



PARTS HISTORY LOG

Radiation Testing

PROGRAMME:- INTEGRAL

PART TYPE:- HS1-0546RH-Q

RADIATION REPORT:- RD 258

IGG TASK NUMBER:- 2020

SUMMARY OF TEST RESULTS

SN 2049 failed functional test and $\pm R_{ds1}$ at the 30KRad(Si) stage. The remaining parts failed functional test and $\pm R_{ds1}$ after the accelerated ageing under bias. No other failures were recorded and no other parameters showed any significant drift.



Radiation Report Number:- RD 258

Project:- INTEGRAL

Part Type:- HS1-0546RH-Q

Date Code:- 9730

Manufacturer:- HAR/U

IGG Task No:- 2020

Project Approval of Lot Traveller:-

Signed.....

Date.....

Position.....

Serial Number Range:-

2048 through 2052 (inclusive)

I certify that the subject component has been tested in accordance with the following radiation specifications:-

Test Method - ESA/SCC22900

ISSUE- 4 DATE- Jan '95

Irradiation Test Plan- RIR Attachment

ISSUE- N/A DATE- 22.12.97

Closed/Approved NCR No:- N N/A

Approved Waiver No:- WAR N/A

Signed..... *P.A. Russell*

Date..... *20/3/98*

Upscreening Engineer

Signed..... *[Signature]*

Date..... *20/3/98*

Upscreening Manager



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RADIATION REPORT NUMBER:- RD 258

DATE:- 20.3.98

PROJECT:- INTEGRAL

RIR IN:- 80361

PART NUMBER:- HS1-0546RH-Q

MANUFACTURER:- HAR/U

PROCUREMENT LEVEL:- 5962D9569301VXA

DATE CODE:- 9730

TEST METHOD - ESA/SCC22900

ISSUE- 4 DATE- Jan '95

IRRADIATION TEST PLAN- RIR Attachment

ISSUE- N/A DATE- 22.12.97


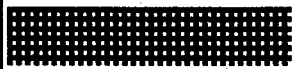
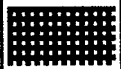



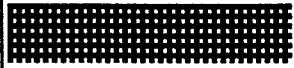
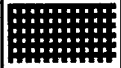
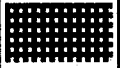
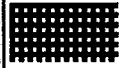

START QUANTITY:- 5

No.	Test (Sample Size)	RIR Attachment Test Method and Conditions	Date in	Qty in	Date out	Qty out	SIGNED Op/QA
1	Serialisation and Selection of Control- Sample (100%)	Control Sample= SN 01	2/3/98	5	2/3/98	4 + CONTROL SAMPLE	<i>P.R.</i> IGG 16 CT
2	Initial Electrical Measurements (100% read and record)	Table A Testing at IGG	2/3/98	4	2/3/98	4	<i>P.R.</i> IGG 16 CT
3	Initial Electrical Measurements (100% read and record)	Table A Testing at ERA	4/3/98	4	4/3/98	4	<i>P.R.</i> IGG 16 CT
4	Set-up and apply Bias per Figure 1	Verify Bias Circuit and conditions (in-situ) for all 4 test samples	4/3/98	4	4/3/98	4	<i>P.R.</i> IGG 16 CT
5	Irradiation 1 (4 samples)	Dose= 5kRAD(Si) Rate= 10RAD(Si) per second Time= 500secs	4/3/98	4	4/3/98	4	<i>P.R.</i> IGG 16 CT
6	Interim 1 Electrical Measurements (100% read and record)	Table A. Bias to be maintained until testing is performed. Tdwel=10mins maximum	4/3/98	4	4/3/98	4	<i>P.R.</i> IGG 16 CT



Report No: RD 258		Part Type: HS1-0546RH-Q			Date: 20.3.98		
No.	Test (Sample Size)	RIR Attachment Test Method and Conditions	Date in	Qty in	Date out	Qty out	SIGNED Op/QA
7	Irradiation 2 (4 samples)	As Test 5	4/3/98	4	4/3/98	4	
8	Interim 2 Electrical Measurements (100% read and record)	As Test 6	4/3/98	4	4/3/98	4	
9	Irradiation 3 (4 samples)	Dose= 10kRAD(Si) Rate= 10RAD(Si) per second Time=1000secs	4/3/98	4	4/3/98	4	
10	Interim 3 Electrical Measurements (100% read and record)	As Test 6	4/3/98	4	4/3/98	4	
11	Irradiation 4 (4 samples)	As Test 9	4/3/98	4	4/3/98	4	
12	Intermediate Electrical Measurements (100% read and record)	As Test 6 At ERA	4/3/98	4	4/3/98	3	
13	Annealing Test (4 samples)	Bias for 24hrs min at +25°C (record exact time)	4/3/98	4	5/3/98	4	
14	Post Annealing Electrical Measurements (100% read and record)	Table A At IGG	5/3/98	4	5/3/98	3	
15	Accelerated Aging under bias (4 samples)	168 hours bias at +100±5°C	9/3/98	4	16/3/98	4	



Report No: RD 258		Part Type: HS1-0546RH-Q			Date: 20.3.98		
No.	Test (Sample Size)	RIR Attachment Test Method and Conditions	Date in	Qty in	Date out	Qty out	SIGNED Op/QA
16	Final Electrical Measurements (100% read and record)	Table A	16/3/98	4	16/3/98	0	 IGG 16 CT
17	Test Report Collation				20/3/98		 IGG 2 CT
18	Test Report Approval				20/3/98		 IGG 2 CT
19	NOTES:-						



FAILURE LIST AND APPLICABLE NCR

Test No.	Serial Number (s)	Failed Parameter and Failure Mode	Applicable NCR
12	2049	FAILS FUNCTIONAL TEST AND +/- Rds1.	-
16	2050, 2051, 2052	FAIL FUNCTIONAL TEST AND +Rds1.	-



RADIATION TEST SUMMARY

PART TYPE : HS1-0546

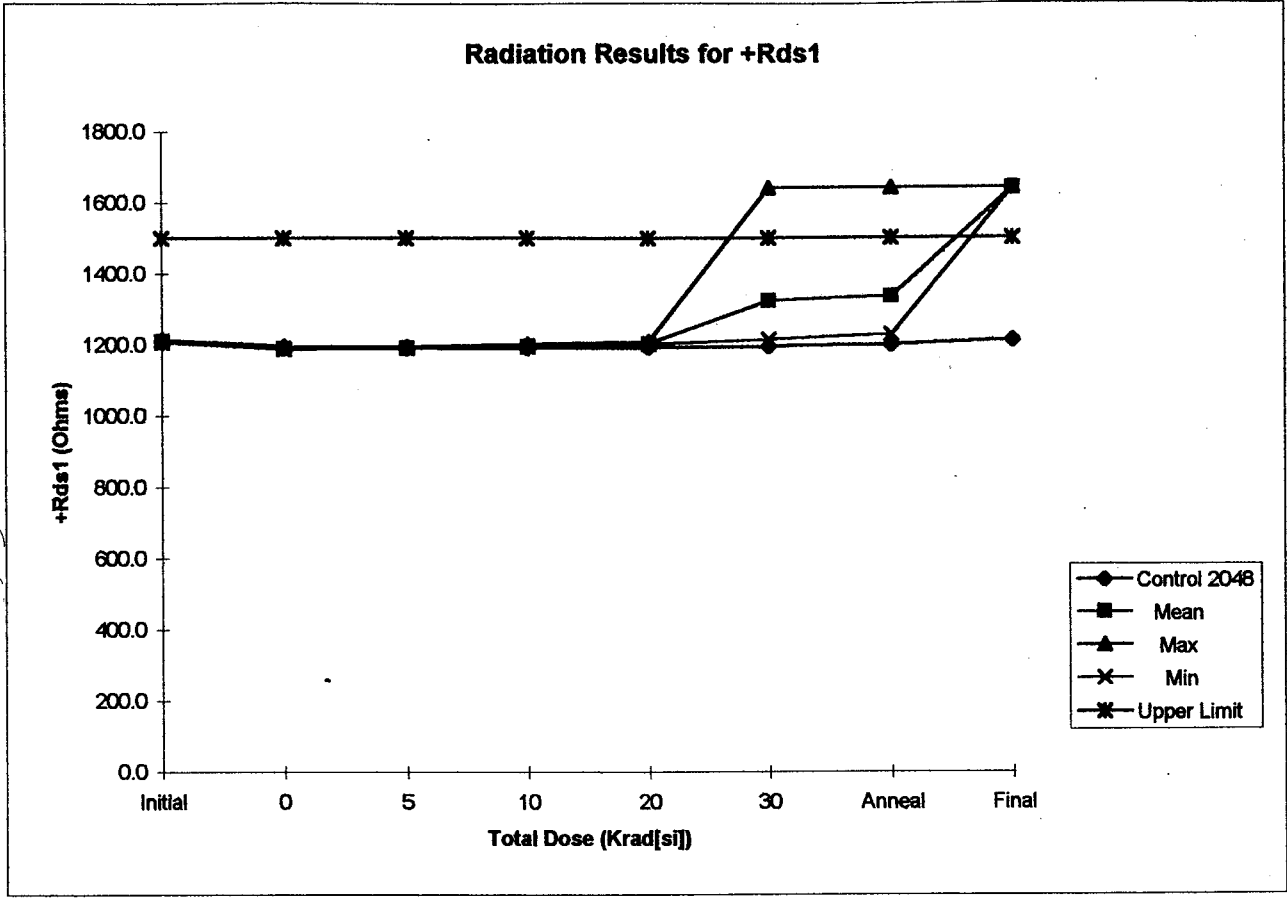
DESCRIPTION : ANALOG MULTIPLEXER

REPORT NO. : RD 258

PARAMETERS PLOTTED :

**+Rds1
-Rds1**

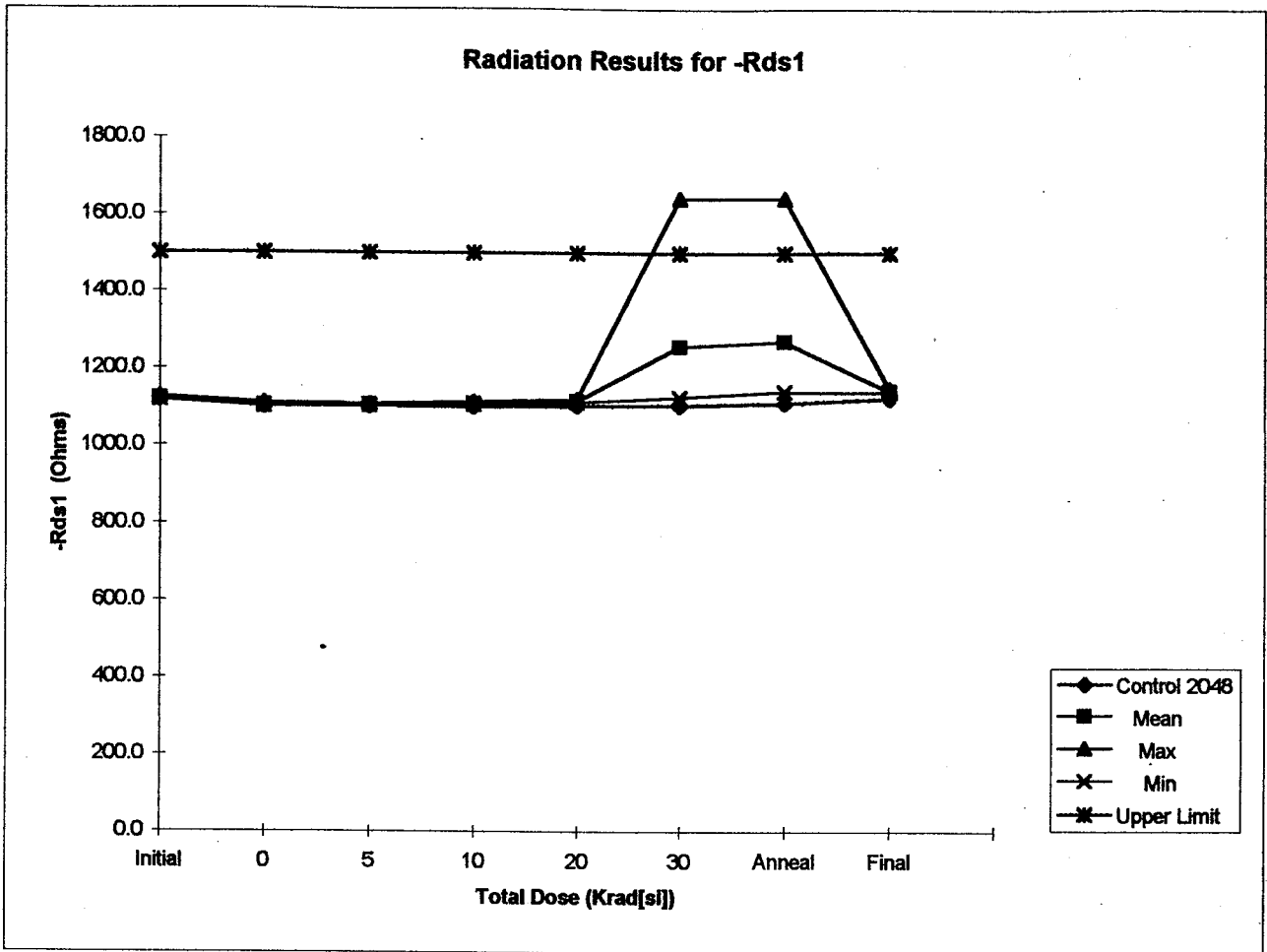
NOTE : The results for the remaining parameters showed no significant change and hence plots were not considered necessary.



