

REVISIONS

LTR	DESCRIPTION	DATE (YR-MO-DA)	APPROVED
A	Update drawing to current requirements. Editorial changes throughout. – drw	06-01-25	Raymond Monnin
B	Corrections to Sheet 4, table I test conditions for I _{OH} , V _{OL} , and I _L . Sheet 8, figure 3, output switching waveform. Update drawing to current requirements. – drw	11-05-25	Charles F. Saffle

THE ORIGINAL FIRST SHEET OF THIS DRAWING HAS BEEN REPLACED.

REV																				
SHEET																				
REV																				
SHEET																				

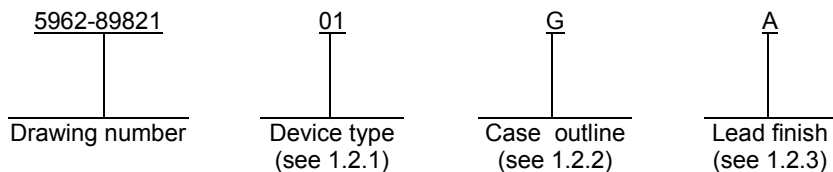
REV STATUS	REV	B	B	B	B	B	B	B	B	B	B	B				
OF SHEETS	SHEET	1	2	3	4	5	6	7	8	9	10					

PMIC N/A	PREPARED BY Rick C. Officer	<p align="center">DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990 http://www.dsccl.dla.mil</p>													
<p align="center">STANDARD MICROCIRCUIT DRAWING</p> <p>THIS DRAWING IS AVAILABLE FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE</p> <p align="center">AMSC N/A</p>	CHECKED BY Charles E. Besore														
	APPROVED BY Michael A. Frye	<p align="center">MICROCIRCUIT, LINEAR, DUAL PERIPHERAL DRIVER, MONOLITHIC SILICON</p>													
	DRAWING APPROVAL DATE 90-01-11														
	REVISION LEVEL B	<table border="1"> <tr> <td>SIZE A</td> <td>CAGE CODE 67268</td> <td>5962-89821</td> </tr> <tr> <td colspan="2">SHEET</td> <td>1 OF 10</td> </tr> </table>	SIZE A	CAGE CODE 67268	5962-89821	SHEET		1 OF 10							
SIZE A	CAGE CODE 67268	5962-89821													
SHEET		1 OF 10													

1. SCOPE

1.1 Scope. This drawing describes device requirements for MIL-STD-883 compliant, non-JAN class level B microcircuits in accordance with MIL-PRF-38535, appendix A.

1.2 Part or Identifying Number (PIN). The complete PIN is as shown in the following example:



1.2.1 Device type. The device type identifies the circuit function as follows:

<u>Device type</u>	<u>Generic number</u>	<u>Circuit function</u>
01	DS1634	Dual NOR peripheral driver, CMOS compatible, open collector

1.2.2 Case outlines. The case outlines are as designated in MIL-STD-1835 as follows:

<u>Outline letter</u>	<u>Descriptive designator</u>	<u>Terminals</u>	<u>Package style</u>
G	MACY1-X8	8	Can
P	GDIP1-T8 or CDIP2-T8	8	Dual-in-line

1.2.3 Lead finish. The lead finish is as specified in MIL-PRF-38535, appendix A.

1.3 Absolute maximum ratings.

Supply voltage (V_{CC}).....	16 V dc
Input voltage range (V_{IN}).....	-0.3 V dc to $V_{CC} + 0.3$ V dc
Output voltage	56 V dc
Storage temperature range.....	-65°C to +150°C
Maximum power dissipation: <u>1/</u>	
Case G.....	787 mW
Case P	1133 mW
Lead temperature (soldering, 10 seconds)	+260°C
Thermal resistance, junction-to-case (θ_{JC}).....	See MIL-STD-1835
Junction temperature (T_J)	+175°C

1.4 Recommended operating conditions.

Ambient operating temperature range (T_A)	-55°C to +125°C
Operating supply voltage range (V_{CC}).....	4.5 V dc to 15 V dc

1/ For case P, derate 7.6 mW/°C above +25°C; for case G, derate 5.2 mW/°C above +25°C.

