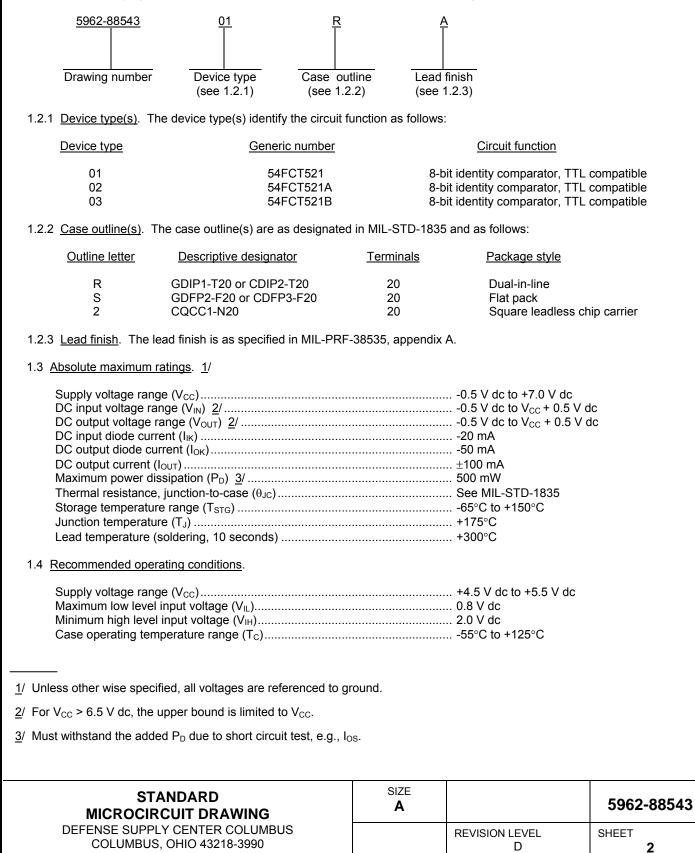
								F	REVISI	ONS										
LTR	DESCRIPTION							DA	TE (YI	R-MO-	DA)	APPROVED)						
А	Added device type 02. Added CAGE 75569. Added case out figure 2. Made technical change to table I. Added test circuit				utline S iit to figi	. Char ure 3.	nge	89-05-03 M.			M. A	. Frye								
В	Adde	ed devic Ighout.											90-05-10 M. A.			. Frye				
С	Upda	ate the l	boilerpl anges t	late to hrough	current 10ut. – j	require ak	ements	as spe	cified i	n MIL-F	PRF-38	535.		06-0)7-12		٦	Thomas M. Hess		ess
D	Editorial changes throughout. – jak Add footnote <u>4</u> / to I _{CC} in table I. – jak									10-0	01-06		-	Thomas	s M. He	ess				
REV SHEET REV SHEET REV STATUS				REV			D	D	D	D	D	D	D	D						
OF SHEETS				SHE	EET		1	2	3	4	5	6	7	8	9	10	11			
PMIC N/A STANDARD MICROCIRCUIT DRAWING THIS DRAWING IS AVAILABLE FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE AMSC N/A				PREPARED BY Marcia B. Kelleher CHECKED BY Thomas J. Ricciuti				DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990 http://www.dscc.dla.mil												
			Ē	APPROVED BY Michael A. Frye DRAWING APPROVAL DATE 88-08-23				MICROCIRCUIT, DIGITAL, FAST CMOS, 8-BIT IDENTITY COMPARATOR, TTL COMPATIBLE, MONOLITHIC SILICON												
				REV	ISION I		D			SIZE CAGE CODE 59				962-88543						
			1		L	-							-				62-88543			
										SHE										

DSCC FORM 2233 APR 97

1.	SCOPE
----	-------

1.1 <u>Scope</u>. 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:



DSCC FORM 2234 APR 97

APR 97 Downloaded from <u>Elcodis.com</u> electronic components distributor

2. APPLICABLE DOCUMENTS

2.1 <u>Government specification, standards, and handbooks</u>. 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 <u>Order of precedence</u>. 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 <u>Item requirements</u>. 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 <u>Design, construction, and physical dimensions</u>. The design, construction, and physical dimensions shall be as specified in MIL-PRF-38535, appendix A and herein.

3.2.1 <u>Case outlines</u>. The case outlines shall be in accordance with 1.2.2 herein.

3.2.2 <u>Terminal connections</u>. The terminal connections shall be as specified on figure 1.

3.2.3 <u>Truth table</u>. The truth table shall be as specified on figure 2.

