

REVISIONS

LTR	DESCRIPTION	DATE (YR-MO-DA)	APPROVED
A	Changes in accordance with NOR 5962-R004-95.	94-10-13	Kendall A. Cottongim
B	Rewrite paragraphs 4.2.a.2. and 4.3.3.b.2 to add T _C .	04-03-25	Raymond Monnin
C	Added device types 10 and 11 for cage 88379. -sld	08-03-12	Robert M. Heber
D	Update drawing paragraphs -sld	11-11-16	Charles F. Saffle

THE ORIGINAL FIRST SHEET OF THIS DRAWING HAS BEEN REPLACED.

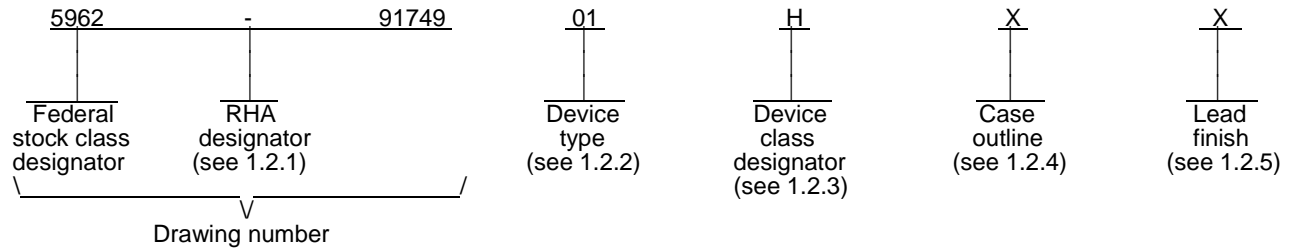
REV																				
SHEET																				
REV	D	D	D	D	D	D	D													
SHEET	15	16	17	18	19	20	21													
REV STATUS OF SHEETS	REV			D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
	SHEET			1	2	3	4	5	6	7	8	9	10	11	12	13	14			

PMIC N/A	PREPARED BY Steve Duncan	<p align="center">DLA LAND AND MARITIME COLUMBUS, OHIO 43218-3990 http://www.landandmaritime.dla.mil</p>																	
<p align="center">STANDARD MICROCIRCUIT DRAWING</p> <p align="center">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 Michael C. Jones																		
	APPROVED BY Greg Lude	<p align="center">MICROCIRCUIT, HYBRID, DIGITAL, LOW POWER, SINGLE CHANNEL, DRIVER-RECEIVER</p>																	
	DRAWING APPROVAL DATE 92-07-16																		
	REVISION LEVEL D	SIZE A	CAGE CODE 67268	5962-91749															
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1. SCOPE

1.1 Scope. This drawing documents five product assurance classes as defined in paragraph 1.2.3 and MIL-PRF-38534. A choice of case outlines and lead finishes which are available and are reflected in the Part or Identifying Number (PIN). When available, a choice of radiation hardness assurance levels are reflected in the PIN.

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



1.2.1 Radiation hardness assurance (RHA) designator. RHA marked devices shall meet the MIL-PRF-38534 specified RHA levels and shall be 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:

<u>Device type</u>	<u>Generic number</u>	<u>Circuit function</u>
01	NHI-1514	Single channel, driver-receiver (MIL-STD-1553 A and B), low power, receiver standby high
02	NHI-1513	Single channel, driver-receiver (universal transceiver), low power, receiver standby high
03	BUS63102II	Single channel, driver-receiver (universal transceiver), low power, receiver standby high
04	BUS63104II	Single channel, driver-receiver (MIL-STD-1553 A and B), low power, receiver standby high
05	3231	Single channel, driver-receiver (MIL-STD-1553 A and B), low power, receiver standby high
06 and 07	3232	Single channel, driver-receiver (universal transceiver), low power, receiver standby high
08 <u>1/</u>	4407	Single channel, driver-receiver (MIL-STD-1553 A and B), low power, receiver standby high
09 <u>1/</u>	4404	Single channel, driver-receiver (universal transceiver), low power, receiver standby high
10	4407N	Single channel, driver-receiver (MIL-STD-1553 A and B), low power, receiver standby high
11	4404N	Single channel, driver-receiver (universal transceiver), low power, receiver standby high

1.2.3 Device class designator. This device class designator shall be a single letter identifying the product assurance level. All levels are defined by the requirements of MIL-PRF-38534 and require QML Certification as well as qualification (Class H, K, and E) or QML Listing (Class G and D). The product assurance levels are as follows:

<u>Device class</u>	<u>Device performance documentation</u>
K	Highest reliability class available. This level is intended for use in space applications.
H	Standard military quality class level. This level is intended for use in applications where non-space high reliability devices are required.
G	Reduced testing version of the standard military quality class. This level uses the Class H screening and In-Process Inspections with a possible limited temperature range, manufacturer specified incoming flow, and the manufacturer guarantees (but may not test) periodic and conformance inspections (Group A, B, C, and D).

1/ Device types 08 and 09 are inactive for new design, use device types 10 and 11 for replacements.

