

INCH-POUND

MIL-M-38510/123B

23 March 2004

SUPERSEDING

MIL-M-38510/123A

21 September 1982

MILITARY SPECIFICATION

MICROCIRCUITS, LINEAR, CMOS, NEGATIVE LOGIC, ANALOG SWITCH, MONOLITHIC SILICON

This specification is approved for use by all Departments and Agencies of the Department of Defense.

Reactivated for new design as of 23 March 2004. May be used for either new or existing design acquisition.

The requirements for acquiring the product herein shall consist of this specification sheet and MIL-PRF-38535

1. SCOPE

1.1 Scope. This specification covers the detail requirements for monolithic silicon, CMOS negative logic analog switches. Two product assurance classes and a choice of case outlines and lead finishes are provided and are reflected in the complete part number. For this product, the requirements of MIL-M-38510 have been superseded by MIL-PRF-38535, (see 6.3)

1.2 Part or Identifying Number (PIN). The PIN is in accordance with MIL-PRF-38535, and as specified herein.

1.2.1 Device types. The device types are as follows:

<u>Device type</u>	<u>Circuit</u>
01	Dual SPST switch
02	Quad SPST switch

NOTE: A channel is defined as a driver with associated switches.

1.2.2 Device class. The device class is the product assurance level as defined in MIL-PRF-38535.

1.2.3 Case outline. The case outline are as designated in MIL-STD-1835 and as follows:

<u>Outline letter</u>	<u>Descriptive designator</u>	<u>Terminals</u>	<u>Package style</u>
C	GDIP1-T14 or CDIP2-T14	14	Dual-in-line
E	GDIP1-T16 or CDIP2-T16	16	Flat pack
I	MACY1-X10	10	Can

Comments, suggestions, or questions on this document should be addressed to: Commander, Defense Supply Center Columbus, ATTN: DSCC-VAS, 3990 East Broad St., Columbus, OH 43216-5000, or email bipolar@dsccl.dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at www.dodssp.daps.mil.

1.3 Absolute maximum ratings. 1/

Supply voltage between V+ and V-:	
Device types 01, 02	+40 V
Digital input voltage	$(+V_{\text{supply}}) \geq V_{\text{IN}} \geq (-0.3 \text{ V})$
Analog input voltage	$(+V_{\text{supply}} + 2 \text{ V}) \geq V_{\text{A}} \geq (-V_{\text{supply}} - 2 \text{ V})$
Storage temperature	-65°C to +150°C
Lead temperature (soldering, 10 seconds)	+300°C
Junction temperature (T _J).....	175°C
Maximum current:	
Any terminal (except S or D)	30 mA
S or D terminals	20 mA

1.4 Recommended operating conditions.

Positive supply voltage	+15 V dc
Negative supply voltage	- 15 V dc
Reference voltage	Open
Input (address) high voltage	2.4 V
V _{IL}	0.8 V
Ambient operating temperature range (T _A)	-55°C to +125°C

1.5 Power and thermal characteristics.

<u>Case outline</u>	<u>Maximum allowable power dissipation</u> 2/	<u>Maximum</u> θ_{JC}	<u>Maximum</u> θ_{JA}
C, E	400 mW @ T _A = 125°C	35°C/W	120°C/W
I	350 mW @ T _A = 125°C	40°C/W	140°C/W

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, or 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3, 4, or 5 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications and Standards. The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-PRF-38535 - Integrated Circuits (Microcircuits) Manufacturing, General Specification for.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-883 - Test Method Standard for Microelectronics.

MIL-STD-1835 - Interface Standard Electronic Component Case Outlines.

(Copies of these documents are available online at <http://assist.daps.dla.mil/quicksearch/> or www.dodssp.daps.mil or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.

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/ All leads welded or soldered to PC board.

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Qualification. Microcircuits furnished under this specification shall be products that are manufactured by a manufacturer authorized by the qualifying activity for listing on the applicable qualified manufacturers list before contract award (see 4.3 and 6.4).

3.2 Item requirements. The individual item requirements shall be in accordance with MIL-PRF-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 affect the form, fit, or function as described herein.

3.3 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-PRF-38535 and herein.

3.3.1 Terminal connections. The circuit diagram and terminal connections shall be as specified on figure 1.

3.3.2 Truth table. The truth table shall be as specified on figure 2.

3.3.3 Schematic circuits. The schematic circuits shall be maintained by the manufacturer and made available to the qualifying activity and the preparing activity (DSCC-VA) upon request.

3.3.4 Case outlines. The case outlines shall be as specified in 1.2.3.

3.4 Lead material and finish. The lead material and finish shall be in accordance with MIL-PRF-38535 (see 6.6).

3.5 Electrical performance characteristics. The electrical performance characteristics are as specified in table I, and apply over the full recommended ambient operating temperature range, unless otherwise specified.

3.6 Electrical test requirements. Electrical test requirements for each device class shall be the subgroups specified in table II. The electrical tests for each subgroup are described in table III.

3.8 Marking. Marking shall be in accordance with MIL-PRF-38535.

3.9 Microcircuit group assignment. The devices covered by this specification shall be in microcircuit group number 82 (see MIL-PRF-38535, appendix A).

4. VERIFICATION.

4.1 Sampling and inspection. Sampling and inspection procedures shall be in accordance with MIL-PRF-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. Screening shall be in accordance with MIL-PRF-38535, and shall be conducted on all devices prior to qualification and quality conformance inspection. The following additional criteria shall apply:

- a. 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-PRF-38535. The burn-in test circuit shall be maintained under document control by the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-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 of MIL-STD-883.
- b. Interim and final electrical test parameters shall be as specified in table II, except interim electrical parameters test prior to burn-in is optional at the discretion of the manufacturer.
- c. Additional screening for space level product shall be as specified in MIL-PRF-38535.

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions $V_+ = 15\text{ V}$, $GND = 0\text{ V}$, $V_- = -15\text{ V}$ Unless otherwise specified	Temperature range	Device type	Limits		Unit
					Min	Max	
Switch "ON" resistance (figure 3)	R_{DS}	$V_{IN} = 0.8\text{ V}$, $V_S = 10\text{ V}$, $I_D = -1\text{ mA}$	$T_A = -55^\circ\text{C}$, $+25^\circ\text{C}$	01		70	Ω
			$T_A = 125^\circ\text{C}$			100	
			$T_A = -55^\circ\text{C}$, $+25^\circ\text{C}$	02		175	
			$T_A = 125^\circ\text{C}$			250	
		$V_+ = 10\text{ V}$, $V_- = -10\text{ V}$, $V_{IN} = 0.8\text{ V}$, $V_S = 7.5\text{ V}$, $I_D = -1\text{ mA}$	$T_A = -55^\circ\text{C}$, $+25^\circ\text{C}$	01		100	
			$T_A = 125^\circ\text{C}$			150	
			$T_A = -55^\circ\text{C}$, $+25^\circ\text{C}$	02		200	
			$T_A = 125^\circ\text{C}$			250	
		$V_{IN} = 0.8\text{ V}$, $V_S = -10\text{ V}$, $I_D = 1\text{ mA}$	$T_A = -55^\circ\text{C}$, $+25^\circ\text{C}$	01		70	
			$T_A = 125^\circ\text{C}$			100	
			$T_A = -55^\circ\text{C}$, $+25^\circ\text{C}$	02		175	
			$T_A = 125^\circ\text{C}$			250	
		$V_+ = 10\text{ V}$, $V_- = -10\text{ V}$, $V_{IN} = 0.8\text{ V}$, $V_S = -7.5\text{ V}$, $I_D = 1\text{ mA}$	$T_A = -55^\circ\text{C}$, $+25^\circ\text{C}$	01		100	
			$T_A = 125^\circ\text{C}$			150	
			$T_A = -55^\circ\text{C}$, $+25^\circ\text{C}$	02		200	
			$T_A = 125^\circ\text{C}$			250	
Source "OFF" leakage current (figure 4)	$I_{S(OFF)}$	$V_S = 14\text{ V}$, $V_D = -14\text{ V}$, $V_{IN} = 2.4\text{ V}$	$T_A = 25^\circ\text{C}$	01,02	-2	2	nA
			$T_A = 125^\circ\text{C}$		-100	100	
			$T_A = -55^\circ\text{C}$		-100	100	
		$V_S = -14\text{ V}$, $V_D = 14\text{ V}$, $V_{IN} = 2.4\text{ V}$	$T_A = 25^\circ\text{C}$		-2	2	
			$T_A = 125^\circ\text{C}$		-100	100	
			$T_A = -55^\circ\text{C}$		-100	100	
Drain "OFF" leakage current (figure 5)	$I_{D(OFF)}$	$V_D = -14\text{ V}$, $V_S = 14\text{ V}$, $V_{IN} = 2.4\text{ V}$	$T_A = 25^\circ\text{C}$	01,02	-2	2	nA
			$T_A = 125^\circ\text{C}$		-100	100	
			$T_A = -55^\circ\text{C}$		-100	100	
		$V_D = 14\text{ V}$, $V_S = -14\text{ V}$, $V_{IN} = 2.4\text{ V}$	$T_A = 25^\circ\text{C}$		-2	2	
			$T_A = 125^\circ\text{C}$		-100	100	
			$T_A = -55^\circ\text{C}$		-100	100	

See footnotes at end of table.

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions $V_+ = 15\text{ V}$, $GND = 0\text{ V}$, $V_- = -15\text{ V}$ Unless otherwise specified	Temperature range	Device type	Limits		Unit
					Min	Max	
Channel "ON" leakage current (figure 6)	$I_{D(ON)}$	$V_D = V_S = 14\text{ V}$, $V_{IN} = 0.8\text{ V}$	$T_A = 25^\circ\text{C}$	01	-2	2	nA
				02	-2	2	
			$T_A = 125^\circ\text{C}$	01,02	-200	200	
			$T_A = -55^\circ\text{C}$		-200	200	
		$V_D = V_S = -14\text{ V}$, $V_{IN} = 0.8\text{ V}$	$T_A = 25^\circ\text{C}$	01	-2	2	
				02	-2	2	
			$T_A = 125^\circ\text{C}$	01,02	-200	200	
			$T_A = -55^\circ\text{C}$		-200	200	
Low level input current (figure 7)	I_{IL} <u>1/</u>	$V_{IL} = 0.8\text{ V}$, $V_{IH} = 2.4\text{ V}$	$T_A = 25^\circ\text{C}$	01,02	-0.5	0.5	μA
			$T_A = 125^\circ\text{C}$		-1.0	1.0	
			$T_A = -55^\circ\text{C}$		-1.0	1.0	
High level input current (figure 7)	I_{IH}	$V_{IL} = 0.8\text{ V}$, $V_{IN} = 15\text{ V}$	$T_A = 25^\circ\text{C}$	01,02	-0.5	0.5	μA
			$T_A = 125^\circ\text{C}$		-1.0	1.0	
			$T_A = -55^\circ\text{C}$		-1.0	1.0	
Supply current (figure 8)	$+I_{CC}$	$V_{IL} = 0\text{ V}$, (all inputs)	$T_A = 25^\circ\text{C}$, 125°C	01,02		1.5	mA
			$T_A = -55^\circ\text{C}$			2.0	
		$V_{IH} = 5\text{ V}$, (all inputs)	$T_A = 25^\circ\text{C}$, 125°C			1.5	
			$T_A = -55^\circ\text{C}$			2.0	
Supply current (figure 8)	$-I_{CC}$	$V_{IL} = 0\text{ V}$, (all inputs)	$T_A = 25^\circ\text{C}$, 125°C	01,02	-1.5		mA
			$T_A = -55^\circ\text{C}$		-2.0		
		$V_{IH} = 5\text{ V}$, (all inputs)	$T_A = 25^\circ\text{C}$, 125°C		-1.5		
			$T_A = -55^\circ\text{C}$		-2.0		
Capacitance: address	C_A	$T_A = 25^\circ\text{C}$, $GND = 0\text{ V}$, $f = 1\text{ MHz}$, (see 4.4.1c), $V_{IL} = 0\text{ V}$		01,02		15	pF
Capacitance: Input switch	C_{IS}	$T_A = 25^\circ\text{C}$, $GND = 0\text{ V}$, $f = 1\text{ MHz}$, (see 4.4.1c), $V_{IH} = 5\text{ V}$		01,02		15	pF

See footnotes at end of table.