3.2.4 Logic diagram. The logic diagram shall be as specified on figure 3.

3.2.5 Switching waveforms and test circuit. The switching waveforms and test circuit shall be as specified on figure 4.

3.3 <u>Electrical performance characteristics</u>. Unless otherwise specified herein, the electrical performance characteristics are as specified in table I and shall apply over the full case operating temperature range.

3.4 <u>Electrical test requirements</u>. 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 DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990	SIZE A		5962-88543
		REVISION LEVEL D	SHEET 3
DSCC FORM 2234			

APR 97 Downloaded from Elcodis.com electronic components distributor

3.5 <u>Marking</u>. 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 <u>Certification/compliance mark</u>. 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 <u>Certificate of compliance</u>. 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 DSCC-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 <u>Certificate of conformance</u>. 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 DSCC-VA shall be required for any change that affects this drawing.

3.9 <u>Verification and review</u>. 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.

STANDARD MICROCIRCUIT DRAWING	SIZE A		5962-88543
DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990		REVISION LEVEL D	SHEET 4
DSCC FORM 2234			

Test	Symbol	$\label{eq:Conditions} Conditions \\ -55^\circ C \leq T_C \leq +125^\circ C \\ V_{CC} = 5.0 \ V \ dc \ \pm10\% \\ unless \ otherwise \ specified$	Device type	V _{CC}	Group A subgroups	Lir	Unit	
						Min	Max	
High level output voltage	V _{OH}	V _{IL} = 0.8 V V _{IH} = 2.0 V I _{OH} = -300 μA	All	4.5 V	1, 2, 3	4.3		V
		V _{IL} = 0.8 V V _{IH} = 2.0 V I _{OH} = -12 mA	All	4.5 V		2.4		
Low level output voltage	V _{OL}	V _{IL} = 0.8 V V _{IH} = 2.0 V I _{OL} = 300 μA	All	4.5 V	1, 2, 3		0.2	V
		V _{IL} = 0.8 V V _{IH} = 2.0 V I _{OL} = 32 mA	All	4.5 V			0.5	
Input clamp voltage	Vıĸ	I _{IN} = -18 mA	All	4.5 V	1		-1.2	V
High level input current	IIH	V _{IN} = 5.5 V	All	5.5 V	1, 2, 3		5.0	μA
Low level input current	IIL	V _{IN} = GND	All	5.5 V	1, 2, 3		-5.0	μA
Short circuit output current	I _{OS}	V _{OUT} = 0.0 V <u>1</u> /	All	5.5 V	1, 2, 3	-60		mA
Quiescent power supply current (CMOS inputs)	I _{CCQ}	$V_{IN} \le 0.2 \text{ V or } V_{IN} \ge 5.3 \text{ V}$ $f_i = 0 \text{ MHz}$	All	5.5 V	1, 2, 3		1.5	mA
Quiescent power supply current (TTL inputs)	∆I _{CC} <u>2</u> /	V _{IN} = 3.4 V	All	5.5 V	1, 2, 3		2.0	mA
Dynamic power supply current	I _{CCD} <u>3/ 4</u> /	$V_{IN} \le 0.2 \text{ V or } V_{IN} \ge 5.3 \text{ V}$ Outputs open One bit toggling 50% duty cycle	All	5.5 V	<u>3</u> /		0.25	mA/ MHz
Total power supply current	I _{CC} <u>4/</u> <u>5</u> /	$V_{IN} \le 0.2 \text{ V or } V_{IN} \ge 5.3 \text{ V}$ Outputs open One bit toggling 50% duty cycle f_{CP} = 10 MHz	All	5.5 V	1, 2, 3		4.0	mA
		V_{IN} = 3.4 V or V_{IN} = GND Outputs open One bit toggling 50% duty cycle f_{CP} = 10 MHz	All	5.5 V	1, 2, 3		5.0	mA
Input capacitance	CIN	See 4.3.1c	All		4		10	pF
Output capacitance Functional tests	C _{OUT}	See 4.3.1c See 4.3.1d	All		4 7, 8		12	pF

