain Wire, Type 3901021	Leoni
	13-01-011-1	257 H	Crosslinked, Modified ETFE, Type Silver-Plated Copper, Lightweight	Tyco Electronics
	13-01-012-1	299 C	Fluoropolymer, Lightweight, Based on Type CSWL	Axon' Cable
	13-01-012-2	305 C	Fluoropolymer, Lightweight, Based on Type CSWL	Gore
	13-01-013-1	328 A	Extra thin, fluorthermoplastic / polyimide, Based on Type CSC	Gore

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Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/001 3901/002	Draka Fileca Ste-Genevieve France	Qualification	CNES	Jan 1979

Characteristics:

FA 3901-1
All Variants defined in the Detail Specification 3901/001 are qualified except those based on AWG 12-14
FA 3901-2
Variants 31 to 73 and 74 to 91 as defined in the Detail Specification 3901/002 are qualified

Voltage Rating, maximum (Vrms):600
Temperature Range (°C): $^{-}$100 to $^{+}$200

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/001 3901/002	Nexans Draveil France	Qualification	CNES	Jan 1979
Characteristics: 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 Voltage Rating, maximum (Vrms):600 Temperature Range (°C): -100 to +200				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/001 3901/002	AXON' CABLE Montmirail France	Qualification	CNES	Dec 1985
Characteristics: The following variants are qualified: 3901/001: variants 24 to 47 3901/002: variants 31 to 73 Voltage Rating, maximum (Vrms):600 Temperature Range (°C): -100 to +200				

Types covered by similarity: -MTV - BTV -MTV/G - BTV/G -MTV/BF/G - BTV/BF/G		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/013	Nexans Draveil France	Qualification	CNES	Jan 1979
Characteristics: Variants 01 to 77 are qualified Voltage Rating, maximum (Vrms):600 Temperature Range (°C): -100 to +200				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/013	AXON' CABLE Montmirail France	Qualification	CNES	Jun 2009
Characteristics: All variants are qualified Voltage Rating, maximum (Vrms):600 Temperature Range (°C): $^{-}$100 to $^{+}$200				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/009	W.L. Gore & Co Pleinfeld Germany	Qualification	DLR	Aug 1986
Characteristics: Variants 01-66 are qualified Voltage Rating, maximum (Vrms):600 Temperature Range (°C): -200 to +200				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/019	W.L. Gore & Co Pleinfeld Germany	Qualification	DLR	Nov 1994
Characteristics: Variants 01-94 are qualified Voltage Rating, maximum (Vrms):600 Temperature Range (°C): -200 to +200				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/019	AXON' CABLE Montmirail France	Qualification	CNES	Jun 2002
Characteristics: All variants are qualified Voltage Rating, maximum (Vrms):600 Temperature Range (°C): -200 to +200				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/019	LEONI Special Cables GmbH Friesoythe Germany	Qualification	DLR	Oct 2009
Characteristics: All variants are qualified with the exception of variants 01, 09, 17, 24, 25, 32, 48, 56, 64, 72, and 79 Conductor according to ISO 2635 (except AWG 28) AWG 12 to 28 inclusive are qualified For silver coated strands the silver thickness shall be 2.0µm minimum Voltage Rating, maximum (V_{rms}):600				

Types covered by similarity:		Remarks: This product is not intended for human space flight applications.		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/012	Tyco Electronics Dorcan, Swindon England	Qualification	UK Space Agency	Feb 1989
Characteristics: Variants 01 to 80 are qualified Maximum voltage: 600 Vrms Operating temperature range (°C): -100 to +200				