Dose (kRad)	Control 2048 (Ohms)	Mean (Ohms)	Max (Ohms)	Min (Ohms)	Upper Limit (Ohms)	Lower Limit (Ohms)	Std.Dev.
Initial	1207.3	1208.6	1213.0	1205.7	1500	-	3.34
0	1188.5	1189.4	1194.3	1186.4	1500	-	3.57
5	1189.0	1191.9	1193.7	1189.4	1500	-	1.79
10	1190.5	1195.4	1199.8	1193.1	1500	-	3.02
20	1193.0	1202.0	1206.6	1199.2	1500	-	3.21
30	1194.3	1321.7	1638.4	1212.1	1500	-	211.15
Anneal	1199.6	1333.7	1638.4	1227.5	1500	-	203.21
Final	1211.8	1638.4	1638.4	1638.4	1500	-	0.00

Lot size for statistics : 4 devices

RD 258 Date code 9730



Dose (kRad)	Control 2048 (Ohms)	Mean (Ohms)	Max (Ohms)	Min (Ohms)	Upper Limit (Ohms)	Lower Limit (Ohms)	Std.Dev.
Initial	1117.0	1119.0	1124.6	1116.4	1500	-	3.81
0	1099.3	1101.5	1107.2	1098.4	1500	-	3.94
5	1099.1	1102.6	1105.3	1099.8	1500	-	2.25
10	1100.5	1105.7	1111.3	1103.3	1500	-	3.76
20	1102.6	1112.7	1118.5	1109.9	1500	-	3.94
30	1103.8	1254.6	1638.4	1122.0	1500	-	255.92
Anneal	1110.0	1266.9	1638.4	1137.9	1500	-	247.76
Final	1122.0	1138.6	1145.5	1135.5	1500	-	4.65

Lot size for statistics : 4 devices

RD 258 Date code 9730

RD258

RIR 80361

HARRIS.
CT 12196

RIR: 80361

RIR ATTACHMENT

To: R.FIDLER
From: S.THACKER / INTEGRAL PROJECT
CC: K.BUDD
Date: 22 December 1997

Re: RVT ON HS1-0546RH-Q

RVT to be performed on quantity 5 devices (4+1 control) in accordance with the following requirements:

- Irradiation steps (kRAD(Si)): 5/10/20/30.
- Maximum dose rate: 10kRAD(Si)/s.
- Electrical bias circuit: per SMD 5962-95693 rev- Table III.
- Electrical measurement (pre/intermediate/post irradiation steps): per SMD 5962-95693 rev- subgroups 1,7,9.
- Annealing (post 30kRAD(Si) step) at room temperature for 24 hours with post electrical measurement per SMD 5962-95693 rev- subgroups 1,7,9.
- Accelerated aging under bias (post annealing): 168 hours at +100 °C with post electrical measurement per SMD 5962-95693 rev- subgroups 1,7,9.
- Total dose irradiation report to be generated (per ESA/SCC 22900).
- Control sample shall not be biased during testing.

S THACKER

SMD-5962-95693 ■ 9999996 0086213 8T4 ■

REVISIONS

LTR	DESCRIPTION	DATE (YR-MO-DA)	APPROVED

REV																				
SHEET																				
REV																				
EET	15	16	17																	

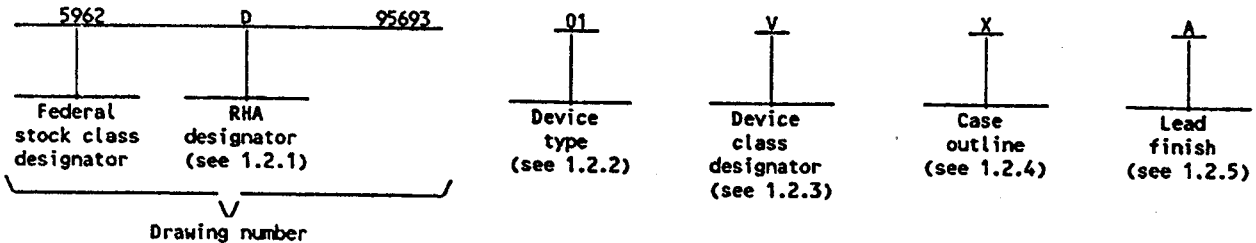
REV STATUS OF SHEETS	REV																			
	SHEET	1	2	3	4	5	6	7	8	9	10	11	12	13	14					

<p>PMIC N/A</p> <p>STANDARD MICROCIRCUIT DRAWING</p> <p>THIS DRAWING IS AVAILABLE FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE</p> <p>AMSC N/A</p>	<p>PREPARED BY Sandra Rooney</p>	<p>DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO 45444</p>		
	<p>CHECKED BY Sandra Rooney</p>	<p>MICROCIRCUIT, LINEAR, RADIATION HARDENED CMOS, MULTIPLEXER/DEMULTIPLEXER WITH ACTIVE OVERVOLTAGE PROTECTION, MONOLITHIC SILICON</p>		
	<p>APPROVED BY Michael A. Frye</p>			
	<p>DRAWING APPROVAL DATE 96-02-27</p>	<p>SIZE A</p>	<p>CAGE CODE 67268</p>	<p>5962-95693</p>
	<p>REVISION LEVEL</p>	<p>SHEET 1 OF 17</p>		

1. SCOPE

1.1 Scope. This drawing forms a part of a one part - one part number documentation system (see 6.6 herein). Two product assurance classes consisting of military high reliability (device classes Q and M) and space application (device class V), and a choice of case outlines and lead finishes are available and are reflected in the Part or Identifying Number (PIN). Device class M microcircuits represent non-JAN class B microcircuits in accordance with 1.2.1 of MIL-STD-883, "Provisions for the use of MIL-STD-883 in conjunction with compliant non-JAN devices". When available, a choice of Radiation Hardness Assurance (RHA) levels are reflected in the PIN.

1.2 PIN. The PIN shall be as shown in the following example:



1.2.1 RHA designator. Device class M RHA marked devices shall meet the MIL-I-38535 appendix A specified RHA levels and shall be marked with the appropriate RHA designator. Device classes Q and V RHA marked devices shall meet the MIL-I-38535 specified RHA levels and shall be marked with the appropriate RHA designator. A dash (-) indicates a non-RHA device.

1.2.2 Device type(s). The device type(s) shall identify the circuit function as follows:

<u>Device type</u>	<u>Generic number</u>	<u>Circuit function</u>
01	HS546RH	Radiation hardened DI single 16-channel MUX/DEMUX with active overvoltage protection
02	HS547RH	Radiation hardened DI differential 8-channel MUX/DEMUX with active overvoltage protection

1.2.3 Device class designator. The device class designator shall be a single letter identifying the product assurance level as follows:

<u>Device class</u>	<u>Device requirements documentation</u>
M	Vendor self-certification to the requirements for non-JAN class B microcircuits in accordance with 1.2.1 of MIL-STD-883
Q or V	Certification and qualification to MIL-I-38535

1.2.4 Case outline(s). The case outline(s) shall be as designated in MIL-STD-1835 and as follows:

<u>Outline letter</u>	<u>Descriptive designator</u>	<u>Terminals</u>	<u>Package style</u>
X	CDIP1-T28	28	Dual-in-line

1.2.5 Lead finish. The lead finish shall be as specified in MIL-STD-883 (see 3.1 herein) for class M or MIL-I-38535 for classes Q and V. Finish letter "X" shall not be marked on the microcircuit or its packaging. The "X" designation is for use in specifications when lead finishes A, B, and C are considered acceptable and interchangeable without preference.

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1.3 Absolute maximum ratings. 1/

Supply voltage between +V and -V	- - - - -	+44 V
Supply voltage between +V and ground	- - - - -	+22 V
Supply voltage between -V and ground	- - - - -	-25 V
Digital input overvoltage		
+VEN, +VA	- - - - -	+V _{SUPPLY} + 4 V
-VEN, -VA	- - - - -	-V _{SUPPLY} - 4 V
Analog input overvoltage		
+V _S	- - - - -	+V _{SUPPLY} + 20 V
-V _S	- - - - -	-V _{SUPPLY} - 20 V
Continuous current, S or D		
(pulsed at 1 ms, 10 percent duty cycle max)	- - - - -	40 mA
Storage temperature range	- - - - -	-65°C to +150°C
Maximum package power dissipation at T _A = +125°C (P _D)	- - - - -	1 W 2/
Thermal resistance, junction-to-case (θ_{JC})	- - - - -	18°C/W
Thermal resistance, junction-to-ambient (θ_{JA})	- - - - -	50°C/W
Lead temperature (soldering, 10 seconds)	- - - - -	+275°C
Junction temperature (T _J)	- - - - -	+175°C

1.4 Recommended operating conditions.

Operating supply voltage ($\pm V_{SUPPLY}$)	- - - - -	± 15 V
Analog input voltage (V _S)	- - - - -	$\pm V_{SUPPLY}$
Logic low level (V _{AL})	- - - - -	0 V to +0.8 V
Logic high level (V _{AH})	- - - - -	+4 V to +V _{SUPPLY}
Max RMS current, S or D	- - - - -	8 mA
Ambient operating temperature range (T _A)	- - - - -	-55°C to +125°C
Radiation features:		
Dose rate upset (20 ns pulse)	- - - - -	3/
Total dose	- - - - -	> 10 Krads (Si)
Latch-up 4/-	- - - - -	None

2. APPLICABLE DOCUMENTS

2.1 Government specification, standards, bulletin, and handbook. Unless otherwise specified, the following specification, standards, bulletin, and handbook of the issue listed in that issue of the Department of Defense Index of Specifications and Standards specified in the solicitation, form a part of this drawing to the extent specified herein.

SPECIFICATION

MILITARY

MIL-I-38535 - Integrated Circuits, Manufacturing, General Specification for.

STANDARDS

MILITARY

MIL-STD-883 - Test Methods and Procedures for Microelectronics.
 MIL-STD-973 - Configuration Management.
 MIL-STD-1835 - Microcircuit Case Outlines.

BULLETIN

MILITARY

MIL-BUL-103 - List of Standard Microcircuit Drawings (SMD's).

- 1/ Stresses above the absolute maximum rating may cause permanent damage to the device. Extended operation at the maximum levels may degrade performance and affect reliability.
 2/ If device power exceeds package dissipation capability, provide heat sinking or derate linearly (the derating is based on θ_{JA}) at the rate of 20 mW/°C for case outline X.
 3/ Values to be specified when testing is completed.
 4/ Guaranteed by process or design, not tested.

STANDARD MICROCIRCUIT DRAWING DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO 45444	SIZE A		5962-95693
		REVISION LEVEL	SHEET 3

HANDBOOK

MILITARY

MIL-HDBK-780 - Standardized Military Drawings.

(Copies of the specification, standards, bulletin, and handbook required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.2 Order of precedence. In the event of a conflict between the text of this drawing and the references cited herein, the text of this drawing shall take precedence.

3. REQUIREMENTS

3.1 Item requirements. The individual item requirements for device class M shall be in accordance with 1.2.1 of MIL-STD-883, "Provisions for the use of MIL-STD-883 in conjunction with compliant non-JAN devices" and as specified herein. The individual item requirements for device classes Q and V shall be in accordance with MIL-I-38535 and as specified herein or as modified in the device manufacturer's Quality Management (QM) plan. The modification in the QM plan shall not effect the form, fit, or function as described herein.

3.2 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-STD-883 (see 3.1 herein) for device class M and MIL-I-38535 for device classes Q and V and herein.

3.2.1 Case outline(s). The case outline(s) shall be in accordance with 1.2.4 herein.

3.2.2 Terminal connections. The terminal connections shall be as specified on figure 1.

3.2.3 Truth table(s). The truth table(s) shall be as specified on figure 2.

3.2.4 Radiation exposure circuit. The radiation exposure circuit shall be as specified in table III.

3.3 Electrical performance characteristics and postirradiation parameter limits. Unless otherwise specified herein, the electrical performance characteristics and postirradiation parameter limits are as specified in table I and shall apply over the full ambient operating temperature range.

3.4 Electrical test requirements. The electrical test requirements shall be the subgroups specified in table IIA. The electrical tests for each subgroup are defined in table I.

3.5 Marking. The part shall be marked with the PIN listed in 1.2 herein. Marking for device class M shall be in accordance with MIL-STD-883 (see 3.1 herein). In addition, the manufacturer's PIN may also be marked as listed in MIL-BUL-103. Marking for device classes Q and V shall be in accordance with MIL-I-38535.

3.5.1 Certification/compliance mark. The compliance mark for device class M shall be a "C" as required in MIL-STD-883 (see 3.1 herein). The certification mark for device classes Q and V shall be a "QML" or "Q" as required in MIL-I-38535.

3.6 Certificate of compliance. For device class M, a certificate of compliance shall be required from a manufacturer in order to be listed as an approved source of supply in MIL-BUL-103 (see 6.7.2 herein). For device classes Q and V, a certificate of compliance shall be required from a QML-38535 listed manufacturer in order to supply to the requirements of this drawing (see 6.7.1 herein). The certificate of compliance submitted to DESC-EC prior to listing as an approved source of supply for this drawing shall affirm that the manufacturer's product meets, for device class M, the requirements of MIL-STD-883 (see 3.1 herein), or for device classes Q and V, the requirements of MIL-I-38535 and the requirements herein.

3.7 Certificate of conformance. A certificate of conformance as required for device class M in MIL-STD-883 (see 3.1 herein) or for device classes Q and V in MIL-I-38535 shall be provided with each lot of microcircuits delivered to this drawing.

3.8 Notification of change for device class M. For device class M, notification to DESC-EC of change of product (see 6.2 herein) involving devices acquired to this drawing is required for any change as defined in MIL-STD-973.

3.9 Verification and review for device class M. For device class M, DESC, DESC's agent, and the acquiring activity retain the option to review the manufacturer's facility and applicable required documentation. Offshore documentation shall be made available onshore at the option of the reviewer.

3.10 Microcircuit group assignment for device class M. Device class M devices covered by this drawing shall be in microcircuit group number 82 (see MIL-I-38535, appendix A).

STANDARD MICROCIRCUIT DRAWING DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO 45444	SIZE A		5962-95693
		REVISION LEVEL	SHEET 4

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions -V = -15 V, +V = +15 V V _{REF} = OPEN, V _{EN} = 4.0 V -55°C ≤ T _A ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Input leakage current 1/	I _{IH}	Measure inputs sequentially, connect all unused inputs to GND	1, 2, 3	01,02	-1.0	1.0	μA
	I _{IL}				-1.0	1.0	
	I _{IH} , I _{IL}		V _{EN} = 4.5 V, M, D 2/	1		-1.0	
Leakage current into the source terminal of an "OFF" switch	+I _{S(OFF)}	V _S = +10 V, V _{EN} = 0.8 V All unused inputs = -10 V V _D = -10 V	1	01,02	-10	+10	nA
			2, 3		-50	+50	
			V _{EN} = 0.5 V, M, D 2/		1	-50	
	-I _{S(OFF)}	V _S = -10 V, V _{EN} = 0.8 V All unused inputs = +10 V V _D = +10 V	1	01,02	-10	+10	
			2, 3		-50	+50	
			V _{EN} = 0.5 V, M, D 2/		1	-50	
Leakage current into the drain terminal of an "OFF" switch	+I _{D(OFF)}	V _D = +10 V, V _{EN} = 0.8 V All unused inputs = -10 V	1	01,02	-10	+10	
			2, 3		01	-300	+300
					02	-200	+200
			M, D V _{EN} = 0.5 V 2/	1	01	-300	+300
			02	-200	+200		
	-I _{D(OFF)}	V _D = -10 V, V _{EN} = 0.8 V All unused inputs = +10 V	1	01,02	-10	+10	
			2, 3		01	-300	+300
					02	-200	+200
M, D V _{EN} = 0.5 V 2/			1	01	-300	+300	
		02	-200	+200			

See footnotes at end of table.

