REVISIONS			
LTR	DESCRIPTION	DATE (YR-MO-DA)	APPROVED
A	In accordance with N.O.R. 5962-R077-96.	96-03-12	M. A. Frye
B	Make changes to 1.2.4, 1.3, and add 1.5. Redrawn. - ro	99-08-04	R. MONNIN

REV																			
SHEET																			
REV	B	B	B																
SHEET	15	16	17																

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

PMIC N/A

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DRAWING APPROVAL DATE
95-09-14

REVISION LEVEL
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DEFENSE SUPPLY CENTER COLUMBUS
COLUMBUS, OHIO 43216

STANDARD MICROCIRCUIT DRAWING

THIS DRAWING IS AVAILABLE FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE

AMSC N/A

MICROCIRCUIT, LINEAR, RADIATION HARDENED CMOS, MULTIPLEXER / DEMULTIPLEXER,

MONOLITHIC SILICON

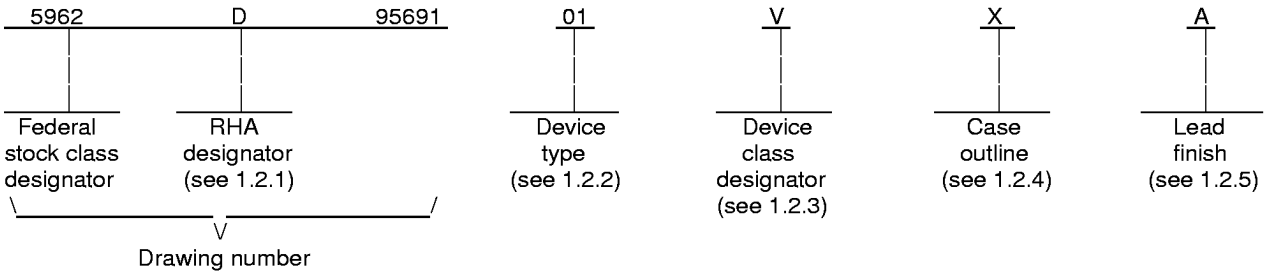
SIZE	CAGE CODE	
A	67268	5962-95691

SHEET 1 OF 17

1. SCOPE

1.1 Scope. This drawing documents two product assurance class levels consisting of high reliability (device classes Q and M) and space application (device class V). A choice of case outlines and lead finishes are available and are reflected in the Part or Identifying Number (PIN). When available, a choice of Radiation Hardness Assurance (RHA) levels are reflected in the PIN.

1.2 PIN. The PIN is as shown in the following example:



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

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

Device type	Generic number	Circuit function
01	HS506RH	Radiation hardened single 16-channel MUX/DEMUX
02	HS507RH	Radiation hardened differential 8-channel MUX/DEMUX

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

Device class	Device requirements documentation
M	Vendor self-certification to the requirements for MIL-STD-883 compliant, non-JAN class level B microcircuits in accordance with MIL-PRF-38535, appendix A
Q or V	Certification and qualification to MIL-PRF-38535

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

Outline letter	Descriptive designator	Terminals	Package style
X	CDIP1-T28 or CDIP2-T8	28	Dual-in-line

1.2.5 Lead finish. The lead finish is as specified in MIL-PRF-38535 for device classes Q and V or MIL-PRF-38535, appendix A for device class M.

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 voltage range	
$+V_{EN}$, $+V_A$	$+V_{SUPPLY}$ + 4 V
$-V_{EN}$, $-V_A$	$-V_{SUPPLY}$ – 4 V
Analog input voltage range	
$+V_S$	$+V_{SUPPLY}$ + 2 V
$-V_S$	$-V_{SUPPLY}$ – 2 V
Continuous current, S or D	20 mA
Peak 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)	0.83 W 2/
Derating factor	19.6 mW/°C above T_A = +75°C
Lead temperature (soldering, 10 seconds)	+275°C
Junction temperature (TJ)	+175°C
Thermal resistance, junction-to-case (θ_{JC})	20°C/W
Thermal resistance, junction-to-ambient (θ_{JA})	60°C/W

