

# BJDEEN PULSE TRANSFORMERS

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MIL-STD-1553 TRANSFORMERS ( US )

MADE IN CHINA

GJB289A-97 TRANSFORMERS ( CHINA )

## FEATURES

- Complete Line of Custom and GJB Units
- For Use with MIL-STD-1553A and B, MacAir A-5690, A-5232, and A-4905 GJB289A-97(CHINA)

- Low Profile

- Epoxy Cased, Hermetically Sealed

- -55°C to +130°C Operating Temperature Range

- Built and Tested to MIL-PRF-21038 and MIL-STD-202 GJB1521-92(CHINA)

## DESCRIPTION AND APPLICATIONS

The military data bus specification, MIL-STD-1553, has brought about the need for versatile pulse transformers that meet all the electrical requirements of Manchester II serial biphase data transmission. Our various package styles provide the turns ratio configurations, component isolation, and common-mode rejection ratio characteristics necessary for MIL-STD-1553A and B compliance(CHINA GJB289A-97).

Hermetically sealed or epoxy cased, these transformers are multapped to accommodate existing system configurations. Encapsulated in accordance with MIL-PRF-21038, their tin-coated, copper-clad steel leads (epoxy-cased units) conveniently accommodate printed circuit board mounting. Sinusoidal or trapezoidal waveforms are accurately processed, making these transformers an excellent choice for any MIL-STD-1553A or B application.

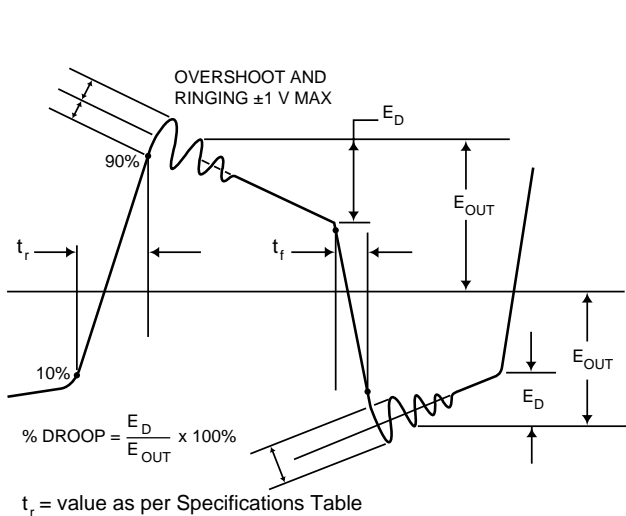


FIGURE 1. WAVEFORM INTEGRITY

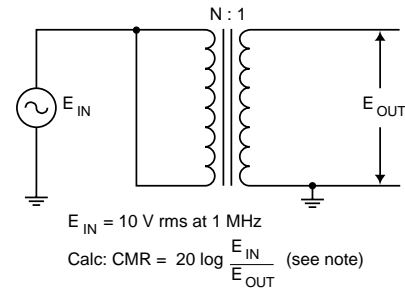
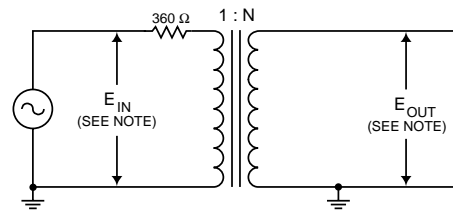


FIGURE 2. CIRCUIT FOR COMMON-MODE REJECTION



$E_{IN}$  = 250 kHz square wave, 27.0 volts peak-to-peak with a rise and fall time no greater than 100 ns.

Calc : Droop =  $\frac{E_D}{E_{OUT}}$  x 100%. (see figure 1 for  $E_D$ )

FIGURE 3. CIRCUIT FOR WAVEFORM INTEGRITY

Note: Input to be applied and output to be measured for all dash numbers as shown. N represents highest turns winding in each test.

