

**REVISIONS**

LTR	DESCRIPTION	DATE (YR-MO-DA)	APPROVED
A	Page 2, 1.3: Change $\theta_{JA}$ . Page 6, 4.2a(2) and 4.3.2b(2): Change $T_A$ to $T_C$ for burn-in and life test. Pages 7 and 8, table I: Add end-point electricals for $V_{TH}$ . Add footnote 2/.	86-10-30	W. Heckman
B	Made technical changes to table I. Updated drawing format with editorial changes. Added device types 02 through 07. Added cases Y,Z, U, and T. Changed to reflect MIL-H-38534 processing. Device type 01 inactive for new design. Added current CAGE code 67268 to sheet 1.	90-02-09	W. Heckman
C	Add device type 08. Made technical changes to table I. Change dimensions for case outline Y. Change dimensions for case outline U. Editorial changes throughout.	94-01-14	K. Cottongim
D	Changes in accordance with NOR 5962-R170-95.	95-07-12	Kendall A. Cottongim
E	Update drawing boilerplate to most current format.	02-02-25	Raymond Monnin
F	Rewrite paragraphs 4.2.a.2. and 4.3.3.b.2 to add $T_C$ .	04-12-02	Raymond Monnin
G	Table I, Total current, $I_{CC1-SB}$ , $I_{CC1-25}$ , $I_{CC1-50}$ , $I_{CC1-100}$ for device type 06; change the maximum limit from 30 mA to 60 mA. (4 places) - gZ	07-05-10	Robert M. Heber
H	Added device type 09. Updated boilerplate paragraphs. -sld	10-01-15	Charles F. Saffle
J	Updated drawing paragraphs. -sld	11-09-01	Charles F. Saffle
K	Figure 2; Corrected terminal symbols for pins 15 and 16 from "RX Data out and RX Data out" to "RX Data in and RX Data in". -sld	13-01-30	Charles F. Saffle

THE ORIGINAL FIRST SHEET OF THIS DRAWING HAS BEEN REPLACED

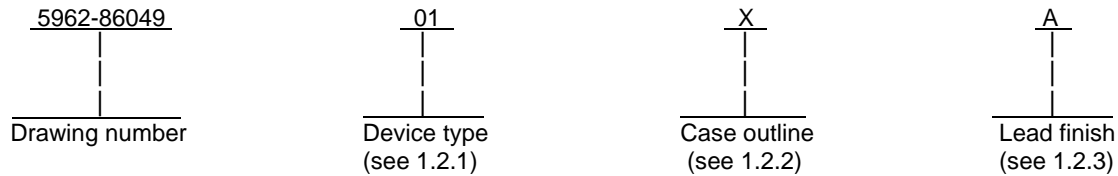
**CURRENT CAGE CODE 67268**

REV																				
SHEET																				
REV	K	K	K	K	K	K	K													
SHEET	15	16	17	18	19	20	21													
REV STATUS OF SHEETS	REV			K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	
	SHEET			1	2	3	4	5	6	7	8	9	10	11	12	13	14			
PMIC N/A	PREPARED BY Donald R. Osborne							<p align="center"><b>DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990</b> <a href="http://www.landandmaritime.dla.mil/">http://www.landandmaritime.dla.mil/</a></p>												
<b>STANDARD MICROCIRCUIT DRAWING</b>	CHECKED BY D. A. DiCenzo																			
THIS DRAWING IS AVAILABLE FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE	APPROVED BY N. A. Hauck							<p align="center"><b>MICROCIRCUIT, HYBRID, DIGITAL, SINGLE CHANNEL, DRIVER-RECEIVER</b></p>												
	DRAWING APPROVAL DATE 86-07-30																			
	AMSC N/A	REVISION LEVEL <b>K</b>																		
SHEET 1 OF 21																				

1. SCOPE

1.1 Scope. This drawing describes device requirements for class H hybrid microcircuits to be processed in accordance with MIL-PRF-38534 and a choice of case outlines and lead finishes are available and are reflected in the Part or Identifying Number (PIN).

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



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

<u>Device type</u>	<u>Generic number</u>	<u>Circuit function</u>
01	BUS-63105	Single channel driver-receiver
02	BUS-63105II, BUS-63106II	Low power, single channel driver-receiver
03 <u>1/</u>	ARX2402	Single channel driver-receiver
04 <u>1/</u>	ARX3402	Low power, single channel driver-receiver
05	CT-1487M, BUS-8553, BUS-63100	Single channel driver-receiver
06	NHI-1509	Single channel driver-receiver
07	FC155361	Single channel driver-receiver
08	FC155362	Single channel driver-receiver
09	ACT4402	Low power, single channel driver-receiver

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

<u>Outline letter</u>	<u>Descriptive designator</u>	<u>Terminals</u>	<u>Package style</u>
T	See figure 1	24	Flat package
U	See figure 1	24	Dual-in-line package
X	See figure 1	24	Dual-in-line package
Y	See figure 1	24	Dual-in-line package
Z	See figure 1	24	Dual-in-line package

1.2.3 Lead finish. The lead finish shall be as specified in MIL-PRF-38534.

1/ The device types 03 and 04 are no longer available. Device type 09 may be evaluated as a possible substitute.