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})	2.4 V to $+V_{SUPPLY}$
Maximum RMS current, S or D	8 mA
Ambient operating temperature range (T_A)	-55°C to +125°C

1.5 Radiation features.

Maximum total dose available (dose rate = 50 – 300 rads (Si)/s)	10 Krads (Si)
Dose rate upset (20 ns pulse)	3/
Latch-up 4/	None

2. APPLICABLE DOCUMENTS

2.1 Government specification, standards, and handbooks. The following specification, standards, and handbooks form a part of this drawing to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation.

SPECIFICATION

DEPARTMENT OF DEFENSE

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

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 capacity, provide heat sinking or derate linearly (derating is based on θ_{JA}) at the following rate: 16.7 mW/°C for case outline X.
3/ Values to be specified when testing is completed.
4/ Guaranteed by process or design, not tested.

STANDARDS

DEPARTMENT OF DEFENSE

MIL-STD-883 - Test Method Standard Microcircuits.
MIL-STD-973 - Configuration Management.
MIL-STD-1835 - Interface Standard For Microcircuit Case Outlines.

HANDBOOKS

DEPARTMENT OF DEFENSE

MIL-HDBK-103 - List of Standard Microcircuit Drawings (SMD's).
MIL-HDBK-780 - Standard Microcircuit Drawings.

(Unless otherwise indicated, copies of the specification, standards, and handbooks are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

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 takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Item requirements. The individual item requirements for device classes Q and V 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. The individual item requirements for device class M shall be in accordance with MIL-PRF-38535, appendix A for non-JAN class level B devices and as specified herein.

3.2 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-PRF-38535 and herein for device classes Q and V or MIL-PRF-38535, appendix A and herein for device class M.

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 on 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. In addition, the manufacturer's PIN may also be marked as listed in MIL-HDBK-103. For packages where marking of the entire SMD PIN number is not feasible due to space limitations, the manufacturer has the option of not marking the "5962-" on the device. For RHA product using this option, the RHA designator shall still be marked. Marking for device classes Q and V shall be in accordance with MIL-PRF-38535. Marking for device class M shall be in accordance with MIL-PRF-38535, appendix A.

3.5.1 Certification/compliance mark. The certification mark for device classes Q and V shall be a “QML” or “Q” as required in MIL-PRF-38535. The compliance mark for device class M shall be a "C" as required in MIL-PRF-38535, appendix A.

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions $-55°C \le T_A \le +125°C$ $-V = -15V$, $+V = +15$ V, $V_{EN} = 2.4$ V 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}	M, D 2/	1		-1.0	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	50	
	$-I_{S(OFF)}$	$V_S = -10$ V, $V_{EN} = 0.8$ V, all unused inputs = +10 V, $V_D = +10$ V	1		-10	10	
			2,3		-50	50	
		$V_{EN} = 0.5$ V, M, D 2/	1		-50	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	nA
			2,3	01	-300	300	
				02	-200	200	
		$V_{EN} = 0.5$ V, M, D 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	
		$V_{EN} = 0.5$ V, M, D 2/	1	01	-300	300	
				02	-200	200	

See footnotes at end of table.

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions $-55°C \le T_A \le +125°C$ $-V = -15V$, $+V = +15$ V, $V_{EN} = 2.4$ V 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/	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/	1	01	-300	300	
				02	-200	200	
Positive supply current	+I	$V_A = 0$ V, $V_{EN} = 2.4$ V	1,2,3	01,02		3.0	mA
		M, D 2/	1			3.0	
Negative supply current	-I	$V_A = 0$ V, $V_{EN} = 2.4$ V	1,2,3	01,02		-1.0	mA
		M, D 2/	1			-1.0	
Standby positive supply current	$+I_{SBY}$	$V_A = 0$ V, $V_{EN} = 0$ V	1,2,3	01,02		3.0	mA
		M, D 2/	1			3.0	
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	
Switch "ON" resistance	$+R_{DS1}$	$V_S = 10$ V, $I_D = -1$ mA	1	01,02		300	Ω
			2,3			400	
		M, D 2/	1			400	
	$-R_{DS1}$	$V_S = -10$ V, $I_D = 1$ mA	1			300	
			2,3			400	
		M, D 2/	1			400	

See footnotes at end of table.