PULSE TRANSFORMER CROSS REFERENCE LIST <sub>1</sub>										
TRANSCIEVER TYPE	PIN NOS.	TURNS RATIO	TRANSFORMER CHARACTERISTICS							
			-Epoxy Unit -PC Mount -Ht. (see below) -Config. A -*Config. A	-Epoxy Unit -Flat pack -0.275" Ht. -Config. B	-Epoxy Unit -Surface Mt. -0.275" Ht. -Config. C	-Epoxy Unit -Flat pack -LPB Series -0.150" Ht. -Config. D	-Epoxy Unit -Surface Mt. -LPB Series -0.150" Ht. -Config. E	-Epoxy Unit -PC Mount -TST 9000 Series -0.280" Ht. -Config. F	-Epoxy Unit -Surface Mt. -TST 9000 Series -0.280" Ht. -Config. G	
1	1-3:4-8 1-3:5-7	1.4:1 2:1	0.250" Ht. *25679 DNB-2203 (-02)	DNB-2343 (-17)	DNB-2387 (-12)	DNLPB-5009	DNLPB-5002	DNTST-9002	DNTST-9012	
3A	1-3:4-8 1-3:5-7	1:2.5 1:1.75	0.220" Ht. *41429	DNB-3076	DNB-3110	DNLPB-5007	DNLPB-5000	DNTST-9000	DNTST-9010	
2	1-3:4-8 1-3:5-7	1.20:1 1.67:1	0.275" Ht. *29854	DNB-3078	DNB-3063	DNLPB-5008	DNLPB-5001	DNTST-9001	DNTST-9011	
5	1-3:4-8 1-3:5-7	1:1 1:0.707	0.300" Ht. *27765 DNB-2202 (-01)	DNB-2342 (-16)	DNB-2386 (-11)	DNLPB-5010	DNLPB-5003	DNTST-9003	DNTST-9013	
3	1-3:4-8 1-3:5-7	1:2.5 1:1.79	0.250" Ht. DNB-3226 (-26)	DNB-3231 (-31)	DNB-3227 (-27)	DNLPB-5014	DNLPB-5015	DNTST-9007	DNTST-9017	
	4-8:1-3 5-7:1-3	2.3:1 3.2:1	0.300" Ht. DNB-2205 (-04)	DNB-2345 (-19)	DNB-2389 (-14)	DNLPB-5012	DNLPB-5005	DNTST-9005	DNTST-9015	
2	1-3:4-8 1-3:5-7	1.25:1 1.66:1	0.250" Ht. DNB-2204 (-03)	DNB-2344 (-18)	DNB-2388 (-13)	DNLPB-5011	DNLPB-5504	DNTST-9004	DNTST-9014	
	4-8:1-3 5-7:1-3	2.12:1 1.5:1	0.250" Ht. DNB-2385 (-10)	DNB-2391 (-20)	DNB-2390 (-15)	DNLPB-5013	DNLPB-5006	DNTST-9006	DNTST-9016	