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1.3 Absolute maximum ratings. <sup>1/</sup>

Supply voltage range:

V <sub>CC</sub> (device types 01, 03, 04, 05, 06, 07, 08, and 09) .....	-0.3 V dc to +18 V dc
V <sub>EE</sub> (device types 01, 02, 03, 04, 05, 07, 08, and 09) .....	+0.3 V dc to -18 V dc
V <sub>CC1</sub> .....	-0.3 V dc to +7 V dc

Logic input voltage range .....	-0.3 V dc to V <sub>CC1</sub>
Receiver differential voltage .....	40 Vp-p
Receiver common mode voltage range .....	-10 V dc to +10 V dc
Driver peak output current .....	200 mA

Power dissipation (P<sub>D</sub>) at +125°C:

Device types 01, 05, 07, and 08 .....	4 W
Device types 02 and 09 .....	2.5 W
Device type 03 .....	2.2 W
Device type 04 .....	1.6 W
Device type 06 .....	0.585 W

Storage temperature range..... -65°C to +150°C

Lead temperature (soldering, 10 seconds) ..... +300°C

Junction temperature (T<sub>J</sub>) ..... +160°C

Thermal resistance, junction-to-case (θ<sub>JC</sub>):

Device types 01, 06, 07, and 08 .....	8.8°C/W
Device types 02 and 09 .....	7.0°C/W
Device type 03 .....	47.2°C/W
Device type 04 .....	88°C/W
Device type 05 .....	60°C/W

Thermal resistance, junction to ambient (θ<sub>JA</sub>):

Device types 01, 06, 07, 08, and 09 .....	38.8°C/W
Device type 02 .....	37.0°C/W
Device type 03 .....	77.2°C/W
Device type 04 .....	110°C/W
Device type 05 .....	80°C/W

1.4 Recommended operating conditions.

Supply voltage range:

V <sub>CC</sub> (device types 01, 03, 04, 05, 06, 07, 08, and 09) .....	+14.25 V dc to +15.75 V dc
V <sub>EE</sub> (device types 01, 02, 03, 04, 05, 07, 08, and 09) .....	-14.25 V dc to -15.75 V dc
V <sub>CC1</sub> .....	+4.5 V dc to +5.5 V dc

Logic input voltage range .....	0 V dc to +5.0 V dc
Receiver differential voltage .....	30 Vp-p
Receiver common mode voltage range .....	-5.0 V dc to +5.0 V dc

Driver peak output current:

Device types 01, 03, 04, 05, 06, 07, and 08 .....	180 mA
Device type 02 .....	160 mA

Serial data rate .....

Junction temperature (T<sub>J</sub>) ..... +150°C maximum

Case operating temperature range (T<sub>C</sub>) ..... -55°C to +125°C

<sup>1/</sup> 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.

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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-38534 - Hybrid Microcircuits, General Specification for.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-883 - Test Method Standard Microcircuits.  
MIL-STD-1835 - Interface Standard for 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.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 performance requirements for device class H shall be in accordance with MIL-PRF-38534. Compliance with MIL-PRF-38534 may include the performance of all tests herein or as designated in the device manufacturer's Quality Management (QM) plan or as designated for the applicable device class. The manufacturer may eliminate, modify or optimize the tests and inspections herein, however the performance requirements as defined in MIL-PRF-38534 shall be met for the applicable device class. In addition, the modification in the QM plan shall not affect the form, fit, or function of the device for the applicable device class.

3.2 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-PRF-38534 and herein.

3.2.1 Case outline(s). The case outline(s) shall be in accordance with 1.2.2 herein and figure 1.

3.2.2 Terminal connections. The terminal connections shall be as specified on figure 2.

3.2.3 Waveforms. The 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 specified operating temperature range.

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

3.5 Marking of device(s). Marking of device(s) shall be in accordance with MIL-PRF-38534. The device shall be marked with the PIN listed in 1.2 herein. In addition, the manufacturer's vendor similar PIN may also be marked.

3.6 Data. In addition to the general performance requirements of MIL-PRF-38534, the manufacturer of the device described herein shall maintain the electrical test data (variables format) from the initial quality conformance inspection group A lot sample, for each device type listed herein. Also, the data should include a summary of all parameters manually tested, and for those which, if any, are guaranteed. This data shall be maintained under document revision level control by the manufacturer and be made available to the preparing activity (DLA Land and Maritime -VA) upon request.

3.7 Certificate of compliance. A certificate of compliance shall be required from a manufacturer in order to supply to this drawing. The certificate of compliance (original copy) submitted to DLA Land and Maritime -VA shall affirm that the manufacturer's product meets the performance requirements of MIL-PRF-38534 and herein.

3.8 Certificate of conformance. A certificate of conformance as required in MIL-PRF-38534 shall be provided with each lot of microcircuits delivered to this drawing.

4. VERIFICATION

4.1 Sampling and inspection. Sampling and inspection procedures shall be in accordance with MIL-PRF-38534 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.

4.2 Screening. Screening shall be in accordance with MIL-PRF-38534. 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 either DLA Land and Maritime -VA or the acquiring activity upon request. Also, 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<sub>A</sub> or T<sub>C</sub> as specified in accordance with table I of method 1015 of MIL-STD-883.
- 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.