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions V+ = 15 V, GND = 0 V, V- = -15 V Unless otherwise specified	Temperature range	Device type	Limits		Unit
					Min	Max	
Capacitance: Output switch	C _{OS}	T _A = 25°C, GND = 0 V, f = 1 MHz, (see 4.4.1c), V _{IH} = 5 V		01,02		20	pF
Off isolation	V _{ISO}	T _A = 25°C, f = 200 kHz, V _{gen} = 1 V _{p-p} , (see 4.4.1d, 4.4.3c, and 4.4.4)		01,02	60		dB
Crosstalk between channels	V _{CT}	T _A = 25°C, f = 200 kHz, V _{gen} = 1 V _{p-p} , (see 4.4.1d, 4.4.3c, and 4.4.4)		01,02	60		dB
Charge transfer error	V _{CTE}	T _A = 25°C, (see 4.4.1d, 4.4.3c, and 4.4.4)		01,02	-10	10	mV
Turn "ON" time	t _(ON)	C _L = 100 pF, R _L = 1 kΩ, (Figure 9)	T _A = 125°C	01,02		800	ns
			T _A = -55°C, 25°C			600	
Turn "OFF" time	t _(OFF)	C _L = 100 pF, R _L = 1 kΩ, (Figure 9)	T _A = 125°C	01,02		650	ns
			T _A = -55°C, 25°C			500	

1/ Input current at one input node.

TABLE II. Electrical test requirements.

MIL-PRF-38535 test requirements	Subgroups (see table III)	
	Class S devices	Class B devices
Interim electrical parameters	1	1
Final electrical test parameters	1*, 2, 3, 9	1*, 2, 3, 9
Group A test requirements	1,2,3,4**, 9,10,11, (12,13,14)***	1,2,3,4**, 9,10,11, (12,13,14)***
Group B electrical test parameters when using the method 5005 QCI option	1,2,3 and table IV delta limits	N/A
Group C end-point electrical parameters	1,2,3 and table IV delta limits	1 and table IV delta limits
Additional electrical subgroups for group C periodic inspections	N/A	(12,13,14)****
Group D end-point electrical parameters	1,2,3, (12,13,14)*****	1

* PDA applies to subgroup 1.

** Subgroup 4, see 4.4.1c

*** See 4.4.1d

**** See 4.4.3c

***** See 4.4.4

4.3 Qualification inspection. Qualification inspection shall be in accordance with MIL-PRF-38535.

4.4 Technology Conformance inspection (TCI). Technology conformance inspection shall be in accordance with MIL-PRF-38535 and herein for groups A, B, C, and D inspections (see 4.4.1 through 4.4.4).

4.4.1 Group A inspection. Group A inspection shall be in accordance with table III of MIL-PRF-38535 and as follows:

- a. Tests shall be as specified in table II herein.
- b. Subgroups 5, 6, 7, and 8 shall be omitted.
- c. Subgroup 4 (C_A , C_{IS} , and C_{OS} measurements) shall be measured only for initial qualification and after process or design changes which may affect input capacitance. Capacitance shall be measured between the designated terminal and ground at a frequency of 1 MHz. Subgroup 4 shall be performed using a sample of 5 devices with no failures allowed.
- d. Subgroups 12, 13, and 14 shall be added to group A inspection as specified in table III herein. These subgroups shall be performed for initial qualification only using a sample of five devices for each device type submitted to group A inspection, with no failures allowed. If not more than one failure is found in the first sample of five, a second sample of five is permitted with no further failures allowed.

4.4.2 Group B inspection. Group B inspection shall be in accordance with table II of MIL-PRF-38535.

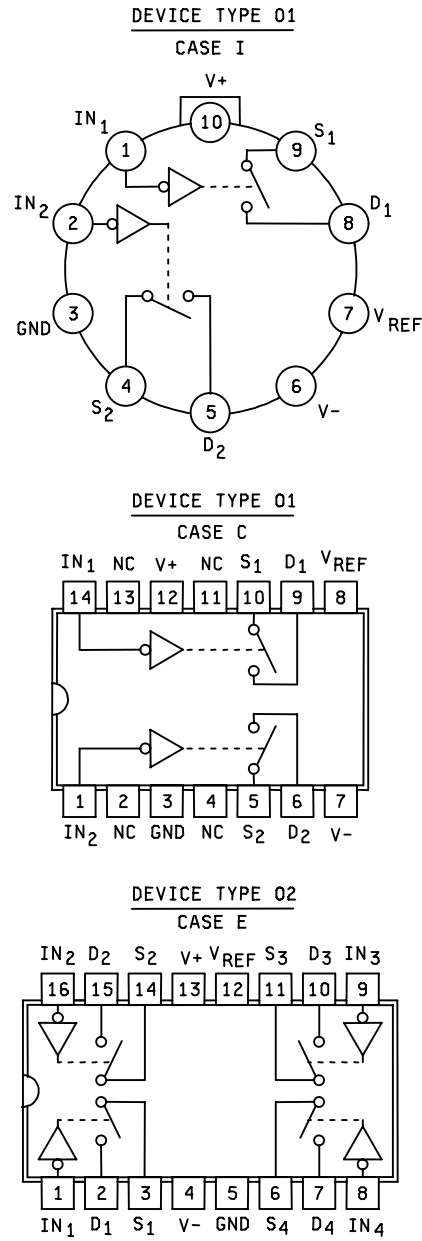
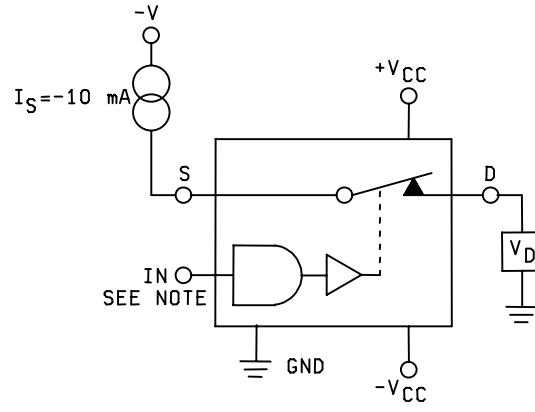


Figure 1. Terminal connections.

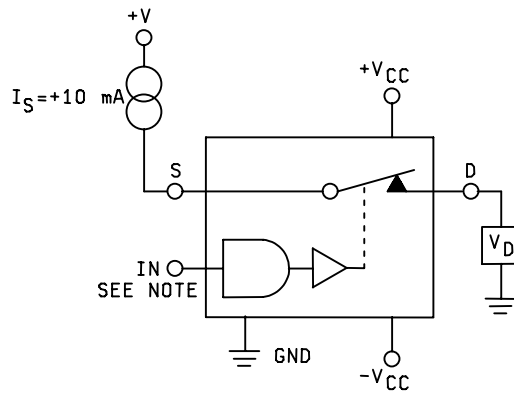
Truth table for each switch	
Input	Switch condition
$2.4\text{ V} \leq V_{\text{IN}} \leq 15.0\text{ V}$	OPEN
$0\text{ V} \leq V_{\text{IN}} \leq 0.8\text{ V}$	Closed

Figure 2. Truth table (all device types).



NOTE: V_{IN} from table I

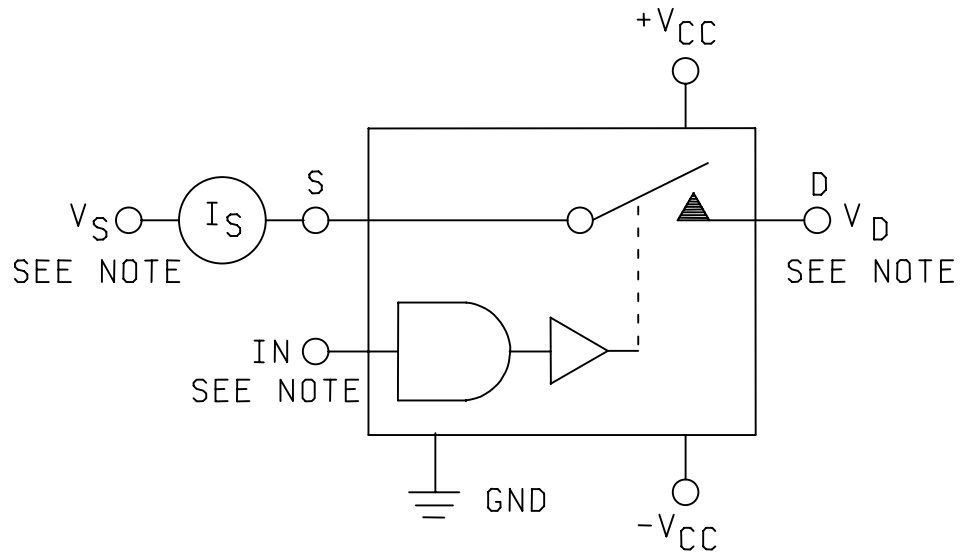
$$R_{DS} = (V_S - V_D)/-10 \text{ mA}$$



NOTE: V_{IN} from table I

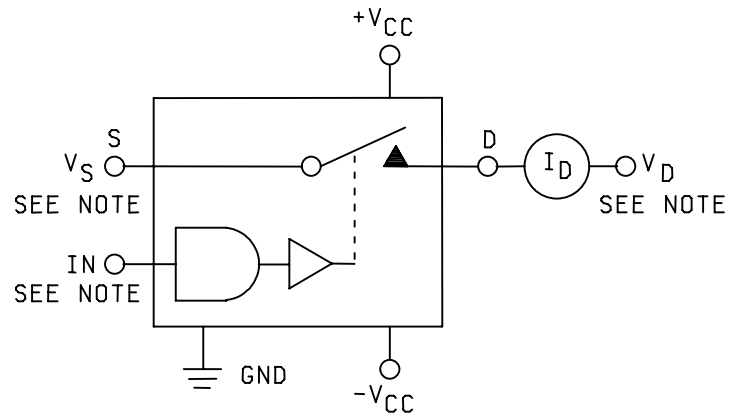
$$R_{DS} = (V_S - V_D)/10 \text{ mA}$$

Figure 3. R_{DS} test circuits.



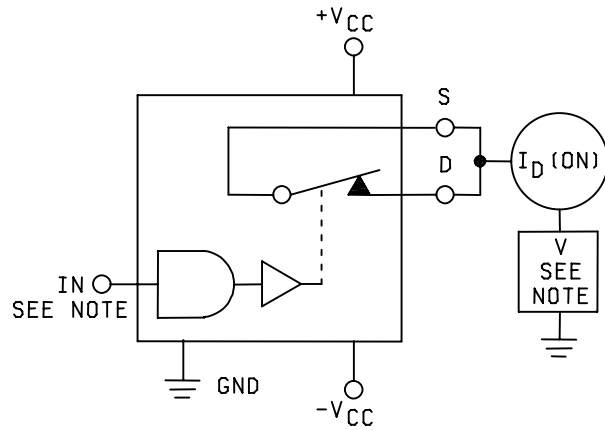
NOTE: Test conditions are from table I.

Figure 4. $I_{S(OFF)}$ test circuit.



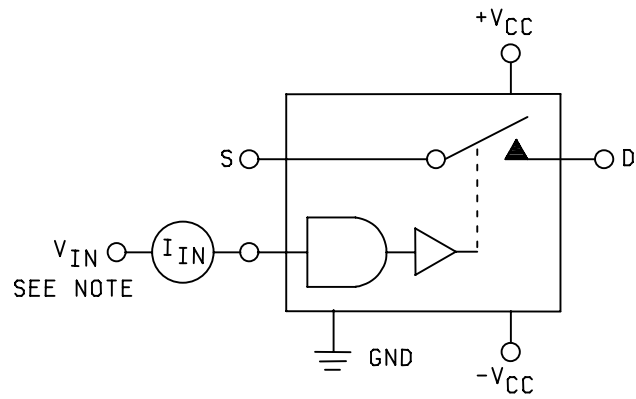
NOTE: Test conditions are from table I.

Figure 5. $I_{D(OFF)}$ test circuit.



NOTE: Conditions are from table I.

Figure 6. $I_{D(ON)}$ test circuit.



NOTE: Test conditions are from table I.

Figure 7. I_{IL} , I_{IH} test circuit.