SPECIFICATIONS											
PARAMETER	VALUE										UNITS
	BUS-25679	DNB-2203	BUS-27765	DNB-2202	BUS-29854	BUS-41429	DNB-3226	DNB-2205	DNB-2204	DNB-2385	
<b>FREQUENCY RESPONSE</b> Operating Range	75 to 1000	75 to 1000	75 to 1000	75 to 1000	75 to 1000	75 to 1000	75 to 1000	75 to 1000	75 to 1000	75 to 1000	kHz
<b>COMMON-MODE REJECTION (CMR)</b>	45 min.	45 min.	45 min.	45 min.	50 min.	45 min.	45 min.	45 min.	45 min.	45 min.	dB
<b>ELECTRICAL REQUIREMENTS</b> Terminal winding Resistance (RDC) <sub>2</sub> • 1-3 • 4-8 Interwinding Capacitance Intrawinding Capacitance Winding Inductance • 1-3 • 4-8	3.5 max. 3.0 max. 70 max. - 7.5 min. 12 max.	3.5 max. 3.0 max. 70 max. - 7.5 min. 12 max.	3 max. 3 max. - 30 max. 7.5 min. 6 max.	3 max. 3 max. - 30 max. 7.5 min. 6 max.	1.9 max. 1.9 max. 70 max. - 7.5 min. 6 max.	1.0 max. 3.0 max. 45 max. - 6.0 min. -	1.0 max. 3.0 max. 45 max. - 6.0 min. -	1.2 max. 3.0 max. 70 max. - 8.0 min. 7 max.	3.2 max. 3.0 max. 70 max. - 7.5 min. 7 max.	1.0 max. 3.0 max. 70 max. - 6.0 min. 6 max.	Ω Ω pF mH μH
<b>PEAK-TO-PEAK VOLTAGE</b> Terminals 1, 3 (Primary)	60 max.	60 max.	39.2 max.	39.2 max.	60 max.	60 max.	60 max.	60 max.	60 max.	60 max.	Vpp
<b>PEAK PULSE CURRENTS (AC)<sub>3</sub></b> Terminals 1, 3 (Primary)	180 max.	180 max.	140 max.	140 max.	180 max.	180 max.	180 max.	180 max.	180 max.	180 max.	mA
<b>DROOP</b>	20 max.	20 max.	20 max.	20 max.	20 max.	20 max.	20 max.	20 max.	20 max.	20 max.	%
<b>RISE TIME</b>	150 max.	150 max.	150 max.	150 max.	150 max.	150 max.	250 max.	150 max.	150 max.	200 max.	ns
<b>DECAY TIME<sub>3</sub></b>	25 max.	25 max.	25 max.	25 max.	25 max.	25 max.	25 max.	25 max.	25 max.	25 max.	ns
<b>OVERSHOOT</b>	±1	±1	±1	±1	±1	±1	±1	±1	±1	±1	Vp
<b>BACKSWING<sub>3</sub></b>	none	none	none	none	none	none	none	none	none	none	
<b>TURNS RATIO</b> Terminals • 1,3:4,8 • 1,3:5,7 Winding Tolerance (CT ±5%)	1.4CT:1CT 2CT:1CT 3	1.4CT:1CT 2CT:1CT 3	1CT:1CT 1CT:0.707CT 3	1CT:1CT 1CT:0.707CT 3	1.20CT:1CT 1.67CT:1CT 3	1CT:2.5CT 1CT:1.75CT 3	1CT:2.5CT 1CT:1.79CT 3	1CT2.3CT 1CT:3.2CT 3	1.25CT:1CT 1.66CT:1CT 3	1CT:2.12CT 1CT:1.5CT 3	±%
<b>TEMPERATURE REQUIREMENTS</b> Operating (ambient) Storage	-55 to +125 -55 to +130	-55 to +130 -55 to +130	-55 to +125 -55 to +130	-55 to +130 -55 to +130	-55 to +125 -55 to +130	-55 to +125 -55 to +130	-55 to +130 -55 to +130	-55 to +130 -55 to +130	-55 to +130 -55 to +130	-55 to +130 -55 to +130	°C °C
<b>PHYSICAL CHARACTERISTICS<sub>2</sub></b> Size Weight	0.63 x 0.63 x Ht. (16 x 16 x Ht.) for all units 0.15 max. (4.26) for all units										in (mm) oz (g)