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TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ T <sub>C</sub> ≤ +125°C unless otherwise specified	Group A subgroups	Device types	Limits		Unit
					Min	Max	
Receiver							
Input level	V <sub>I</sub>	Differential input, pin 15 to pin 16 <u>2/</u>	4,5,6	All	40		Vp-p
Input common mode voltage range	V <sub>ICM</sub>	Independent of xfmr or in accordance with MIL-HDBK-1553 <u>2/</u>	4,5,6	All	-5	+5	V(pk)
Output low voltage	V <sub>OL</sub>	I <sub>OL</sub> = 16 mA	1,2,3	01,02		0.5	V
		I <sub>OL</sub> = 4 mA		03,04,05, 06,07,08, 09		0.5	
Output high voltage	V <sub>OH</sub>	I <sub>OH</sub> = -0.4 mA	1,2,3	01,03,04, 05,06,07, 08,09	2.5		V
				02	2.4		
Transmitter							
Input voltage low	V <sub>IL</sub>	<u>3/</u>	1,2,3	All		0.7	V
Input voltage high	V <sub>IH</sub>	<u>3/</u>	1,2,3	All	2		V
Input current low	I <sub>IL</sub>	V <sub>IL</sub> = 0.4 V	1,2,3	01,03,05, 07,08	-1.6		mA
				02	-0.72	0.04	
				04,06,09	-0.4		
Input current high	I <sub>IH</sub>	V <sub>IH</sub> = 2.7 V	1,2,3	01,03,04, 05,06,07, 08,09		0.04	mA
				02	-0.72	0.04	
Output voltage	V <sub>O</sub>	Across 35Ω load	1,2,3	All	6	9	Vp-p
Output noise voltage	V <sub>ON</sub>	Across 35Ω load	4,5,6	All		10	mVp-p
See footnotes at end of table.							
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TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ T <sub>C</sub> ≤ +125°C unless otherwise specified	Group A subgroups	Device types	Limits		Unit
					Min	Max	
Receiver strobe							
Input voltage low	V <sub>SIL</sub>	<u>3/</u>	1,2,3	All		0.7	V
Input voltage high	V <sub>SIH</sub>	<u>3/</u> , in accordance with MIL-HDBK-1553 <u>2/</u>	1,2,3	All	2		V
Input current low	I <sub>SIL</sub>	V <sub>IL</sub> = 0.4 V	1,2,3	01,05, 07,08	-1.6		mA
				02	-0.72	0.4	
				03,06	-0.8		
				04,09	-0.4		
Input current high	I <sub>SIH</sub>	V <sub>IH</sub> = 2.7 V	1,2,3	01,03,04, 05,06,07, 08,09		0.04	mA
				02	-0.72	0.04	
Transmitter inhibit							
Input voltage low	V <sub>IIL</sub>	<u>3/</u>	1,2,3	All		0.7	V
Input voltage high	V <sub>IIH</sub>	<u>3/</u>	1,2,3	All	2		V
Input current low	I <sub>IIL</sub>	V <sub>SIL</sub> = 0.4 V	1,2,3	01,03,05, 07,08	-1.6		mA
				02	-0.72	0.04	
				04,06,09	-0.4		
Input current high	I <sub>IIH</sub>	V <sub>SIH</sub> = 2.7 V	1,2,3	01,03,04, 05,06,07, 08,09		0.04	mA
				02	-0.72	0.04	
See footnotes at end of table.							
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TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions <u>1</u> / -55°C ≤ T <sub>C</sub> ≤ +125°C unless otherwise specified	Group A subgroups	Device types	Limits		Unit
					Min	Max	
Power supply							
Total current	I <sub>CC</sub> -SB	(Standby mode)	1,2,3	01,07,08		50	mA
				03		40	
				04,09		1	
				05,06		25	
	I <sub>EE</sub> -SB	(Standby mode)	1,2,3	01,07,08		50	mA
				02		35	
				03		30	
				04,09		16.5	
				05		35	
	I <sub>CC1</sub> -SB	(Standby mode)	1,2,3	01,07,08		35	mA
				02,05		45	
				03		20	
				04,09		30	
				06		60	
	I <sub>CC</sub> -25	(25% duty cycle into 35Ω load)	1,2,3	01,07,08		65	mA
				03		90	
				05,06		75	
				04,09		55	
	I <sub>EE</sub> -25	(25% duty cycle into 35Ω load)	1,2,3	01,07,08		95	mA
				02 <u>2</u> /		80	
				03		30	
				04,09		21	
				05		35	
	I <sub>CC1</sub> -25	(25% duty cycle into 35Ω load)	1,2,3	01,07,08		35	mA
				02 <u>2</u> /		45	
				05		45	
				03		20	
				04,09		30	
06					60		
I <sub>CC</sub> -50	(50% duty cycle into 35Ω load)	1,2,3	01,07,08		140	mA	
			03		140		
			04,09		110		
			05,06		130		
I <sub>EE</sub> -50	(50% duty cycle into 35Ω load)	1,2,3	01,07,08		50	mA	
			02		130		
			03		30		
			04,09		25		
			05		35		

See footnotes at end of table.

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TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ T <sub>C</sub> ≤ +125°C unless otherwise specified	Group A subgroups	Device types	Limits		Unit
					Min	Max	
Power supply - Continued.							
Total current	I <sub>CC1</sub> -50	(50% duty cycle into 35Ω load)	4,5,6	01,07,08		35	mA
				02,05		45	
				03		20	
				04,09		30	
				06		60	
	I <sub>CC</sub> -100	(100% duty cycle into 35Ω load)	1,2,3	01,07,08		240	mA
				03		240	
				04,06,09		220	
				05		235	
	I <sub>EE</sub> -100	(100% duty cycle into 35Ω load)	1,2,3	01,07,08		50	mA
				02 <u>2/</u>		225	
				03,04,09		30	
				05		35	
	I <sub>CC1</sub> -100	(100% duty cycle into 35Ω load)	1,2,3	01,07,08		35	mA
				02 <u>2/</u>		45	
				05		45	
03					20		
04,09					30		
06					60		
Receiver							
Input resistance	R <sub>IN</sub>	1 MHz sine wave <u>2/</u>	4,5,6	All	7		kΩ
Input capacitance	C <sub>IN</sub>	1 MHz sine wave <u>2/</u>	4	All		5	pF
Threshold voltage	V <sub>TH</sub>	<u>4/</u>	1,2,3,	01,02,03, 04,05,06, 09	0.56	1.05	Vp-p
				07,08	0.80	1.2	
		<u>4/</u> Group C end point electricals	1,2,3	01,03,04, 05,06,07, 08,09	0.50	1.1	
				02	0.56	1.0	
See footnotes at end of table.							
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TABLE I. Electrical performance characteristics - Continued.