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions $-55°C \le T_A \le +125°C$ $-V = -15V$, $+V = +15$ V, $V_{EN} = 2.4$ V unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Logic level voltage	V_{AL}	3/	1	01,02		0.5	V
			2,3			0.8	
		M, D 2/	1			0.8	
	V_{AH}	3/	1,2,3		2.4		
		M, D 2/	1		2.4		
Capacitance: Address	C_A	V+ = V- = 0 V 4/ 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 4/ f = 1 MHz, $T_A = +25°C$, see 4.4.1d	4	01		90	pF
				02		50	
Capacitance: Input switch	C_{IS}	V+ = V- = 0 V 4/ f = 1 MHz, $T_A = +25°C$, see 4.4.1d	4	01,02		12	pF
Charge transfer error	V_{CTE}	V_S = GND, 4/ $V_{GEN} = 0$ V to 5 V, $T_A = +25°C$	4	01,02		10	mV
Off isolation	V_{ISO}	$V_{EN} = 0.8$ V, 4/ $R_L = 1$ kΩ, $C_L = 15$ pF, $V_S = 7$ V_{rms}, f = 100 kHz, $T_A = +25°C$	4	01,02		-50	dB
Functional test	FT	See 4.4.1b, $T_A = +25°C$	7	01,02			
Break-before-make time delay	t_D	$R_L = 200$ Ω, $T_A = +25°C$, see figure 3	9	01,02	25		ns
Propagation delay times: Address inputs to I/O channels times	t_A	$R_L = 10$ kΩ, see figure 3	9	01,02		500	ns
			10,11			1,000	
		M, D 2/	9			1,000	

See footnotes at end of table.

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions $-55°C \le T_A \le +125°C$ $-V = -15V$, $+V = +15$ V, $V_{EN} = 2.4$ V unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Enable to I/O	$t_{ON(EN)}$	$R_L = 200\ \Omega$, see figure 3	9	01,02		500	ns
			10,11			1,000	
		M, D 2/	9			1,000	
	$t_{OFF(EN)}$	$R_L = 200\ \Omega$, see figure 3	9			500	
			10,11			1,000	
		M, D 2/	9			1,000	

1/ Input current of one input mode.

2/ Devices supplied to this drawing are only radiation tested for the parameter referencing this footnote. They meet all levels M and D of irradiation, however, this device is only tested at the D level at $T_A = +25°C$. Pre and Post irradiation values are identical unless otherwise specified in table I

3/ Used as forcing function for all DC tests unless otherwise specified.

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

3.6 Certificate of compliance. 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 6.6.1 herein). 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-HDBK-103 (see 6.6.2 herein). The certificate of compliance submitted to DSCC-VA prior to listing as an approved source of supply for this drawing shall affirm that the manufacturer's product meets, for device classes Q and V, the requirements of MIL-PRF-38535 and herein or for device class M, the requirements of MIL-PRF-38535, appendix A and herein.

3.7 Certificate of conformance. A certificate of conformance as required for device classes Q and V in MIL-PRF-38535 or for device class M in MIL-PRF-38535, appendix A 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 DSCC-VA 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, DSCC, DSCC'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-PRF-38535, appendix A).

Case outline	X	
Device types	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	NC	NC
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.