PULSE TRANSFORMER CROSS REFERENCE LIST <sub>1</sub> (continued)										
TRANSCEIVER TYPE	PIN NOS.	TURNS RATIO	TRANSFORMER CHARACTERISTICS							
			-Epoxy Unit -Flat pack -TST 9000 Series -0.280" Ht. -Config. H	-Epoxy Unit -PC Mount -TST 9100 Series -0.320" Ht. -Config. I	-Epoxy Unit -Surface Mt. -TST 9100 Series -0.320" Ht. -Config. J	-Epoxy Unit -Flat pack -TST 9100 Series -0.320" Ht. -Config. K	-Epoxy Unit -Flat pack -SLP Series -0.130" Ht. -Config. L	-Epoxy Unit -Surface Mt. -SLP Series -0.130" Ht. -Config. M	-Metal Unit -Flat pack -HLP Series -0.175" Ht. -Config. N	-Metal Unit -Surface Mt. -HLP Series -0.175" Ht. -Config. O
1	1-3:4-8 1-3:5-7	1.4:1 2:1	TST-9022	TST-9102	TST-9112	TST-9122	SLP-8019	SLP-8002	HLP-6009	HLP-6002
3A	1-3:4-8 1-3:5-7	1:2.5 1:1.75	TST-9020	TST-9100	TST-9110	TST-9120	SLP-8017	SLP-8000	HLP-6007	HLP-6000
2	1-3:4-8 1-3:5-7	1.20:1 1.67:1	TST-9021	TST-9101	TST-9111	TST-9121	SLP-8018	SLP-8001	HLP-6008	HLP-6001
5	1-3:4-8 1-3:5-7	1:1 1:0.707	TST-9023	TST-9103	TST-9113	TST-9123	SLP-8020	SLP-8003	HLP-6010	HLP-6003
3	1-3:4-8 1-3:5-7	1:2.5 1:1.79	TST-9027	TST-9107	TST-9117	TST-9127	SLP-8024	SLP-8007	HLP-6014	HLP-6015
	4-8:1-3 5-7:1-3	2.3:1 3.2:1	TST-9025	TST-9105	TST-9115	TST-9125	SLP-8022	SLP-8005	HLP-6012	HLP-6005
2	1-3:4-8 1-3:5-7	1.25:1 1.66:1	TST-9024	TST-9104	TST-9114	TST-9124	SLP-8021	SLP-8004	HLP-6011	HLP-6004
	4-8:1-3 5-7:1-3	2.12:1 1.5:1	TST-9026	TST-9106	TST-9116	TST-9126	SLP-8023	SLP-8006	HLP-6013	HLP-6006

Notes:

1. Numbers in parenthesis ( ) reference MIL-PRF-21038 dash numbers.
2. For configuration "A" only. See individual specifications for actual values.
3. Design parameter only. Not screened in production.

Transceiver Type 1 (Trapezoidal +5 V/-15 V)

- BU-61580X1
- BU-65170X1
- BUS-61559
- BUS-61553
- BUS-65153
- BUS-65142
- BUS-63105/25II

Consult Factory For:

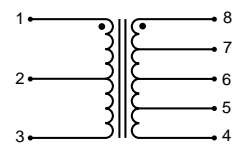
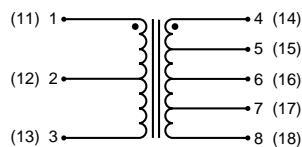
- MIL-PRF-21038 QPL Part Numbers
- Special Marking
- Special Testing
- Special Packaging
- Source Inspection

Transceiver Type 2 (Trapezoidal +5 V/-12 V)

- BU-61580X2
- BU-65170X2
- BUS-61560
- BUS-61554
- BUS-65154
- BUS-65143
- BUS-63107/27II

Transceiver Type 3 (Monolithic Trapezoidal +5 V)

- BU-61580X3
- BU-65170X3
- BU-61580X6
- BU-65170X6



FOR ALL CONFIG. EXCEPT \*CONFIG. A

FOR \*CONFIG. A ONLY

NOTE: Numbers in ( ) are for TST Series Units.

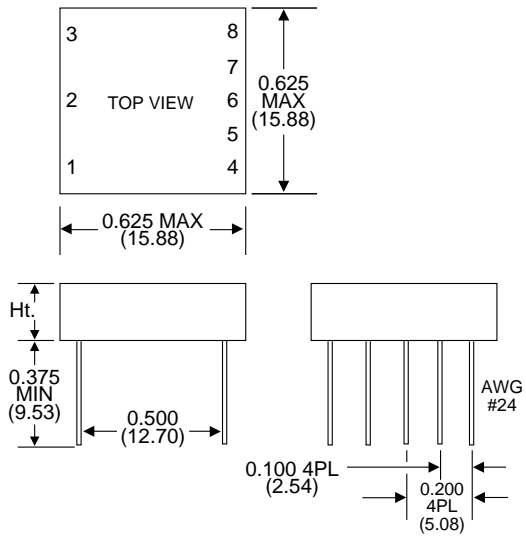
Transceiver Type 3A (Discrete Trapezoidal +5 V)