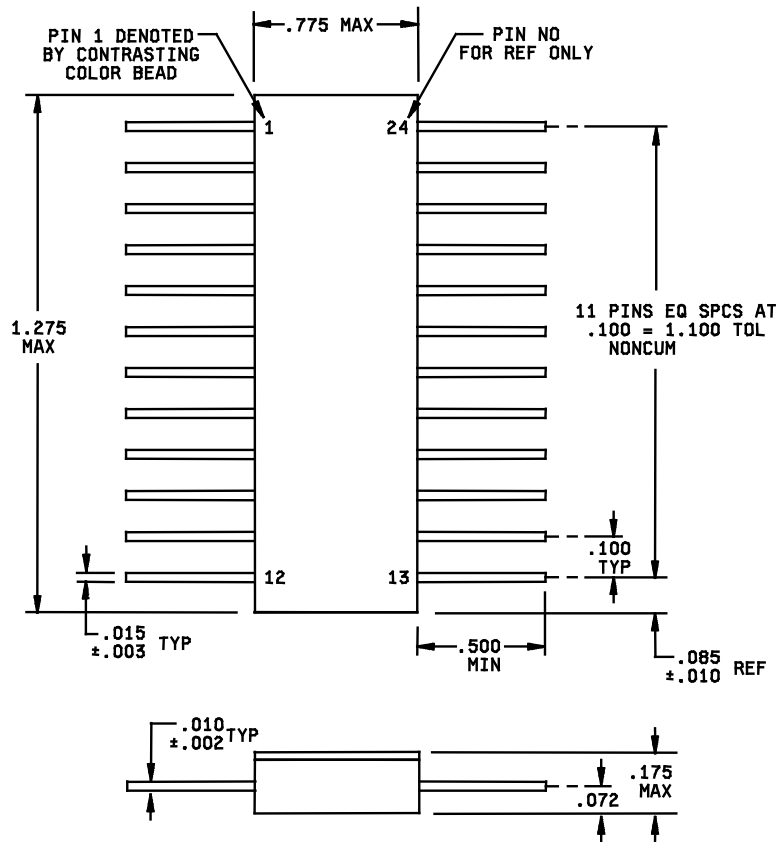
Test	Symbol	Conditions <u>1/</u> -55°C ≤ T <sub>C</sub> ≤ +125°C unless otherwise specified	Group A subgroups	Device types	Limits		Unit
					Min	Max	
<b>Transmitter</b>							
Output resistance (transmitter off)	R <sub>OUT</sub>	1 MHz sine wave <u>2/</u>	4,5,6	All	10		kΩ
Output capacitance (transmitter off)	C <sub>OUT</sub>	1 MHz sine wave <u>2/</u>	4	All		5	pF
Output offset voltage	V <sub>OS</sub>	<u>2/ 5/</u>	4,5,6	All		±90	mV pk
Peak amplitude variation	A <sub>V</sub>	<u>2/ 6/</u>	4,5,6	01,03,04, 05,06,07, 08,09	-15	+15	%
<b>Receiver</b>							
Delay time, input to output	t <sub>DR</sub>	Delay time from differential input zero crossing to DATA or DATA <u>2/</u> (see figure 3)	9,10,11	All		400	ns
Strobe delay	t <sub>DS</sub>	Delay time from strobe rising or falling edge to DATA or DATA <u>2/</u> (see figure 3)	9,10,11	01,02,03, 05,06,07, 08		200	ns
				04,09		250	
<b>Transmitter</b>							
Rise time	t <sub>R</sub>	Output load = 35Ω (see figure 3)	9,10,11	All	100	300	ns
Fall time	t <sub>F</sub>			All	100	300	
Delay time	t <sub>DT</sub>	Output load = 35Ω (see figure 3) <u>2/</u>	9,10,11	01,02,05, 07,08		250	ns
				04,09		350	
				03,06		150	
Inhibit delay inhibiting	t <sub>DI-H</sub>	Output load = 35Ω (see figure 3) <u>2/</u>	9,10,11	01,02,04, 05,07,08, 09		450	ns
				03,06		200	
Inhibit delay active	t <sub>DI-L</sub>	Output load = 35Ω (see figure 3) <u>2/</u>	9,10,11	01,02,04, 05,07,08, 09		250	ns
				03,06		100	
See notes on top of next page.							
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TABLE I. Electrical performance characteristics - Continued.

- 1/  $V_{CC} = +15\text{ V}$ , for device types 01, 03, 04, 05, 06, 07, 08, and 09,  $V_{EE} = -15\text{ V}$  for device types 01, 02, 03, 04, 05, 07, 08, and 09,  $V_{CC1} = +5\text{ V}$ .
- 2/ This parameter is tested initially and after any process or design change which may affect this parameter.
- 3/ These parameters are tested on a go-no-go basis in conjunction with other measured parameters and are not directly testable.
- 4/ Threshold is measured in direct coupled mode including the transformer. Threshold is the maximum level on the BUS at which there are no pulses on either receiver output. Divide by 1.4 to obtain threshold in transformer coupled mode. Add 0.14 V in direct coupled mode or 0.10 V in transformer coupled mode to obtain threshold at which no errors are observed when receiver is used with 15530 CMOS Manchester encoder-decoder.
- 5/ Measured across 35Ω load, 2.5 μs after parity bit mid-bit zero crossing of a 660 microseconds message.
- 6/ Measured across 35Ω load, variation of average peak amplitude.

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Case outline T.  
(Device types 02 and 06)



Inches	mm
.002	0.05
.003	0.08
.010	0.25
.015	0.38
.072	1.83
.085	2.16
.100	2.54
.175	4.45
.500	12.70
.775	19.68
1.100	27.94
1.275	32.39

FIGURE 1. Case outline(s).

**STANDARD  
MICROCIRCUIT DRAWING**  
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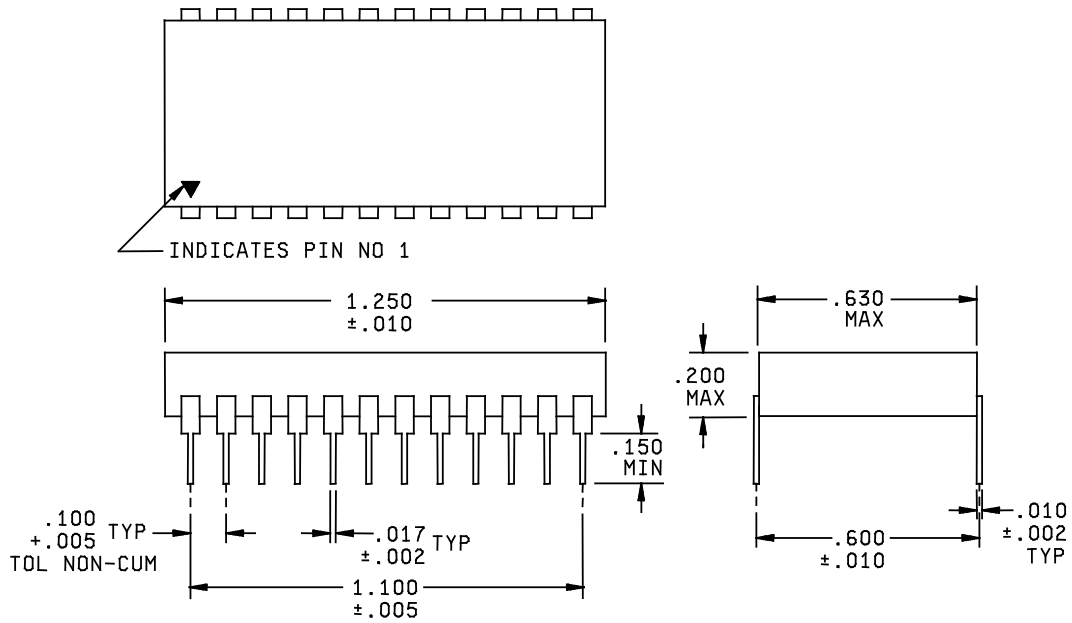
SIZE  
**A**