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- E Designates devices which are based upon one of the other classes (K, H, or G) with exception(s) taken to the requirements of that class. These exception(s) must be specified in the device acquisition document; therefore the acquisition document should be reviewed to ensure that the exception(s) taken will not adversely affect system performance.
- D Manufacturer specified quality class. Quality level is defined by the manufacturers internal, QML certified flow. This product may have a limited temperature range.

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

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

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

1.3 Absolute maximum ratings. 2/

Supply voltage range:

V _{CC}	-0.3 V dc to +18 V dc
V _{EE}	+0.3 V dc to -18 V dc
V _{CCL}	-0.3 V dc to +7 V dc
Logic input voltage range	-0.3 V dc to +5.5 V dc
Receiver differential voltage	40 Vp-p
Receiver common mode voltage range.....	-10 V dc to +10 V dc
Driver peak output current.....	±300 mA
Lead temperature (soldering, 10 seconds).....	+300°C
Storage temperature range	-65°C to +150°C
Junction temperature (T _J)	+160°C
Power dissipation (P _D) total hybrid:	
100 percent duty cycle (T _C = +125°C):	
Device types 01, 05, 06, and 08	3.0 W
Device types 02, 07, 09, 10 and 11	3.24 W
Device types 03 and 04	3.28 W
Power dissipation (P _D) hottest die:	
100 percent duty cycle:	
Device types 01, 04, 08, and 09	484 mW
Device types 02 and 03	545 mW
Device types 05, 06, and 07	2.2 W
Device types 10 and 11(single die)	3.25 W
Standby mode:	
Device types 01, 02, 03, 04, 08, and 09	Derates to zero
Device types 05, 06, and 07	750 mW
Device types 10 and 11(single die)	540 mW

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1.3 Absolute maximum ratings - continued. 2/

Thermal resistance:

Junction-to-case (θ_{JC}) hottest die:

Device types 01 and 02	38°C/W
Device types 03, 04, 08, and 09	58°C/W
Device types 05, 06, and 07	6.5°C/W
Device types 10 and 11(single die)	5°C/W

Case to ambient:

Device types 01, 02, 03, 04, 08, 09, 10, and 11	21°C/W
Device types 05, 06, and 07	20°C/W

Thermal resistance, junction-to-case temperature rise for the hottest die at 100 percent duty cycle:

Device type 01.....	19°C/W
Device type 02.....	21°C/W
Device type 03.....	47.9°C/W
Device type 04.....	42.6°C/W
Device types 05, 06, and 07	14.3°C/W
Device type 08.....	28°C/W
Device type 09.....	31.6°C/W
Device types 10 and 11(single die)	16.25°C/W

1.4 Recommended operating conditions.

Supply voltage range:

V_{CC}	+11.4 V dc to +15.75 V dc
V_{EE} :	
Device types 01-05, 07-09, 10, and 11.....	-11.4 V dc to -15.75 V dc
Device type 06.....	-11.75 V dc to -12.75 V dc
V_{CCL}	+4.5 V dc to +5.5 V dc
Logic input voltage range	0 V dc to +5.0 V dc
Receiver differential voltage	40 Vp-p
Receiver common mode voltage range.....	-10 V dc to +10 V dc
Driver peak output current:	
Device types 01, 02, 08, and 09	±180 mA
Device types 03 and 04	±200 mA
Device types 05, 06, 07, 10, and 11	±100 mA
Maximum serial data rate.....	1.0 MHz
Case operating temperature range (T_C)	-55°C to +125°C

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.

2/ Stresses above the absolute maximum ratings may cause permanent damage to the device. Extended operation at the maximum levels may degrade performance and affect reliability.

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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.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 performance requirements for device classes D, E, G, H, and K shall be in accordance with MIL-PRF-38534. Compliance with MIL-PRF-38534 shall 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 Test circuit. The test circuit shall be as specified on figure 3.

3.2.4 Timing waveforms. The timing waveforms shall be as specified on figure 4.

3.2.5 Coupling diagram. The coupling diagram shall be as specified on figure 5.

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.

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.