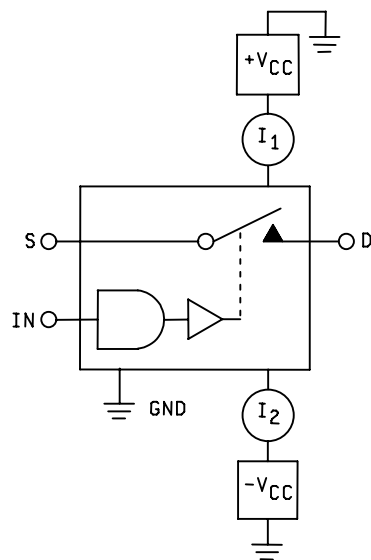
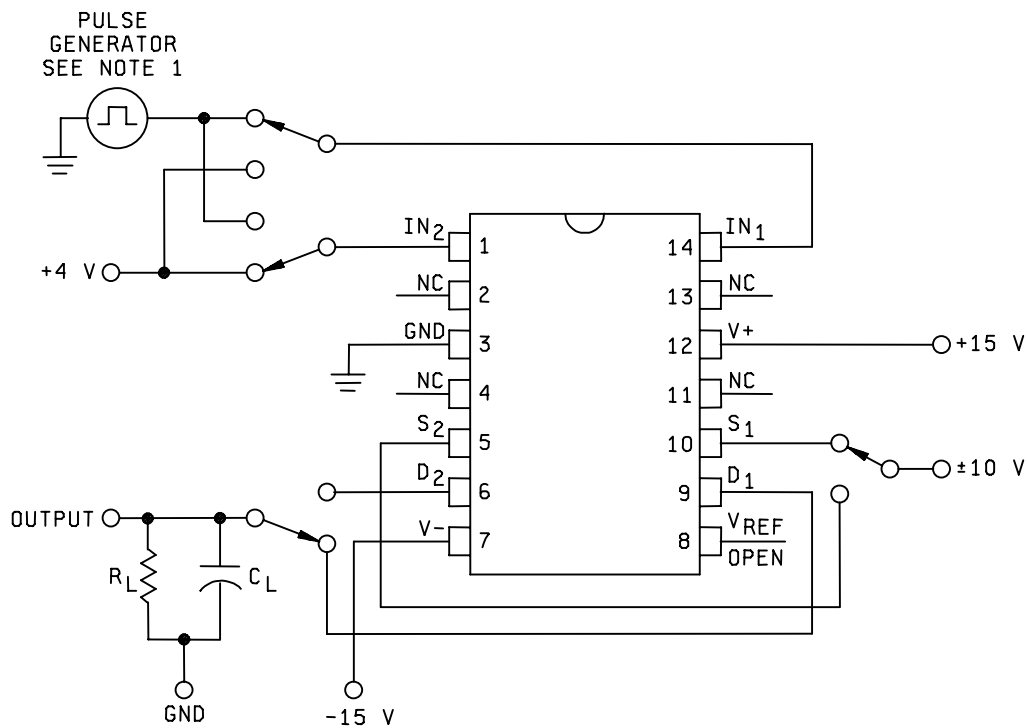


Figure 8. $\pm V_{CC}$ test circuit.

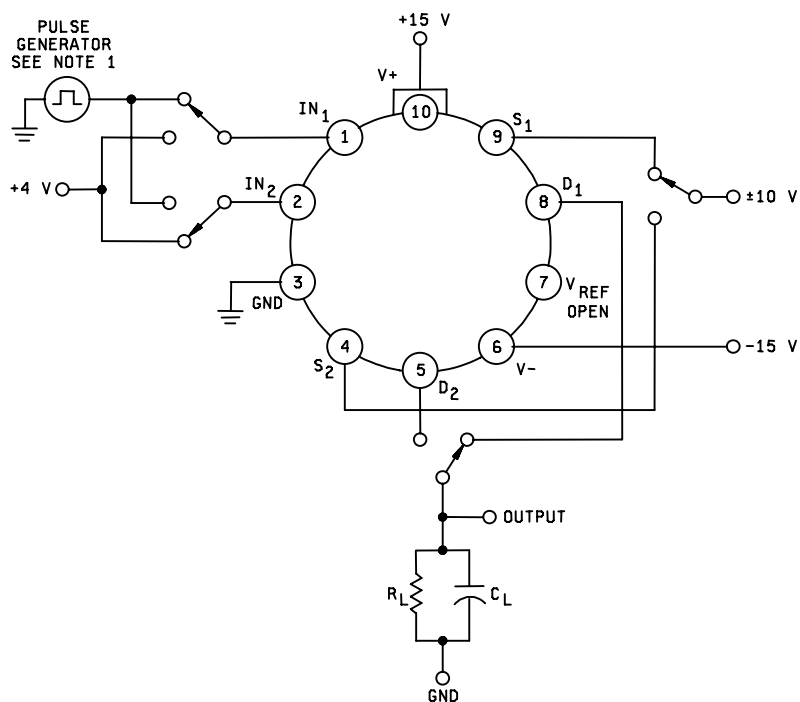
Device type 01Case CTEST CIRCUIT

$R_L = 1 \text{ k}\Omega \pm 5\%$
 $C_L = 100 \text{ pF} \pm 5\%$
 (Includes wiring and probe capacitance.)

NOTES:

1. The pulse generator has the following characteristics:
 $V_{GEN} = 4 \text{ V}$, t_{THL} and $t_{TLH} \leq 20 \text{ ns}$.
2. See table III for complete terminal conditions.

Figure 9. Switching time test circuits and waveforms.

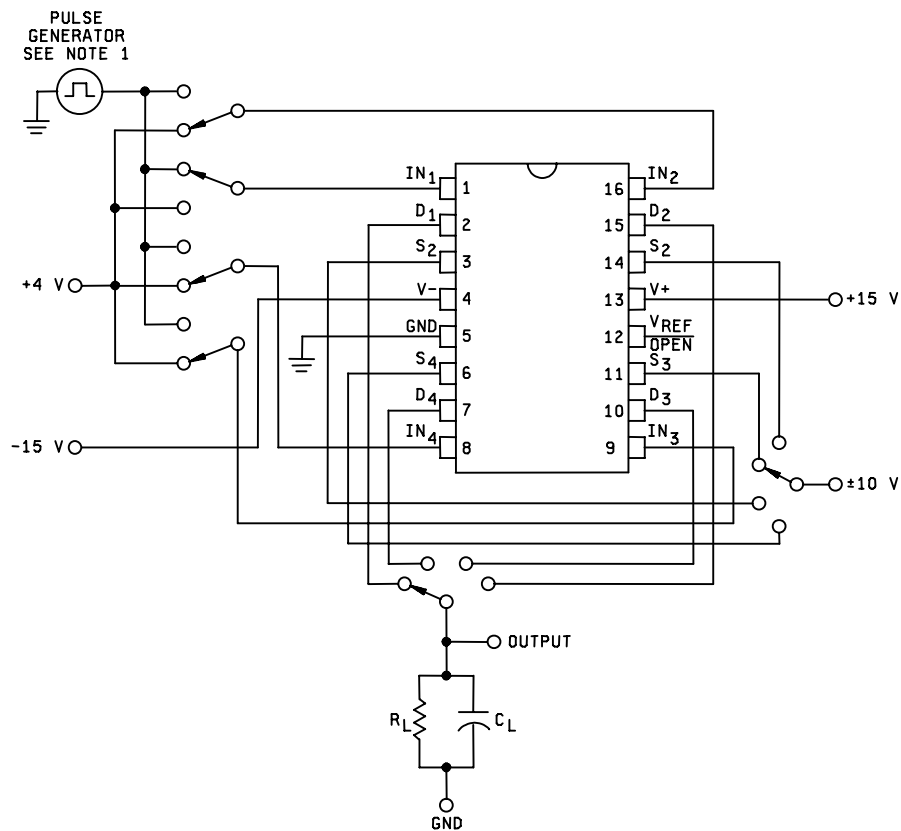
Device type 01Case ITEST CIRCUIT

$R_L = 1 \text{ k}\Omega \pm 5\%$
 $C_L = 100 \text{ pF} \pm 5\%$
 (Includes wiring and probe capacitance.)

NOTES:

1. The pulse generator has the following characteristics:
 $V_{GEN} = 4 \text{ V}$, t_{THL} and $t_{TLH} \leq 20 \text{ ns}$.
2. See table III for complete terminal conditions.

FIGURE 9. Switching time test circuits and waveforms – Continued.

Device type 02Case E

$R_L = 1 \text{ k}\Omega \pm 5\%$

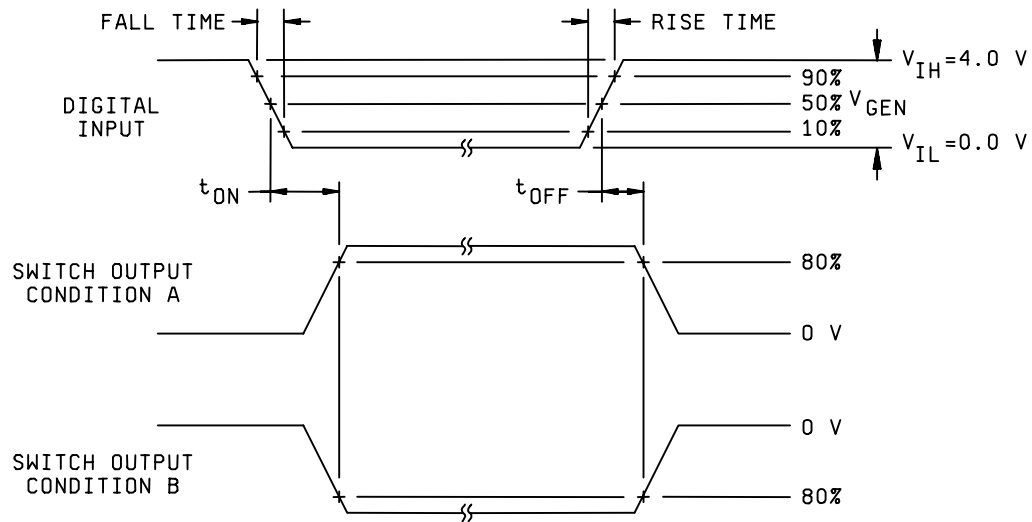
$C_L = 100 \text{ pF} \pm 5\%$

(Includes wiring and probe capacitance.)

NOTES:

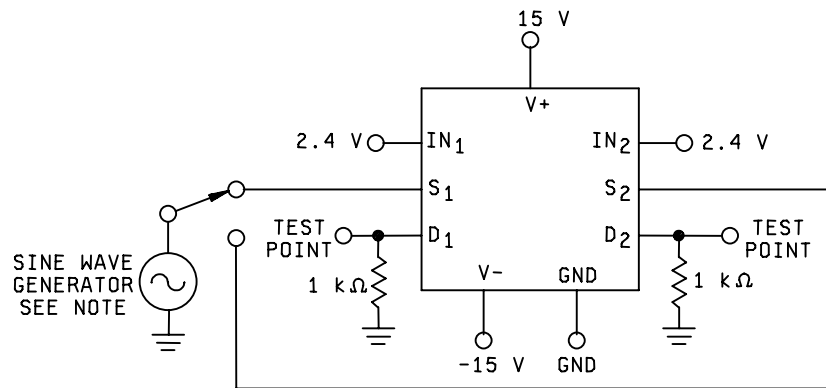
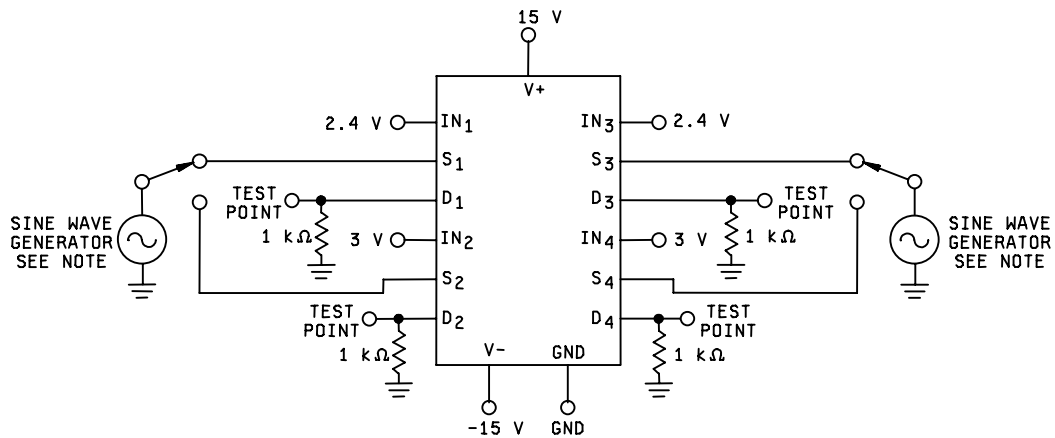
1. The pulse generator has the following characteristics:
 $V_{\text{GEN}} = 4 \text{ V}$, $t_{\text{THL}} \leq 20 \text{ ns}$.
2. See table III for complete terminal conditions.