Types covered by similarity:		Remarks: This product is not intended for human space flight applications.		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/012	AXON' CABLE Montmirail France	Qualification	CNES	Mar 2002
Characteristics: All variants are qualified Wire code ISO 2635 Voltage Rating, maximum (Vrms) : 600 Temperature Range (°C): -100 to +200				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/017	W.L. Gore & Co. Pleinfeld Germany	Qualification	DLR	Jul 1994
Characteristics: All variants are qualified Voltage Rating, maximum (Vrms) : 600 Temperature Range (°C): -200 to +200 I_{max} (A): 45, 81 and 133 for AWG: 0, 4 and 8, respectively				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/018	W.L. Gore & Co. Pleinfeld Germany	Qualification	DLR	Jul 1994
Characteristics: Variants 01 to 88 are qualified. Voltage Rating, maximum (V^{rms}) : 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.				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/018	LEONI Special Cables GmbH Friesoythe Germany	Qualification	DLR	Oct 2009
Characteristics: Variants 01 to 88 are qualified. Voltage Rating, maximum (V_{rms}) : 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. Conductor silver thickness shall be 2.0µm minimum				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/018	AXON' CABLE Montmirail France	Qualification	CNES	Dec 2009
Characteristics: Variants 01 to 88 are qualified AWG 30 and 32 variants are qualified. Voltage Rating, maximum (V_{rms}) : 600 Temperature Range (°C): $^{-}$200 to $^{+}$200 Expanded PTFE, extruded polyimide/ FEP, sintered PTFE insulated wires.				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/021	W.L. Gore & Co. Pleinfeld Germany	Qualification	DLR	Feb 1996
Characteristics: All variants (01 to 41) are qualified Voltage Rating, maximum (Vrms) : 600 Temperature Range (°C): $^{-}$200 to $^{+}$200 .				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/021	AXON' CABLE Montmirail France	Qualification	CNES	Jun 2009
Characteristics: All variants are qualified Voltage Rating, maximum (Vrms) : 600 Temperature Range (°C): -200 to +200 .				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/021	LEONI Special Cables GmbH Friesoythe Germany	Qualification	DLR	Oct 2009
Characteristics: All variants 01 to 41 are qualified Voltage Rating, maximum (Vrms) : 600 Temperature Range (°C): -200 to +200 .				

Types covered by similarity:		Remarks:		
Procurement Specifications	**Manufacturer**	**Nature of Approval**	**Supervising Authority**	**Initial Qualification Date**
Generic ESCC 3901 Detail ESCC 3901/020 ESCC 3901/022	Tyco Electronics Dorcan, Swindon England	Qualification	UK Space Agency	Oct 1999
Characteristics: 3901/020: All variants (01 - 80) are qualified 3901/022: All variants (01 - 72) are qualified. Wires and Cables variants consist of 1, 2, 3 and 4 cores with and without jackets and shields 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. Maximum voltage: 600 Vrms Operating temperature range (°C): -100 to +200				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/024	AXON' CABLE Montmirail France	Qualification	CNES	Dec 2009
Characteristics: Variants 01 to 64 are qualified (AWG 30 variants are qualified) Wires and Cables variants consist of 1, 2, 3 and 4 cores with and without jackets and shields NOTE: The high strength toughened fluoropolymer PTFE tape (HST-F) use for the manufacturing of the primary insulation of the wire is named "ART tape". Maximum voltage: 600 Vrms Operating temperature range (°C): $^{-}$200 to $^{+}$200				

ESCC European Space Components Coordination QPL	WIRES AND CABLES, LOW FREQUENCY, FLUROPOLYMER INSULATION, 600V, BASED ON TYPE CSWL	Certificate 299 C	Page 13-01 012-1

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/024	W.L. Gore Pleinfeld Germany	Qualification	DLR	Jan 2011
Characteristics: Variants 01 to 64 inclusive are qualified The specification contains 64 variants with several wire sizes, single wires and cables with several cores, either shielded or unshielded. Cable construction: 1, 2, 3 and 4 twisted wires are in one core with or without shield Maximum voltage: 600 Vrms				

Types covered by similarity: All variants 01 to 21 are qualified		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3901 Detail ESCC 3901/025	W.L. Gore Pleinfeld Germany	Qualification	DLR	June 2014
Characteristics: The specification contains 21 variants with several wire sizes, single wires and cables with several cores, either shielded or unshielded. Cable construction: 1, 2, 3 and 4 twisted wires are in one core with or without shield Maximum voltage: 600 Vrms Operating temperature range (°C): $^{-}$200 to $^{+}$200				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3902 Detail ESCC 3902/001	Nexans Draveil France	Qualification	CNES	July 1979
Characteristics: Variants 01, 02, and 03 are qualified Miniature flexible 50 ohm coaxial cable PTFE Dielectric Polyimide Jacketed, Double Shield and Shielded / Jacketed Maximum voltage: 900 Vrms Operating temperature range (°C): $^{-}$80 to $^{+}$200 ($^{-}$100 for variant 01)				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3902 Detail ESCC 3902/002	W.L. Gore Pleinfeld Germany	Qualification	DLR	Jan 1999
Characteristics: Variants 03 to 06, 10 to 13 and 20 to 30 are qualified Variants encompass coaxial, triaxial, and balanced shielded line Operating Voltage (Continuous), maximum ratings, (Vrms): Variants 03 180 Variants 04, 10, 21, 22, 23, 24 200 Variants 06, 25 250 All Other Variants 300 AWG Range: 20, 22, 24, 26, 28, 30 dependent on variant				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3902 Detail ESCC 3902/002	AXON' CABLE Montmirail France	Qualification	CNES	Dec 2009
Characteristics: Variants encompass coaxial, triaxial, and balanced shielded line Variants 03 to 06, 10 to 13 and 20 to 30 are qualified Temperature range (°C): $^{-}$200 to $^{+}$180				