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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_A 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 _C ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
RECEIVER							
Output low voltage	V _{OL}	I _{OL} = 10 mA	1,2,3	01-07		0.5	V
		I _{OL} = 4 mA		08-11		0.5	
Output high voltage	V _{OH}	I _{OH} = -0.4 mA	1,2,3	All	2.5		V
Differential Input voltage level	V _I		4,5,6	All		40	Vp-p
Differential Input impedance	Z _{IN}	1 MHz sinewave <u>2/</u>	4,5,6	01,02,08, 09,10,11	10		kΩ
				03,04,05, 06,07	4		
Common mode input voltage range	V _{ICRM}	1 MHz sinewave, see figure 3.	4,5,6	All	10		Vp-p
Input capacitance	C _{IN}	1 MHz sine wave <u>2/</u>	4	All		5	pF
Threshold voltage	V _{TH}	<u>3/</u> <u>4/</u> <u>5/</u>	4,5,6	01,02,08, 09,10,11	0.6	1.05	Vp-p
				03,04	0.5	1.2	
				05,06,07	0.4	1.1	
Receiver delay	t _{DR}	Input zero crossing to DATA or DATA, see figure 3 <u>2/</u>	4,5,6	All		450	ns
RECEIVER STROBE							
Input low voltage	V _{SIL}		1,2,3	All		0.7	V
Input high voltage	V _{SIH}		1,2,3	All	2		V
Input low current	I _{SIL}	V _{SIL} = 0.4 V	1,2,3	01,02, 08,09,10, 11	-0.4		mA
				03,04	-0.720		
				05,06,07	-4		
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 _C ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
RECEIVER STROBE - Continued.							
Input high current	I _{SIH}	V _{SIH} = 2.7 V	1,2,3	01,02,03, 04,08,09		80	μA
				05,06,07		400	
				10,11		40	
Strobe delay	t _{DS}	Turn-on or turn-off, see figure 4 <u>2/</u>	9,10,11	01,02,03, 04		200	ns
				05-11		150	
TRANSMITTER							
Input low voltage	V _{IL}		1,2,3	All		0.7	V
Input high voltage	V _{IH}		1,2,3	All	2.0		V
Input low current	I _{IL}	V _{IL} = 0.4 V	1,2,3	01,02,10, 11	-0.4		mA
				03,04,08, 09	-0.720		
				05,06,07	-1.1		
Input high current	I _{IH}	V _{IH} = 2.7 V	1,2,3	01,02,03, 04,08,09, 10,11		40	μA
				05,06,07		100	
Differential output	V _O	35Ω load <u>4/</u>	1,2,3	All	6.0	9.0	Vp-p
		140Ω load <u>2/</u> <u>6/</u>				24	
Differential output noise	V _{ON}	Inhibited, 35Ω load <u>4/</u>	4,5,6	All		10	mV rms
		140Ω load <u>2/</u> <u>6/</u>				40	
Differential output impedance	Z _{OUT}	1 MHz sinewave, (transmitter off) <u>2/</u>	4,5,6	All	10		kΩ

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 _C ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
TRANSMITTER - Continued.							
Output capacitance	C _{OUT}	1 MHz sine wave <u>2/</u>	4	All		5	pF
Differential output offset voltage	V _{OS}	35Ω load	4,5,6	All	-90	+90	mV pk
		140Ω load <u>2/ 6/ 7/</u>			-360	+360	
Receiver filter response	FILTER	f = 2 MHz <u>2/</u>	4,5,6	All	-4.0		dB
		f = 4 MHz <u>2/</u>			-13.0		
Rise time	t _r	35Ω load, see figure 4	9,10,11	01,04,08,10	100	300	ns
				02,03,05,06, 07,09,11	220	300	
Fall time	t _f	35Ω load, see figure 4	9,10,11	01,04,08,10	100	300	ns
				02,03,05,06, 07,09,11	220	300	
Transmitter delay	t _{dt}	Transmitter-in to transmitter- out, see figure 4 <u>2/</u>	9,10,11	All		550	ns
TRANSMITTER INHIBIT							
Input low voltage	V _{IIL}		1,2,3	All		0.7	V
Input high voltage	V _{IIH}		1,2,3	All	2.0		V
Input low current	I _{ILL}	V _{SIL} = 0.4 V	1,2,3	01,02,08,09, 10,11	-0.4		mA
				03,04	-0.720		
				05,06,07	-0.8		
Input high current	I _{IHH}	V _{SIH} = 2.7 V	1,2,3	01,02,03,04, 08,09,10,11		40	μA
				05,06,07		50	
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 _C ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
TRANSMITTER INHIBIT - Continued.							
Transmitter inhibit delay (high)	t _{DI-H}	0-1 inhibited output, see figure 4 <u>2/</u>	9,10,11	01,02,04- 07,08-11		450	ns
				03		700	
Transmitter inhibit delay (low)	t _{DI-L}	1-0 active output, see figure 4 <u>2/</u>	9,10,11	01,02,04- 07,08-11		450	ns
				03		700	
POWER SUPPLY							
+Supply (V _{CC})	I _{CC-SB}	(Standby mode)	1,2,3	01,02,08, 09		50	mA
				03,04		30	
				05,06,07		65	
				10,11		10	
-Supply (V _{EE})	I _{EE-SB}	(Standby mode)	1,2,3	01,02		40	mA
				03-09		65	
				10,11		35	
+5 V supply (V _{CCL})	I _{CC1-SB}	(Standby mode)	1,2,3	01,02,05, 06,07		20	mA
				03,04,08, 09		45	
				10,11		30	
+Supply (V _{CC})	I _{CC-50}	50 percent duty cycle	4,5,6	01,02,08, 09		100	mA
				03,04		114	
				05,06,07		150	
				10,11		60	
See footnotes at end of table.							
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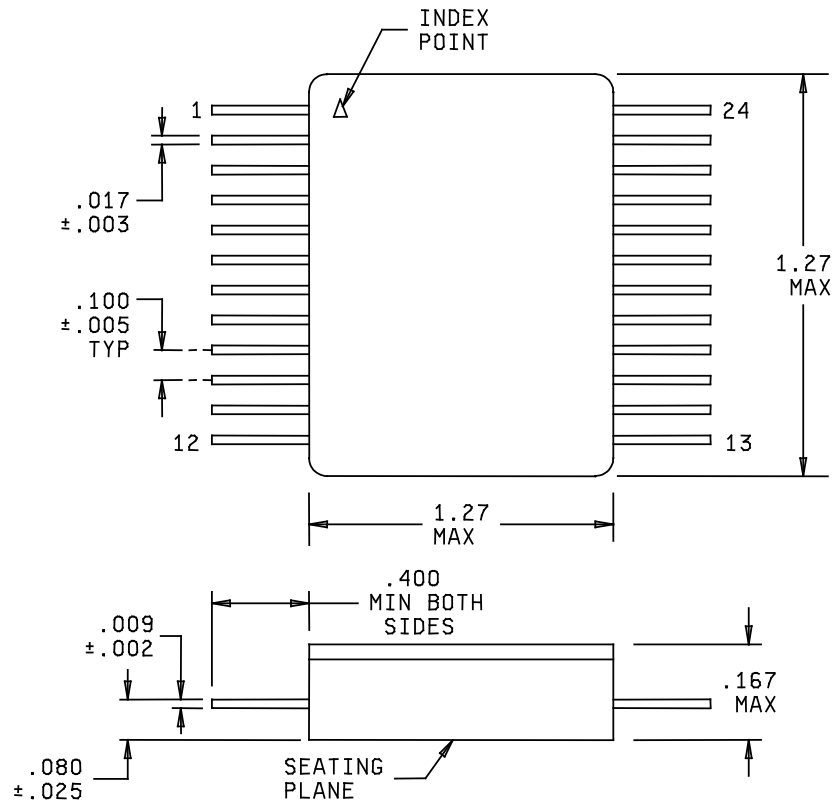
TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ T _C ≤ +125°C unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
POWER SUPPLY - Continued.							
-Supply (V _{EE})	I _{EE-50}	50 percent duty cycle	4,5,6	01,02,08, 09		110	mA
				03,04		135	
				05,06,07		150	
				10,11		80	
+Supply (V _{CC})	I _{CC-100}	100 percent duty cycle	4,5,6	01,02,08, 09		165	mA
				03,04		180	
				05,06,07		250	
				10,11		120	
-Supply (V _{EE})	I _{EE-100}	100 percent duty cycle	4,5,6	01,02,08, 09		165	mA
				03,04		195	
				05,06,07		250	
				10,11		140	