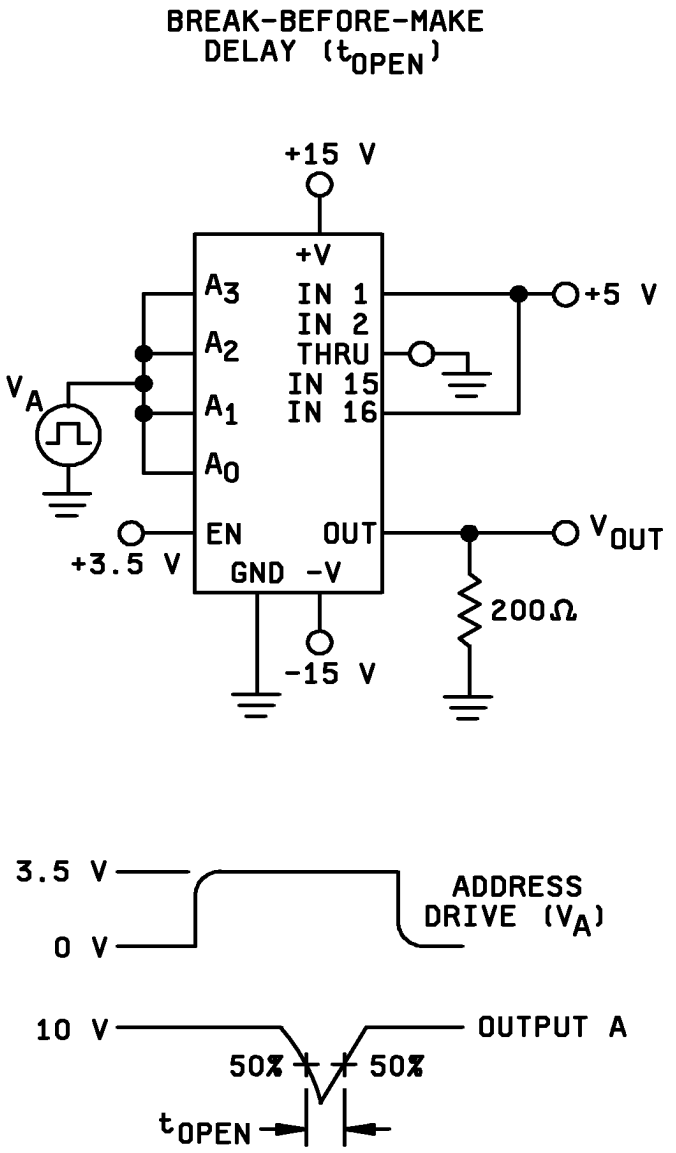
Device type 01

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

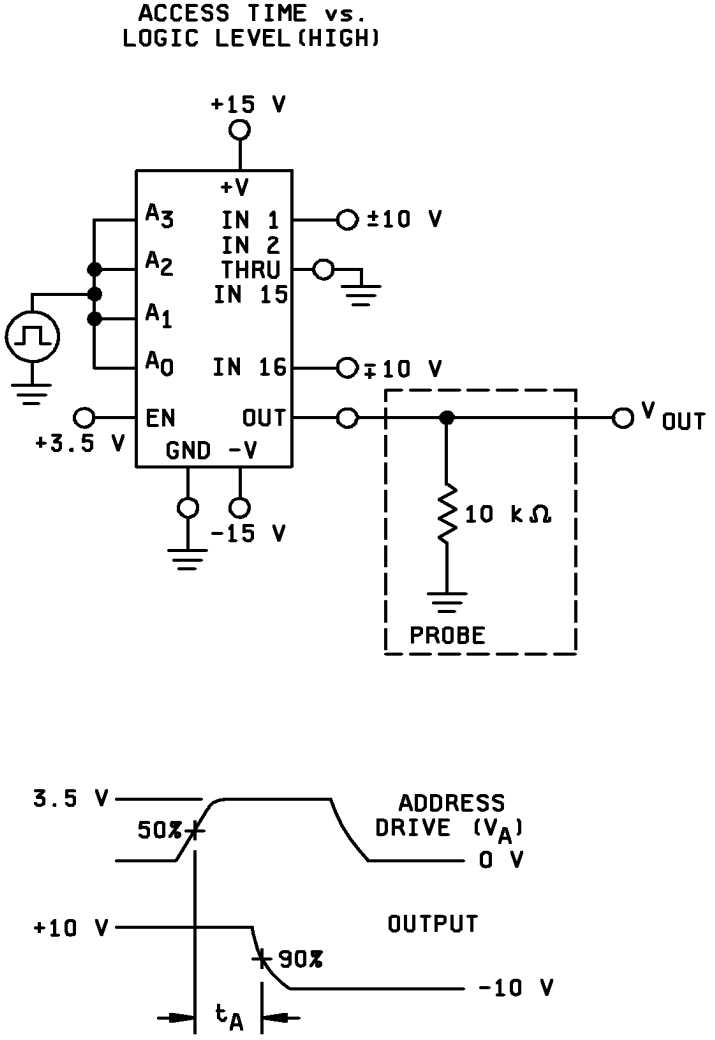
A2	A1	A0	EN	"ON" CHANNEL
X	X	X	L	NONE
L	L	L	H	1
L	L	H	H	2
L	H	L	H	3
L	H	H	H	4
H	L	L	H	5
H	L	H	H	6
H	H	L	H	7
H	H	H	H	8