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990

SIZE A		5962-88543
	REVISION LEVEL D	SHEET 5

	TABL	E I. Electrical performa	nce charact	eristics	- Continu	ued			
		Conditions			1	1			i
Test	Symbol	$-55^{\circ}C \le T_{C} \le +12$ V _{CC} = 5.0 V dc ± unless otherwise sp	:10%	Device type	V _{CC}	Group A subgroups	Lin	nits	Unit
							Min	Max	
Propagation delay time, An, Bn to O (A = B)	t _{PLH1} ,	C _L = 50 pF R _L = 500Ω		01	5.0 V	9, 10, 11	1.5	15	ns
All, bit to $O(A - b)$	t _{РНL1} <u>6</u> /	See figure 4		02	_		1.5	9.5	-
				03			1.5	7.3	
Propagation delay time, I (A = B) to \overline{O} (A = B)	t _{PLH2} , t _{PHL2}	C _L = 50 pF R _L = 500Ω		01	5.0 V	9, 10, 11	1.5	9.0	ns
	<u>6</u> /	See figure 4		02			1.5 1.5	7.8 6.0	-
 1/ Not more than one output s second. 2/ TTL driven input (V_{IN} = 3.4 V) 3/ This parameter is not direct 4/ For I_{CC} tests, in an ATE envinto account, as its effect is appropriate offsetfactors m 5/ I_{CC} = I_{CCQ} + (ΔI_{CC} x D_H x N_T), D_H = Duty cycle for TTL input f_I = Input frequency in MH N_I = Number of inputs at f_I 6/ Minimum limits shall be guad 	V); all othe vironment, not intend ust be app + (I _{CCD} x 1 puts high. s at D _H . z.	er inputs at V_{CC} or GND. but is derived for use in the effect of parasitic ou ed to be included in the lied to the test result." $f_i \ge N_i$, where:	total power utput capaci test results.	r supply tive load The im	calculati	ons. the test envi	ronmen	t must b	
STAN	NDARD UIT DRA	AWING	SIZE A					5962-	88543
DEFENSE SUPPLY COLUMBUS, (DSCC FORM 2234	CENTER	COLUMBUS			REVISIO	N LEVEL D	SI	HEET	6

—

Device types	01, 02, and 03
Case outlines	R, S, and 2
Terminal number	Terminal symbol
1	T (A = B)
2	A0
3	B0
4	A1
5	B1
6	A2
7	B2
8	A3
9	B3
10	GND
11	A4
12	B4
13	A5
14	B5
15	A6
16	B6
17	A7
18	B7
19	0 (A = B)
20	Vcc

Terminal symbol	Description
A0 – A7	Word A inputs
B0 – B7	Word B inputs
$\overline{I}(A = B)$	Enable input (active low)
Ō (A = B)	Identity output (active low)

FIGURE 1. Terminal connections.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990	SIZE A		5962-88543
		REVISION LEVEL D	SHEET 7

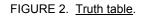
DSCC FORM 2234 APR 97 Downloaded from <u>Eleodis.com</u> electronic components distributor

Device types 01, 02, and 03							
Inputs		Output					
Data	Enable	<u></u> O (A = B)					
А, В	$\overline{I}(A = B)$						
A = B*	L	L					
A ≠ B	L	Н					
A = B*	Н	Н					
A ≠ B	Н	Н					

L = Low voltage level

H = High voltage level

* = A0 = B0, A1 = B1, A2 = B2, etc.



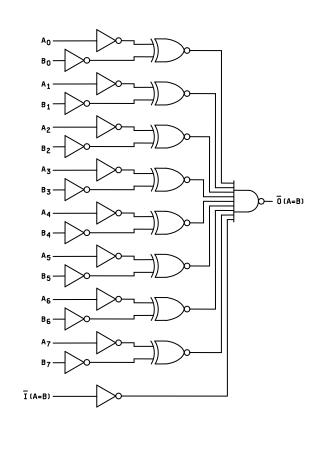
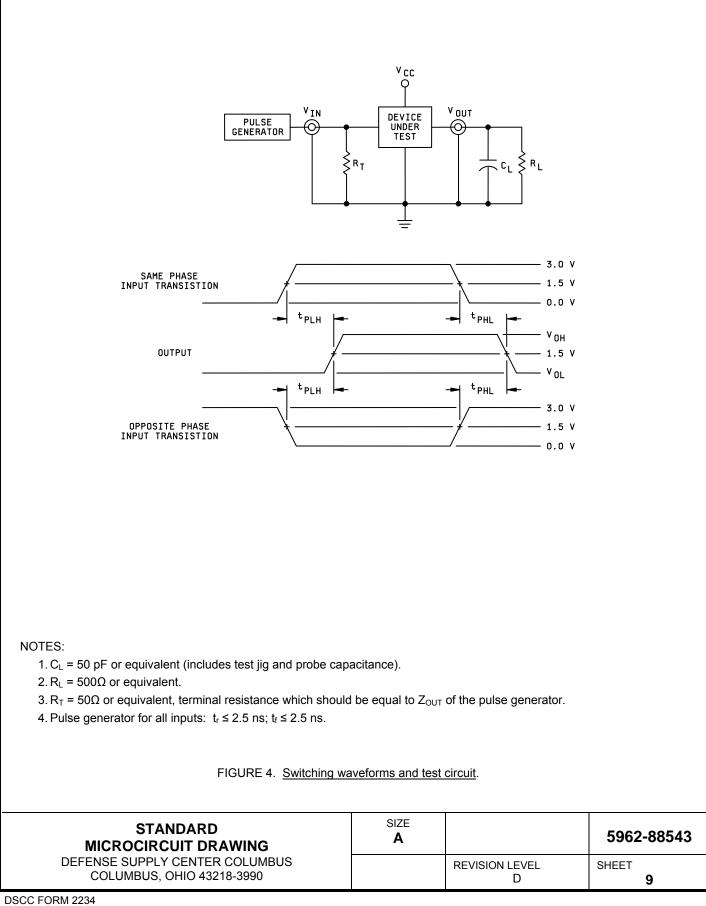