FIGURE 9. Switching time test circuits and waveforms – Continued.

Device types 01 and 02

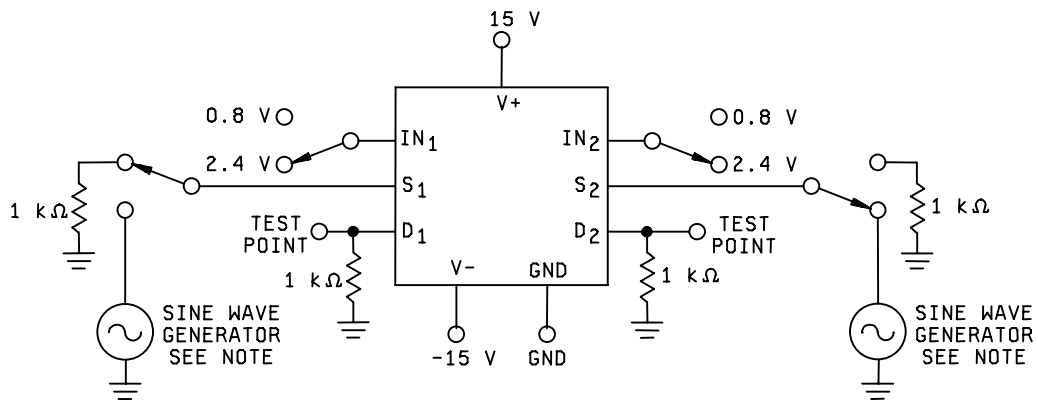
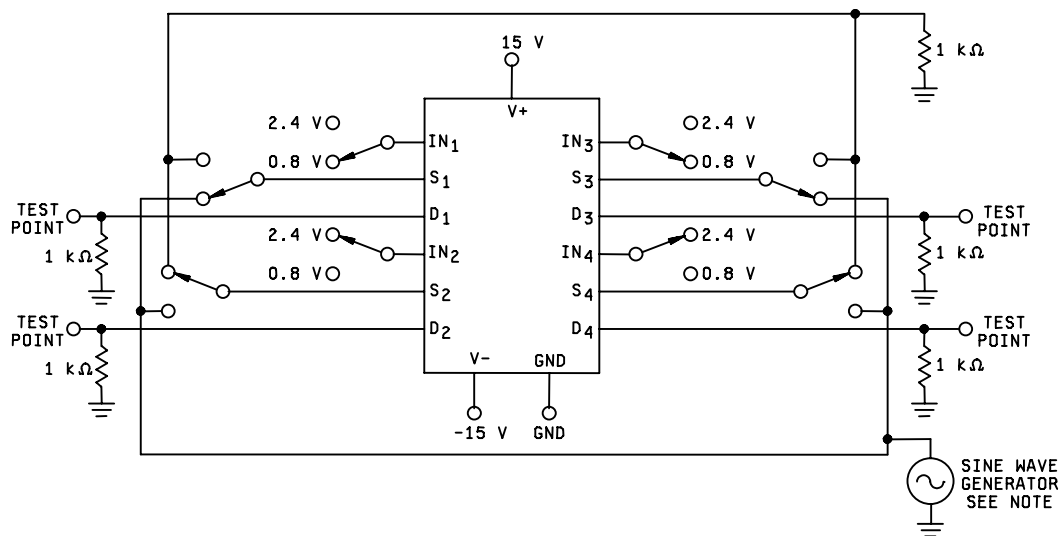
NOTE: Rise time and fall time $\leq 20 \text{ ns}$.

FIGURE 9. Switching time test circuits and waveforms – Continued.

Device type 01Device type 02

NOTE: The sine wave generator has the following characteristics:
 $V_{GEN} = 1 V_{P-P}$, frequency = 200 kHz.

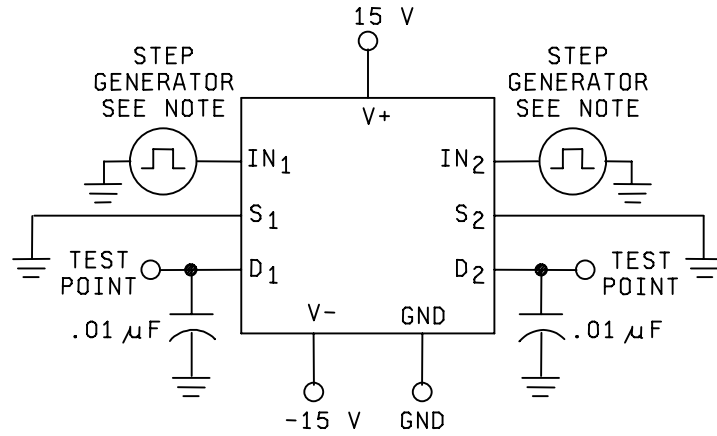
FIGURE 10. Off isolation test circuits.

Device type 01Device type 02

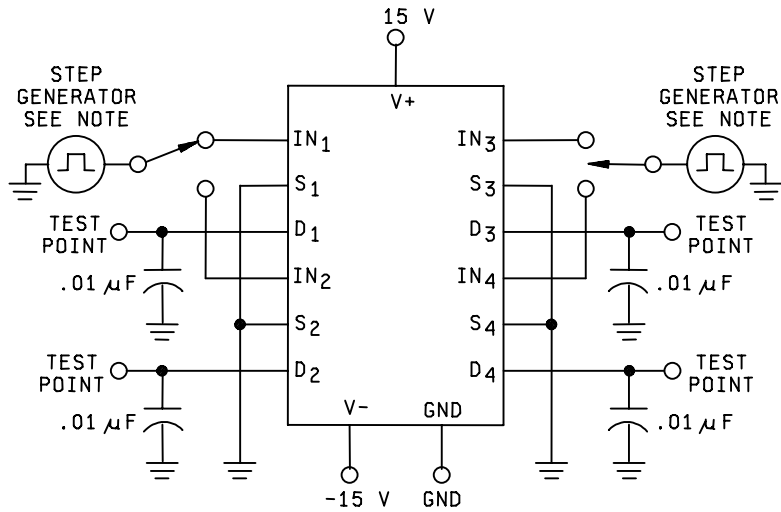
NOTE: The pulse generator has the following characteristics:
 $V_{GEN} = 1 \text{ V}_{P-P}$, frequency = 200 kHz.

FIGURE 11. Crosstalk test circuits.

Device type 01



Device type 02



NOTE: The pulse generator has the following characteristics:
 $V_{GEN} = 0$ to 4 V, rise time ≤ 20 ns, fall time ≤ 20 ns, PRR = 200 kHz.

FIGURE 12. Charge transfer error test circuits.

TABLE III. Group A inspection for device type 01.

Subgroup	Symbol	MIL-STD-883 Method	Case C Test no.	Terminal conditions 1/														Measured terminal	Test limits		Unit
				1 IN ₂	2 NC	3 GND	4 NC	5 S ₂	6 2	7 V ⁻	8 V _{REF}	9 1	10 1	11 NC	12 V ⁺	13 NC	14 IN ₁		Min	Max	
			1 T _A =+25°C	R _{DS}		1 2 3 4 5 6 7 8	0.8 V " " " " " " "		GND " " " " " " "		10 V ^D " " 7.5 V " -10 V -7.5 V	-1 mA " -1 mA " 1 mA 1 mA	-15 V -15 V -10 V -15 V -15 V -10 V -10 V	D " " " " " " "	-1 mA _S " -1 mA 1 mA 1 mA	10 V " 7.5 V 10 V 15 V -10 V -7.5 V			15 V 15 V 10 V 10 V 15 V 15 V 10 V 10 V			0.8 V " " " " " " "	9-10 6-5 9-10 6-5 9-10 6-5 9-10 6-5		70 70 100 100 70 70 100 100	Ω " " " " " " "
I	S(OFF)		9 10 11 12	2.4 V " " "		" " " "		14 V -14 V 14 V	-14 V " "	-15 V " "		-14 V 14 V	14 V -14 V		15 V " " "		2.4 V " " "	10 5 10 5	-2 " " "	2 " " "	nA " " "
	D(OFF)		13 14 15 16	" " " "		" " " "		14 V -14 V 14 V	-14 V " "	" " "		-14 V 14 V	14 V -14 V		" " " "		" " " "	9 6 9 6	" " " "	" " " "	" " " "
	D(ON)		17 18 19 20	0.8 V " " "		" " " "		14 V 14 V -14 V	14 V " -14 V	" " "		14 V -14 V	14 V -14 V		" " " "		0.8 V " " "	9,10 5,6 9,10 5,6	" " " "	" " " "	" " " "
	IL IL	3009 3009	21 22	2.4 V 0.8 V		" "				" "					" "		" 2.4 V	14 1	-0.5 "	0.5 "	μA "
I I I	IH " " "	3010 " " "	23 24 25 26	0.8 V 2.4 V 0.8 V 15.0 V		" " " "				" " " "					" " " "		2.4 V 0.8 V 15.0 V 0.8 V	14 1 14 1	" " " "	" " " "	" " " "
	CC CC	3005 "	27 28	0.8 V 2.4 V		" "				" "					" "		0.8 V 2.4 V	12 12		1.5 1.5	mA "
	CC CC	" "	29 30	0.8 V 2.4 V		" "				" "					" "		0.8 V 2.4 V	7 7	-1.5 -1.5		" "

+I
-I
-I
See footnotes at end of table.

TABLE III. Group A inspection for device type 01 – Continued.

Subgroup	Symbol	MIL-STD-883 Method	Case C Test no.	Terminal conditions 1/														Measured terminal	Test limits		Unit
				1	2	3	4	5	6	7	8	9	10	11	12	13	14		Min	Max	
				IN ₂	NC	GND	NC	S ₂	2	V ⁻	V _{REF}	1	1	NC	V ⁺	NC	IN ₁				
2 T _A =125°C	R _{DS}		31	0.8 V		GND											0.8 V	9-10		100	Ω
			32	"		"		10 V ^D	-1 mA	-15 V		-1 mA _S	10 V		15 V		"	6-5		100	"
			33	"		"				-10 V			7.5 V		10 V		"	9-10		150	"
			34	"		"		7.5 V	-1 mA	-10 V					10 V		"	6-5		150	"
			35	"		"				-15 V		1 mA	-10 V		15 V		"	9-10		100	"
			36	"		"		-10 V	1 mA	-15 V					15 V		"	6-5		100	"
			37	"		"				-10 V		1 mA	-7.5 V		10 V		"	9-10		150	"
			38	"		"		-7.5 V	1 mA	-10 V					10 V		"	6-5		150	"
	S(OFF)		39	2.4 V		"				-15 V		-14 V	14 V		15 V		2.4 V	10	-100	100	nA
			40	"				14 V	-14 V	"					"		"	5	"	"	"
			41	"						"		14 V	-14 V		"		"	10	"	"	"
			42	"				-14 V	14 V	"					"		"	5	"	"	"
	D(OFF)		43	"	"			14 V	-14 V	"		-14 V	14 V		"		"	9	"	"	"
			44	"	"					"					"		"	6	"	"	"
			45	"	"					"		14 V	-14 V		"		"	9	"	"	"
			46	"	"			-14 V	14 V	"					"		"	6	"	"	"
	D(ON)		47	0.8 V	"	"				"		14 V	14 V		"		0.8 V	9,10	-200	200	"
			48	"	"			14 V	14 V	"					"		"	5,6	"	"	"
			49	"	"					"		-14 V	-14 V		"		"	9,10	"	"	"
			50	"	"			-14 V	-14 V	"					"		"	5,6	"	"	"
	IL	3009	51	2.4 V	"	"				"					"		"	14	-1.0	1.0	μA
			52	0.8 V	"					"					"		2.4 V	1	"	"	"
	IH	3010	53	0.8 V	"	"				"					"		2.4 V	14	"	"	"
			54	2.4 V	"					"					"		0.8 V	1	"	"	"
55			0.8 V	"					"					"		15.0 V	14	"	"	"	
56			15.0 V	"					"					"		0.8 V	1	"	"	"	
CC	3005	57	0.8 V	"	"				"				"		0.8 V	12		1.5	mA		
		58	2.4 V	"					"					"		2.4 V	12		1.5	"	
CC		59	0.8 V	"	"				"					"		0.8 V	7	-1.5		"	
		60	2.4 V	"					"					"		2.4 V	7	-1.5		"	
3-I T _A =-55°C	R _{DS}		61	0.8 V	"	"				"		-1 mA	10 V		"		0.8 V	9-10		70	Ω
			62	"	"			10 V	-1 mA	"					"		"	6-5		70	"
			63	"	"	"				-10 V		-1 mA	7.5 V		10 V		"	9-10		100	"
			64	"	"	"		7.5 V	-1 mA	-10 V					10 V		"	6-5		100	"
			65	"	"	"				-15 V		1 mA	-10 V		15 V		"	9-10		70	"
			66	"	"	"		-10 V	1 mA	-15 V					15 V		"	6-5		70	"
			67	"	"	"				-10 V		1 mA	-7.5 V		10 V		"	9-10		100	"
			68	"	"	"		-7.5 V	1 mA	-10 V					10 V		"	6-5		100	"
	S(OFF)		69	2.4 V		"				-15 V		-14 V	14 V		15 V		2.4 V	10	-100	100	nA
			70	"				14 V	-14 V	"					"		"	5	"	"	"
			71	"						"		14 V	-14 V		"		"	10	"	"	"
			72	"				-14 V	14 V	"					"		"	5	"	"	"