STANDARD MICROCIRCUIT DRAWING DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE A	5962-89821
	REVISION LEVEL B	SHEET 2

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 cited in the solicitation or contract.

DEPARTMENT OF DEFENSE SPECIFICATION

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

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-883 - Test Method Standard Microcircuits.
 MIL-STD-1835 - Interface Standard Electronic Component Case Outlines.

DEPARTMENT OF DEFENSE HANDBOOKS

MIL-HDBK-103 - List of Standard Microcircuit Drawings.
 MIL-HDBK-780 - Standard Microcircuit Drawings.

(Copies of these documents are available online at <https://assist.daps.dla.mil/quicksearch/> or 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 shall be in accordance with MIL-PRF-38535, appendix A for non-JAN class level B devices and as specified herein. Product built to this drawing that is produced by a Qualified Manufacturer Listing (QML) certified and qualified manufacturer or a manufacturer who has been granted transitional certification to MIL-PRF-38535 may be processed as QML product in accordance with the manufacturers approved program plan and qualifying activity approval in accordance with MIL-PRF-38535. This QML flow as documented in the Quality Management (QM) plan may make modifications to the requirements herein. These modifications shall not affect form, fit, or function of the device. These modifications shall not affect the PIN as described herein. A "Q" or "QML" certification mark in accordance with MIL-PRF-38535 is required to identify when the QML flow option is used.

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

3.2.1 Case outlines. The case outlines shall be in accordance with 1.2.2 herein.

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

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

3.2.4 Test circuits and switching waveforms. The test circuits and switching waveforms shall be as specified on figure 3.

3.3 Electrical performance characteristics. Unless otherwise specified herein, the electrical performance characteristics 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 II. The electrical tests for each subgroup are described in table I.

STANDARD MICROCIRCUIT DRAWING DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE A		5962-89821
		REVISION LEVEL B	SHEET 3

TABLE I. Electrical performance characteristics. 1/

Test	Symbol	Conditions -55°C ≤ T _A ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
High level input voltage	V _{IH}	V _{CC} = 5 V, see figure 3	1, 2, 3	01	3.5		V
		V _{CC} = 10 V, see figure 3			8.0		
		V _{CC} = 15 V, see figure 3			12.5		
Low level input voltage	V _{IL}	V _{CC} = 5 V, see figure 3	1, 2, 3	01		1.5	V
		V _{CC} = 10 V, see figure 3				2.0	
		V _{CC} = 15 V, see figure 3				2.5	
High level output current	I _{OH}	V _{IN} = 2.5 V (all inputs), V _{CC} = 15 V, V _{OUT} = 54 V, see figure 3	1, 2, 3	01		250	μA
Low level output voltage	V _{OL}	V _{IN} = 3.5 V (all inputs), V _{CC} = 4.5 V, I _{OL} = 100 mA, see figure 3	1, 2, 3	01		1.1	V
		V _{IN} = 3.5 V (all inputs), V _{CC} = 4.5 V, I _{OL} = 300 mA, see figure 3				1.4	
High level input current	I _{IH}	V _{IN} = 15 V, V _{CC} = 15 V, other input of driver = 0.0 V, see figure 3	1, 2, 3	01		10	μA
Low level input current	I _{IL}	V _{IN} = 0.4 V, V _{CC} = 15 V, other input of driver = 0 V, see figure 3	1, 2, 3	01		-360	μA
		V _{IN} = 0.4 V, V _{CC} = 5 V, other input of driver = 0 V, see figure 3				-115.5	
High level breakdown voltage	V _{OH}	V _{CC} = 15 V, I _{OH} = 250 μA, see figure 3	1, 2, 3	01	56		V
Functional tests		See 4.3.1c	7, 8	01			

See footnotes at end of table.