STANDARD
MICROCIRCUIT DRAWING
DEFENSE ELECTRONICS SUPPLY CENTER
DAYTON, OHIO 45444

SIZE
A

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REVISION LEVEL

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TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions -V = -15 V, +V = +15 V, V _{REF} = OPEN, V _{EN} = 4.0 V -55°C ≤ T _A ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits		Unit				
					Min	Max					
Leakage current from an "ON" driver into the switch (drain)	+I _{D(ON)}	V _D = +10 V, V _S = +10 V All unused inputs = -10 V	1	01,02	-10	+10	nA				
			2, 3	01	-300	+300					
				02	-200	+200					
			M, D 2/ V _{EN} = 4.5 V	1	01	-300		+300			
		02		-200	+200						
	-I _{D(ON)}	V _D = -10 V, V _S = -10 V All unused inputs = +10 V	1	01,02	-10	+10					
			2, 3	01	-300	+300					
				02	-200	+200					
M, D 2/ V _{EN} = 4.5 V			1	01	-300	+300					
		02	-200	+200							
Overvoltage protected leakage current into the drain terminal of an "OFF" switch	-I _{D(OFF) Over Voltage}	V _S = 33 V, V _D = 0 V, V _{EN} = 0.8 V V _S applied at ≤25% Duty cycle	1, 2, 3	01,02	-2	+2	μA				
			M, D 2/ V _{EN} = 0.5 V		1	-5		+5			
		V _S = -33 V, V _D = 0 V, V _{EN} = 0.8 V V _S applied at ≤25% Duty cycle	1, 2, 3		-2	+2					
			M, D 2/ V _{EN} = 0.5 V		1	-5		+5			
		Positive supply current	+I		V _A = 0 V	1, 2, 3		01,02		2.0	mA
						M, D 2/ V _{EN} = 4.5 V			1		
Negative supply current	-I	V _A = 0 V	1, 2, 3	01,02		-1.0	mA				
			M, D 2/ V _{EN} = 4.5 V		1			-1.0			
Standby positive supply current	+I _{SBY}	V _A = 0 V, V _{EN} = 0 V	1, 2, 3	01,02		2.0	mA				
			M, D 2/		1			2.0			
Standby negative supply current	-I _{SBY}	V _A = 0 V, V _{EN} = 0 V	1, 2, 3	01,02		-1.0	mA				
			M, D 2/		1			-1.0			

See footnotes at end of table.

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TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions -V = -15 V, +V = +15 V, V _{REF} = OPEN, V _{EN} = 4.0 V -55°C ≤ T _A ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Switch "ON" resistance	+R _{DS1}	V _S = 10 V I _D = -100 μA	1	01,02		1500	Ω
			2, 3			1800	
			1		V _{EN} = 4.5 V 2/ R _{A, D}	1800	
	-R _{DS1}	V _S = -10 V I _D = +100 μA	1	01,02		1500	
			2, 3			1800	
			1		V _{EN} = 4.5 V 2/ R _{A, D}	1800	
Difference in switch "ON" resistance between channels	+ΔR _{DS1}	$\frac{(+R_{DS1MAX}) - (+R_{DS1MIN}) \times 100}{+R_{DS1AVE}}$	1	01,02		7	%
			1		V _{EN} = 4.5 V 2/ R _{A, D}	7	
	-ΔR _{DS1}	$\frac{(-R_{DS1MAX}) - (-R_{DS1MIN}) \times 100}{-R_{DS1AVE}}$	1	01,02		7	
			1		V _{EN} = 4.5 V 2/ R _{A, D}	7	
Logic level voltage	V _{AL1}	3/ 4/	1, 2, 3	01,02		0.8	V
			1		V _{EN} = 4.5 V 2/ R _{A, D}	0.5	
	V _{AH1}		1, 2, 3			4.0	
			1		V _{EN} = 4.5 V 2/ R _{A, D}	4.5	
	V _{AL2}	5/	1, 2, 3	01,02		0.8	
			1		V _{EN} = 4.5 V 2/ R _{A, D}	0.5	
	V _{AH2}		1, 2, 3			6.0	
			1		V _{EN} = 4.5 V 2/ R _{A, D}	6.5	
Capacitance: Address	C _A	V ₊ = V ₋ = 0 V 6/ f = 1 MHz, T _A = +25°C See 4.4.1d	4	01,02		12	pF
Capacitance: Output switch	C _{OS}	V ₊ = V ₋ = 0 V 6/ f = 1 MHz T _A = +25°C See 4.4.1d	4	01		85	pF
				02		50	

See footnotes at end of table.

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TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions -V = -15 V, +V = +15 V, V _{REF} = OPEN, V _{EN} = 4.0 V -55°C ≤ T _A ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Capacitance: Input switch	C _{IS}	V ₊ = V ₋ = 0 V 6/ f = 1 MHz, T _A = +25°C See 4.4.1d	4	01,02		15	pF
Charge transfer error	V _{CTE}	V _S = GND, T _A = +25°C 6/ V _{GEN} = 0 V to 5 V	4	01,02		10	mV
Off isolation	V _{ISO}	V _{EN} = 0.8 V, R _L = 1 kΩ, 6/ C _L = 15 pF, V _S = 7 V _{RMS} , 7/ f = 100 kHz, T _A = +25°C	4	01,02	-50		dB
Functional test	FT	T _A = +25°C, See 4.4.1b	7, 8	01,02			
Break-before-make time delay	t _D	R _L = 1 kΩ See figure 3	9	01,02	25	ns	
			10, 11		5		
			M, D 2/		9		5
Propagation delay times: Address inputs to I/O channels times:	t _A	R _L = 10 kΩ See figure 3	9	01,02	500		
			10, 11		1,000		
			M, D 2/		9	1,000	
Enable to I/O	t _{ON(EN)}	R _L = 1 kΩ See figure 3	9	01,02	500		
			10,11		1,000		
			M, D 2/		9	1,000	
Enable to I/O	t _{OFF(EN)}		9	01,02	500		
			10,11		1,000		
			M, D 2/		9	1,000	

1/ Input current of one input mode.

2/ Devices supplied to this drawing meet levels M and D of irradiation. However, these devices are only tested at the D level. Pre and post irradiation values are identical unless otherwise specified in Table I.

3/ Used for forcing conditions for all DC tests, unless otherwise specified.

4/ To drive from DTL/TTL circuits, 1kΩ pull-up resistors to +5.0 V supply recommended.

5 V_{REF} = +10 V.

6/ Guaranteed, if not tested, to the limits as specified.

7/ Worst case isolation occurs on channel 8B due to proximity of the output pins.

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Case outline	X	
Device type	01	02
Terminal number	Terminal symbol	
1	V+	V+
2	NC	OUT B
3	NC	NC
4	IN 16	IN 8B
5	IN 15	IN 7B
6	IN 14	IN 6B
7	IN 13	IN 5B
8	IN 12	IN 4B
9	IN 11	IN 3B
10	IN 10	IN 2B
11	IN 9	IN 1B
12	GND	GND
13	V _{REF}	V _{REF}
14	A3	NC
15	A2	A2
16	A1	A1
17	A0	A0
18	ENABLE	ENABLE
19	IN 1	IN 1A
20	IN 2	IN 2A
21	IN 3	IN 3A
22	IN 4	IN 4A
23	IN 5	IN 5A
24	IN 6	IN 6A
25	IN 7	IN 7A
26	IN 8	IN 8A
27	V-	V-
28	OUT	OUT A

FIGURE 1. Terminal connections.

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Device type 01

A3	A2	A1	A0	EN	"ON" CHANNEL
X	X	X	X	L	NONE
L	L	L	L	H	1
L	L	L	H	H	2
L	L	H	L	H	3
L	L	H	H	H	4
L	H	L	L	H	5
L	H	L	H	H	6
L	H	H	L	H	7
L	H	H	H	H	8
H	L	L	L	H	9
H	L	L	H	H	10
H	L	H	L	H	11
H	L	H	H	H	12
H	H	L	L	H	13
H	H	L	H	H	14
H	H	H	L	H	15
H	H	H	H	H	16

Device type 02

A2	A1	A0	EN	"ON" CHANNEL PAIR
X	X	X	L	NONE
L	L	L	H	1
L	L	H	H	2
L	H	L	H	3
L	H	H	H	4
H	L	L	H	5
H	L	H	H	6
H	H	L	H	7
H	H	H	H	8

FIGURE 2. Truth table.

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BREAK-BEFORE-MAKE DELAY (t_{OPEN})

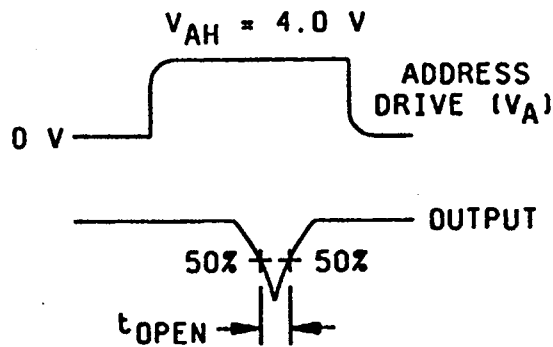
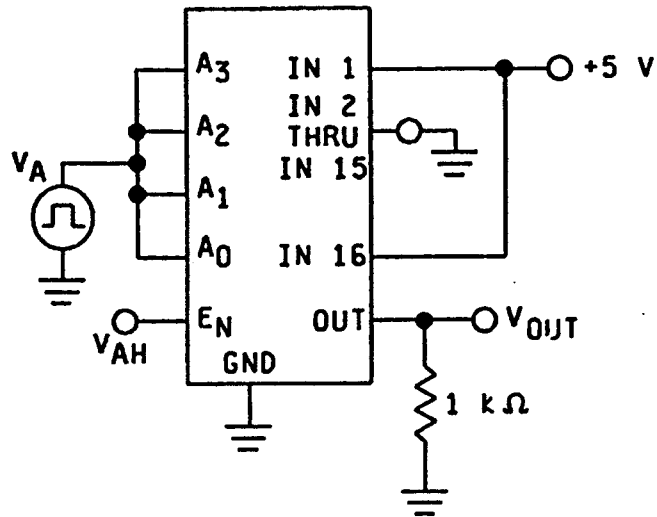


FIGURE 3. Timing diagrams.

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ACCESS TIME

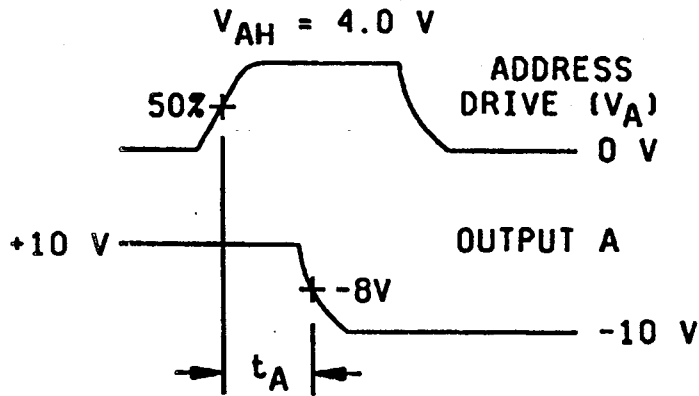
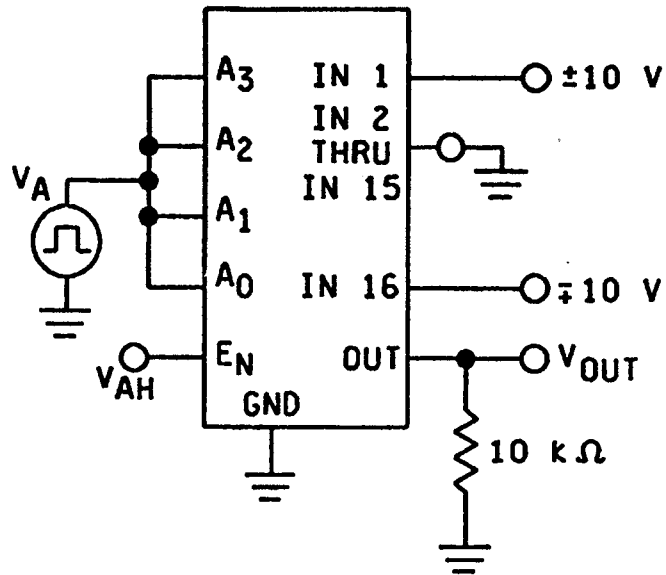


FIGURE 3. Timing diagrams - Continued.

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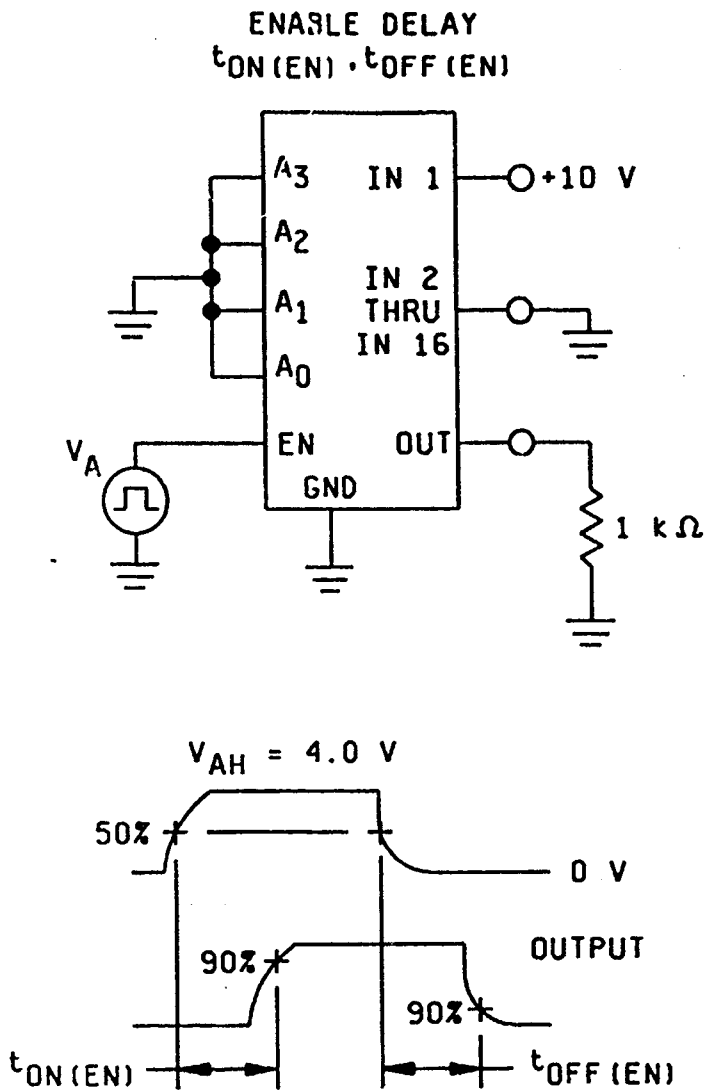


FIGURE 3. Timing diagrams - Continued.