**5962-86049**

REVISION LEVEL  
**K**

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**12**

Case outline U.  
(Device type 04)

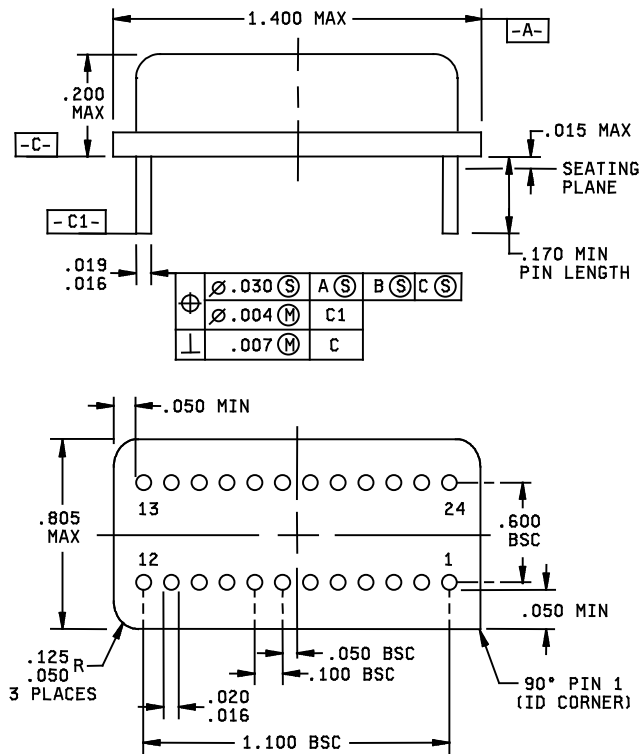


Inches	mm
.002	0.05
.005	0.13
.010	0.25
.017	0.43
.100	2.54
.150	3.81
.200	5.08
.600	15.24
.630	16.00
1.100	27.94
1.250	31.75

FIGURE 1. Case outline(s) - Continued.

<b>STANDARD MICROCIRCUIT DRAWING</b> DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE <b>A</b>		<b>5962-86049</b>
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Case outline X.  
(Device types 01, 05, 07, 08, and 09)



Inches	mm	Inches	mm
.004	0.10	.100	2.54
.007	0.18	.125	3.18
.015	0.38	.170	4.32
.016	0.41	.200	5.08
.019	0.48	.600	15.24
.020	0.50	.805	20.45
.030	0.76	1.100	27.94
.050	1.27	1.400	35.56

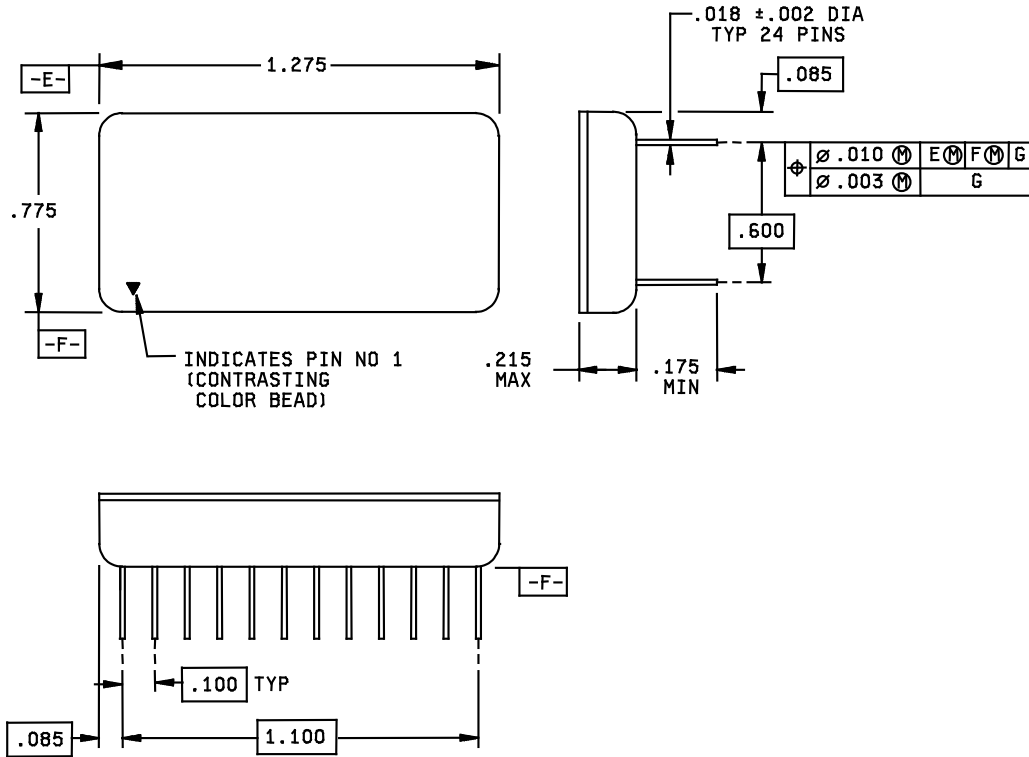
NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Lead identification numbers are for reference only.
4. Lead spacing dimensions apply only at seating plane.
5. The total number of terminals are 24.