- 1/ Unless otherwise specified, supply voltage ranges are as follows:
(+14.9 V dc ≤ V_{CC} ≤ +15.1 V dc), (-14.9 V dc ≤ V_{EE} ≤ -15.1 V dc), (+4.9 V dc ≤ V_{CCL} ≤ +5.1 V dc).
- 2/ Parameter shall be tested as part of initial characterization and after design and process changes. Parameter shall be guaranteed to the limits specified in table I.
- 3/ Threshold determined by the first missing word of a 33 word transmission to a Harris HD-15530 CMOS Manchester encoder-decoder.
- 4/ Measured at point A A' of figure 5.
- 5/ Assumed the internal threshold option is used.
- 6/ Measured at point B B' of figure 5.
- 7/ Offset is measured 2.5 μs after the mid-bit zero crossing of the last parity bit of a 600 μs transmission cycle of contiguous words (no dead time in between words).

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Case outline T.
(Device types 08 and 09)

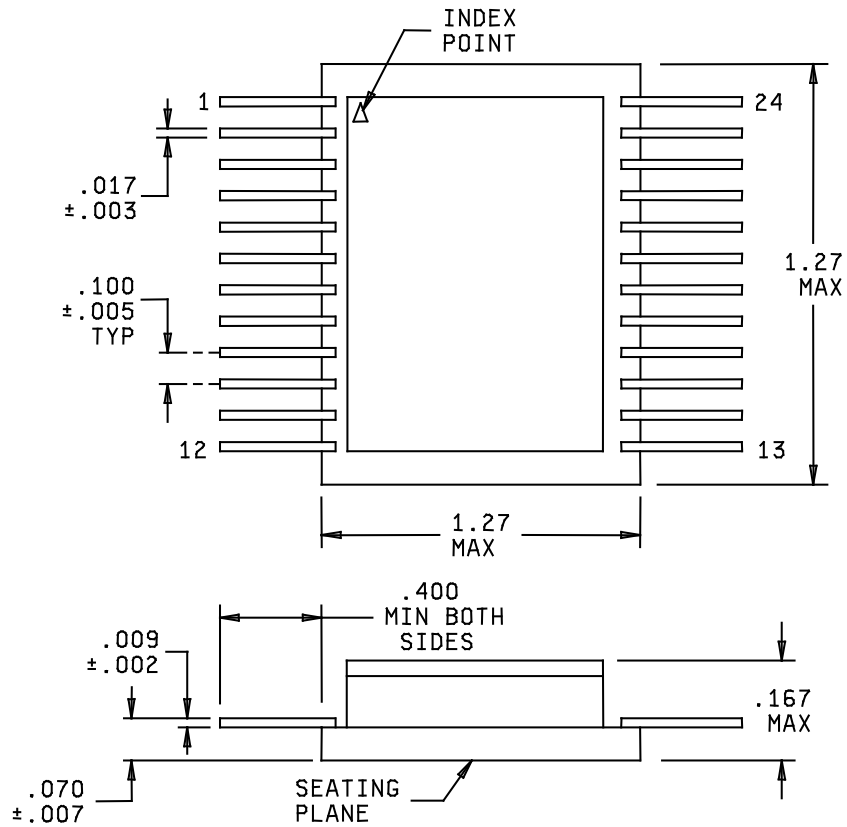


Inches	mm	Inches	mm
.002	0.05	.080	2.03
.003	0.08	.100	2.54
.005	0.13	.167	4.24
.009	0.23	.400	10.16
.017	0.43	1.27	32.3
.025	0.64		

FIGURE 1. Case outline(s).