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TABLE IIA. Electrical test requirements.

Test requirements	Subgroups (in accordance with MIL-STD-883, TM 5005, table I)	Subgroups (in accordance with MIL-I-38535, table III)	
	Device class M	Device class Q	Device class V
Interim electrical parameters (see 4.2)	1, 7, 9	1, 7, 9	1, 7, 9
Final electrical parameters (see 4.2)	1, 2, 3, 7 1/ 8, 9, 10, 11	1, 2, 3, 7 1/ 8, 9, 10, 11	1, 2, 3, 7 1/ 2/ 8, 9, 10, 11, Δ
Group A test requirements (see 4.4)	1, 2, 3, 4, 7 3/ 8, 9, 10, 11	1, 2, 3, 4, 3/ 7, 8, 9, 10, 11	1, 2, 3, 4, 3/ 7, 8, 9, 10, 11
Group C end-point electrical parameters (see 4.4)	1, 2, 3, 7, 8, 9, 10, 11	1, 2, 3, 7, 8, 9, 10, 11	1, 2, 3, 7, 8, 9, 10, 11
Group D end-point electrical parameters (see 4.4)	1, 7, 9	1, 7, 9	1, 7, 9
Group E end-point electrical parameters (see 4.4)	1, 7, 9	1, 7, 9	1, 7, 9

1/ PDA applies to subgroup 1. For class V to subgroups 1 and Δ.

2/ Delta limits (see table IIB) shall be required and the delta values shall be computed with reference to the zero hour electrical parameters (see table I).

3/ Subgroup 4, if not tested, shall be guaranteed to the limits specified in table I.

4. QUALITY ASSURANCE PROVISIONS

4.1 Sampling and inspection. For device class M, sampling and inspection procedures shall be in accordance with MIL-STD-883 (see 3.1 herein). For device classes Q and V, sampling and inspection procedures shall be in accordance with MIL-I-38535 or as modified in the device manufacturer's Quality Management (QM) plan. The modification in the QM plan shall not effect the form, fit, or function as described herein.

4.2 Screening. For device class M, screening shall be in accordance with method 5004 of MIL-STD-883, and shall be conducted on all devices prior to quality conformance inspection. For device classes Q and V, screening shall be in accordance with MIL-I-38535, and shall be conducted on all devices prior to qualification and technology conformance inspection.

4.2.1 Additional criteria for device class M.

a. Spin-in test, method 1015 of MIL-STD-883.

(1) Test condition A, B, C, or D. The test circuit shall be maintained by the manufacturer under document revision level control and shall be made available to the preparing or acquiring activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1015.

(2) $T_A = +125^\circ\text{C}$, minimum.

b. Interim and final electrical test parameters shall be as specified in table IIA herein.

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TABLE IIB. Burn-in delta parameters (+25°C) and group C delta parameters.

Parameters	Symbol	Delta limits
Leakage current into the source terminal of an "OFF" switch	$I_{S(OFF)}$	± 10 nA
Leakage current into the drain terminal of an "OFF" switch	$I_{D(OFF)}$	± 10 nA
Leakage current from an "ON" driver into the switch (drain and source)	$I_{D(ON)}$	± 10 nA
Switch on resistance	10 V R_{DS}	± 150 Ω
Positive supply current	I_+	± 200 μ A
Negative supply current	I_-	± 100 μ A
Positive standby supply current	$+I_{SBY}$	± 200 μ A
Negative standby supply current	$-I_{SBY}$	± 100 μ A
Input leakage current Address or Enable pins	I_{AL}, I_{AH}	± 100 nA

TABLE III. Irradiation test connections. ($T_A = +25^\circ\text{C} \pm 5^\circ\text{C}$, $+V_{SUPPLY} = +15$ V $\pm 5\%$, $-V_{SUPPLY} = -15$ V $\pm 5\%$)

Test	Open	Ground	V+	V-	+1 V $\pm 5\%$	+5 V $\pm 5\%$
Radiation exposure	3	2, 12, 18, 28 1/	1	27	4,5,6,7,8,9,10, 11,19,20,21,22, 23,24,25,26	13, 14, 15, 16, 17

1/ Pins 2 and 28 will have a series resistor (R_S) = 10 k Ω $\pm 5\%$.

4.2.2 Additional criteria for device classes Q and V.

- The burn-in test duration, test condition and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-I-38535. The burn-in test circuit shall be maintained under document revision level control of the device manufacturer's Technology Review Board (TRB) in accordance with MIL-I-38535 and shall be made available to the acquiring or preparing activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1015.
- Interim and final electrical test parameters shall be as specified in table IIA herein.
- Additional screening for device class V beyond the requirements of device class Q shall be as specified in appendix B of MIL-I-38535 or as modified in the device manufacturer's Quality Management (QM) plan.

4.3 Qualification inspection for device classes Q and V. Qualification inspection for device classes Q and V shall be in accordance with MIL-I-38535. Inspections to be performed shall be those specified in MIL-I-38535 and herein for groups A, B, C, D, and E inspections (see 4.4.1 through 4.4.4).

4.4 Conformance inspection. Quality conformance inspection for device class M shall be in accordance with MIL-STD-883 (see 3.1 herein) and as specified herein. Inspections to be performed for device class M shall be those specified in method 5005 of MIL-STD-883 and herein for groups A, B, C, D, and E inspections (see 4.4.1 through 4.4.4). Technology conformance inspection for classes Q and V shall be in accordance with MIL-I-38535 or as specified in QM plan including groups A, B, C, D, and E inspections and as specified herein except where option 2 of MIL-I-38535 permits alternate in-line control testing.

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4.4.1 Group A inspection.

- a. Tests shall be as specified in table IIA herein.
- b. For device class M, subgroup 7 tests shall be sufficient to verify the truth table in figure 2 herein. For device classes Q and V, subgroup 7 shall include verifying the functionality of the device.
- c. Subgroups 5, 6, and 8 in table 1, method 5005 of MIL-STD-883 shall be omitted.
- d. Subgroup 4 (C_A , C_{IS} , and C_{OS} measurements) should be measured only for initial qualification and after any process or design changes which may affect input or output capacitance.

4.4.2 Group C inspection. The group C inspection end-point electrical parameters shall be as specified in table IIA herein.

4.4.2.1 Additional criteria for device class M. Steady-state life test conditions, method 1005 of MIL-STD-883:

- a. Test condition A, B, C, or D. The test circuit shall be maintained by the manufacturer under document revision level control and shall be made available to the preparing or acquiring activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1005.
- b. $T_A = +125^\circ\text{C}$, minimum.
- c. Test duration: 1,000 hours, except as permitted by method 1005 of MIL-STD-883.

4.4.2.2 Additional criteria for device classes Q and V. The steady-state life test duration, test condition and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-I-38535. The test circuit shall be maintained under document revision level control by the device manufacturer's TRB, in accordance with MIL-I-38535, and shall be made available to the acquiring or preparing activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1005.

4.4.3 Group D inspection. The group D inspection end-point electrical parameters shall be as specified in table IIA herein.

4.4.4 Group E inspection. Group E inspection is required only for parts intended to be marked as radiation hardness assured (see 3.5 herein). RHA levels for device classes M, Q, and V shall be as specified in MIL-I-38535. End-point electrical parameters shall be as specified in table IIA herein.

4.4.4.1 Total dose irradiation testing. Total dose irradiation testing shall be performed in accordance with MIL-STD-883 method 1019 and as specified herein.

4.4.4.1.1 Accelerated aging test. Accelerated aging tests shall be performed on all devices requiring a RHA level greater than 5k rads(Si). The post-anneal end-point electrical parameter limits shall be as specified in table I herein and shall be the pre-irradiation end-point electrical parameter limit at $25^\circ\text{C} \pm 5^\circ\text{C}$. Testing shall be performed at initial qualification and after any design or process changes which may affect the RHA response of the device.

4.4.4.2 Dose rate induced latchup testing. Dose rate induced latchup testing shall be performed in accordance with test method 1020 of MIL-STD-883 and as specified herein (See 1.4). Tests shall be performed on devices, SEC, or approved test structures at technology qualification and after any design or process changes which may effect the RHA capability of the process.

4.4.4.3 Dose rate upset testing. Dose rate upset testing shall be performed in accordance with test method 1023 of MIL-STD-883 and herein (See 1.4).

- a. Transient dose rate upset testing shall be performed at initial qualification and after any design or process changes which may effect the RHA performance of the devices. Test 10 devices with 0 defects unless otherwise specified.
- b. Transient dose rate upset testing for class Q and V devices shall be performed as specified by a TRB approved radiation hardness assurance plan and MIL-I-38535.

4.4.4.4 Dose rate burnout. When required by the customer, test shall be performed on devices, SEC, or approved test structures at technology qualifications and after any design or process changes which may effect the RHA capability of the process. Dose rate burnout shall be performed in accordance with test method 1023 of MIL-STD-883 and as specified herein.

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5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-STD-883 (see 3.1 herein) for device class M and MIL-I-38535 for device classes Q and V.

6. NOTES

6.1 Intended use. Microcircuits conforming to this drawing are intended for use for Government microcircuit applications (original equipment), design applications, and logistics purposes.

6.1.1 Replaceability. Microcircuits covered by this drawing will replace the same generic device covered by a contractor-prepared specification or drawing.

6.1.2 Substitutability. Device class Q devices will replace device class M devices.

6.2 Configuration control of SMD's. All proposed changes to existing SMD's will be coordinated with the users of record for the individual documents. This coordination will be accomplished in accordance with MIL-STD-973 using DD Form 1692, Engineering Change Proposal.

6.3 Record of users. Military and industrial users shall inform Defense Electronics Supply Center when a system application requires configuration control and which SMD's are applicable to that system. DESC will maintain a record of users and this list will be used for coordination and distribution of changes to the drawings. Users of drawings covering microelectronic devices (FSC 5962) should contact DESC-EC, telephone (513) 296-6047.

6.4 Comments. Comments on this drawing should be directed to DESC-EC, Dayton, Ohio 45444-5270, or telephone (513) 296-5377.

6.5 Abbreviations, symbols, and definitions. The abbreviations, symbols, and definitions used herein are defined in MIL-I-38535 and MIL-STD-1331.

6.6 One part - one part number system. The one part - one part number system described below has been developed to allow for transitions between identical generic devices covered by the three major microcircuit requirements documents (MIL-H-38534, MIL-I-38535, and 1.2.1 of MIL-STD-883) without the necessity for the generation of unique PIN's. The three military requirements documents represent different class levels, and previously when a device manufacturer upgraded military product from one class level to another, the benefits of the upgraded product were unavailable to the Original Equipment Manufacturer (OEM), that was contractually locked into the original unique PIN. By establishing a one part number system covering all three documents, the OEM can acquire to the highest class level available for a given generic device to meet system needs without modifying the original contract parts selection criteria.

<u>Military documentation format</u>	<u>Example PIN under new system</u>	<u>Manufacturing source listing</u>	<u>Document listing</u>
New MIL-H-38534 Standard Microcircuit Drawings	5962-XXXXZZ(H or K)YY	QML-38534	MIL-BUL-103
New MIL-I-38535 Standard Microcircuit Drawings	5962-XXXXZZ(Q or V)YY	QML-38535	MIL-BUL-103
New 1.2.1 of MIL-STD-883 Standard Microcircuit Drawings	5962-XXXXZZ(M)YY	MIL-BUL-103	MIL-BUL-103

6.7 Sources of supply.

6.7.1 Sources of supply for device classes Q and V. Sources of supply for device classes Q and V are listed in QML-38535. The vendors listed in QML-38535 have submitted a certificate of compliance (see 3.6 herein) to DESC-EC and have agreed to this drawing.

6.7.2 Approved sources of supply for device class M. Approved sources of supply for class M are listed in MIL-BUL-103. The vendors listed in MIL-BUL-103 have agreed to this drawing and a certificate of compliance (see 3.6 herein) has been submitted to and accepted by DESC-EC.

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STANDARD MICROCIRCUIT DRAWING SOURCE APPROVAL BULLETIN

DATE: 96-02-27

Approved sources of supply for SMD 5962-95693 are listed below for immediate acquisition only and shall be added to QML-38535 and MIL-BUL-103 during the next revision. QML-38535 and MIL-BUL-103 will be revised to include the addition or deletion of sources. The vendors listed below have agreed to this drawing and a certificate of compliance has been submitted to and accepted by DESC-EC. This bulletin is superseded by the next dated revision of QML-38535 and MIL-BUL-103.

Standard microcircuit drawing PIN	Vendor CAGE number	Vendor similar PIN 1/
5962D9569301VXA	34371	HS1-0546RH-Q
5962D9569302VXA	34371	HS1-0547RH-Q

1/ Caution. Do not use this number for item acquisition. Items acquired to this number may not satisfy the performance requirements of this drawing.

Vendor CAGE number

34371

Vendor name and address

Harris Semiconductor
P.O. Box 883
Melbourne, FL 32902-0883

The information contained herein is disseminated for convenience only and the Government assumes no liability whatsoever for any inaccuracies in this information bulletin.