- BUS-61561
- BUS-61555
- BUS-63147/48

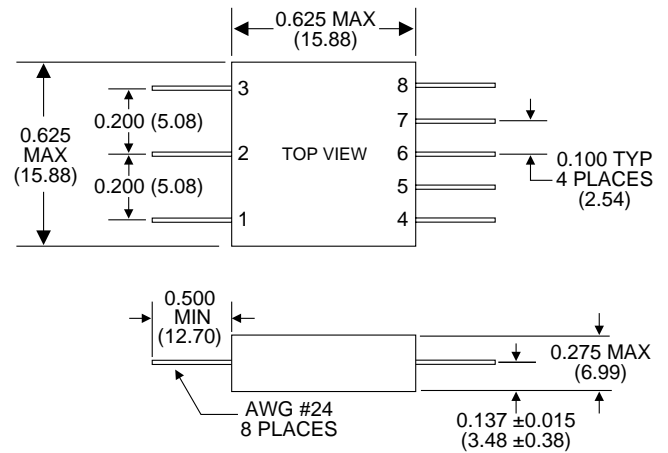
Transceiver Type 5 (Sinusoidal McAir)

- BU-61590X5
- BUS-65149
- BUS-63102

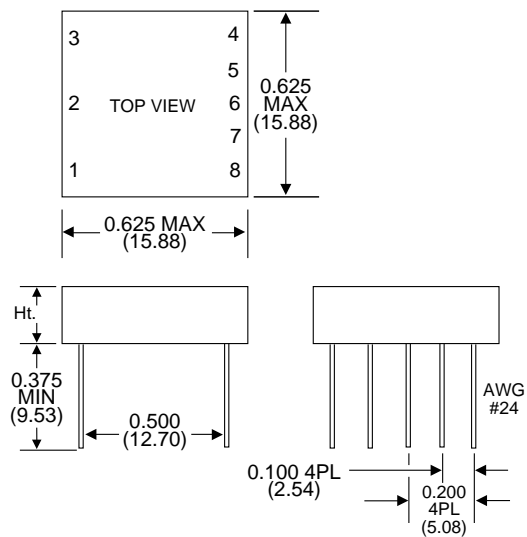
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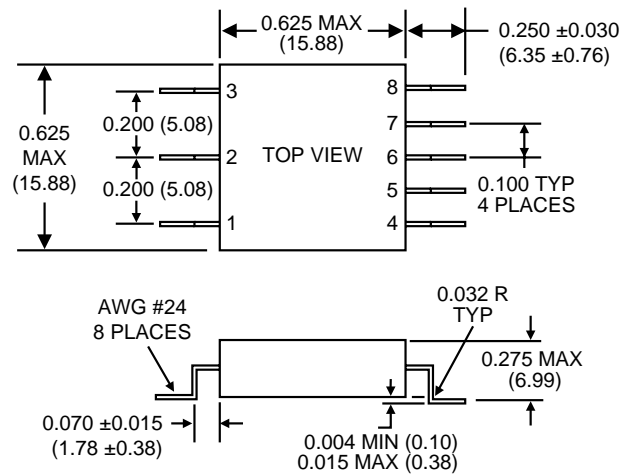
**CONFIGURATION A**