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Case outline U.
(Device types 05, 06, and 07)

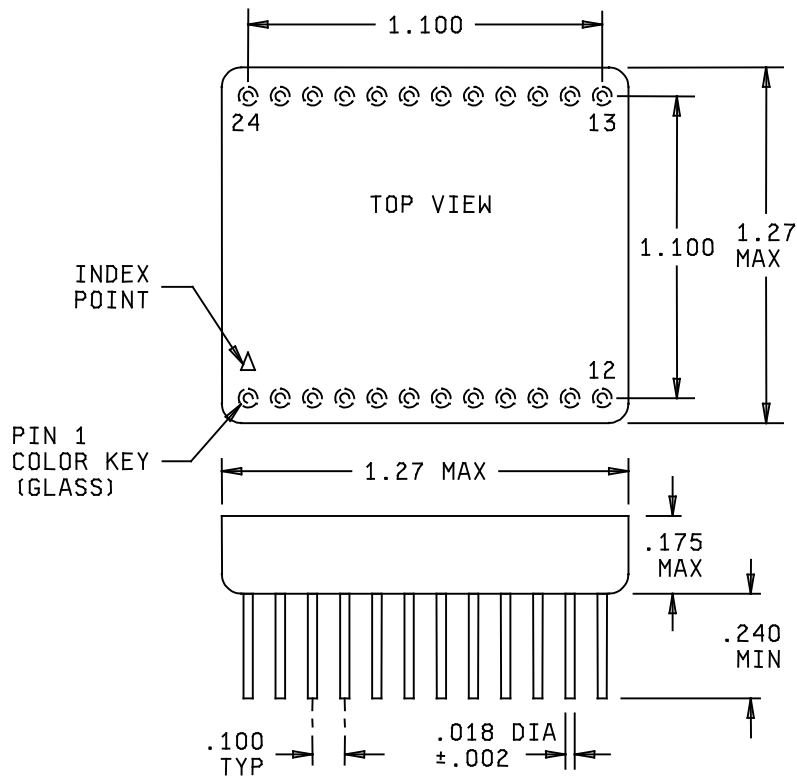


Inches	mm	Inches	mm
.002	0.05	.070	1.78
.003	0.08	.100	2.54
.005	0.13	.167	4.24
.009	0.23	.400	10.16
.017	0.43	1.27	32.3

FIGURE 1. Case outline(s) - Continued.

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Case outline X.
 (Device types 01, 02, 03, 04, 08, 09, 10, and 11)



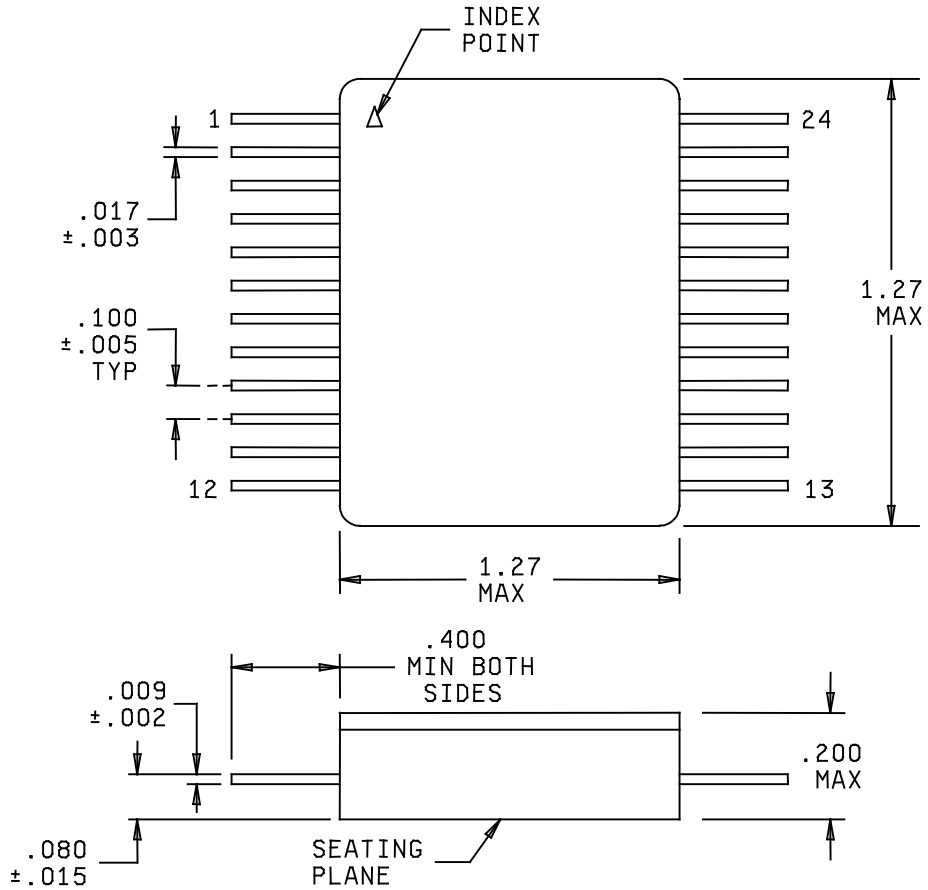
Inches	mm	Inches	mm
.002	0.05	.240	6.10
.018	0.46	1.100	27.94
.100	2.54	1.27	32.3
.175	4.44		