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 Results file : RD258_HSI-0546_INIT_EMS@_IG6 from: 02.03.98 / 13:36:07
 Operator : PAUL RUSSELL
 Part number : HSI-0546
 Lot number : RD258
 Order number : D/C 9730
 Vendor : HARRIS
 : CONTROL 2048 ; RAD 2049-2052
 : INITIAL EMS @ IG6
 : HS546RH SMD 5362-95693-01 1.0 SR 16/1/98 SA08B.01-HS546
 =====

Test steps

1. Continuity test	-1.50	...	-0.30	V
2. Function test/ENAB	0	...	0	
3. Function test	0	...	0	
4. VAL/VAH 2 (FUNC)	0	...	0	
5. +IS(OFF)	-10.0	...	10.0	nA
6. -IS(OFF)	-10.0	...	10.0	nA
7. +ID(OFF)	-10.0	...	10.0	nA
8. -ID(OFF)	-10.0	...	10.0	nA
9. +ID(ON)	-10.0	...	10.0	nA
10. -ID(ON)	-10.0	...	10.0	nA
11. +I Supply	0.00	...	2.00	mA
12. +I Standby	0.00	...	2.00	mA
13. -I Supply	-1000.00	...	5.00	uA
14. -I Standby	-1000.00	...	5.00	uA
15. +Rds1	0.00	...	150.00	mV
16. -Rds1	-150.00	...	0.00	mV
17. IIL (EN)	-1.00	...	1.00	uA
18. IIL (A0)	-1000.0	...	1000.0	nA
19. IIL (A1)	-1000.0	...	1000.0	nA
20. IIL (A2)	-1000.0	...	1000.0	nA
21. IIL (A3)	-1000.0	...	1000.0	nA
22. IIH (EN)	-1.00	...	1.00	uA
23. IIH (A0)	-1000.0	...	1000.0	nA
24. IIH (A1)	-1000.0	...	1000.0	nA
25. IIH (A2)	-1000.0	...	1000.0	nA
26. IIH (A3)	-1000.0	...	1000.0	nA

	2048	2049	2050	2051	2052
1.1 [V]	-0.74	-0.74	-0.74	-0.74	-0.74
1.2 [V]	-0.70	-0.70	-0.70	-0.70	-0.70
2.1 []	0	0	0	0	0
2.2 []	0	0	0	0	0
3.1 []	0	0	0	0	0
3.2 []	0	0	0	0	0
4.1 []	0	0	0	0	0
4.2 []	0	0	0	0	0
5.1 [nA]	-0.2	-0.2	-0.2	-0.2	-0.2
5.2 [nA]	0.5	0.5	0.5	0.5	0.5
6.1 [nA]	-0.5	-0.5	-0.6	-0.5	-0.5
6.2 [nA]	0.2	0.2	0.2	0.2	0.2
7.1 [nA]	0.1	0.0	0.1	0.1	0.1
7.2 [nA]	0.1	0.0	0.1	0.1	0.1
8.1 [nA]	-0.0	-0.1	-0.0	-0.0	-0.0
8.2 [nA]	-0.0	-0.1	-0.0	-0.0	-0.0
9.1 [nA]	-0.2	-0.2	-0.2	-0.2	-0.1
9.2 [nA]	1.3	1.2	1.3	1.3	1.2
10.1 [nA]	-0.5	-0.5	-0.5	-0.5	-0.5
10.2 [nA]	0.2	0.2	0.2	0.2	0.2
11.1 [mA]	0.44	0.46	0.45	0.46	0.47
11.2 [mA]	0.44	0.46	0.45	0.46	0.47
12.1 [mA]	0.44	0.46	0.45	0.46	0.47
12.2 [mA]	0.44	0.46	0.45	0.46	0.47
13.1 [uA]	0.06	0.23	0.36	0.33	0.19
13.2 [uA]	0.06	0.23	0.36	0.33	0.19
14.1 [uA]	0.08	-0.05	0.21	0.28	0.31
14.2 [uA]	0.08	-0.05	0.21	0.28	0.31
15.1 [mV]	118.12	118.53	118.32	119.06	118.75
15.2 [mV]	120.73	120.63	120.57	121.30	120.93
16.1 [mV]	-111.70	-111.68	-111.64	-112.46	-111.83
16.2 [mV]	-109.43	-109.82	-109.66	-110.12	-109.88
17.1 [uA]	0.00	0.00	0.00	0.00	0.00
17.2 [uA]	0.00	0.00	0.00	0.00	0.00
18.1 [nA]	-0.0	-0.1	-0.1	0.0	-0.2
18.2 [nA]	-0.0	-0.1	-0.1	0.0	-0.2
19.1 [nA]	-0.2	-0.2	-0.1	-0.1	0.0
19.2 [nA]	-0.2	-0.2	-0.1	-0.1	0.0
20.1 [nA]	-0.0	0.0	0.0	0.2	-0.1
20.2 [nA]	-0.0	0.0	0.0	0.2	-0.1
21.1 [nA]	-0.1	-0.1	-0.1	-0.2	-0.2
21.2 [nA]	-0.1	-0.1	-0.1	-0.2	-0.2
22.1 [uA]	0.00	0.00	0.00	0.00	0.00
22.2 [uA]	0.00	0.00	0.00	0.00	0.00
23.1 [nA]	0.0	0.0	0.0	0.0	0.1
23.2 [nA]	0.0	0.0	0.0	0.0	0.1
24.1 [nA]	-0.1	-0.1	-0.1	-0.1	-0.2
24.2 [nA]	-0.1	-0.1	-0.1	-0.1	-0.2
25.1 [nA]	0.2	0.2	0.1	0.2	0.3
25.2 [nA]	0.2	0.2	0.1	0.2	0.3
26.1 [nA]	-0.0	-0.1	-0.1	-0.1	-0.1
26.2 [nA]	-0.0	-0.1	-0.1	-0.1	-0.1

```

=====
Results file   : RD258_HS1-0546_INIT_EMS@_ERA   from: 04.03.98 / 10:32:36
Operator      : PAUL RUSSELL
Part number   : HS1-0546
Lot number    : RD258
Order number  : D/C 9730
Vendor        : HARRIS
               : CONTROL 2048 ; RAD 2049-2052
               : INITIAL EMS @ ERA
               : HS546RH SMD 5962-95693-01 1.0 SR 16/1/98 SA08B.01-HS546
=====

```

Test steps

1. Continuity test	-1.50	...	-0.30	V
2. Function test/ENAB	0	...	0	
3. Function test	0	...	0	
4. VAL/VAH 2 (FUNC)	0	...	0	
5. +IS(OFF)	-10.0	...	10.0	nA
6. -IS(OFF)	-10.0	...	10.0	nA
7. +ID(OFF)	-10.0	...	10.0	nA
8. -ID(OFF)	-10.0	...	10.0	nA
9. +ID(ON)	-10.0	...	10.0	nA
10. -ID(ON)	-10.0	...	10.0	nA
11. +I Supply	0.00	...	2.00	mA
12. +I Standby	0.00	...	2.00	mA
13. -I Supply	-1000.00	...	5.00	uA
14. -I Standby	-1000.00	...	5.00	uA
15. +Rds1	0.00	...	150.00	mV
16. -Rds1	-150.00	...	0.00	mV
17. IIL (EN)	-1.00	...	1.00	uA
18. IIL (A0)	-1000.0	...	1000.0	nA
19. IIL (A1)	-1000.0	...	1000.0	nA
20. IIL (A2)	-1000.0	...	1000.0	nA
21. IIL (A3)	-1000.0	...	1000.0	nA
22. IIH (EN)	-1.00	...	1.00	uA
23. IIH (A0)	-1000.0	...	1000.0	nA
24. IIH (A1)	-1000.0	...	1000.0	nA
25. IIH (A2)	-1000.0	...	1000.0	nA
26. IIH (A3)	-1000.0	...	1000.0	nA

	2048	2049	2050	2051	2052
1.1 [V]	-0.75	-0.75	-0.75	-0.75	-0.75
1.2 [V]	-0.71	-0.71	-0.71	-0.71	-0.71
2.1 []	0	0	0	0	0
2.2 []	0	0	0	0	0
3.1 []	0	0	0	0	0
3.2 []	0	0	0	0	0
4.1 []	0	0	0	0	0
4.2 []	0	0	0	0	0
5.1 [nA]	-8.1	-8.2	-7.8	-6.3	-7.3
5.2 [nA]	0.5	0.5	0.7	1.5	1.2
6.1 [nA]	-0.9	-1.3	-1.4	-1.7	-2.1
6.2 [nA]	8.4	8.3	6.6	6.6	6.8
7.1 [nA]	0.0	0.0	0.0	0.0	0.0
7.2 [nA]	0.0	0.0	0.0	0.0	0.0
8.1 [nA]	0.0	0.0	0.0	0.0	0.0
8.2 [nA]	0.0	0.0	0.0	0.0	0.0
9.1 [nA]	-8.2	-8.2	-7.9	-6.5	-7.5
9.2 [nA]	1.1	1.0	1.0	1.4	1.1
10.1 [nA]	-0.8	-1.2	-1.4	-1.6	-2.0
10.2 [nA]	8.4	8.1	6.2	6.7	7.1
11.1 [mA]	0.46	0.48	0.47	0.48	0.49
11.2 [mA]	0.46	0.48	0.47	0.48	0.49
12.1 [mA]	0.46	0.48	0.47	0.48	0.49
12.2 [mA]	0.46	0.48	0.47	0.48	0.49
13.1 [uA]	0.00	0.27	0.13	-0.13	0.27
13.2 [uA]	0.00	0.27	0.13	-0.13	0.27
14.1 [uA]	-0.08	-0.01	-0.01	-0.05	0.12
14.2 [uA]	-0.08	-0.01	-0.01	-0.05	0.12
15.1 [mV]	116.19	116.58	116.48	117.05	116.75
15.2 [mV]	118.85	118.71	118.64	119.43	118.96
16.1 [mV]	-109.93	-109.94	-109.84	-110.72	-110.11
16.2 [mV]	-107.63	-107.98	-107.85	-108.40	-108.14
17.1 [uA]	0.00	0.00	0.00	0.00	0.00
17.2 [uA]	0.00	0.00	0.00	0.00	0.00
18.1 [nA]	0.2	0.0	0.2	0.1	0.1
18.2 [nA]	0.2	0.0	0.2	0.1	0.1
19.1 [nA]	-0.2	-0.1	-0.2	-0.3	-0.2
19.2 [nA]	-0.2	-0.1	-0.2	-0.3	-0.2
20.1 [nA]	0.2	0.1	0.2	-0.1	0.2
20.2 [nA]	0.2	0.1	0.2	-0.1	0.2
21.1 [nA]	-0.3	-0.2	-0.2	-0.2	-0.2
21.2 [nA]	-0.3	-0.2	-0.2	-0.2	-0.2
22.1 [uA]	0.00	0.00	0.00	0.00	0.00
22.2 [uA]	0.00	0.00	0.00	0.00	0.00
23.1 [nA]	0.1	0.1	0.1	0.2	0.2
23.2 [nA]	0.1	0.1	0.1	0.2	0.2
24.1 [nA]	0.1	-0.1	-0.1	-0.1	-0.1
24.2 [nA]	0.1	-0.1	-0.1	-0.1	-0.1
25.1 [nA]	0.1	0.2	-0.0	0.1	0.1
25.2 [nA]	0.1	0.2	-0.0	0.1	0.1
26.1 [nA]	-0.0	-0.1	0.0	-0.2	-0.1
26.2 [nA]	-0.0	-0.1	0.0	-0.2	-0.1

```

=====
Results file   : RD258_HSI-0546_EMS_@_5_KRAD/1   from: 04.03.98 / 10:38:53
Operator      : PAUL RUSSELL
Part number   : HSI-0546
Lot number    : RD258
Order number  :
Vendor       :
              :
              : CONTROL 2048 ; RAD 2049,2050
              :
=====

```

Test steps

1. Continuity test	-1.50	...	-0.30	V
2. Function test/ENAB	0	...	0	
3. Function test	0	...	0	
4. UAL/VAH 2 (FUNC)	0	...	0	
5. +IS(OFF)	-10.0	...	10.0	nA
6. -IS(OFF)	-10.0	...	10.0	nA
7. +ID(OFF)	-10.0	...	10.0	nA
8. -ID(OFF)	-10.0	...	10.0	nA
9. +ID(ON)	-10.0	...	10.0	nA
10. -ID(ON)	-10.0	...	10.0	nA
11. +I Supply	0.00	...	2.00	mA
12. +I Standby	0.00	...	2.00	mA
13. -I Supply	-1000.00	...	5.00	uA
14. -I Standby	-1000.00	...	5.00	uA
15. +Rds1	0.00	...	150.00	mV
16. -Rds1	-150.00	...	0.00	mV
17. IIL (EN)	-1.00	...	1.00	uA
18. IIL (A0)	-1000.0	...	1000.0	nA
19. IIL (A1)	-1000.0	...	1000.0	nA
20. IIL (A2)	-1000.0	...	1000.0	nA
21. IIL (A3)	-1000.0	...	1000.0	nA
22. IIH (EN)	-1.00	...	1.00	uA
23. IIH (A0)	-1000.0	...	1000.0	nA
24. IIH (A1)	-1000.0	...	1000.0	nA
25. IIH (A2)	-1000.0	...	1000.0	nA
26. IIH (A3)	-1000.0	...	1000.0	nA

	2048	2049	2050
1.1 [V]	-0.75	-0.73	-0.73
1.2 [V]	-0.71	-0.70	-0.71
2.1 []	0	0	0
2.2 []	0	0	0
3.1 []	0	0	0
3.2 []	0	0	0
4.1 []	0	0	0
4.2 []	0	0	0
5.1 [nA]	-7.8	-8.0	-7.8
5.2 [nA]	1.5	1.2	1.5
6.1 [nA]	-2.8	-3.0	-3.0
6.2 [nA]	7.4	7.8	7.2
7.1 [nA]	0.0	0.0	0.0
7.2 [nA]	0.0	0.0	0.0
8.1 [nA]	-0.0	-0.0	-0.0
8.2 [nA]	-0.0	-0.0	-0.0
9.1 [nA]	-7.9	-8.1	-7.9
9.2 [nA]	1.5	1.4	1.4
10.1 [nA]	-2.8	-2.9	-2.9
10.2 [nA]	7.3	7.8	7.3
11.1 [mA]	0.46	0.48	0.46
11.2 [mA]	0.46	0.48	0.46
12.1 [mA]	0.46	0.48	0.46
12.2 [mA]	0.46	0.48	0.46
13.1 [uA]	-0.93	-0.77	-3.50
13.2 [uA]	-0.93	-0.77	-3.50
14.1 [uA]	-0.98	-1.05	-3.75
14.2 [uA]	-0.98	-1.05	-3.75
15.1 [mV]	116.25	116.94	116.90
15.2 [mV]	118.90	119.23	119.20
16.1 [mV]	-109.91	-110.25	-110.28
16.2 [mV]	-107.63	-108.24	-108.21
17.1 [uA]	0.00	0.00	0.00
17.2 [uA]	0.00	0.00	0.00
18.1 [nA]	0.1	0.2	0.0
18.2 [nA]	0.1	0.2	0.0
19.1 [nA]	-0.0	-0.3	-0.2
19.2 [nA]	-0.0	-0.3	-0.2
20.1 [nA]	0.1	0.3	0.1
20.2 [nA]	0.1	0.3	0.1
21.1 [nA]	-0.1	-0.1	-0.1
21.2 [nA]	-0.1	-0.1	-0.1
22.1 [uA]	0.00	0.00	0.00
22.2 [uA]	0.00	0.00	0.00
23.1 [nA]	0.2	0.1	0.2
23.2 [nA]	0.2	0.1	0.2
24.1 [nA]	-0.1	-0.0	-0.1
24.2 [nA]	-0.1	-0.0	-0.1
25.1 [nA]	0.1	-0.0	0.2
25.2 [nA]	0.1	-0.0	0.2
26.1 [nA]	-0.1	0.1	-0.1
26.2 [nA]	-0.1	0.1	-0.1