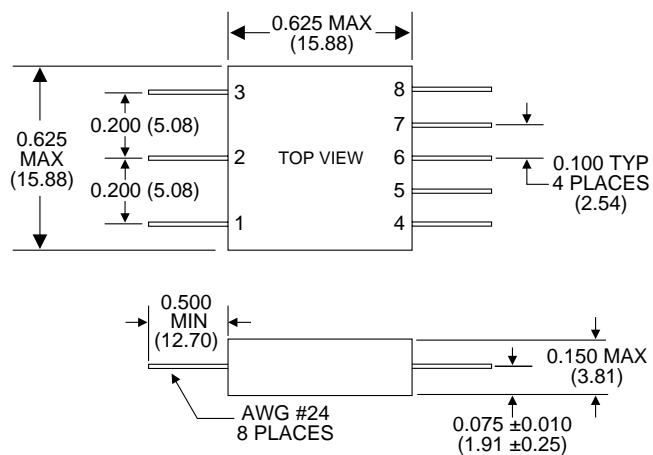
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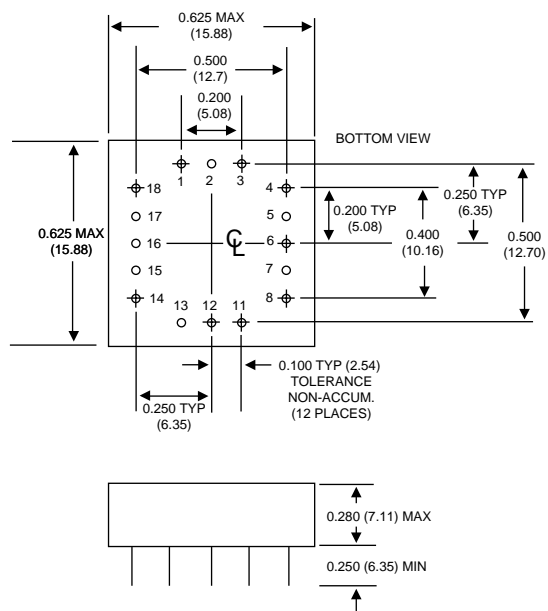
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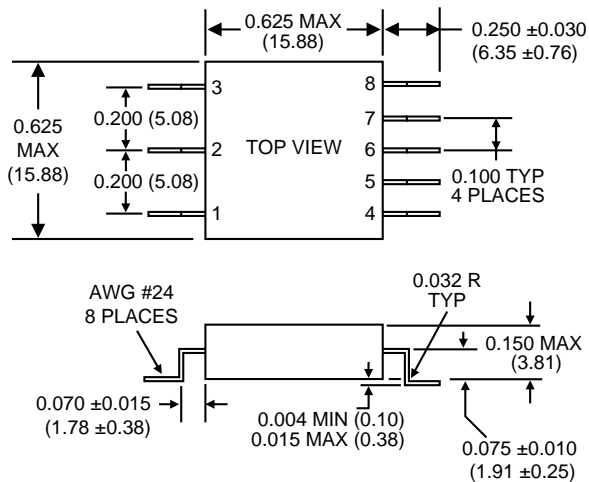
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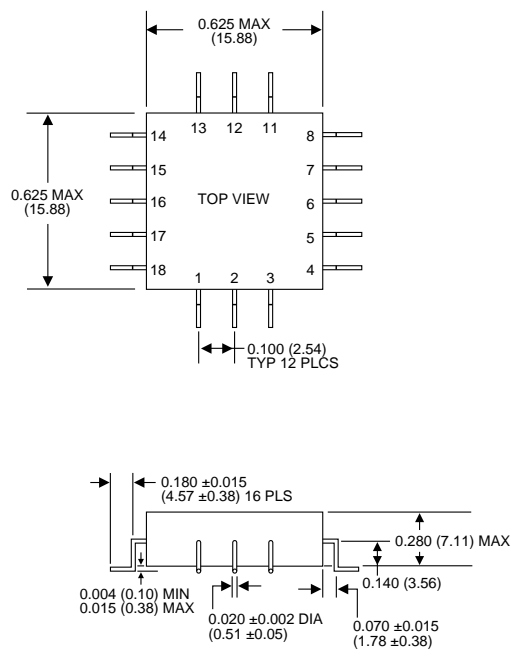
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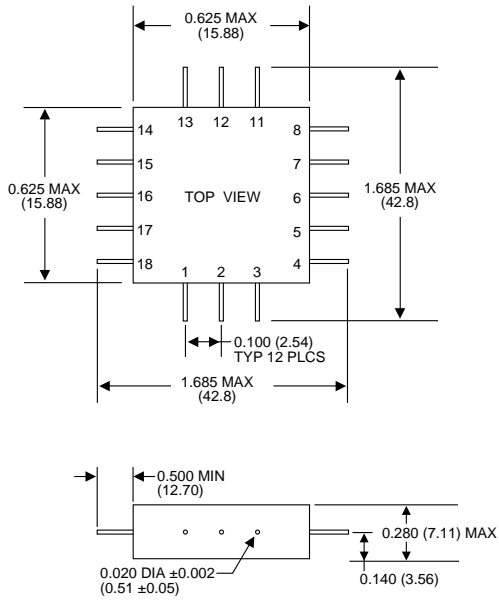
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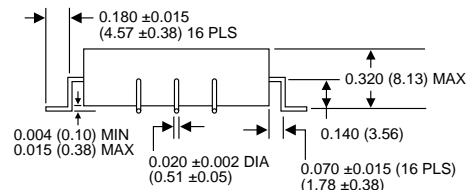
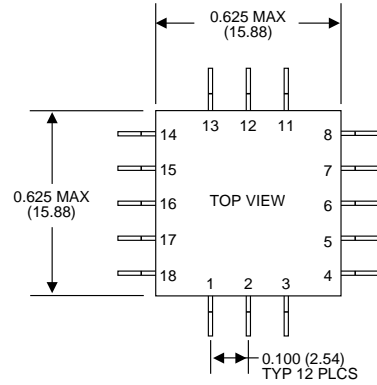
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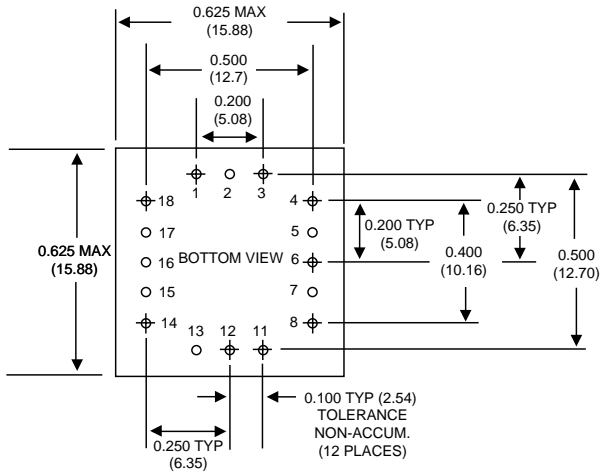
CONFIGURATION G