FIGURE 1. Case outline(s) - Continued.

<b>STANDARD MICROCIRCUIT DRAWING</b> DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE <b>A</b>		<b>5962-86049</b>
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Case outline Y.  
(Device types 03, 05, and 06)

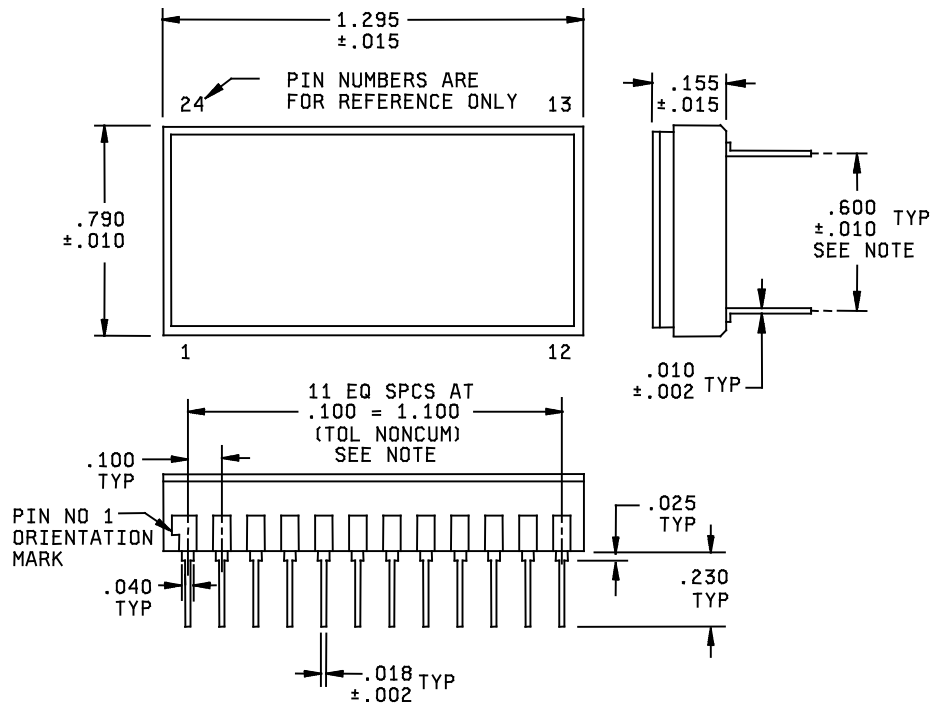


Inches	mm
.002	0.05
.003	0.07
.010	0.25
.018	0.45
.085	2.15
.100	2.54
.175	4.44
.215	5.45
.600	15.24
.775	19.68
1.100	27.94
1.275	32.38

FIGURE 1. Case outline(s) - Continued.

<b>STANDARD MICROCIRCUIT DRAWING</b> DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE <b>A</b>		<b>5962-86049</b>
		REVISION LEVEL <b>K</b>	SHEET <b>15</b>

Case outline Z.  
(Device type 02)



Inches	mm
.002	0.05
.010	0.25
.015	0.38
.018	0.46
.025	0.64
.040	1.02
.100	2.54
.155	3.94
.230	5.84
.600	15.24
.790	20.07
1.100	27.94
1.295	32.89

NOTE: Lead cluster to be centralized within  $\pm 0.010$  of outline dimensions.

FIGURE 1. Case outline(s) - Continued.

<b>STANDARD MICROCIRCUIT DRAWING</b> DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990	SIZE <b>A</b>		<b>5962-86049</b>
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Device types	All		
Case outlines	T, U, X, Y, and Z.		
Terminal number	Terminal symbol	Terminal number	Terminal symbol
1	TX Data Out	13	V <sub>CC</sub> <u>1</u> /
2	TX Data Out	14	No connection
3	Ground <u>1</u> /	15	RX Data In
4	No connection	16	RX Data In
5	No connection	17	No connection
6	No connection	18	Ground <u>1</u> /
7	RX Data Out	19	V <sub>EE</sub> <u>2</u> /
8	Strobe	20	V <sub>CC1</sub>
9	Ground <u>1</u> /	21	TX Inhibit
10	RX Data Out	22	TX Data In
11	No connection	23	TX Data In
12	No connection	24	No connection

1/ GND pins should all be connected externally. Pin 13 is +15 V dc for device types 01, 03, 04, 05, 06, 07, 08, and 09 only, no connection for device type 02.

2/ Pin 19 for device type 06 only, no connection.

FIGURE 2. Terminal connections.

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Device types 01 through 07, and 09.