FIGURE 2. Truth table.



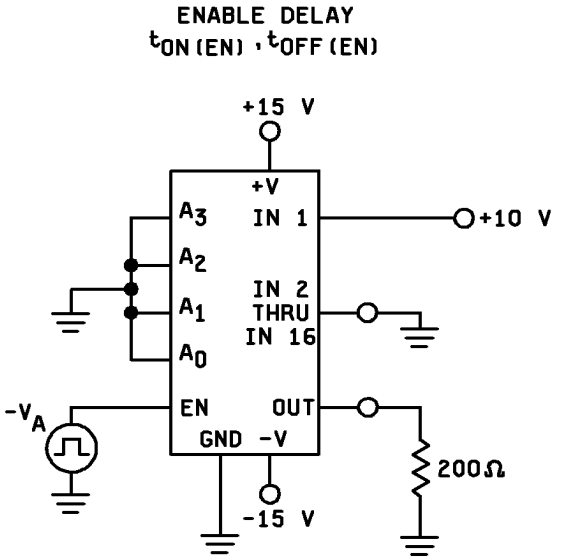
NOTE: This diagram is for device type 01. Use similar applicable connections for device type 02.

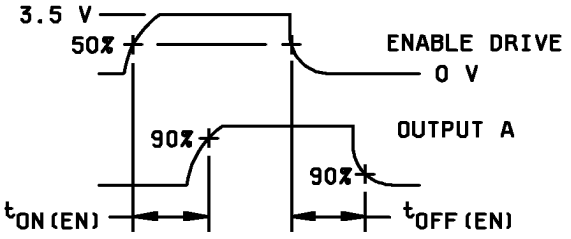
FIGURE 3. Timing diagrams.



NOTE: This diagram is for device type 01. Use similar applicable connections for device type 02.

FIGURE 3. Timing diagrams – Continued.





NOTE: This diagram is for device type 01. Use similar applicable connections for device type 02.

FIGURE 3. Timing diagrams – Continued.

4. QUALITY ASSURANCE PROVISIONS

4.1 Sampling and inspection. For device classes Q and V, 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 affect the form, fit, or function as described herein. For device class M, sampling and inspection procedures shall be in accordance with MIL-PRF-38535, appendix A.

4.2 Screening. For device classes Q and V, screening shall be in accordance with MIL-PRF-38535, and shall be conducted on all devices prior to qualification and technology conformance inspection. 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.

4.2.1 Additional criteria for device class M.

a. Burn-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°C, minimum.