NOTE: For device type 03 only, case outline X, the package height is .180 inches (4.51 mm) maximum.

FIGURE 1. Case outline(s) - Continued.

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Case outline Y.
 (Device types 01, 02, 03, 04, 08, 09, 10, and 11)

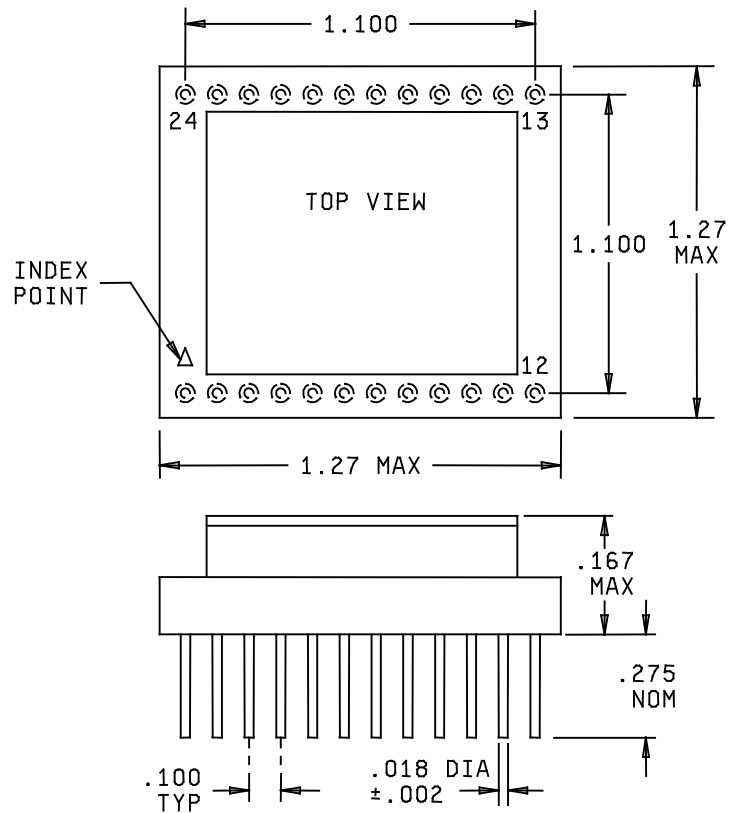


Inches	mm	Inches	mm
.002	0.05	.080	2.03
.003	0.08	.100	2.54
.005	0.13	.200	5.08
.009	0.23	.400	10.16
.015	0.41	1.27	32.3
.017	0.43		

FIGURE 1. Case outline(s) - Continued.

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Case outline Z.
(Device types 05, 06, and 07)



Inches	mm	Inches	mm
.002	0.05	.275	6.98
.018	0.46	1.100	27.94
.100	2.54	1.27	32.3
.167	4.24		

NOTES:

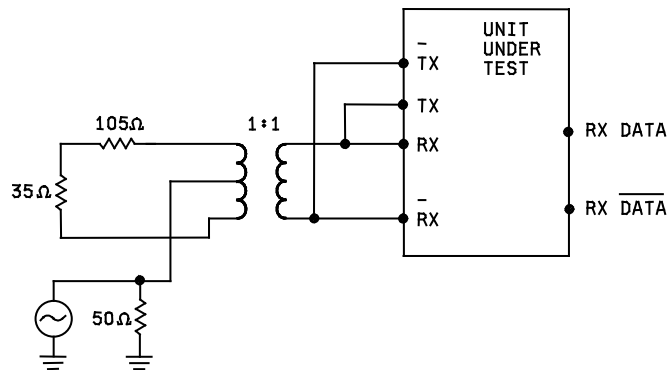
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance for three places shall be .005 (0.13 mm).

FIGURE 1. Case outline(s) - Continued.