Results file : RD258_HS1-0546_EMS @ 5_KRAD/2 from: 04.03.98 / 11:51:29
 Operator : PAUL RUSSELL
 Part number : HS1-0546
 Lot number : RD258
 Order number :
 Vendor :
 : CONTROL 2048 ; RAD 2051,2052
 : EMS @ 5 KRAD LOT 2
 :

Test steps

1. Continuity test	-1.50	...	-0.30	V
2. Function test/ENAB	0	...	0	
3. Function test	0	...	0	
4. VAL/VAH 2 (FUNC)	0	...	0	
5. +IS(OFF)	-10.0	...	10.0	nA
6. -IS(OFF)	-10.0	...	10.0	nA
7. +ID(OFF)	-10.0	...	10.0	nA
8. -ID(OFF)	-10.0	...	10.0	nA
9. +ID(ON)	-10.0	...	10.0	nA
10. -ID(ON)	-10.0	...	10.0	nA
11. +I Supply	0.00	...	2.00	mA
12. +I Standby	0.00	...	2.00	mA
13. -I Supply	-1000.00	...	5.00	uA
14. -I Standby	-1000.00	...	5.00	uA
15. +Rds1	0.00	...	150.00	mV
16. -Rds1	-150.00	...	0.00	mV
17. IIL (EN)	-1.00	...	1.00	uA
18. IIL (A0)	-1000.0	...	1000.0	nA
19. IIL (A1)	-1000.0	...	1000.0	nA
20. IIL (A2)	-1000.0	...	1000.0	nA
21. IIL (A3)	-1000.0	...	1000.0	nA
22. IIH (EN)	-1.00	...	1.00	uA
23. IIH (A0)	-1000.0	...	1000.0	nA
24. IIH (A1)	-1000.0	...	1000.0	nA
25. IIH (A2)	-1000.0	...	1000.0	nA
26. IIH (A3)	-1000.0	...	1000.0	nA

	2048	2051	2052
1.1 [V]	-0.75	-0.74	-0.74
1.2 [V]	-0.71	-0.71	-0.71
2.1 []	0	0	0
2.2 []	0	0	0
3.1 []	0	0	0
3.2 []	0	0	0
4.1 []	0	0	0
4.2 []	0	0	0
5.1 [nA]	-4.0	-4.1	-4.7
5.2 [nA]	1.1	1.1	1.2
6.1 [nA]	-1.2	-1.3	-1.4
6.2 [nA]	4.4	4.3	4.3
7.1 [nA]	0.0	0.0	0.0
7.2 [nA]	0.0	0.0	0.0
8.1 [nA]	-0.0	0.0	0.0
8.2 [nA]	-0.0	0.0	0.0
9.1 [nA]	-4.0	-4.1	-4.7
9.2 [nA]	1.2	1.4	1.4
10.1 [nA]	-1.2	-1.2	-1.4
10.2 [nA]	4.3	4.2	4.2
11.1 [mA]	0.45	0.48	0.49
11.2 [mA]	0.45	0.48	0.49
12.1 [mA]	0.45	0.48	0.49
12.2 [mA]	0.45	0.48	0.49
13.1 [uA]	-0.07	-0.07	0.03
13.2 [uA]	-0.07	-0.07	0.03
14.1 [uA]	0.13	-0.17	-0.10
14.2 [uA]	0.13	-0.17	-0.10
15.1 [mV]	116.91	116.68	116.43
15.2 [mV]	119.55	119.37	118.94
16.1 [mV]	-110.50	-110.53	-109.98
16.2 [mV]	-108.24	-108.03	-107.83
17.1 [uA]	0.00	0.00	0.00
17.2 [uA]	0.00	0.00	0.00
18.1 [nA]	0.1	0.0	0.2
18.2 [nA]	0.1	0.0	0.2
19.1 [nA]	-0.2	-0.3	0.0
19.2 [nA]	-0.2	-0.3	0.0
20.1 [nA]	0.2	-0.1	0.2
20.2 [nA]	0.2	-0.1	0.2
21.1 [nA]	-0.1	-0.4	-0.1
21.2 [nA]	-0.1	-0.4	-0.1
22.1 [uA]	0.00	0.00	0.00
22.2 [uA]	0.00	0.00	0.00
23.1 [nA]	0.1	-0.1	0.2
23.2 [nA]	0.1	-0.1	0.2
24.1 [nA]	-0.2	-0.2	0.1
24.2 [nA]	-0.2	-0.2	0.1
25.1 [nA]	0.1	-0.1	0.2
25.2 [nA]	0.1	-0.1	0.2
26.1 [nA]	0.0	-0.1	0.1
26.2 [nA]	0.0	-0.1	0.1

 Results file : RD258_HS1-0546_EMS @ 10_KRAD/1 from: 04.03.98 / 10:59:31
 Operator : PAUL RUSSELL
 Part number : HS1-0546
 Lot number : RD258
 Order number :
 Vendor :
 : CONTROL 2048 ; RAD 2049,2050
 : EMS @ 10 KRAD LOT 1
 :

 Test steps

1. Continuity test	-1.50	...	-0.30	V
2. Function test/ENAB	0	...	0	
3. Function test	0	...	0	
4. VAL/VAH 2 (FUNC)	0	...	0	
5. +IS(OFF)	-10.0	...	10.0	nA
6. -IS(OFF)	-10.0	...	10.0	nA
7. +ID(OFF)	-10.0	...	10.0	nA
8. -ID(OFF)	-10.0	...	10.0	nA
9. +ID(ON)	-10.0	...	10.0	nA
10. -ID(ON)	-10.0	...	10.0	nA
11. +I Supply	0.00	...	2.00	mA
12. +I Standby	0.00	...	2.00	mA
13. -I Supply	-1000.00	...	5.00	uA
14. -I Standby	-1000.00	...	5.00	uA
15. +Rds1	0.00	...	150.00	mV
16. -Rds1	-150.00	...	0.00	mV
17. IIL (EN)	-1.00	...	1.00	uA
18. IIL (A0)	-1000.0	...	1000.0	nA
19. IIL (A1)	-1000.0	...	1000.0	nA
20. IIL (A2)	-1000.0	...	1000.0	nA
21. IIL (A3)	-1000.0	...	1000.0	nA
22. IIH (EN)	-1.00	...	1.00	uA
23. IIH (A0)	-1000.0	...	1000.0	nA
24. IIH (A1)	-1000.0	...	1000.0	nA
25. IIH (A2)	-1000.0	...	1000.0	nA
26. IIH (A3)	-1000.0	...	1000.0	nA

	2048	2049	2050
1.1 [V]	-0.75	-0.72	-0.73
1.2 [V]	-0.71	-0.70	-0.71
2.1 []	0	0	0
2.2 []	0	0	0
3.1 []	0	0	0
3.2 []	0	0	0
4.1 []	0	0	0
4.2 []	0	0	0
5.1 [nA]	-8.1	-6.5	-7.2
5.2 [nA]	1.4	2.5	1.9
6.1 [nA]	-3.3	-3.1	-3.4
6.2 [nA]	8.0	6.6	6.1
7.1 [nA]	0.1	0.1	0.1
7.2 [nA]	0.1	0.1	0.1
8.1 [nA]	-0.1	-0.0	-0.1
8.2 [nA]	-0.1	-0.0	-0.1
9.1 [nA]	-8.2	-6.4	-6.7
9.2 [nA]	1.1	2.6	2.7
10.1 [nA]	-3.1	-3.1	-3.4
10.2 [nA]	8.0	6.6	6.1
11.1 [mA]	0.46	0.48	0.47
11.2 [mA]	0.46	0.48	0.47
12.1 [mA]	0.46	0.48	0.47
12.2 [mA]	-0.46	0.48	0.47
13.1 [uA]	-1.50	-1.60	-9.30
13.2 [uA]	-1.50	-1.60	-9.30
14.1 [uA]	-1.61	-1.55	-9.45
14.2 [uA]	-1.61	-1.55	-9.45
15.1 [mV]	116.41	116.97	116.98
15.2 [mV]	119.05	119.41	119.31
16.1 [mV]	-110.05	-110.43	-110.33
16.2 [mV]	-107.77	-108.23	-108.14
17.1 [uA]	0.00	0.00	0.00
17.2 [uA]	0.00	0.00	0.00
18.1 [nA]	0.1	0.1	0.1
18.2 [nA]	0.1	0.1	0.1
19.1 [nA]	-0.0	-0.2	-0.1
19.2 [nA]	-0.0	-0.2	-0.1
20.1 [nA]	0.1	0.1	0.1
20.2 [nA]	0.1	0.1	0.1
21.1 [nA]	-0.1	-0.2	-0.1
21.2 [nA]	-0.1	-0.2	-0.1
22.1 [uA]	0.00	0.00	0.00
22.2 [uA]	0.00	0.00	0.00
23.1 [nA]	0.2	0.2	0.2
23.2 [nA]	0.2	0.2	0.2
24.1 [nA]	0.0	0.0	0.0
24.2 [nA]	0.0	0.0	0.0
25.1 [nA]	0.1	-0.0	0.2
25.2 [nA]	0.1	-0.0	0.2
26.1 [nA]	0.1	0.2	0.1
26.2 [nA]	0.1	0.2	0.1

 Results file : RD258_H51-0546_EMS_@_10_KRAD/2 from: 04.03.98 / 11:59:17
 Operator : PAUL RUSSELL
 Part number : H51-0546
 Lot number : RD258
 Order number :
 Vendor :
 : CONTROL 2048 ; RAD 2051,2052
 : EMS @ 10 KRAD LOT 2
 :

 Test steps

1. Continuity test	-1.50	...	-0.30	V
2. Function test/ENAB	0	...	0	
3. Function test	0	...	0	
4. VAL/VAH 2 (FUNC)	0	...	0	
5. +IS(OFF)	-10.0	...	10.0	nA
6. -IS(OFF)	-10.0	...	10.0	nA
7. +ID(OFF)	-10.0	...	10.0	nA
8. -ID(OFF)	-10.0	...	10.0	nA
9. +ID(ON)	-10.0	...	10.0	nA
10. -ID(ON)	-10.0	...	10.0	nA
11. +I Supply	0.00	...	2.00	mA
12. +I Standby	0.00	...	2.00	mA
13. -I Supply	-1000.00	...	5.00	uA
14. -I Standby	-1000.00	...	5.00	uA
15. +Rds1	0.00	...	150.00	mV
16. -Rds1	-150.00	...	0.00	mV
17. IIL (EN)	-1.00	...	1.00	uA
18. IIL (A0)	-1000.0	...	1000.0	nA
19. IIL (A1)	-1000.0	...	1000.0	nA
20. IIL (A2)	-1000.0	...	1000.0	nA
21. IIL (A3)	-1000.0	...	1000.0	nA
22. IIH (EN)	-1.00	...	1.00	uA
23. IIH (A0)	-1000.0	...	1000.0	nA
24. IIH (A1)	-1000.0	...	1000.0	nA
25. IIH (A2)	-1000.0	...	1000.0	nA
26. IIH (A3)	-1000.0	...	1000.0	nA

	2048	2051	2052
1.1 [V]	-0.75	-0.73	-0.73
1.2 [V]	-0.71	-0.70	-0.70
2.1 []	0	0	0
2.2 []	0	0	0
3.1 []	0	0	0
3.2 []	0	0	0
4.1 []	0	0	0
4.2 []	0	0	0
5.1 [nA]	-5.7	-5.0	-4.1
5.2 [nA]	0.8	0.9	1.3
6.1 [nA]	-0.9	-0.9	-1.4
6.2 [nA]	5.9	4.3	4.3
7.1 [nA]	0.0	0.0	0.1
7.2 [nA]	0.0	0.0	0.1
8.1 [nA]	-0.0	-0.0	0.0
8.2 [nA]	-0.0	-0.0	0.0
9.1 [nA]	-5.7	-5.0	-4.2
9.2 [nA]	1.2	1.5	1.5
10.1 [nA]	-0.9	-0.9	-1.2
10.2 [nA]	5.9	4.2	4.4
11.1 [mA]	0.45	0.48	0.49
11.2 [mA]	0.45	0.48	0.49
12.1 [mA]	0.45	0.48	0.49
12.2 [mA]	0.45	0.48	0.49
13.1 [uA]	-0.27	-0.43	-0.40
13.2 [uA]	-0.27	-0.43	-0.40
14.1 [uA]	-0.43	-0.37	-0.60
14.2 [uA]	-0.43	-0.37	-0.60
15.1 [mV]	116.92	117.14	116.79
15.2 [mV]	119.60	119.98	119.44
16.1 [mV]	-110.53	-111.13	-110.39
16.2 [mV]	-108.23	-108.40	-108.11
17.1 [uA]	0.00	0.00	0.00
17.2 [uA]	0.00	0.00	0.00
18.1 [nA]	-0.0	0.1	-0.1
18.2 [nA]	-0.0	0.1	-0.1
19.1 [nA]	-0.3	-0.2	-0.2
19.2 [nA]	-0.3	-0.2	-0.2
20.1 [nA]	-0.0	0.0	0.1
20.2 [nA]	-0.0	0.0	0.1
21.1 [nA]	-0.3	-0.2	-0.3
21.2 [nA]	-0.3	-0.2	-0.3
22.1 [uA]	0.00	0.00	0.00
22.2 [uA]	0.00	0.00	0.00
23.1 [nA]	0.1	0.3	0.2
23.2 [nA]	0.1	0.3	0.2
24.1 [nA]	-0.1	-0.1	-0.1
24.2 [nA]	-0.1	-0.1	-0.1
25.1 [nA]	0.2	0.3	0.2
25.2 [nA]	0.2	0.3	0.2
26.1 [nA]	-0.3	-0.2	-0.1
26.2 [nA]	-0.3	-0.2	-0.1

```

=====
Results file   : RD258_HSI-0546_EMS_@_20_KRAD/1   from: 04.03.98 / 11:04:44
Operator      : PAUL RUSSELL
Part number   : HSI-0546
Lot number    : RD258
Order number  :
Vendor        :
               : CONTROL 2048 ; RAD 2049,2050
               : EMS @ 20 KRAD LOT 1
               :
=====