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

4.2.2 Additional criteria for device classes Q and V.

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 revision level control of 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 IIA herein.

c. Additional screening for device class V beyond the requirements of device class Q shall be as specified in MIL-PRF-38535, appendix B 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-PRF-38535. Inspections to be performed shall be those specified in MIL-PRF-38535 and herein for groups A, B, C, D, and E inspections (see 4.4.1 through 4.4.4).

4.4 Conformance inspection. Technology conformance inspection for classes Q and V shall be in accordance with MIL-PRF-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-PRF-38535 permits alternate in-line control testing. Quality conformance inspection for device class M shall be in accordance with MIL-PRF-38535, appendix A 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).

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. For device classes Q and V, subgroup 7 shall include verifying the functionality of the device.

c. Subgroups 5, 6, and 8 in table I, method 5005 of MIL-STD-883 shall be omitted.

d. Subgroup 4 (C_A, C_{OS}, and C_{IS} measurements) should be measured only for initial qualification and after any process or design changes which may affect input or output capacitance.

TABLE IIA. Electrical test requirements.

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

1/ PDA applies to subgroup 1. For class V to subgroups 1, 9, 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.

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

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	$I_{D(ON)}$	±10 nA
Switch on resistance	R_{DS}	±50 Ω
Positive supply current	I+	±300 µA
Negative supply current	I-	±100 µA
Positive standby supply current	$+I_{SBY}$	±300 µA
Negative standby supply current	$-I_{SBY}$	±100 µA
Input leakage current	I_{IL}, I_{IH}	±100 nA

TABLE III. Irradiation test connections. (T_A = +25°C ±5°C, $+V_{SUPPLY}$ = +15 V, $-V_{SUPPLY}$ = -15 V)

Test	Open	Ground	V_{SUPPLY}	+1 V	+5 V
Radiation exposure	3	2,12,18, 1/ 28	1,27 2/	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 each have a series resistor (R_S) = 10 kΩ ±5 %, to Ground.
2/ Pin 1 to $+V_S$ and pin 27 to $-V_S$.

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 of MIL-STD-883.

b. T_A = +125°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-PRF-38535. The test circuit shall be maintained under document revision level control by the device manufacturer's 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.

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-PRF-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, condition A 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°C ±5°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 1.5). 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 1.5).

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 testing for class Q and V devices shall be performed as specified by a TRB approved radiation hardness assurance plan and MIL-PRF-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.

5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-PRF-38535 for device classes Q and V or MIL-PRF-38535, appendix A for device class M.

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 should inform Defense Supply Center Columbus when a system application requires configuration control and which SMD's are applicable to that system. DSCC 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 DSCC-VA, telephone (614) 692-0525.

6.4 Comments. Comments on this drawing should be directed to DSCC-VA , Columbus, Ohio 43216-5000, or telephone (614) 692-0674.

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

6.6 Sources of supply.

6.6.1 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 DSCC-VA and have agreed to this drawing.

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

STANDARD MICROCIRCUIT DRAWING BULLETIN

DATE: 99-08-04

Approved sources of supply for SMD 5962-95691 are listed below for immediate acquisition information only and shall be added to MIL-HDBK-103 and QML-38535 during the next revision. MIL-HDBK-103 and QML-38535 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 DSCC-VA. This bulletin is superseded by the next dated revision of MIL-HDBK-103 and QML-38535.

Standard microcircuit drawing PIN 1/	Vendor CAGE number	Vendor similar PIN 2/
5962D9569101VXA	34371	HS1-506RH-8
5962D9569101VXC	34371	HS1B-506RH-8
5962D9569102VXA	34371	HS1-507RH-8
5962D9569102VXC	34371	HS1B-507RH-8

1/ The lead finish shown for each PIN representing a hermetic package is the most readily available from the manufacturer listed for that part. If the desired lead finish is not listed, contact the vendor to determine its availability.

2/ 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	Vendor name and address
34371	Harris Semiconductor P.O. Box 883 Melbourne, FL 32902-0883