See footnotes at end of table.

TABLE III. Group A inspection for device type 01 – Continued.

Subgroup	Symbol	MIL-STD-883 Method	Case C	Terminal conditions ^{1/}														Measured terminal	Test limits		Unit
				1	2	3	4	5	6	7	8	9	10	11	12	13	14		Min	Max	
			Test no.	IN ₂	NC	GND	NC	S ₂	2	V-	V _{REF}	1	1	NC	V+	NC	IN ₁				
3 T _A = -55°C	I _{D(OFF)}		73	2.4 V		GND		14 V ^D	-14 V	-15 V	D	-14 V ^S	14 V		15 V		2.4 V	9	-100	100	nA
			74	"				"	"	"	"	"	"		"		"	6	"	"	"
			75	"				"	"	"	"	14 V	-14 V		"		"	9	"	"	"
			76	"				-14 V	14 V	"	"	"	"		"		"	6	"	"	"
	D(ON)		77	0.8 V	"	"		"	"	"	"	14 V	14 V		"		0.8 V	9,10	-200	200	"
			78	"	"	"		14 V	14 V	"	"	"	"		"		"	5,6	"	"	"
			79	"	"	"		"	"	"	"	-14 V	-14 V		"		"	9,10	"	"	"
			80	"	"	"		-14 V	-14 V	"	"	"	"		"		"	5,6	"	"	"
	IL	3009	81	2.4 V	"	"		"	"	"	"	"	"		"		"	14	-1.0	1.0	μA
		3009	82	0.8 V	"	"		"	"	"	"	"	"		"		2.4 V	1	"	"	"
	IH	3010	83	0.8 V	"	"		"	"	"	"	"	"		"		2.4 V	14	"	"	"
		"	84	2.4 V	"	"		"	"	"	"	"	"		"		0.8 V	1	"	"	"
		"	85	0.8 V	"	"		"	"	"	"	"	"		"		15.0 V	14	"	"	"
		"	86	15.0 V	"	"		"	"	"	"	"	"		"		0.8 V	1	"	"	"
	CC	3005	87	0.8 V	"	"		"	"	"	"	"	"		"		0.8 V	12		2.0	mA
		"	88	2.4 V	"	"		"	"	"	"	"	"		"		2.4 V	12		2.0	"
	CC	"	89	0.8 V	"	"		"	"	"	"	"	"		"		0.8 V	7	-2.0		"
		"	90	2.4 V	"	"		"	"	"	"	"	"		"		2.4 V	7	-2.0		"
4-I T _A = 25°C	C _A 2/	3012	91	"	"	"		"	"	"	"	"	"		"		2/ 0 V	14		15	pF
	C _A 2/	"	92	2/ 0 V	"	"		"	"	"	"	"	"		"		"	1		"	"
	IS 2/	"	93	"	"	"		"	"	"	"	"	2/		"		5 V	10		"	"
	IS 2/	"	94	5 V	"	"		2/	"	"	"	"	"		"		"	5		"	"
9C T _A = 25°C	t _{ON}	3003 Fig. 9	95	"	"	"		"	"	"	"	3/	"		"		5 V	9		20	"
			96	5 V	"	"		"	3/	"	"	"	"		"		"	6		20	"
			97	IN	"	"		10 V	OUT	"	"	OUT	10 V		"		IN	14-9		600	ns
			98	"	"	"		"	"	"	"	"	"		"		"	1-6		"	"
	OFF		99	IN	"	"		-10 V	OUT	"	"	OUT	-10 V		"		IN	14-9		"	"
			100	"	"	"		"	"	"	"	"	"		"		"	1-6		"	"
			101	IN	"	"		10 V	OUT	"	"	OUT	10 V		"		IN	14-9		500	"
			102	"	"	"		"	"	"	"	"	"		"		"	1-6		"	"
			103	IN	"	"		-10 V	OUT	"	"	OUT	-10 V		"		IN	14-9		"	"
			104	"	"	"		"	"	"	"	"	"		"		"	1-6		"	"

^t See footnotes at end of table.

TABLE III. Group A inspection for device type 01 – Continued.

Subgroup	Symbol	MIL-STD-883 Method	Case C	Terminal conditions 1/														Measured terminal	Test limits		Unit												
				1	2	3	4	5	6	7	8	9	10	11	12	13	14		Min	Max													
			Test no.	IN ₂	NC	GND	NC	S ₂	2	V-	V _{REF}	1	1	NC	V+	NC	IN ₁																
9 T _A = 25°C	t _{ON}	3003 Fig. 9	105	IN		GND		10 V ^D	OUT	-15 V	D	OUT _S	10 V		15 V		IN	14-9		800	ns												
			106																														
			107																														
			108																														
	OFF	"	109	IN	"	"	10 V	OUT	"		OUT	10 V	"		IN	14-9		650	"														
			110																														
11 T _A = -55°C	t _{ON}	"	113	IN	"	"	10 V	OUT	"		OUT	10 V	"		IN	14-9		600	"														
			114																														
			115																														
			116																														
	OFF	"	117	IN	"	"	10 V	OUT	"		OUT	10 V	"		IN	14-9		500	"														
			118																														
12 T _A = 25°C	V _{ISO}	Fig. 10	121	2.4 V	"	"	IN		"			IN	"			2.4 V	9	60		dB													
			122	2.4 V																													
13 T _A = 25°C	V _{CT}	Fig. 11	123	0.8 V		"		IN		"				"			2.4 V	9	60		"												
14 T _A = 25°C	V _{CTE}	Fig. 12	124	2.4 V	"	"		GND		"			GND	"		IN	9	-10	10	mV													
			125	IN																													

See footnotes at end of table.

TABLE III. Group A inspection for device type 01 – Continued.

Subgroup	Symbol	MIL-STD-883 Method	Case I	Terminal conditions 1/										Measured terminal	Test limits		Unit	
				1	2	3	4	5	6	7	8	9	10		Min	Max		
			Test no.	IN ₁	IN ₂	GND	S ₂	2	V-	V _{REF}	1	1	V+					
1 T _A = 25°C	R _{DS}		1	0.8 V	0.8 V	GND	10 V ^D	-1 mA	-15 V	D	-1 mA _S	10 V	15 V	9-8		70	Ω	
			2	"	"	"	"	"	-15 V		"	"	15 V	4-5		70	"	
			3	"	"	"	"	"	-10 V		-1 mA	7.5 V	10 V	9-8		100	"	
			4	"	"	"	7.5 V	-1 mA	-10 V		"	"	10 V	4-5		100	"	
			5	"	"	"	"	"	-15 V		1 mA	-10 V	15 V	8-9		70	"	
			6	"	"	"	-10 V	1 mA	-15 V		"	"	15 V	5-4		70	"	
			7	"	"	"	"	"	-10 V		1 mA	-7.5 V	10 V	8-9		100	"	
			8	"	"	"	-7.5 V	1 mA	-10 V		"	"	10 V	5-4		100	"	
	I	S(OFF)		9	2.4 V	2.4 V	"	"	-14 V	-15 V		-14 V	14 V	15 V	9	-2	2	nA
				10	"	"	"	14 V	-14 V	"		"	"	4	"	"	"	
				11	"	"	"	"	"	"		14 V	-14 V	"	9	"	"	"
				12	"	"	"	-14 V	14 V	"		"	"	4	"	"	"	
	I	D(OFF)		13	"	"	"	"	"		14 V	-14 V	"	8	"	"	"	
				14	"	"	"	-14 V	14 _u V		"	-14 V	14 V	"	5	"	"	"
				15	"	"	"	"	"		"	"	"	8	"	"	"	
				16	"	"	"	14 V	-14 _u V		"	"	"	5	"	"	"	
	I	D(ON)		17	0.8 V	0.8 V	"	"	"		14 V	14 V	"	8	"	"	"	
				18	"	"	"	14 V	14 _u V		"	"	"	5	"	"	"	
				19	"	"	"	"	"		-14 V	-14 V	"	8	"	"	"	
				20	"	"	"	-14 V	-14 V		"	"	"	5	"	"	"	
	I | | |	IL	3009	21	"	2.4 V	"	"	"		"	"	"	1	-0.5	0.5	μA	
			3009	22	2.4 V	0.8 V	"	"	"		"	"	"	2	"	"	"	
		IH		23	2.4 V	0.8 V	"	"	"	"	"	"	"	1	"	"	"	
				24	0.8 V	2.4 V	"	"	"	"	"	"	"	2	"	"	"	
				25	15.0 V	0.8 V	"	"	"	"	"	"	"	1	"	"	"	
				26	0.8 V	15.0 V	"	"	"	"	"	"	"	2	"	"	"	
		CC	3005	27	0.8 V	0.8 V	"	"	"		"	"	"	10		1.5	mA	
			"	28	2.4 V	2.4 V	"	"	"		"	"	"	10		1.5	"	
	CC		29	0.8 V	0.8 V	"	"	"		"	"	"	6	-1.5		"		
			30	2.4 V	2.4 V	"	"	"		"	"	"	6	-1.5		"		
2 _I T _A = 125°C -I -I	R _{DS}		31	0.8 V	0.8 V	"	"	"		-1 mA	10 V	"	9-8		100	Ω		
			32	"	"	"	10 V	-1 mA		"	"	"	4-5		100	"		
			33	"	"	"	"	"		-10 V	-1 mA	7.5 V	10 V	9-8		150	"	
			34	"	"	"	7.5 V	-1 mA		-10 V	"	"	10 V	4-5		150	"	
			35	"	"	"	"	"		-15 V	1 mA	-10 V	15 V	9-8		100	"	
			36	"	"	"	-10 V	1 mA		-15 V	"	"	15 V	4-5		100	"	
			37	"	"	"	"	"		-10 V	1 mA	-7.5 V	10 V	9-8		150	"	
			38	"	"	"	-7.5 V	1 mA		-10 V	"	"	10 V	4-5		150	"	
	I	S(OFF)		39	2.4 V	2.4 V	"	"	-15 V		-14 V	14 V	15 V	9	-100	100	nA	
				40	"	"	"	14 V	-14 V		"	"	"	4	"	"	"	
				41	"	"	"	"	"		"	14 V	-14 V	"	9	"	"	"
				42	"	"	"	-14 V	14 V		"	"	"	4	"	"	"	
	I	D(OFF)		43	"	"	"	"	"		-14 V	14 V	"	8	"	"	"	
				44	"	"	"	14 V	-14 _u V		"	"	"	5	"	"	"	
				45	"	"	"	"	"		"	14 V	-14 V	"	8	"	"	"
				46	"	"	"	-14 V	14 _u V		"	"	"	5	"	"	"	

See footnotes at end of table.