```

Test steps

1. Continuity test	-1.50	...	-0.30	V
2. Function test/ENAB	0	...	0	
3. Function test	0	...	0	
4. VAL/VAH 2 (FUNC)	0	...	0	
5. +IS(OFF)	-10.0	...	10.0	nA
6. -IS(OFF)	-10.0	...	10.0	nA
7. +ID(OFF)	-10.0	...	10.0	nA
8. -ID(OFF)	-10.0	...	10.0	nA
9. +ID(ON)	-10.0	...	10.0	nA
10. -ID(ON)	-10.0	...	10.0	nA
11. +I Supply	0.00	...	2.00	mA
12. +I Standby	0.00	...	2.00	mA
13. -I Supply	-1000.00	...	5.00	uA
14. -I Standby	-1000.00	...	5.00	uA
15. +Rds1	0.00	...	150.00	mV
16. -Rds1	-150.00	...	0.00	mV
17. IIL (EN)	-1.00	...	1.00	uA
18. IIL (A0)	-1000.0	...	1000.0	nA
19. IIL (A1)	-1000.0	...	1000.0	nA
20. IIL (A2)	-1000.0	...	1000.0	nA
21. IIL (A3)	-1000.0	...	1000.0	nA
22. IIH (EN)	-1.00	...	1.00	uA
23. IIH (A0)	-1000.0	...	1000.0	nA
24. IIH (A1)	-1000.0	...	1000.0	nA
25. IIH (A2)	-1000.0	...	1000.0	nA
26. IIH (A3)	-1000.0	...	1000.0	nA

	2048	2049	2050
1.1 [V]	-0.75	-0.71	-0.71
1.2 [V]	-0.71	-0.70	-0.70
2.1 []	0	0	0
2.2 []	0	0	0
3.1 []	0	0	0
3.2 []	0	0	0
4.1 []	0	0	0
4.2 []	0	0	0
5.1 [nA]	-8.1	-7.2	-5.6
5.2 [nA]	1.1	2.5	2.9
6.1 [nA]	-2.8	-3.4	-3.2
6.2 [nA]	8.4	6.1	6.0
7.1 [nA]	0.2	0.1	0.2
7.2 [nA]	0.2	0.1	0.2
8.1 [nA]	-0.1	-0.1	-0.1
8.2 [nA]	-0.1	-0.1	-0.1
9.1 [nA]	-8.2	-7.2	-5.7
9.2 [nA]	1.2	2.4	2.8
10.1 [nA]	-2.7	-3.3	-3.1
10.2 [nA]	8.4	6.1	6.1
11.1 [mA]	0.46	0.49	0.48
11.2 [mA]	0.46	0.49	0.48
12.1 [mA]	0.46	0.49	0.48
12.2 [mA]	0.46	0.49	0.48
13.1 [uA]	-2.67	-2.80	-18.37
13.2 [uA]	-2.67	-2.80	-18.37
14.1 [uA]	-2.85	-2.85	-18.95
14.2 [uA]	-2.85	-2.85	-18.95
15.1 [mV]	116.64	117.24	117.60
15.2 [mV]	119.30	119.92	120.13
16.1 [mV]	-110.26	-110.99	-111.16
16.2 [mV]	-107.98	-108.51	-108.74
17.1 [uA]	0.00	0.00	0.00
17.2 [uA]	0.00	0.00	0.00
18.1 [nA]	0.1	0.2	0.1
18.2 [nA]	0.1	0.2	0.1
19.1 [nA]	-0.0	-0.2	-0.2
19.2 [nA]	-0.0	-0.2	-0.2
20.1 [nA]	0.1	0.1	0.1
20.2 [nA]	0.1	0.1	0.1
21.1 [nA]	-0.1	-0.1	-0.1
21.2 [nA]	-0.1	-0.1	-0.1
22.1 [uA]	0.00	-0.00	-0.00
22.2 [uA]	0.00	-0.00	-0.00
23.1 [nA]	0.2	0.1	0.2
23.2 [nA]	0.2	0.1	0.2
24.1 [nA]	0.0	0.1	-0.0
24.2 [nA]	0.0	0.1	-0.0
25.1 [nA]	0.2	0.1	0.1
25.2 [nA]	0.2	0.1	0.1
26.1 [nA]	0.0	0.1	-0.0
26.2 [nA]	0.0	0.1	-0.0

SZ-TESTSYSTEME Statistics 03 Vers. 2.15 for TA08M
 RD258_HSI-0546_EMS_@_20_KRAD/2 / 1.0 SR 16/1/98 SA08B.01-HS546

Results file : RD258_HSI-0546_EMS_@_20_KRAD/2 from: 04.03.98 / 12:09:55
 Operator : PAUL RUSSELL
 Part number : HSI-0546
 Lot number : RD258
 Order number :
 Vendor :
 : CONTROL 2048 ; RAD 2051,2052
 : EMS @ 20 KRAD LOT 2
 :

Test steps

1. Continuity test	-1.50	...	-0.30	V
2. Function test/ENAB	0	...	0	
3. Function test	0	...	0	
4. VAL/VAH 2 (FUNC)	0	...	0	
5. +IS(OFF)	-10.0	...	10.0	nA
6. -IS(OFF)	-10.0	...	10.0	nA
7. +ID(OFF)	-10.0	...	10.0	nA
8. -ID(OFF)	-10.0	...	10.0	nA
9. +ID(ON)	-10.0	...	10.0	nA
10. -ID(ON)	-10.0	...	10.0	nA
11. +I Supply	0.00	...	2.00	mA
12. +I Standby	0.00	...	2.00	mA
13. -I Supply	-1000.00	...	5.00	uA
14. -I Standby	-1000.00	...	5.00	uA
15. +Rds1	0.00	...	150.00	mV
16. -Rds1	-150.00	...	0.00	mV
17. IIL (EN)	-1.00	...	1.00	uA
18. IIL (A0)	-1000.0	...	1000.0	nA
19. IIL (A1)	-1000.0	...	1000.0	nA
20. IIL (A2)	-1000.0	...	1000.0	nA
21. IIL (A3)	-1000.0	...	1000.0	nA
22. IIH (EN)	-1.00	...	1.00	uA
23. IIH (A0)	-1000.0	...	1000.0	nA
24. IIH (A1)	-1000.0	...	1000.0	nA
25. IIH (A2)	-1000.0	...	1000.0	nA
26. IIH (A3)	-1000.0	...	1000.0	nA

	2048	2051	2052
1.1 [V]	-0.75	-0.72	-0.72
1.2 [V]	-0.71	-0.70	-0.70
2.1 []	0	0	0
2.2 []	0	0	0
3.1 []	0	0	0
3.2 []	0	0	0
4.1 []	0	0	0
4.2 []	0	0	0
5.1 [nA]	-5.2	-4.7	-4.6
5.2 [nA]	1.2	1.2	1.3
6.1 [nA]	-1.3	-1.1	-1.3
6.2 [nA]	4.5	4.8	4.6
7.1 [nA]	0.0	0.1	0.0
7.2 [nA]	0.0	0.1	0.0
8.1 [nA]	-0.0	0.0	-0.1
8.2 [nA]	-0.0	0.0	-0.1
9.1 [nA]	-5.2	-4.7	-4.7
9.2 [nA]	1.2	1.5	1.5
10.1 [nA]	-1.3	-1.1	-1.3
10.2 [nA]	4.4	4.9	4.6
11.1 [mA]	0.45	0.48	0.49
11.2 [mA]	0.45	0.48	0.49
12.1 [mA]	0.45	0.48	0.49
12.2 [mA]	0.45	0.48	0.49
13.1 [uA]	-0.50	-0.67	-0.67
13.2 [uA]	-0.50	-0.67	-0.67
14.1 [uA]	-0.50	-0.83	-0.80
14.2 [uA]	-0.50	-0.83	-0.80
15.1 [mV]	116.88	117.55	117.14
15.2 [mV]	119.53	120.66	120.08
16.1 [mV]	-110.47	-111.85	-111.07
16.2 [mV]	-108.19	-108.81	-108.41
17.1 [uA]	0.00	0.00	0.00
17.2 [uA]	0.00	0.00	0.00
18.1 [nA]	0.1	0.1	0.1
18.2 [nA]	0.1	0.1	0.1
19.1 [nA]	-0.2	-0.2	-0.2
19.2 [nA]	-0.2	-0.2	-0.2
20.1 [nA]	0.2	0.2	0.2
20.2 [nA]	0.2	0.2	0.2
21.1 [nA]	-0.2	-0.2	-0.1
21.2 [nA]	-0.2	-0.2	-0.1
22.1 [uA]	0.00	0.00	0.00
22.2 [uA]	0.00	0.00	0.00
23.1 [nA]	0.1	0.2	0.0
23.2 [nA]	0.1	0.2	0.0
24.1 [nA]	-0.0	-0.1	-0.2
24.2 [nA]	-0.0	-0.1	-0.2
25.1 [nA]	0.1	0.2	0.2
25.2 [nA]	0.1	0.2	0.2
26.1 [nA]	0.0	0.0	-0.2
26.2 [nA]	0.0	0.0	-0.2

```

-----
Results file   : RD258_HSI-0546_EMS @ 30_KRAD/1   from: 04.03.98 / 11:44:57
Operator      : PAUL RUSSELL
Part number   : HSI-0546
Lot number    : RD258
Order number  :
Vendor        :
              : CONTROL 2048 ; RAD 2049,2050
              : EMS @ 30 KRAD LOT 1
              :
-----

```

Test steps

1. Continuity test	not active			
2. Function test/ENAB	0	...	0	
3. Function test	0	...	0	
4. VAL/VAH 2 (FUNC)	0	...	0	
5. +IS(OFF)	-10.00	...	10.00	nA
6. -IS(OFF)	-10.00	...	10.00	nA
7. +ID(OFF)	-10.00	...	10.00	nA
8. -ID(OFF)	-10.00	...	10.00	nA
9. +ID(ON)	-10.00	...	10.00	nA
10. -ID(ON)	-10.00	...	10.00	nA
11. +I Supply	0.00	...	2.00	mA
12. +I Standby	0.00	...	2.00	mA
13. -I Supply	-1000.00	...	5.00	uA
14. -I Standby	-1000.00	...	5.00	uA
15. +Rds1	0.00	...	150.00	mV
16. -Rds1	-150.00	...	0.00	mV
17. IIL (EN)	-1.00	...	1.00	uA
18. IIL (A0)	-1000.00	...	1000.00	nA
19. IIL (A1)	-1000.00	...	1000.00	nA
20. IIL (A2)	-1000.00	...	1000.00	nA
21. IIL (A3)	-1000.00	...	1000.00	nA
22. IIH (EN)	-1.00	...	1.00	uA
23. IIH (A0)	-1000.00	...	1000.00	nA
24. IIH (A1)	-1000.00	...	1000.00	nA
25. IIH (A2)	-1000.00	...	1000.00	nA
26. IIH (A3)	-1000.00	...	1000.00	nA

	2048	2049	2050
2.1 []	0	0	0
2.2 []	0	0	0
3.1 []	0	8 F	0
3.2 []	0	8 F	0
4.1 []	0	8 F	0
4.2 []	0	8 F	0
5.1 [nA]	-5.7	-5.6	-4.3
5.2 [nA]	0.5	0.7	0.9
6.1 [nA]	-0.6	-0.8	-1.0
6.2 [nA]	5.8	5.7	4.1
7.1 [nA]	0.0	0.0	0.0
7.2 [nA]	0.0	0.0	0.0
8.1 [nA]	-0.0	0.0	0.0
8.2 [nA]	-0.0	0.0	0.0
9.1 [nA]	-5.7	-5.6	-4.4
9.2 [nA]	1.2	1.6	1.7
10.1 [nA]	-0.6	-0.9	-1.0
10.2 [nA]	5.9	4.5	4.1
11.1 [mA]	0.45	0.47	0.47
11.2 [mA]	0.45	0.47	0.47
12.1 [mA]	0.45	0.47	0.47
12.2 [mA]	0.45	0.47	0.47
13.1 [uA]	0.00	-0.10	-21.77
13.2 [uA]	0.00	-0.10	-21.77
14.1 [uA]	0.10	-0.03	-22.63
14.2 [uA]	0.10	-0.03	-22.63
15.1 [mV]	116.79	119.23	118.83
15.2 [mV]	119.43	163.84 F	121.57
16.1 [mV]	-110.38	-163.84 F	-112.55
16.2 [mV]	-108.11	-110.26	-109.95
17.1 [uA]	0.00	0.00	0.00
17.2 [uA]	0.00	0.00	0.00
18.1 [nA]	0.0	0.1	0.0
18.2 [nA]	0.0	0.1	0.0
19.1 [nA]	-0.1	-0.3	-0.1
19.2 [nA]	-0.1	-0.3	-0.1
20.1 [nA]	-0.1	0.0	0.3
20.2 [nA]	-0.1	0.0	0.3
21.1 [nA]	-0.1	-0.3	0.0
21.2 [nA]	-0.1	-0.3	0.0
22.1 [uA]	0.00	0.00	0.00
22.2 [uA]	0.00	0.00	0.00
23.1 [nA]	-0.2	-0.1	0.1
23.2 [nA]	-0.2	-0.1	0.1
24.1 [nA]	-0.2	-0.2	-0.2
24.2 [nA]	-0.2	-0.2	-0.2
25.1 [nA]	-0.1	-0.0	0.2
25.2 [nA]	-0.1	-0.0	0.2
26.1 [nA]	-0.2	-0.1	-0.1
26.2 [nA]	-0.2	-0.1	-0.1

```

=====
Results file   : RD258_HS1-0546_EMS @ 30 KRAD/2   from: 04.03.98 / 12:29:31
Operator      : PAUL RUSSELL
Part number   : HS1-0546
Lot number    : RD258
Order number  :
Vendor        :
               : CONTROL 2048 ; RAD 2051,2052
               : EMS @ 30 KRAD LOT 2
               :
=====

```

Test steps

1. Continuity test	-1.50	...	-0.30	V
2. Function test/ENAB	0	...	0	
3. Function test	0	...	0	
4. VAL/VAH 2 (FUNC)	0	...	0	
5. +IS(OFF)	-10.0	...	10.0	nA
6. -IS(OFF)	-10.0	...	10.0	nA
7. +ID(OFF)	-10.0	...	10.0	nA
8. -ID(OFF)	-10.0	...	10.0	nA
9. +ID(ON)	-10.0	...	10.0	nA
10. -ID(ON)	-10.0	...	10.0	nA
11. +I Supply	0.00	...	2.00	mA
12. +I Standby	0.00	...	2.00	mA
13. -I Supply	-1000.00	...	5.00	uA
14. -I Standby	-1000.00	...	5.00	uA
15. +Rds1	0.00	...	150.00	mV
16. -Rds1	-150.00	...	0.00	mV
17. IIL (EN)	-1.00	...	1.00	uA
18. IIL (A0)	-1000.0	...	1000.0	nA
19. IIL (A1)	-1000.0	...	1000.0	nA
20. IIL (A2)	-1000.0	...	1000.0	nA
21. IIL (A3)	-1000.0	...	1000.0	nA
22. IIH (EN)	-1.00	...	1.00	uA
23. IIH (A0)	-1000.0	...	1000.0	nA
24. IIH (A1)	-1000.0	...	1000.0	nA
25. IIH (A2)	-1000.0	...	1000.0	nA
26. IIH (A3)	-1000.0	...	1000.0	nA