**STANDARD
MICROCIRCUIT DRAWING**
DLA LAND AND MARITIME
COLUMBUS, OHIO 43218-3990

SIZE
A

5962-89821

REVISION LEVEL
B

SHEET
4

TABLE I. Electrical performance characteristics - continued. 1/

Test	Symbol	Conditions -55°C ≤ T _A ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Power supply current	I _{CCL}	V _{IN} = 5 V (all inputs), V _{CC} = 5 V, see figure 3	1, 2, 3	01		12	mA
		V _{IN} = 15 V (all inputs), V _{CC} = 15 V, see figure 3				23	
		V _{IN} = 5 V (all inputs), V _{CC} = 5 V, see figure 3				5	
		V _{IN} = 0 V (all inputs), V _{CC} = 5 V, see figure 3				18	
Propagation delay time	t _{PHL}	V _{CC} = 5 V, C _L = 15 pF, V _L = 10 V, R _L = 50Ω or equivalent, see figure 3	9	01	0.01	2.0	μs
			10, 11		0.01	2.0	
	t _{PLH}		9		0.001	0.75	
	10, 11		0.001		0.75		

1/ Power dissipation must be externally controlled at elevated temperatures (+25°C and +125°C).

3.5 Marking. Marking shall be in accordance with MIL-PRF-38535, appendix A. The part shall be marked with the PIN listed in 1.2 herein. In addition, the manufacturer's PIN may also be marked. 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.

3.5.1 Certification/compliance mark. A compliance indicator "C" shall be marked on all non-JAN devices built in compliance to MIL-PRF-38535, appendix A. The compliance indicator "C" shall be replaced with a "Q" or "QML" certification mark in accordance with MIL-PRF-38535 to identify when the QML flow option is used.

3.6 Certificate of compliance. 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 herein). The certificate of compliance submitted to DLA Land and Maritime -VA prior to listing as an approved source of supply shall affirm that the manufacturer's product meets the requirements of MIL-PRF-38535, appendix A and the requirements herein.

3.7 Certificate of conformance. A certificate of conformance as required in MIL-PRF-38535, appendix A shall be provided with each lot of microcircuits delivered to this drawing.

3.8 Notification of change. Notification of change to DLA Land and Maritime -VA shall be required for any change that affects this drawing.

3.9 Verification and review. DLA Land and Maritime, DLA Land and Maritime'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.

**STANDARD
MICROCIRCUIT DRAWING**
DLA LAND AND MARITIME
COLUMBUS, OHIO 43218-3990

SIZE
A

5962-89821

REVISION LEVEL
B

SHEET
5

Device type	01
Case outlines	G and P
Terminal number	Terminal symbols
1	A1
2	B1
3	X1
4	GND
5	X2
6	A2
7	B2
8	V _{CC}

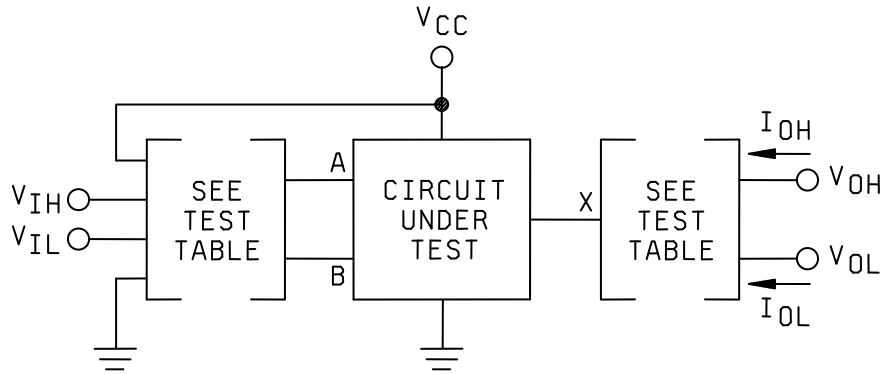
FIGURE 1. Terminal connections.

Inputs		Output
A	B	X
L	L	H
L	H	L
H	L	L
H	H	L

H = High
L = Low

FIGURE 2. Truth table.

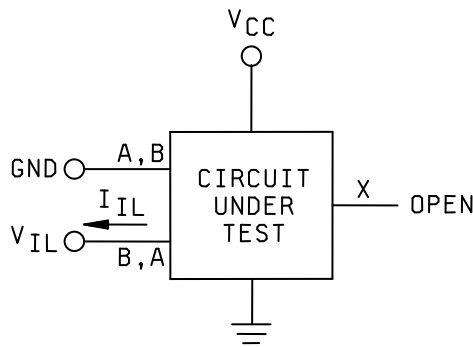
STANDARD MICROCIRCUIT DRAWING DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE A		5962-89821
		REVISION LEVEL B	SHEET 6



Test table

Input under test	Other input	Output	
		Apply	Measure
V_{IH}	GND	I_{OL}	V_{OL}
V_{IL}	V_{IL}	I_{OH}	V_{OH}

V_{IH}, V_{IL} , test



I_{IL} test

FIGURE 3. Test circuits and switching waveforms.