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See footnotes at end of table.

Subgroup	Symbol	MIL-STD-883 Method	Case I	Terminal conditions 1/										Measured terminal	Test limits		Unit
				1	2	3	4	5	6	7	8	9	10		Min	Max	
			Test no.	IN ₁	IN ₂	GND	S ₂	2	V-	V _{REF}	1	1	V+				
2 T _A = 125°C	I _{D(ON)}		47	0.8 V	0.8 V	GND	14 V ^D	14 V	-15 V	D	14 V _S	14 V	15 V	8	-200	200	nA
			48	"	"	"		"	"		"	5	"	"	"		
			49	"	"	"		"	"		"	8	"	"	"		
			50	"	"	"		-14 V	-14 V		"	"	"	"			
	I _L	3009	51	"	2.4 V	2.4 V	"						1	-1.0	1.0	μA	
		3009	52	2.4 V	0.8 V	"		"	"	"	"	2	"	"	"		
	I _H	3010	53	2.4 V	0.8 V	"		"	"			"	1	"	"	"	
			54	0.8 V	2.4 V	"	"	"	"	2	"	"	"				
			55	15.0 V	0.8 V	"	"	"	"	1	"	"	"				
			56	0.8 V	15.0 V	"	"	"	"	2	"	"	"				
CC	3005	57	0.8 V	0.8 V	"		"	"		"	10		1.5	mA			
		58	2.4 V	2.4 V	"	"	"	"	10		1.5	"					
3 T _A = -55°C	R _{DS}		61	0.8 V	0.8 V	"		"	"		-1 mA	10 V	"	9-8		70	Ω
			62	"	"	"	10 V	-1 mA	"	"	"	4-5		70	"		
			63	"	"	"	"	"	"	"	"	9-8		100	"		
			64	"	"	"	7.5 V	-1 mA	-10 V	-10 V	10 V	4-5		100	"		
			65	"	"	"	"	"	-15 V	1 mA	-10 V	15 V	9-8		70	"	
			66	"	"	"	-10 V	1 mA	-15 V	15 V	4-5		70	"			
			67	"	"	"	"	"	-10 V	10 V	9-8		100	"			
			68	"	"	"	-7.5 V	1 mA	-10 V	10 V	4-5		100	"			
	S(OFF)		69	2.4 V	2.4 V	"		-15 V		-14 V	14 V	15 V	9	-100	100	nA	
			70	"	"	"	14 V	-14 V	"	"	"	4	"	"	"		
71			"	"	"	"	"	"	"	"	9	"	"	"			
72			"	"	"	-14 V	14 V	"	14 V	-14 V	4	"	"	"			
D(OFF)		73	"	"	"		"		-14 V	14 V	"	8	"	"	"		
		74	"	"	"	14 V	-14 V	"	"	"	5	"	"	"			
		75	"	"	"	"	"	"	14 V	-14 V	8	"	"	"			
		76	"	"	"	-14 V	14 V	"	"	"	5	"	"	"			
D(ON)		77	0.8 V	0.8 V	"		"		14 V	14 V	"	8	-200	200	"		
		78	"	"	"	14 V	14 V	"	"	"	5	"	"	"			
		79	"	"	"	"	"	"	-14 V	-14 V	8	"	"	"			
		80	"	"	"	-14 V	-14 V	"	"	"	5	"	"	"			
I _L	3009	81	"	2.4 V	2.4 V	"		"	"			1	-1.0	1.0	μA		
	3009	82	2.4 V	0.8 V	"		"	"	"	"	2	"	"	"			
I _H	3010	83	2.4 V	0.8 V	"		"	"			"	1	"	"	"		
		84	0.8 V	2.4 V	"	"	"	"	"	"	2	"	"	"			
		85	15.0 V	0.8 V	"	"	"	"	"	"	1	"	"	"			
		86	0.8 V	15.0 V	"	"	"	"	"	"	2	"	"	"			
CC	3005	87	0.8 V	0.8 V	"		"	"		"	10		2.0	mA			
		88	2.4 V	2.4 V	"	"	"	"	"	"	10		2.0	"			
CC	"	89	0.8 V	0.8 V	"		"	"		"	6	-2.0		"			
		90	2.4 V	2.4 V	"	"	"	"	"	6	-2.0		"				

TABLE III. Group A inspection for device type 01 – Continued.

Subgroup	Symbol	MIL-STD-883 Method	Case I	Terminal conditions 1/										Measured terminal	Test limits		Unit
				1	2	3	4	5	6	7	8	9	10		Min	Max	
			Test no.	IN ₁	IN ₂	GND	S ₂	2	V-	V _{REF}	1	1	V+				
4 T _A = 25°C	C _A 2/ A	3012	91 92	2/ 0 V	2/ 0 V	GND	D		-15 V	D	S		15 V	1 2		15	pF
	C _{IS} 2/ IS		93 94	5 V	5 V		2/					2/		9 4			
	C _{OS} 3/ OS 3/		95 96	5 V	5 V						3/			8 5		20 20	
	t _{ON}	3003 Fig. 9	97 98 99 100	IN IN IN IN	IN IN IN IN		10 V 10 V -10 V -10 V	OUT OUT OUT OUT			OUT OUT OUT OUT	10 V -10 V 10 V -10 V		1-8 2-5 1-8 2-5		600	ns
10 T _A = 125°C	OFF		101 102 103 104	IN IN IN IN	IN IN IN IN		10 V 10 V -10 V -10 V	OUT OUT OUT OUT			OUT OUT OUT OUT	10 V -10 V 10 V -10 V		1-8 2-5 1-8 2-5		500	
	t _{ON}		105 106 107 108	IN IN IN IN	IN IN IN IN		10 V 10 V -10 V -10 V	OUT OUT OUT OUT			OUT OUT OUT OUT	10 V -10 V 10 V -10 V		1-8 2-5 1-8 2-5		800	
	OFF		109 110 111 112	IN IN IN IN	IN IN IN IN		10 V 10 V -10 V -10 V	OUT OUT OUT OUT			OUT OUT OUT OUT	10 V -10 V 10 V -10 V		1-8 2-5 1-8 2-5		650	
	t _{ON}		113 114 115 116	IN IN IN IN	IN IN IN IN		10 V 10 V -10 V -10 V	OUT OUT OUT OUT			OUT OUT OUT OUT	10 V -10 V 10 V -10 V		1-8 2-5 1-8 2-5		600	
11 T _A = -55°C	OFF		117 118 119 120	IN IN IN IN	IN IN IN IN		10 V 10 V -10 V -10 V	OUT OUT OUT OUT			OUT OUT OUT OUT	10 V -10 V 10 V -10 V		1-8 2-5 1-8 2-5		500	
	V _{ISO}	Fig. 10	121	2.4 V	2.4 V		IN					IN		8	60		dB
	V _{ISO}	Fig. 10	122											5			
	V _{CT}	Fig. 11	123											8			
13 T _A = 25°C	V _{CT}	Fig. 11	123											8			
14 T _A = 25°C	V _{CTE}	Fig. 12	124	IN			GND					GND		5	-10	10	mV
	V _{CTE}	Fig. 12	125	2.4 V	IN									8	-10	10	mV

See footnotes at end of table.

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TABLE III. Group A inspection for device type 02.

Subgroup	Symbol	MIL-STD-883 Method	Case E	Terminal conditions 1/																Measured terminal	Test limits		Unit		
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max			
			Test no.	IN ₁	1	1	V-	GND	S ₄	4	IN ₄	IN ₃	3	3	REF	V+	S ₂	2	IN ₂						
1 T _A =+25°C	R _{DS}		1	0.8 V	-1 mA	10 V	-15 V	GND	D		0.8 V	0.8 V	S	V		15 V	10 V	-1 mA	0.8 V	3-2		175	Ω		
			2	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	14-15	"	"	"	
			3	"	"	"	"	"	"	"	"	"	-1 mA	10 V	"	"	"	"	"	"	11-10	"	"	"	
			4	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	6-7	"	"	"	
			5	"	-1 mA	7.5 V	-10 V	"	10 V	-1 mA	"	"	"	"	"	"	10 V	"	"	"	3-2	"	200	"	
			6	"	"	"	"	"	"	"	"	"	"	"	"	"	"	7.5 V	-1 mA	"	14-15	"	"	"	
			7	"	"	"	"	"	"	"	"	"	"	"	-1 mA	7.5 V	"	"	"	"	11-10	"	"	"	
			8	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	6-7	"	"	"	
			9	"	1 mA	-10 V	-15 V	"	7.5 V	-1 mA	"	"	"	"	"	"	"	15 V	"	"	"	2-3	"	175	"
			10	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	-10 V	1 mA	"	15-14	"	"	"
			11	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	10-11	"	"	"
			12	"	"	"	"	"	"	"	"	-10 V	1 mA	"	"	"	"	"	"	"	"	7-6	"	"	"
			13	"	1 mA	-7.5 V	-10 V	"	"	"	"	"	"	"	"	"	"	10 V	-7.5 V	1 mA	"	2-3	"	200	"
			14	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	15-14	"	"	"
			15	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	10-11	"	"	"
			16	"	"	"	"	"	"	"	-7.5 V	1 mA	"	"	"	"	"	"	"	"	"	7-6	"	"	"
I	S(OFF)		17	2.4 V	-14 V	14 V	-15 V	"	"	"	2.4 V	2.4 V	"	"	"	15 V	14 V	14 V	2.4 V	3	-2	2	nA		
			18	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	14	"	"	"	
			19	"	"	"	"	"	"	"	"	"	"	-14 V	14 V	"	"	"	"	"	11	"	"	"	
			20	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	6	"	"	"	
			21	"	14 V	-14 V	"	"	14 V	-14 V	"	"	"	"	"	"	"	-14 V	-14 V	"	3	"	"	"	
			22	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	14	"	"	"	
			23	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	11	"	"	"	
			24	"	"	"	"	"	"	"	-14 V	14 V	"	"	"	"	"	"	"	"	6	"	"	"	
I	D(OFF)		25	"	-14 V	14 V	"	"	"	"	"	"	"	"	"	"	14 V	-14 V	"	2	"	"	"		
			26	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	15	"	"	"	
			27	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	10	"	"	"	
			28	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	7	"	"	"	
			29	"	14 V	-14 V	"	"	14 V	-14 V	"	"	"	"	"	"	"	-14 V	14 V	"	2	"	"	"	
			30	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	15	"	"	"	
			31	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	10	"	"	"	
			32	"	"	"	"	"	"	"	-14 V	14 V	"	"	"	"	"	"	"	"	7	"	"	"	
I	D(ON)		33	0.8 V	14 V	14 V	"	"	"	"	0.8 V	0.8 V	"	"	"	"	14 V	14 V	0.8 V	2	"	"	"		
			34	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	15	"	"	"	
			35	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	10	"	"	"	
			36	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	7	"	"	"	
			37	"	-14 V	-14 V	"	"	"	"	"	"	"	"	"	"	"	-14 V	-14 V	"	2	"	"	"	
			38	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	15	"	"	"	
			39	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	10	"	"	"	
			40	"	"	"	"	"	"	"	-14 V	-14 V	"	"	"	"	"	"	"	"	7	"	"	"	
IL	3009		41	"	"	"	"	"	"	"	2.4 V	2.4 V	"	"	"	"	"	2.4 V	1	-0.5	0.5	μA			
			42	2.4 V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	16	"	"	"		
			43	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	9	"	"	"		
			44	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	8	"	"	"	

See footnotes at end of table.

TABLE III. Group A inspection for device type 02 – Continued.