	2048	2051	2052
1.1 [V]	-0.75	-0.71	-0.71
1.2 [V]	-0.71	-0.69	-0.69
2.1 []	0	0	0
2.2 []	0	0	0
3.1 []	0	0	0
3.2 []	0	0	0
4.1 []	0	0	0
4.2 []	0	0	0
5.1 [nA]	-4.9	-5.1	-4.9
5.2 [nA]	1.0	0.8	0.8
6.1 [nA]	-1.0	-0.8	-0.7
6.2 [nA]	5.0	5.2	5.0
7.1 [nA]	0.0	0.1	0.1
7.2 [nA]	0.0	0.1	0.1
8.1 [nA]	-0.0	0.0	0.0
8.2 [nA]	-0.0	0.0	0.0
9.1 [nA]	-4.9	-5.0	-4.9
9.2 [nA]	1.2	1.6	1.6
10.1 [nA]	-1.0	-0.7	-0.7
10.2 [nA]	5.0	5.2	5.0
11.1 [mA]	0.45	0.47	0.48
11.2 [mA]	0.45	0.47	0.48
12.1 [mA]	0.45	0.47	0.48
12.2 [mA]	-0.45	0.47	0.48
13.1 [uA]	-1.07	-1.27	-1.20
13.2 [uA]	-1.07	-1.27	-1.20
14.1 [uA]	-1.00	-1.23	-1.10
14.2 [uA]	-1.00	-1.23	-1.10
15.1 [mV]	117.00	118.65	118.02
15.2 [mV]	119.63	122.07	121.21
16.1 [mV]	-110.56	-113.24	-112.20
16.2 [mV]	-108.30	-109.91	-109.28
17.1 [uA]	0.00	0.00	0.00
17.2 [uA]	0.00	0.00	0.00
18.1 [nA]	0.1	0.1	0.0
18.2 [nA]	0.1	0.1	0.0
19.1 [nA]	-0.3	-0.1	-0.1
19.2 [nA]	-0.3	-0.1	-0.1
20.1 [nA]	0.0	0.0	0.1
20.2 [nA]	0.0	0.0	0.1
21.1 [nA]	-0.3	-0.2	-0.1
21.2 [nA]	-0.3	-0.2	-0.1
22.1 [uA]	0.00	0.00	0.00
22.2 [uA]	0.00	0.00	0.00
23.1 [nA]	0.0	0.0	0.0
23.2 [nA]	0.0	0.0	0.0
24.1 [nA]	-0.2	-0.1	-0.1
24.2 [nA]	-0.2	-0.1	-0.1
25.1 [nA]	0.1	0.1	0.1
25.2 [nA]	0.1	0.1	0.1
26.1 [nA]	-0.0	0.0	0.0
26.2 [nA]	-0.0	0.0	0.0

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Results file   : RD258_HS1-0546_POST_ANNEAL_EMS   from: 05.03.98 / 11:32:26
Operator      : PAUL RUSSELL
Part number   : HS1-0546
Lot number    : RD258
Order number  : D/C 9730
Vendor        : HARRIS
               : CONTROL 2048 ; RAD 2049-2052
               : POST 24 HRS ANNEAL EMS
               : H5546RH SMD 5962-95693-01 1.0 SR 16/1/98 SA08B.01-H5546
=====

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Test steps

1. Continuity test	not active			
2. Function test/ENAB	0	...	0	
3. Function test	0	...	0	
4. VAL/VAH 2 (FUNC)	0	...	0	
5. +IS(OFF)	-10.00	...	10.00	nA
6. -IS(OFF)	-10.00	...	10.00	nA
7. +ID(OFF)	-10.00	...	10.00	nA
8. -ID(OFF)	-10.00	...	10.00	nA
9. +ID(ON)	-10.00	...	10.00	nA
10. -ID(ON)	-10.00	...	10.00	nA
11. +I Supply	0.00	...	2.00	mA
12. +I Standby	0.00	...	2.00	mA
13. -I Supply	-1000.00	...	5.00	uA
14. -I Standby	-1000.00	...	5.00	uA
15. +Rds1	0.00	...	150.00	mV
16. -Rds1	-150.00	...	0.00	mV
17. IIL (EN)	-1.00	...	1.00	uA
18. IIL (A0)	-1000.00	...	1000.00	nA
19. IIL (A1)	-1000.00	...	1000.00	nA
20. IIL (A2)	-1000.00	...	1000.00	nA
21. IIL (A3)	-1000.00	...	1000.00	nA
22. IIH (EN)	-1.00	...	1.00	uA
23. IIH (A0)	-1000.00	...	1000.00	nA
24. IIH (A1)	-1000.00	...	1000.00	nA
25. IIH (A2)	-1000.00	...	1000.00	nA
26. IIH (A3)	-1000.00	...	1000.00	nA

	2048	2049	2050	2051	2052
2.1 []	0	0	0	0	0
2.2 []	0	0	0	0	0
3.1 []	0	8 F	0	0	0
3.2 []	0	8 F	0	0	0
4.1 []	0	8 F	0	0	0
4.2 []	0	8 F	0	0	0
5.1 [nA]	0.0	-0.0	0.1	0.2	0.2
5.2 [nA]	0.5	0.4	0.6	0.6	0.6
6.1 [nA]	-0.5	-0.4	-0.6	-0.6	-0.6
6.2 [nA]	-0.1	-0.0	-0.1	-0.2	-0.2
7.1 [nA]	0.0	0.0	0.0	0.0	0.0
7.2 [nA]	0.0	0.0	0.0	0.0	0.0
8.1 [nA]	-0.0	0.0	0.0	0.0	0.0
8.2 [nA]	-0.0	0.0	0.0	0.0	0.0
9.1 [nA]	0.1	0.0	0.2	0.2	0.2
9.2 [nA]	1.1	1.4	1.4	1.4	1.4
10.1 [nA]	-0.5	-0.5	-0.5	-0.5	-0.5
10.2 [nA]	-0.1	0.0	-0.1	-0.2	-0.2
11.1 [mA]	0.45	0.46	0.45	0.46	0.47
11.2 [mA]	0.45	0.46	0.45	0.46	0.47
12.1 [mA]	0.45	0.46	0.46	0.46	0.47
12.2 [mA]	0.45	0.46	0.46	0.46	0.47
13.1 [uA]	0.11	0.21	-13.02	0.21	-0.15
13.2 [uA]	0.11	0.21	-13.02	0.21	-0.15
14.1 [uA]	0.10	-0.17	-14.00	-0.07	-0.07
14.2 [uA]	0.10	-0.17	-14.00	-0.07	-0.07
15.1 [mV]	117.32	120.44	120.09	120.62	119.89
15.2 [mV]	119.96	163.84 F	122.75	123.89	122.99
16.1 [mV]	-111.00	-163.84 F	-113.79	-115.09	-114.02
16.2 [mV]	-108.73	-111.54	-111.27	-111.94	-111.21
17.1 [uA]	0.00	0.00	0.00	0.00	0.00
17.2 [uA]	0.00	0.00	0.00	0.00	0.00
18.1 [nA]	0.0	-0.0	0.1	0.1	-0.0
18.2 [nA]	0.0	-0.0	0.1	0.1	-0.0
19.1 [nA]	-0.2	-0.2	-0.2	-0.3	-0.3
19.2 [nA]	-0.2	-0.2	-0.2	-0.3	-0.3
20.1 [nA]	0.0	-0.0	-0.0	-0.3	0.1
20.2 [nA]	0.0	-0.0	-0.0	-0.3	0.1
21.1 [nA]	-0.2	-0.1	-0.3	-0.3	-0.1
21.2 [nA]	-0.2	-0.1	-0.3	-0.3	-0.1
22.1 [uA]	0.00	0.00	0.00	0.00	0.00
22.2 [uA]	0.00	0.00	0.00	0.00	0.00
23.1 [nA]	0.2	0.1	0.1	0.1	0.1
23.2 [nA]	0.2	0.1	0.1	0.1	0.1
24.1 [nA]	-0.3	0.1	-0.2	-0.1	-0.1
24.2 [nA]	-0.3	0.1	-0.2	-0.1	-0.1
25.1 [nA]	0.1	0.0	0.1	-0.0	0.0
25.2 [nA]	0.1	0.0	0.1	-0.0	0.0
26.1 [nA]	-0.2	0.0	-0.3	-0.1	0.0
26.2 [nA]	-0.2	0.0	-0.3	-0.1	0.0

SZ-TESTSYSTEME Statistics 03 Vers. 2.15 for TA08M
 RD258_HSI-0546_FINAL_EMS / 1.0 SR 16/1/98 SA08B.01-HS546

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=====
Results file   : RD258_HSI-0546_FINAL_EMS   from: 16.03.98 / 15:10:31
Operator      : PAUL RUSSELL
Part number   : HSI-0546
Lot number    : RD258
Order number  : D/C 9730
Vendor       : HARRIS
              : CONTROL 2048 ; RAD 2049-2052
              : FINAL POST AGEING EMS
              : HSS46RH SMD 5962-95693-01 1.0 SR 16/1/98 SA08B.01-HS546
=====
```

Test steps

1. Continuity test	-1.50	...	-0.30	V
2. Function test/ENAB	0	...	0	
3. Function test	0	...	0	
4. VAL/VAH 2 (FUNC)	0	...	0	
5. +IS(OFF)	-10.0	...	10.0	nA
6. -IS(OFF)	-10.0	...	10.0	nA
7. +ID(OFF)	-10.0	...	10.0	nA
8. -ID(OFF)	-10.0	...	10.0	nA
9. +ID(ON)	-10.0	...	10.0	nA
10. -ID(ON)	-10.0	...	10.0	nA
11. +I Supply	0.00	...	2.00	mA
12. +I Standby	0.00	...	2.00	mA
13. -I Supply	-1000.00	...	5.00	uA
14. -I Standby	-1000.00	...	5.00	uA
15. +RdsI	0.00	...	150.00	mV
16. -RdsI	-150.00	...	0.00	mV
17. IIL (EN)	-1.00	...	1.00	uA
18. IIL (A0)	-1000.0	...	1000.0	nA
19. IIL (A1)	-1000.0	...	1000.0	nA
20. IIL (A2)	-1000.0	...	1000.0	nA
21. IIL (A3)	-1000.0	...	1000.0	nA
22. IIH (EN)	-1.00	...	1.00	uA
23. IIH (A0)	-1000.0	...	1000.0	nA
24. IIH (A1)	-1000.0	...	1000.0	nA
25. IIH (A2)	-1000.0	...	1000.0	nA
26. IIH (A3)	-1000.0	...	1000.0	nA

	2048	2049	2050	2051	2052
1.1 [V]	-0.74	-0.70	-0.70	-0.70	-0.70
1.2 [V]	-0.70	-0.68	-0.68	-0.68	-0.68
2.1 []	0	0	0	0	0
2.2 []	0	0	0	0	0
3.1 []	0	3 F	3 F	3 F	3 F
3.2 []	0	3 F	3 F	3 F	3 F
4.1 []	0	3 F	3 F	3 F	3 F
4.2 []	0	3 F	3 F	3 F	3 F
5.1 [nA]	0.2	0.2	0.2	0.2	0.2
5.2 [nA]	0.6	0.5	0.5	0.5	0.5
6.1 [nA]	-0.6	-0.5	-0.5	-0.5	-0.5
6.2 [nA]	-0.2	-0.2	-0.2	-0.2	-0.2
7.1 [nA]	0.1	0.1	0.1	0.1	0.1
7.2 [nA]	0.1	0.1	0.1	0.1	0.1
8.1 [nA]	0.0	-0.0	-0.1	-0.0	-0.0
8.2 [nA]	0.0	-0.0	-0.1	-0.0	-0.0
9.1 [nA]	0.2	0.2	0.2	0.2	0.3
9.2 [nA]	1.3	1.4	1.3	1.4	1.4
10.1 [nA]	-0.5	-0.5	-0.5	-0.5	-0.5
10.2 [nA]	-0.2	-0.2	-0.2	-0.2	-0.2
11.1 [mA]	0.43	0.44	0.42	0.44	0.45
11.2 [mA]	0.43	0.44	0.42	0.44	0.45
12.1 [mA]	0.44	0.44	0.42	0.44	0.45
12.2 [mA]	-0.44	0.44	0.42	0.44	0.45
13.1 [uA]	0.05	-0.05	-0.52	-0.12	-0.12
13.2 [uA]	0.05	-0.05	-0.52	-0.12	-0.12
14.1 [uA]	-0.11	-0.21	-0.67	-0.01	0.03
14.2 [uA]	-0.11	-0.21	-0.67	-0.01	0.03
15.1 [mV]	118.54	121.95	121.03	122.71	122.57
15.2 [mV]	121.18	163.84 F	163.84 F	163.84 F	163.84 F
16.1 [mV]	-112.20	-113.65	-113.55	-114.55	-113.68
16.2 [mV]	-109.87	-111.58	-111.38	-111.90	-111.39
17.1 [uA]	0.00	0.00	0.00	0.00	0.00
17.2 [uA]	0.00	0.00	0.00	0.00	0.00
18.1 [nA]	0.0	0.0	0.0	0.0	0.1
18.2 [nA]	0.0	0.0	0.0	0.0	0.1
19.1 [nA]	-0.1	-0.1	-0.0	-0.1	-0.1
19.2 [nA]	-0.1	-0.1	-0.0	-0.1	-0.1
20.1 [nA]	0.1	0.1	0.0	0.0	0.0
20.2 [nA]	0.1	0.1	0.0	0.0	0.0
21.1 [nA]	-0.2	-0.1	-0.1	-0.1	-0.2
21.2 [nA]	-0.2	-0.1	-0.1	-0.1	-0.2
22.1 [uA]	0.00	0.00	0.00	0.00	0.00
22.2 [uA]	0.00	0.00	0.00	0.00	0.00
23.1 [nA]	0.1	0.1	0.1	0.0	0.1
23.2 [nA]	0.1	0.1	0.1	0.0	0.1
24.1 [nA]	-0.0	0.0	-0.1	-0.1	0.0
24.2 [nA]	-0.0	0.0	-0.1	-0.1	0.0
25.1 [nA]	0.2	0.3	0.2	0.1	0.1
25.2 [nA]	0.2	0.3	0.2	0.1	0.1
26.1 [nA]	-0.0	-0.1	-0.1	-0.1	-0.0
26.2 [nA]	-0.0	-0.1	-0.1	-0.1	-0.0