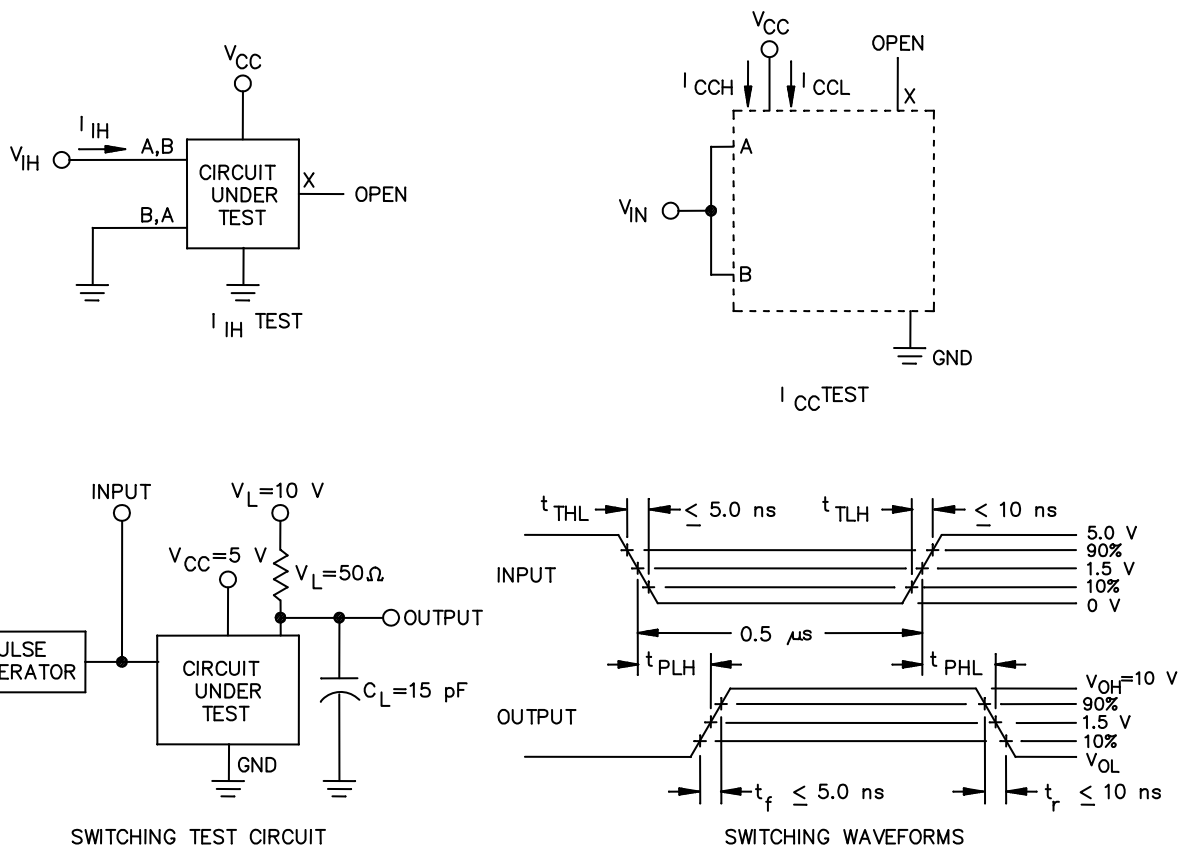
**STANDARD
MICROCIRCUIT DRAWING**
DLA LAND AND MARITIME
COLUMBUS, OHIO 43218-3990

SIZE
A

5962-89821

REVISION LEVEL
B

SHEET
7



NOTES:

1. The pulse generator has the following characteristics:
 PRR = 500 KHz, $Z_{OUT} = 50\Omega$.
2. C_L includes probe and jig capacitance.
3. I_{IH} and I_{IL} test, each input is tested separately.
4. I_{CC} test, both gates are tested simultaneously.