Subgroup	Symbol	MIL-STD-883 Method	Case E Test no.	Terminal conditions 1/																Measured terminal	Test limits		Unit
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	
				IN ₁	1	1	V-	GND	S ₄	4	IN ₄	IN ₃	3	3	REF	V+	S ₂	2	IN ₂				
1 T _A = 25°C	I _{IH}	3010	45	2.4 V	S	-15 V	GND	D	0.8 V	0.8 V	S	V		15 V	D	0.8 V	1	-0.5	0.5	μA			
			46	0.8 V									"	0.8 V			"		2.4 V	16	"	"	"
			47	"			"		"				"	2.4 V			"		0.8 V	9	"	"	"
			48	"			"		"				"	0.8 V			"		0.8 V	8	"	"	"
			49	15.0 V			"		"				"	0.8 V			"		0.8 V	1	"	"	"
			50	0.8 V			"		"				"	0.8 V			"		15.0 V	16	"	"	"
			51	"			"		"				"	15.0 V			"		0.8 V	9	"	"	"
			52	"			"		"				"	0.8 V			"		0.8 V	8	"	"	"
	CC CC	3005	53	"		"	"			0.8 V	0.8 V				"		0.8 V	13		1.5	mA		
			54	2.4 V		"	"			2.4 V	2.4 V				"		2.4 V	13		1.5	"		
+I T _A = 125°C	-I _{CC}	"	55	0.8 V		"	"			0.8 V	0.8 V				"		0.8 V	4	-1.5		"		
			56	2.4 V		"	"			2.4 V	2.4 V				"		2.4 V	4	-1.5		"		
2 T _A = 125°C	R _{DS}	"	57	0.8 V	-1 mA	10 V	"	"			0.8 V	0.8 V			"	"	10 V	-1 mA	0.8 V	3-2		250	Ω
			58	"			"	"			"	"	-1 mA	10 V		"		"	14-15		"	"	
			59	"			"	"			"	"				"		"	11-10		"	"	
			60	"	-1 mA	7.5 V	-10 V	"	10 V	-1 mA	"	"				10 V	7.5 V	-1 mA	"	6-7		"	"
			61	"			"	"			"	"				"		"	3-2		"	"	
			62	"			"	"			"	"	-1 mA	7.5 V	"	"		"	14-15		"	"	
			63	"			"	"			"	"				"		"	11-10		"	"	
			64	"			"	"	7.5 V	-1 mA	"	"				"		"	6-7		"	"	
			65	"	1 mA	-10 V	-15 V	"			"	"				15 V		"	2-3		"	"	
			66	"			"	"			"	"				"	-10 V	1 mA	"	15-14		"	"
			67	"			"	"			"	"	1 mA	-10 V	"	"		"	10-11		"	"	
			68	"			"	"	-10 V	1 mA	"	"				"		"	7-6		"	"	
	69	"	1 mA	-7.5 V	-10 V	"			"	"				10 V	-7.5 V	1 mA	"	2-3		"	"		
	70	"			"	"			"	"				"		"	15-14		"	"			
	71	"			"	"			"	"	1 mA	-7.5 V	"	"		"	10-11		"	"			
	72	"			"	"	-7.5 V	1 mA	"	"				"		"	7-6		"	"			
I	S(OFF)	"	73	2.4 V	-14 V	14 V	-15 V	"			2.4 V	2.4 V				15 V	14 V	-14 V	2.4 V	3	-100	"	nA
			74	"			"	"			"	"	-14 V	14 V		"		"	14	"	"	"	
			75	"			"	"			"	"				"		"	11	"	"	"	
			76	"			"	"	14 V	-14 V	"	"				"		"	6	"	"	"	
			77	"	14 V	-14 V	"	"			"	"				"		"	3	"	"	"	
			78	"			"	"			"	"				"	-14 V	14 V	"	14	"	"	"
			79	"			"	"			"	"	14 V	-14 V	"	"		"	11	"	"	"	
			80	"			"	"	-14 V	14 V	"	"				"		"	6	"	"	"	
I	D(OFF)	"	81	"	-14 V	14 V	"	"			"	"	-14 V	14 V		"	14 V	-14 V	"	2	"	"	"
			82	"			"	"			"	"				"		"	15	"	"	"	
			83	"			"	"			"	"	-14 V	14 V		"		"	10	"	"	"	
			84	"			"	"	14 V	-14 V	"	"				"		"	7	"	"	"	
			85	0.8 V	14 V	-14 V	"	"			0.8 V	0.8 V				"	-14 V	14 V	0.8 V	2	"	"	"
			86	"			"	"			"	"				"		"	15	"	"	"	
			87	"			"	"			"	"	14 V	-14 V	"	"		"	10	"	"	"	
			88	"			"	"	-14 V	14 V	"	"				"		"	7	"	"	"	
I	D(ON)	"	89	"	14 V	14 V	"	"			"	"				"	14 V	14 V	"	2	-200	200	"
			90	"			"	"			"	"	14 V	14 V		"		"	15	"	"	"	
			91	"			"	"			"	"				"		"	10	"	"	"	
			92	"			"	"			"	"				"		"	7	"	"	"	
			93	"	-14 V	-14 V	"	"	14 V	14 V	"	"				"		"	2	"	"	"	
			94	"			"	"			"	"				"	-14 V	-14 V	"	15	"	"	"
			95	"			"	"			"	"	-14 V	-14 V	"	"		"	10	"	"	"	
			96	"			"	"	-14 V	-14 V	"	"				"		"	7	"	"	"	

See footnotes at end of table.

MIL-M-38510/123B

TABLE III. Group A inspection for device type 02 – Continued.

Subgroup	Symbol	MIL-STD-883 Method	Case E Test no.	Terminal conditions 1/																Measured terminal	Test limits		Unit		
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max			
				IN ₁	1	1	V-	GND	S ₄	4	IN ₄	IN ₃	3	3	REF	V+	S ₂	2	IN ₂						
2 T _A =125°C	I _{IL}	3009	97	0.8 V	D		-15 V	GND		D	2.4 V	2.4 V	S	V		15 V		D		2.4 V	1	-1.0	1.0	μA	
			98	2.4 V	S		"	"	D		"	2.4 V				"				0.8 V	16	"	"	"	
			99	"			"	"			"	0.8 V				"				2.4 V	9	"	"	"	
			100	"			"	"			0.8 V	2.4 V				"				2.4 V	8	"	"	"	
	I _H	3010	101	"			"	"			"	0.8 V				"				0.8 V	1	"	"	"	
			102	0.8 V			"	"			"	0.8 V				"				2.4 V	16	"	"	"	
			103	0.8 V			"	"			"	2.4 V				"				"	9	"	"	"	
			104	0.8 V			"	"			2.4 V	0.8 V				"				"	8	"	"	"	
			105	15.0 V			"	"			0.8 V	"				"				0.8 V	1	"	"	"	
			106	0.8 V			"	"			"	"				"				15.0 V	16	"	"	"	
			107	"			"	"			"	15.0 V				"				0.8 V	9	"	"	"	
			108	"			"	"			15.0 V	0.8 V				"				"	8	"	"	"	
	CC CC	3005	109	"			"	"			0.8 V	0.8 V				"				"	13		1.5	mA	
			110	2.4 V			"	"			2.4 V	2.4 V				"				2.4 V	13		1.5	"	
	+I -I _{CC}		111	0.8 V			"	"			0.8 V	0.8 V				"				0.8 V	4	-1.5		"	
			112	2.4 V			"	"			2.4 V	2.4 V				"				2.4 V	4	-1.5		"	
3 T _A = -55°C	R _{DS}		113	0.8 V	-1 mA	10 V	"	"			0.8 V	0.8 V				"				0.8 V	3-2		175	Ω	
			114	"			"	"			"	"				"				"	14-15		"	"	
			115	"			"	"			"	"	-1 mA	10 V		"				"	11-10		"	"	
			116	"			"	"			10 V	-1 mA				"				"	6-7		"	"	
			117	"	-1 mA	7.5 V	-10 V	"		10 V	"	"				"				"	3-2		200	"	
			118	"			"	"			"	"				"				"	14-15		"	"	
			119	"			"	"			"	"	-1 mA	7.5 V	"	"				"	11-10		"	"	
			120	"			"	"			"	"				"				"	6-7		"	"	
			121	"	1 mA	-10 V	-15 V	"		7.5 V	-1 mA	"	"				"				"	2-3		175	"
			122	"			"	"			"	"				"				"	15-14		"	"	
			123	"			"	"			"	"	1 mA	-10 V	"	"				"	10-11		"	"	
			124	"			"	"			"	"				"				"	7-6		"	"	
			125	"	1 mA	-7.5 V	-10 V	"		-10 V	1 mA	"	"				"				"	2-3		200	"
			126	"			"	"			"	"				"				"	15-14		"	"	
			127	"			"	"			"	"	1 mA	-7.5 V	"	"				"	10-11		"	"	
			128	"			"	"		-7.5 V	1 mA	"	"			"				"	7-6		"	"	
	I	S(OFF)		129	2.4 V	-14 V	14 V	-15 V	"			2.4 V	2.4 V				15 V				2.4 V	3	-100	100	nA
				130	"			"	"			"	"				"				"	14	"	"	"
				131	"			"	"			"	"	-14 V	14 V	"	"				"	11	"	"	"
				132	"			"	"			"	"				"				"	6	"	"	"
				133	"	14 V	-14 V	"	"		14 V	-14 V	"				"				"	3	"	"	"
				134	"			"	"			"	"				"				"	14	"	"	"
				135	"			"	"			"	"	14 V	-14 V		"				"	11	"	"	"
				136	"			"	"		-14 V	14 V	"				"				"	6	"	"	"
	I	D(OFF)		137	"	-14 V	14 V	"	"			"	"				"				"	2	"	"	"
				138	"			"	"			"	"				"				"	15	"	"	"
				139	"			"	"			"	"	-14 V	14 V	"	"				"	10	"	"	"
				140	"			"	"			"	"				"				"	7	"	"	"
				141	"	14 V	-14 V	"	"		14 V	-14 V	"				"				"	2	"	"	"
				142	"			"	"			"	"				"				"	15	"	"	"
				143	"			"	"			"	"	14 V	-14 V	"	"				"	10	"	"	"
				144	"			"	"		-14 V	14 V	"			"	"				"	7	"	"	"

See footnotes at end of table.

TABLE III. Group A inspection for device type 02 – Continued.