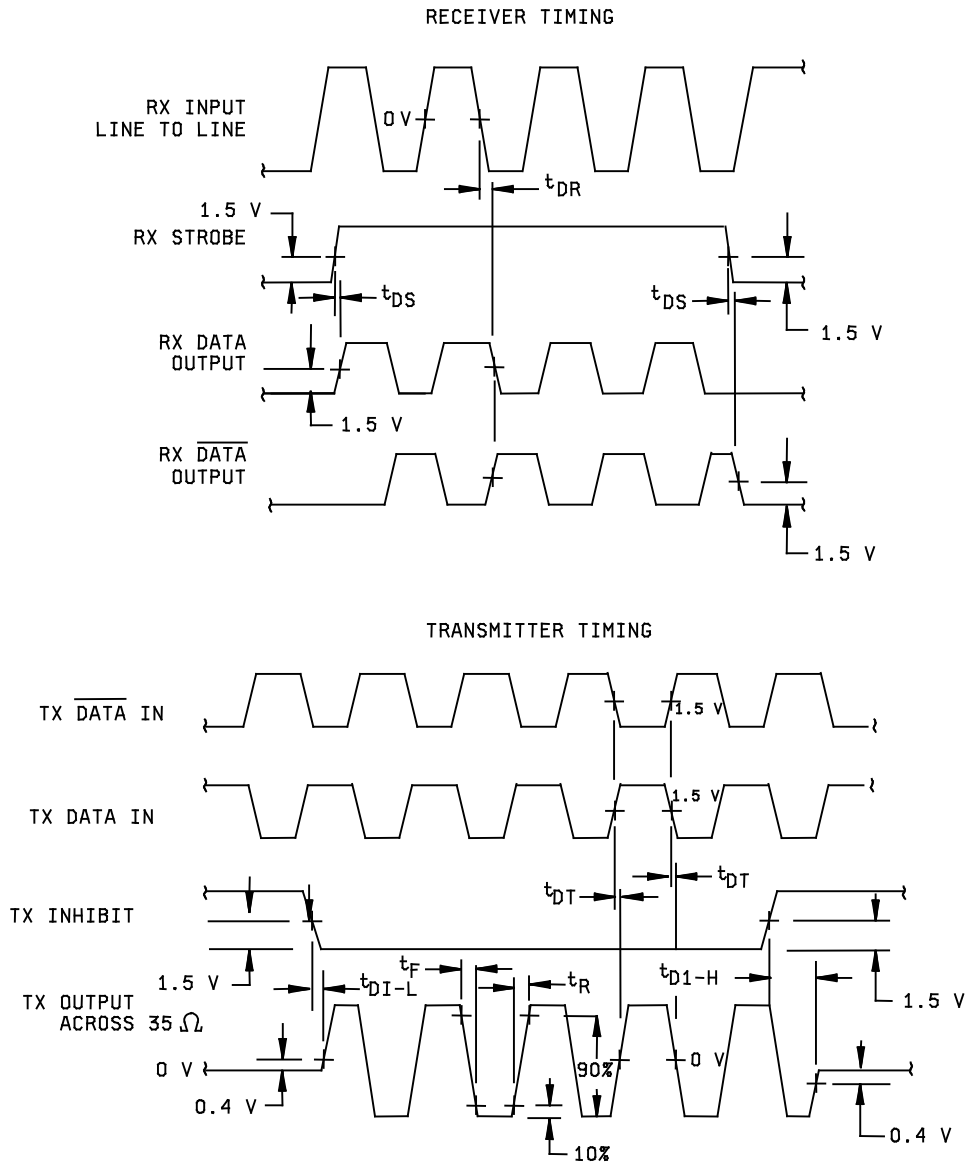


FIGURE 3. Waveforms.

**STANDARD  
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**K**

SHEET  
**18**

Device type 08.

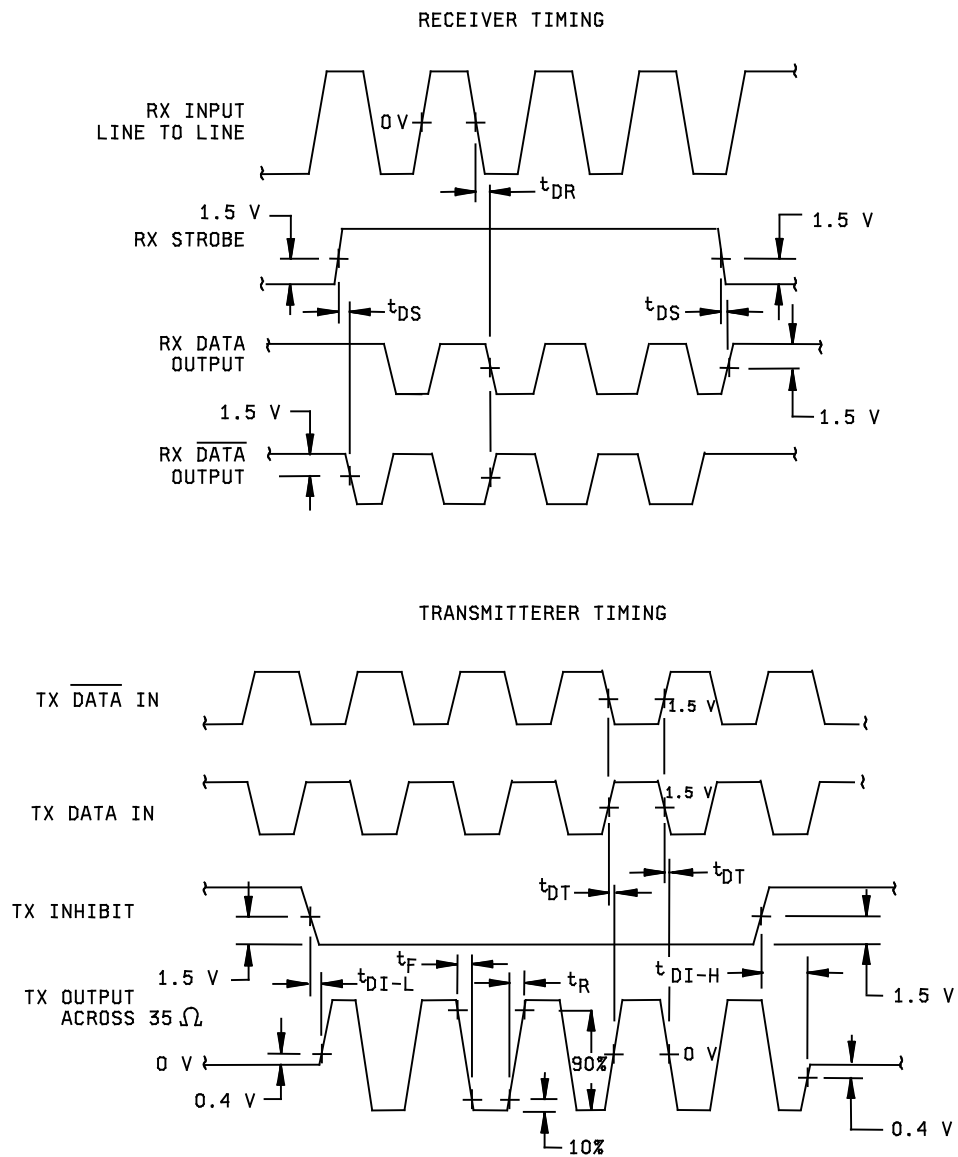


FIGURE 3. Waveforms - Continued.