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3902 Detail ESCC 3902/003	AXON' CABLE Montmirail France	Qualification	CNES	Jun 2009

Characteristics:
Variant 01 AWG 28/07 (white) and variant 02 AWG 26/07 (blue) are qualified

Variant	Data Rate	Operating Voltage (Continuous), (Vrms)	Current (A)
01	100Mb/s— 400MHz	200	1.5
02	200Mb/s– 400MHz	200	2.5

Temperature range (°C): $^{-}$200 to $^{+}$180

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3902 Detail ESCC 3902/003	W.L. Gore Pleinfeld Germany	Qualification	DLR	Jan 2011
Characteristics: Variant 01 AWG 28/07 (white) and Variant 02 AWG 26/07 (blue) are qualified, 100 Ω Data Rate, Operating Voltage (Continuous), Current Variant 01 100Mb/s—400 MHz 200V—1.5A Variant 02 200Mb/s—400 MHz 200V— 2.5A Temperature range (°C): $^{-}$200 to $^{+}$180				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3902 Detail ESCC 3902/004	AXON' CABLE Montmirail France	Qualification	CNES	October 2015
Characteristics: Temperature range (°C): $^{-}$100 to $^{+}$150				

ESCC QPL European Space Components Coordination	WIRES AND CABLES, SPACEWIRE, ROUND, QUAD SYMMETRIC, FLEXIBLE, BASED ON TYPE SPACEWIRE	Certificate 335	Page 13-02 003-3

Section 14 **Component Type: Miscellaneous**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
14-16-99			Switches	
	14-16-99-003	275 F	Thermostatic, Bimetallic	COMEPA
14-30-10			Passive Devices, RF	
	14-30-10-002-2	185 H	Coaxial Loads, 0 to 22 GHz	Radiall
	14-30-10-004	178 J	Attenuators, Type R413	Radiall
	14-30-10-005	340	Isolators and Circulators, Type BK1XXX and BK3XXX	Cobham

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3702 Detail 3702/001	COMEPA BAGNOLET France	Qualification	CNES	Mar 2004
Characteristics: Variants 01 to 03 are qualified Range of Components: Grade 1 and Grade Y Maximum Ratings: Rated Current (I_R): 4 A (30 Vdc resistive) Operating Temperature Range (°C), $^{-}$50 to $^{+}$150				

Types covered by similarity:	Remarks:

Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3403 Detail 3403/006	RADIALL Saint-Quentin-Fallavier France	Qualification	CNES	Jul 1992

Characteristics: All variants are qualified. 50 ohms DC to 22 GHz

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

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3403 Detail 3403/005	RADIALL Saint-Quentin-Fallavier France	Qualification	CNES	Jan 1991
Characteristics: Variants 01 to 31 Frequency range (GHz): 0 - 22 Attenuation (dB): 0 - 20 Operating Temperature Range (°C), -55 to $^{+}$125				

Types covered by similarity:		Remarks:		
Procurement Specifications	Manufacturer	Nature of Approval	Supervising Authority	Initial Qualification Date
Generic ESCC 3202 Detail 3202/026	Cobham Microwave Villebon-sur Yvette France	Qualification	CNES	Jun 2016
Characteristics: Variants 01 and 02 are qualified				

ESCC European Space Components Coordination QPL	ISOLATORS AND CIRCULATORS, LOW POWER, KA-BAND (22GHz—32 GHz), WITH NON-INTEGRAL SMA 2.9 COAXIAL CONNECTORS, BASED ON TYPES BK1XXX and BK3XXX	Certificate 340	Page 14-30 10-005

Section 18 **Component Type: Optoelectronics**

Sub-Section	Page No.	Cert.	Type Designation	Manufacturer
			Currently there are no qualified sources of Optoelectronics	