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Device type	All		
Case outline	Case outlines T, U, X, Y, and Z.		
Terminal number	Terminal symbol	Terminal number	Terminal symbol
1	TX DATA OUT	13	V _{CC} RX
2	TX $\overline{\text{DATA}}$ OUT	14	NC
3	GND C	15	RX DATA IN
4	V _{CC} TX	16	RX $\overline{\text{DATA}}$ IN
5	EXTERNAL DATA THRESHOLD	17	GND A
6	INTERNAL DATA THRESHOLD	18	CASE GND
7	RX DATA OUT	19	V _{EE} RX
8	STROBE	20	V _{CCL}
9	GND B	21	TX INHIBIT
10	RX $\overline{\text{DATA}}$ OUT	22	TX DATA IN
11	INTERNAL $\overline{\text{DATA}}$ THRESHOLD	23	TX $\overline{\text{DATA}}$ IN
12	EXTERNAL $\overline{\text{DATA}}$ THRESHOLD	24	V _{EE} TX

FIGURE 2. Terminal connections.



NOTE: Observe no transmission of data at RX DATA and RX $\overline{\text{DATA}}$.

FIGURE 3. Test circuit.

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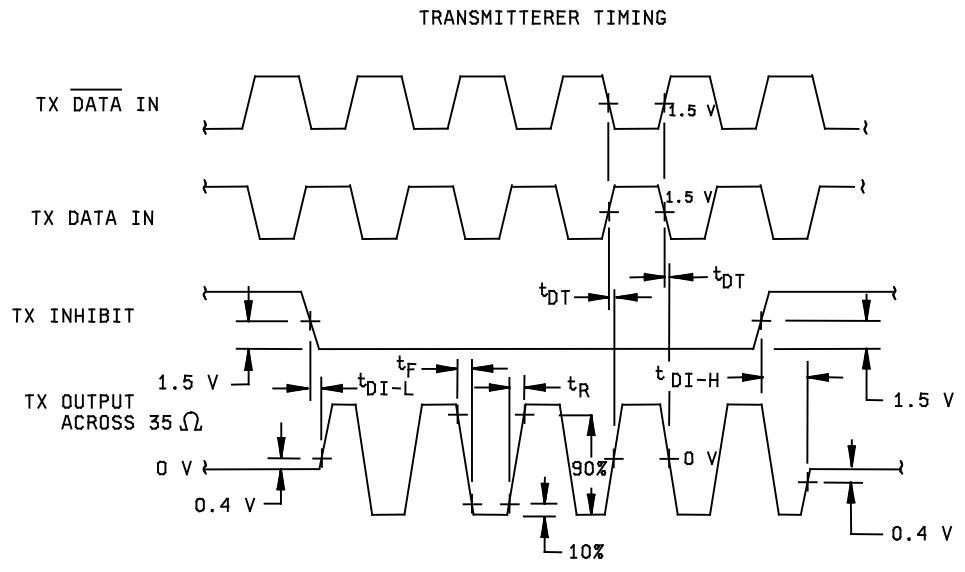
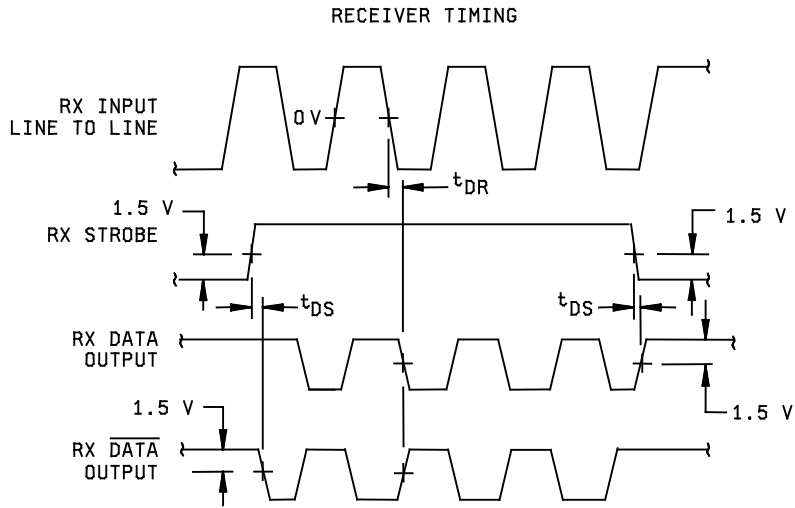


FIGURE 4. Timing waveforms.

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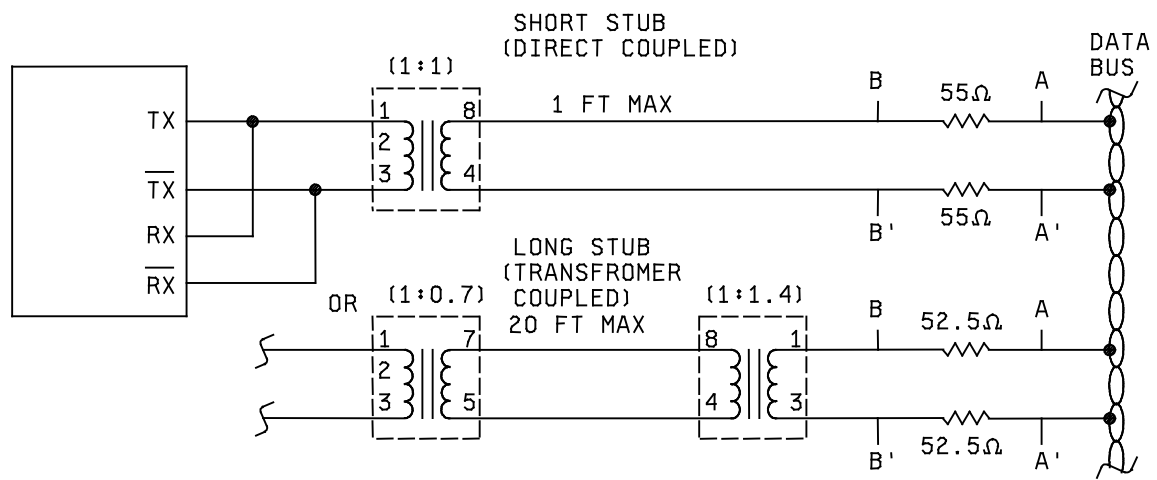