FIGURE 3. Test circuits and switching waveforms - continued.

STANDARD MICROCIRCUIT DRAWING DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE A		5962-89821
		REVISION LEVEL B	SHEET 8

4. VERIFICATION

4.1 Sampling and inspection. Sampling and inspection procedures shall be in accordance with MIL-PRF-38535, appendix A.

4.2 Screening. Screening shall be in accordance with method 5004 of MIL-STD-883, and shall be conducted on all devices prior to quality conformance inspection. The following additional criteria shall apply:

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 method 1015 of MIL-STD-883.

(2) T_A = +125°C, minimum.

b. Interim and final electrical test parameters shall be as specified in table II herein, except interim electrical parameter tests prior to burn-in are optional at the discretion of the manufacturer.

TABLE II. Electrical test requirements.

MIL-STD-883 test requirements	Subgroups (in accordance with MIL-STD-883, method 5005, table I)
Interim electrical parameters (method 5004)	1
Final electrical test parameters (method 5004)	1*, 2, 3, 9
Group A test requirements (method 5005)	1, 2, 3, 7, 8, 9, 10, 11
Groups C and D end-point electrical parameters (method 5005)	1, 2, 3

* PDA applies to subgroup 1.

4.3 Quality conformance inspection. Quality conformance inspection shall be in accordance with method 5005 of MIL-STD-883 including groups A, B, C, and D inspections. The following additional criteria shall apply.

4.3.1 Group A inspection.

- a. Tests shall be as specified in table II herein.
- b. Subgroups 4, 5, and 6 in table I, method 5005 of MIL-STD-883 shall be omitted.
- c. Subgroups 7 and 8 shall include verification of the truth table.

STANDARD MICROCIRCUIT DRAWING DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE A		5962-89821
		REVISION LEVEL B	SHEET 9

4.3.2 Groups C and D inspections.

- a. End-point electrical parameters shall be as specified in table II herein.
- b. Steady-state life test conditions, method 1005 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 method 1005 of MIL-STD-883.
 - (2) $T_A = +125^{\circ}\text{C}$, minimum.
 - (3) Test duration: 1,000 hours, except as permitted by method 1005 of MIL-STD-883.

5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-PRF-38535, appendix A.

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.

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

6.3 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 using DD Form 1692, Engineering Change Proposal.

6.4 Record of users. Military and industrial users shall inform DLA Land and Maritime when a system application requires configuration control and the applicable SMD to that system. DLA Land and Maritime 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 microelectronics devices (FSC 5962) should contact DLA Land and Maritime -VA, telephone (614) 692-0544.

6.5 Comments. Comments on this drawing should be directed to DLA Land and Maritime -VA, Columbus, Ohio 43218-3990, or telephone (614) 692-0540.

6.6 Approved sources of supply. Approved sources of supply 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 DLA Land and Maritime -VA.

STANDARD MICROCIRCUIT DRAWING DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE A		5962-89821
		REVISION LEVEL B	SHEET 10

STANDARD MICROCIRCUIT DRAWING BULLETIN

DATE: 11-05-25

Approved sources of supply for SMD 5962-89821 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 DLA Land and Maritime -VA. This information bulletin is superseded by the next dated revision of MIL-HDBK-103 and QML-38535. DLA Land and Maritime maintains an online database of all current sources of supply at <http://www.dscc.dla.mil/Programs/Smcr/>.

Standard microcircuit drawing PIN <u>1/</u>	Vendor CAGE number	Vendor similar PIN <u>2/</u>
5962-8982101GA	0C7V7	QP1634/BGA
	3V146	DS1634H/883
5962-8982101PA	0C7V7	QP1634/BPA
	3V146	DS1634J-8/883

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

0C7V7

E2V Aerospace and Defense, Inc.
dba QP Semiconductor, Inc.
2945 Oakmead Village Court
Santa Clara, CA 95051

3V146

Rochester Electronics Inc.
16 Malcolm Hoyt Drive
Newburyport, MA 01950

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