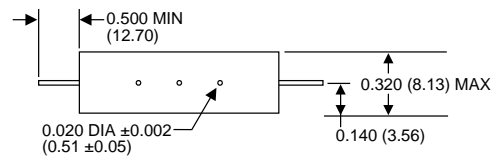
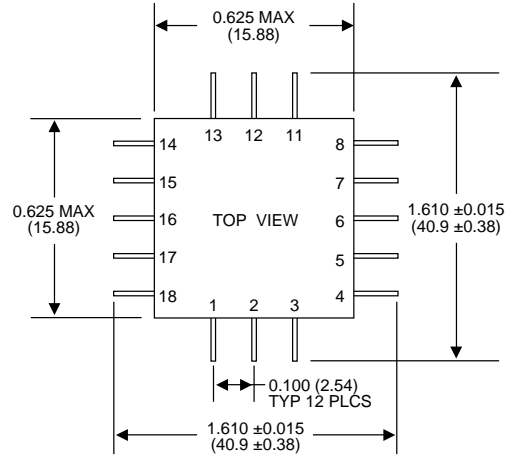
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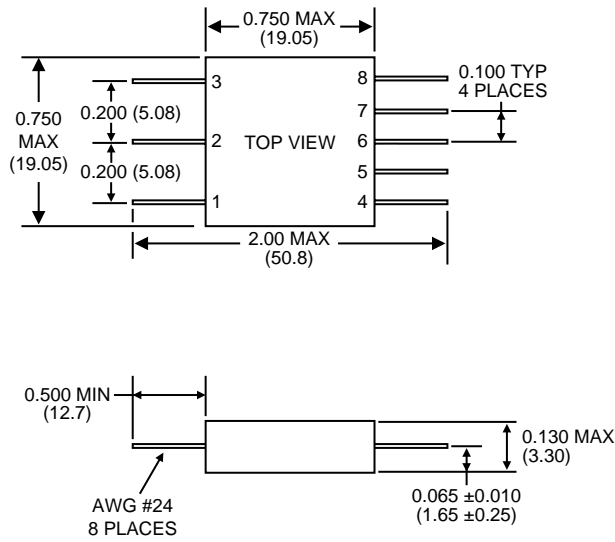
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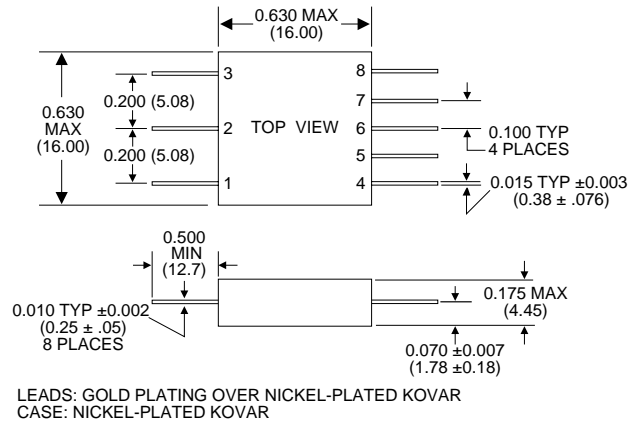
**CONFIGURATION I**