FIGURE 5. Coupling diagram.

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TABLE II. Electrical test requirements.

MIL-PRF-38534 test requirements	Subgroups (in accordance with MIL-PRF-38534, group A test table)
Interim electrical parameters	1
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_A as specified in accordance with table I of method 1015 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) 692-0544.

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

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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Approved sources of supply for SMD 5962-91749 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>
5962-9174901HXA 5962-9174901HXC	<u>3/</u> <u>3/</u>	NHI-1514 NHI-1514
5962-9174901HYA 5962-9174901HYC	<u>3/</u> <u>3/</u>	NHI-1514FP NHI-1514FP
5962-9174902HXA 5962-9174902HXC	<u>3/</u> <u>3/</u>	NHI-1513 NHI-1513
5962-9174902HYA 5962-9174902HYC	<u>3/</u> <u>3/</u>	NHI-1513FP NHI-1513FP
5962-9174903HXA 5962-9174903HXA 5962-9174903HXC 5962-9174903HXC	<u>3/</u> <u>3/</u> <u>3/</u> <u>3/</u>	BUS-63102II-150 BUS-63102II-140 BUS-63102II-130 BUS-63102II-110
5962-9174903HYA	<u>3/</u>	BUS-63102II
5962-9174904HXA	<u>3/</u>	BUS-63104II
5962-9174904HYA	<u>3/</u>	BUS-63104II
5962-9174905HUA 5962-9174905HZA	<u>3/</u> <u>3/</u>	MR3231MF5 MR3231MP5
5962-9174906HUA 5962-9174906HZA	<u>3/</u> <u>3/</u>	MR3232MF2 MR3232MP2
5962-9174907HUA 5962-9174907HZA	<u>3/</u> <u>3/</u>	MR3232MF5 MR3232MP5
5962-9174908HTA 5962-9174908HTC	<u>3/</u> <u>3/</u>	ARX4407LPFP ARX4407LPFP
5962-9174908HTA 5962-9174908HTC	<u>3/</u> <u>3/</u>	NHI-1514FP/883 NHI-1514FP/883

See footnotes at end of table.

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Standard microcircuit drawing PIN <u>1/</u>	Vendor CAGE number	Vendor similar PIN <u>2/</u>
5962-9174908HXA 5962-9174908HXC	<u>3/</u> <u>3/</u>	NHI-1514/883 NHI-1514/883
5962-9174908HXA 5962-9174908HXC	88739 88739	ARX4407-001-2 ARX4407-001-1
5962-9174908HYA 5962-9174908HYC	<u>3/</u> <u>3/</u>	NHI-1514FP/883 NHI-1514FP/883
5962-9174908HYA 5962-9174908HYC	88379 88379	ARX4407-201-2 ARX4407-201-1
5962-9174909HTA 5962-9174909HTC	<u>3/</u> <u>3/</u>	NHI-1513FP/883 NHI-1513FP/883
5962-9174909HTA 5962-9174909HTC	<u>3/</u> <u>3/</u>	ARX4404LPFP ARX4404LPFP
5962-9174909HXA 5962-9174909HXC	<u>3/</u> <u>3/</u>	NHI-1513/883 NHI-1513/883
5962-9174909HXA 5962-9174909HXC	88379 88379	ARX4404-001-2 ARX4404-001-1
5962-9174909HYA 5962-9174909HYC	<u>3/</u> <u>3/</u>	NHI-1513FP/883 NHI-1513FP/883
5962-9174909HYA 5962-9174909HYC	88379 88379	ARX4404-201-2 ARX4404-201-1
5962-9174910HXA 5962-9174910HXC	88379 88379	ACT4407N-001-2 ACT4407N-001-1
5962-9174910HYA 5962-9174910HYC	88379 88379	ACT4407N-201-2 ACT4407N-201-1
5962-9174911HXA 5962-9174911HXC	88379 88379	ACT4404N-001-2 ACT4404N-001-1
5962-9174911HYA 5962-9174911HYC	88379 88379	ACT4404N-201-2 ACT4404N-201-1

- 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.

STANDARD MICROCIRCUIT DRAWING BULLETIN - Continued.

DATE: 11-11-16

Vendor CAGE
number

88379

Vendor name
and address

Aeroflex Plainview Incorporated
(Aeroflex Microelectronics Solutions)
35 South Service Road
Plainview, NY 11803-4101

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