FIGURE 3. Logic diagram.

STANDARD MICROCIRCUIT DRAWING	SIZE A		5962-88543
DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990		REVISION LEVEL D	SHEET 8
DSCC FORM 2234			

APR 97 Downloaded from <u>Elcodis.com</u> electronic components distributor



4. VERIFICATION

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

4.2 <u>Screening</u>. 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) $T_A = +125^{\circ}C$, 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.

MIL-STD-883 test requirements	Subgroups
	(in accordance with
	MIL-STD-883, method 5005, table I)
Interim electrical parameters (method 5004)	
Final electrical test parameters (method 5004)	1*, 2, 3, 7, 8, 9, 10, 11
Group A test requirements (method 5005)	1, 2, 3, 4, 7, 8, 9, 10, 11
Groups C and D end-point electrical parameters (method 5005)	1, 2, 3

TABLE II. Electrical test requirements.

* PDA applies to subgroup 1.

4.3 <u>Quality conformance inspection</u>. 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 5 and 6 in table I, method 5005 of MIL-STD-883 shall be omitted.
- c. Subgroup 4 (C_{IN} and C_{OUT} measurements) shall be measured only for the initial test and after process or design changes which may affect input capacitance. Test all applicable pins on 5 devices with zero failures.
- d. Subgroup 7 and 8 tests shall include verification of the truth table as specified on figure 2.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990	SIZE A		5962-88543
		REVISION LEVEL D	SHEET 10
DSCC FORM 2234			

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) $T_A = +125^{\circ}C$, 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 <u>Intended use</u>. Microcircuits conforming to this drawing are intended for use for Government microcircuit applications (original equipment), design applications, and logistics purposes.

6.2 <u>Replaceability</u>. Microcircuits covered by this drawing will replace the same generic device covered by a contractorprepared specification or drawing.

6.3 <u>Configuration control of SMD's</u>. 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 <u>Record of users</u>. Military and industrial users should inform Defense Supply Center Columbus (DSCC) when a system application requires configuration control and the applicable SMD. 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 microelectronics devices (FSC 5962) should contact DSCC-VA, telephone (614) 692-0544.

6.5 <u>Comments</u>. Comments on this drawing should be directed to DSCC-VA, Columbus, Ohio 43218-3990, or telephone (614) 692-0547.

6.6 <u>Approved sources of supply</u>. 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 DSCC-VA.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43218-3990	SIZE A		5962-88543
		REVISION LEVEL D	SHEET 11
DSCC FORM 2234			

APR 97 Downloaded from Elcodis.com electronic components distributor

STANDARD MICROCIRCUIT DRAWING BULLETIN

DATE: 10-01-06

Approved sources of supply for SMD 5962-88543 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 information bulletin is superseded by the next dated revision of MIL-HDBK-103 and QML-38535. DSCC maintains an online database of all current sources of supply at http://www.dscc.dla.mil/Programs/Smcr/.

Standard	Vendor	Vendor
microcircuit drawing	CAGE	similar
PIN <u>1</u> /	number	PIN <u>2</u> /
5962-88543012A	0C7V7	54FCT521LMQB
		IDT54FCT521LB
5962-8854301RA	0C7V7	54FCT521DMQB
		IDT54FCT521DB
5962-8854301SA	0C7V7	54FCT521FMQB
		IDT54FCT521EB
5962-88543022A	0C7V7	IDT54FCT521ALB
5962-8854302RA	0C7V7	IDT54FCT521ADB
5962-8854302SA	0C7V7	IDT54FCT521AEB
5962-88543032A	0C7V7	IDT54FCT521BLB
5962-8854303RA	0C7V7	IDT54FCT521BDB
5962-8854303SA	0C7V7	IDT54FCT521BEB

- <u>1</u>/ 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 <u>number</u> Vendor name and address

0C7V7

QP Semiconductor 2945 Oakmead Village Court Santa Clara, CA 95051

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