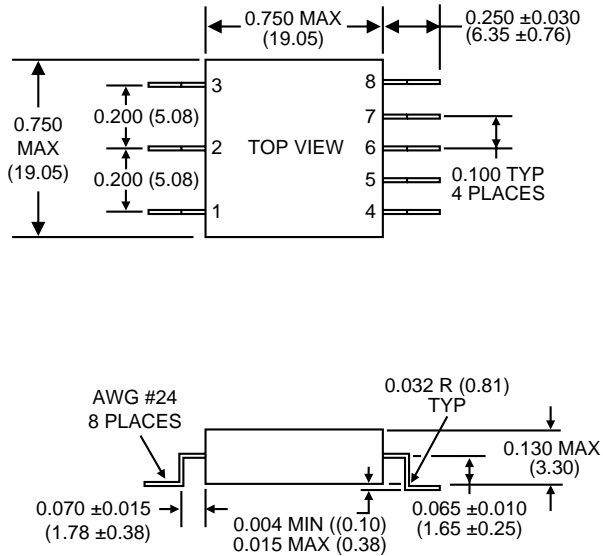
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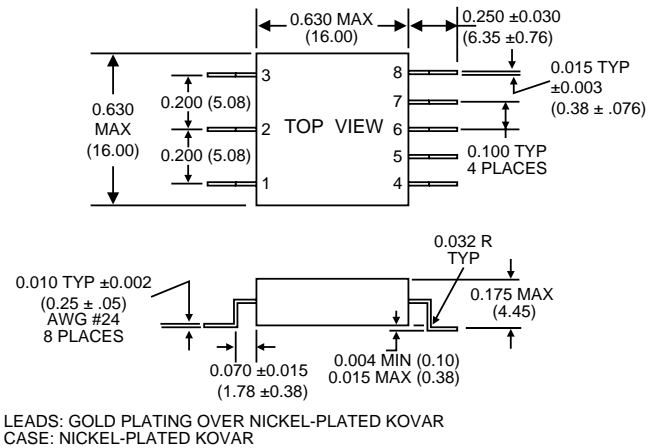
**CONFIGURATION L**



**CONFIGURATION N**



**CONFIGURATION M**



**CONFIGURATION O**

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