**STANDARD  
MICROCIRCUIT DRAWING**  
DLA LAND AND MARITIME  
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SIZE  
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**K**

SHEET  
**19**

TABLE II. Electrical test requirements.

MIL-PRF-38534 test requirements	Subgroups (in accordance with MIL-PRF-38534, group A test table)
Interim electrical parameters	---
Final electrical parameters	1*,2,3,4,5,6,9,10,11
Group A test requirements	1,2,3,4,5,6,9,10,11
Group C end-point electrical parameters	1,2,3
End-point electrical parameters for radiation hardness assurance (RHA) devices	Not applicable

\* PDA applies to subgroup 1.

4.3 Conformance and periodic inspections. Conformance inspection (CI) and periodic inspection (PI) shall be in accordance with MIL-PRF-38534 and as specified herein.

4.3.1 Group A inspection (CI). Group A inspection shall be in accordance with MIL-PRF-38534 and as follows:

- a. Tests shall be as specified in table II herein.
- b. Subgroups 7 and 8 shall be omitted.

4.3.2 Group B inspection (PI). Group B inspection shall be in accordance with MIL-PRF-38534.

4.3.3 Group C inspection (PI). Group C inspection shall be in accordance with MIL-PRF-38534 and as follows:

- a. End-point electrical parameters shall be as specified in table II herein.
- b. Steady-state life test, 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 either DLA Land and Maritime -VA or the acquiring activity upon request. Also, 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<sub>A</sub> or T<sub>C</sub> as specified in accordance with table I of method 1005 of MIL-STD-883.
  - (3) Test duration: 1,000 hours, except as permitted by method 1005 of MIL-STD-883.

4.3.4 Group D inspection (PI). Group D inspection shall be in accordance with MIL-PRF-38534.

4.3.5 Radiation Hardness Assurance (RHA) inspection. RHA inspection is not currently applicable to this drawing.

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5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-PRF-38534.

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 as specified in MIL-PRF-38534.

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. 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 microelectronic devices (FSC 5962) should contact DLA Land and Maritime -VA, telephone (614) 692-8108.

6.5 Comments. Comments on this drawing should be directed to DLA Land and Maritime -VA, Columbus, Ohio 43218-3990, or telephone (614) 692-1081.

6.6 Sources of supply. Sources of supply are listed in MIL-HDBK-103 and QML-38534. The vendors listed in MIL-HDBK-103 and QML-38534 have submitted a certificate of compliance (see 3.7 herein) to DLA Land and Maritime -VA and have agreed to this drawing.

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## STANDARD MICROCIRCUIT DRAWING BULLETIN

DATE: 13-01-30

Approved sources of supply for SMD 5962-86049 are listed below for immediate acquisition information only and shall be added to MIL-HDBK-103 and QML-38534 during the next revisions. MIL-HDBK-103 and QML-38534 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 revisions of MIL-HDBK-103 and QML-38534. DLA Land and Maritime maintains an online database of all current sources of supply at <http://www.landandmaritime.dla.mil/Programs/Smcr/>.

Standard microcircuit drawing PIN <u>1</u> /	Vendor CAGE number	Vendor similar PIN <u>2</u> /
5962-8604901XA	<u>3</u> /	BUS-63105
5962-8604902TC 5962-8604902TC 5962-8604902TC	<u>3</u> / <u>3</u> / <u>3</u> /	BUS-63106II-110 BUS-63106II-130 BUS-63106II-601
5962-8604902ZA 5962-8604902ZA 5962-8604902ZA	19645 19645 19645	BUS-63105II-140 BUS-63105II-150 BUS-63105II-634
5962-8604902ZC 5962-8604902ZC 5962-8604902ZC	19645 19645 19645	BUS-63105II-110 BUS-63105II-130 BUS-63105II-633
5962-8604903YA 5962-8604903YC	<u>3</u> / <u>3</u> /	ARX2402 ARX2402
5962-8604904UA 5962-8604904UC	<u>3</u> / <u>3</u> /	ARX3402 ARX3402
5962-8604905XA 5962-8604905XA	<u>3</u> / <u>3</u> /	BUS-8553-140 BUS-8553-150
5962-8604905XC 5962-8604905XC	<u>3</u> / <u>3</u> /	BUS-8553-110 BUS-8553-130
5962-8604905YA	<u>3</u> /	CT1487M
5962-8604905YA 5962-8604905YA	<u>3</u> / <u>3</u> /	BUS-8553-140 BUS-8553-150
5962-8604905YC 5962-8604905YC	<u>3</u> / <u>3</u> /	BUS-8553-110 BUS-8553-130
5962-8604906TA 5962-8604906TC	<u>3</u> / <u>3</u> /	NHI-1509FP NHI-1509FP
5962-8604906YA 5962-8604906YC	<u>3</u> / <u>3</u> /	NHI-1509 NHI-1509
5962-8604907XA 5962-8604907XC	U4388 U4388	FC155361 FC155361
5962-8604908XA 5962-8604908XC	U4388 U4388	FC155362 FC155362
5962-8604909UA 5962-8604909UC	88379 88379	ACT4402-001-2 ACT4402-001-1

See footnotes at end of table.

STANDARD MICROCIRCUIT DRAWING BULLETIN - Continued.

DATE: 13-01-30

- 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.
- 3/ Not available from an approved source.

<u>Vendor CAGE number</u>	<u>Vendor name and address</u>
U4388	RF2M Microelectronics Limited Trading AS API Technologies Corporation DBA C-MAC Microtechnology Fenner Road, South Denes Great Yarmouth NR30 3PX Norfolk Great Britain
19645	Data Device Corporation 105 Wilbur Place Bohemia, NY 11716-2482
57363	National Hybrid Incorporated 2200 Smithtown Avenue Ronkonkoma, NY 11779-7329
88379	Aeroflex Plainview Incorporated, (Aeroflex Microelectronic Solutions) 35 South Service Road Plainview, NY 11803

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