Subgroup	Symbol	MIL-STD-883 Method	Case E	Terminal conditions 1/																Measured terminal	Test limits		Unit						
			Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max							
3 T _A = -55°C	I _{D(ON)}	3009	145	0.8 V	14 V _S	14 V	-15 V	GND	D	14 V	14 V	0.8 V	0.8 V	S	V	15 V	14 V ^D	14 V	0.8 V	2	-200	200	nA						
		146	"	"	"	"	"	"				"	"			"		"	"	"	"	"	"	"	"	15	"	"	"
		147	"	"	"	"	"	"				"	"			"		"	"	"	"	"	"	"	"	10	"	"	"
		148	"	"	"	"	"	"				"	"			"		"	"	"	"	"	"	"	"	7	"	"	"
		149	"	-14 V	-14 V	"	"	"				"	"			"		"	"	"	"	"	"	"	"	2	"	"	"
		150	"	"	"	"	"	"				"	"			"		"	"	"	"	"	-14 V	-14 V	"	15	"	"	"
		151	"	"	"	"	"	"				"	"			"		"	"	"	"	"	"	"	"	10	"	"	"
		152	"	"	"	"	"	"				"	-14 V			-14 V		"	"	"	-14 V	-14 V	"	"	"	7	"	"	"
	I _L	IL	"	153	"	"	"	"	"	"	"	2.4 V	2.4 V	"	"	"	"	"	2.4 V	1	-1.0	1.0	μA						
		"	"	154	2.4 V	"	"	"	"	"	"	"	2.4 V	"	"	"	"	"	0.8 V	16	"	"	"						
		"	"	155	"	"	"	"	"	"	"	"	0.8 V	"	"	"	"	"	2.4 V	9	"	"	"						
		"	"	156	"	"	"	"	"	"	"	"	0.8 V	2.4 V	"	"	"	"	2.4 V	8	"	"	"						
	I _H	IH	3010	157	"	"	"	"	"	"	"	"	0.8 V	0.8 V	"	"	"	"	0.8 V	1	"	"	"						
			"	158	0.8 V	"	"	"	"	"	"	"	0.8 V	"	"	"	"	"	2.4 V	16	"	"	"						
			"	159	"	"	"	"	"	"	"	"	2.4 V	0.8 V	"	"	"	"	0.8 V	9	"	"	"						
			"	160	"	"	"	"	"	"	"	"	0.8 V	"	"	"	"	"	"	"	8	"	"	"					
			"	161	15.0 V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1	"	"	"					
			"	162	0.8 V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	15.0 V	16	"	"	"					
	CC	CC	"	163	"	"	"	"	"	"	"	"	15.0 V	15.0 V	"	"	"	"	0.8 V	9	"	"	"						
			"	164	"	"	"	"	"	"	"	"	0.8 V	"	"	"	"	"	0.8 V	8	"	"	"						
			3005	165	"	"	"	"	"	"	"	"	0.8 V	0.8 V	"	"	"	"	0.8 V	13		2.0	mA						
			"	166	2.4 V	"	"	"	"	"	"	"	2.4 V	2.4 V	"	"	"	"	2.4 V	13		2.0	"						
	+I _{CC}	-I _{CC}	"	167	0.8 V	"	"	"	"	"	"	0.8 V	0.8 V	"	"	"	"	0.8 V	4	-2.0		"							
			"	168	2.4 V	"	"	"	"	"	"	2.4 V	2.4 V	"	"	"	"	2.4 V	4	-2.0		"							
4 _I T _A = 25°C	C _A 2/	3012	169	2/ 0 V	"	"	"	"	"	"	"	"	"	"	"	"	"	2/ 0 V	1		15	pF							
		"	170	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	16		"	"						
		"	171	"	"	"	"	"	"	"	"	2/ 0 V	2/ 0 V	"	"	"	"	"	9		"	"							
		"	172	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	8		"	"							
	C _S 2/	"	173	2/ 5 V	"	"	"	"	"	"	"	"	"	"	"	"	"	2/ 5 V	3		"	pF							
		"	174	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	14	"	"	"							
		"	175	"	"	"	"	"	"	"	"	2/ 5 V	2/ 5 V	"	"	"	"	"	11	"	"	"							
		"	176	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	6		"	"							
C _{OS} 3/	"	177	3/ 5 V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	3/ 5 V	2		20	"							
	"	178	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	15	"	"	"							
	"	179	"	"	"	"	"	"	"	"	3/ 5 V	3/ 5 V	"	"	"	"	"	10	"	"	"								
	"	180	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	7		"	"								
9 T _A = 25°C	t _{ON}	3003 Fig. 9	181	IN	OUT	10 V	"	"	"	"	"	IN	OUT	10 V	"	"	10 V	OUT	IN	1-2		600	ns						
		"	182	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	16-15	"	"	"						
		"	183	"	"	"	"	"	"	"	"	"	IN	IN	"	"	"	"	"	9-10	"	"	"						
		"	184	"	"	"	"	"	"	10 V	OUT	"	"	"	"	"	"	"	"	8-7	"	"	"						
		"	185	IN	OUT	-10 V	"	"	"	"	"	"	"	"	"	"	"	"	"	1-2	"	"	"						
		"	186	"	"	"	"	"	"	"	"	"	"	"	"	"	"	-10 V	OUT	16-15	"	"	"						
		"	187	"	"	"	"	"	"	"	"	"	IN	OUT	-10 V	"	"	"	"	9-10	"	"	"						
		"	188	"	"	"	"	"	-10 V	OUT	"	"	IN	OUT	"	"	"	"	"	8-7	"	"	"						

See footnotes at end of table.

TABLE III. Group A inspection for device type 02 – Continued.

Subgroup	Symbol	MIL-STD-883 Method	Case E Test no.	Terminal conditions 1/																Measured terminal	Test limits		Unit	
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max		
				IN ₁	1	1	V-	GND	S ₄	4	IN ₄	IN ₃	3	3	REF	V+	S ₂	2	IN ₂					
9 T _A = 25°C	t _{OFF}	3003 Fig. 9	189	IN ^D	OUT _S	10 V	-15 V	GND								15 V				1-2		500	ns	
			190																	16-15				
			191																	9-10				
			192																	8-7				
			193	IN	OUT	-10 V					IN	OUT	10 V							1-2				
			194																	16-15				
			195																	9-10				
10 T _A = 125°C	t _{ON}		196							-10 V	OUT	IN								8-7				
			197	IN	OUT	10 V														1-2		800		
			198																	16-15				
			199																	9-10				
			200																	8-7				
			201	IN	OUT	-10 V					IN	OUT	10 V							1-2				
			202																	16-15				
t	OFF		203																	9-10				
			204																	8-7				
			205	IN	OUT	10 V														1-2		650		
			206																	16-15				
			207																	9-10				
			208																	8-7				
			209	IN	OUT	-10 V					IN	OUT	10 V							1-2				
11 T _A = -55°C	t _{ON}		210																	16-15				
			211																	9-10				
			212																	8-7				
			213	IN	OUT	10 V														1-2		600		
			214																	16-15				
			215																	9-10				
			216																	8-7				
t	OFF		217	IN	OUT	-10 V													1-2					
			218																16-15					
			219																9-10					
			220																8-7					
			221	IN	OUT	10 V														1-2		500		
			222																	16-15				
			223																	9-10				
12 T _A = 25°C	V _{ISO}	Fig. 10	224																	8-7				
			225	IN	OUT	-10 V														1-2				
			226																	16-15				
			227																	9-10				
			228																	8-7				
			229	2.4 V		IN					2.4 V	2.4 V							IN	2.4 V	2	60		dB
			230																	15				
13 T _A = 25°C	V _{CT}	Fig. 11	231																	10				
			232																	7				
			233	2.4 V		IN					0.8 V	0.8 V		IN				IN		0.8 V	2			
			234	0.8 V								0.8 V		IN						2.4 V	15			
14 T _A = 25°C	V _{CTE}	Fig. 12	235																0.8 V	10				
			236									2.4 V		IN			IN		0.8 V	7				
			237	IN		GND						2.4 V							2.4 V	2	-10	10	mV	
			238	2.4 V									2.4 V				GND		IN	15				
			239																2.4 V	10				
			240								GND		2.4 V						2.4 V	7				

1/ Pins not designated may be "high" level logic, "low" level logic, or open.

2/ Connect capacitance bridge between measured input terminal and GND, f = 1 MHz; see 4.4.1c.

3/ Connect capacitance bridge between measured output terminal and GND, f = 1 MHz; see 4.4.1c.

4.4.3 Group C inspection. Group C inspection shall be in accordance with table IV of MIL-PRF-38535 and as follows:

- a. End point electrical parameters shall be as specified in table II herein.
- b. 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-PRF-38535. The burn-in test circuit shall be maintained under document control by the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-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 of MIL-STD-883.
- c. A special subgroup shall be added to group C inspection for class B devices only, and it shall consist of subgroups 12, 13, and 14 of group A inspection as specified in table III herein. This special subgroup shall be performed on each device type that is qualified from those listed in 1.2.1 herein. After initial qualification, the special subgroup shall be performed periodically on a single device type selected from those device types previously qualified. A sample of 5 devices (of the device type to be inspected) shall be chosen and submitted to test with no failures allowed. If not more than 1 failure is found in the first sample of 5, a second sample of 5 is permitted with no further failures allowed. When more than one device type is qualified, the single device type selected shall be different device type for each subsequent periodic inspection until all qualified device types have been inspected. The sequence of single device types shall be repeated to fulfill the periodic inspection requirement.

4.4.4 Group D inspection. Group D inspection shall be in accordance with table V of MIL-PRF-38535. End point electrical parameters shall be as specified in table II herein. A special subgroup shall be added to group D inspection for class S devices only, and it shall consist of subgroups 12, 13, and 14 of group A inspection as specified in table III herein. This special subgroup shall be performed on each device type that is qualified from those listed in 1.2.1 herein. After initial qualification, the special subgroup shall be performed periodically on a single device type selected from those device types previously qualified. When more than one device type is qualified, the single device type selected shall be different device type for each subsequent periodic inspection until all qualified device types have been inspected. The sequence of single device types shall be repeated to fulfill the periodic inspection requirement.

Table IV. Delta limits at 25°C. 1/

Parameter 2/	Device types	
	01	02
R_{DS}	15 Ω	15 Ω
$I_{D(ON)}$	1 nA	1 nA

1/ Each test applies to every switch in the package.

2/ Each of the above parameters shall be recorded before and after the required life tests to determine deltas (Δ).

4.5 Methods of inspection. Methods of inspection shall be specified and as follows.

4.5.1 Voltage and current. All voltage values given are referenced to the microcircuit ground terminals. Currents given are conventional current and positive when flowing into the referenced terminal.

5. PACKAGING

5.1 Packaging requirements. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Service or Defense Agency, or within the military service's system command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

6.1 Intended use. Microcircuits conforming to this specification are intended for original equipment design applications and logistic support of existing equipment.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of the specification.
- b. PIN and compliance identifier, if applicable (see 1.2).
- c. Requirements for delivery of one copy of the conformance inspection data pertinent to the device inspection lot to be supplied with each shipment by the device manufacturer, if applicable.
- d. Requirements for certificate of compliance, if applicable.
- e. Requirements for notification of change of product or process to acquiring activity in addition to notification of the qualifying activity, if applicable.
- f. Requirements for failure analysis (including required test condition of MIL-STD-883, method 5003), corrective action and reporting of results, if applicable.
- g. Requirements for product assurance options.
- h. Requirements for special carriers, lead lengths, or lead forming, if applicable. These requirements should not affect the part number. Unless otherwise specified, these requirements will not apply to direct purchase by or direct shipment to the Government.
- i. Requirements for "JAN" marking.
- j. Packaging requirements (see 5.1).

6.3 Superseding information. The requirements of MIL-M-38510 have been superseded to take advantage of the available Qualified Manufacturer Listing (QML) system provided by MIL-PRF-38535. Previous references to MIL-M-38510 in this document have been replaced by appropriate references to MIL-PRF-38535. All technical requirements now consist of this specification and MIL-PRF-38535. The MIL-M-38510 specification sheet number and PIN have been retained to avoid adversely impacting existing government logistics systems and contractor's parts lists.

6.4 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Manufacturers List QML-38535 whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or purchase orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from DSCC-VQ, 3990 E. Broad Street, Columbus, Ohio 43123-1199.

6.5 Abbreviations, symbols, and definitions. The abbreviations, symbols, and definitions used herein are defined in MIL-PRF-38535, MIL-HDBK-1331, and as follows:

V+	.....	Positive supply voltage
V-	.....	Negative supply voltage
V _{REF}	.....	Reference voltage
V _{IL}	.....	Input (address) low voltage
V _{IH}	.....	Input (address) high voltage
I _{CC+}	.....	Positive supply current
I _{CC-}	.....	Negative supply current
I _{S(OFF)}	.....	Leakage current into the source terminal of an "OFF" switch
I _{D(OFF)}	.....	Leakage current into the drain terminal of an "OFF" switch
I _{D(ON)}	.....	Leakage current from an "ON" driver into the switch
I _{IL}	.....	Low level (address) input current
I _{IH}	.....	High level (address) input current
R _{DS}	.....	Resistance of an "ON" switch
GND	.....	Ground zero voltage potential
S	.....	Source terminal to the switch
D	.....	Drain terminal of the switch
V _{ZAP}	.....	Input test voltage
IN	.....	Address input to the switch
T _A	.....	Ambient temperature
V _{CTE}	.....	Charge transfer error
V _{CT}	.....	Crosstalk between channels
V _{ISO}	.....	Off isolation from source to drain of a closed switch

6.6 Logistic support. Lead materials and finishes (see 3.4) are interchangeable. Unless otherwise specified, microcircuits acquired for Government logistic support will be acquired to device class B (see 1.2.2), lead material and finish A (see 3.4). Longer length leads and lead forming should not affect the part number.

6.7 Substitutability. The cross-reference information below is presented for the convenience of users. Microcircuits covered by this specification will functionally replace the listed generic-industry type. Generic-industry microcircuit types may not have equivalent operational performance characteristics across military temperature ranges or reliability factors equivalent to MIL-M-38510 device types and may have slight physical variations in relation to case size. The presence of this information should not be deemed as permitting substitution of generic-industry types for MIL-M-38510 types or as a waiver of any of the provisions of MIL-PRF-38535.

<u>Military device type</u>	<u>Generic-industry type</u>
01	200
02	201

6.8 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

Custodians:
 Army – CR
 Navy - EC
 Air Force - 11
 NASA – NA
 DLA – CC

Preparing activity:
 DLA - CC
 Project 5962-2015

Review activities:
 Army – MI, SM
 Navy – AS, CG, MC, SH, TD
 Air Force – 03, 19, 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at www.dodssp.daps.mil.