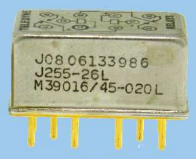
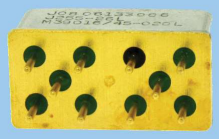


HALF-SIZE CRYSTAL CAN MAGNETIC-LATCHING MILITARY RELAY DPDT



SERIES	RELAY TYPE
255	Commercial magnetic-latching DPDT half-size crystal can relay
J255	Magnetic-Latching DPDT half-size crystal can relay qualified to MIL-PRF-39016/45

DESCRIPTION

The Series J255 / 255 is an industry-standard, half-size, latching crystal can relay. It has a wide range of switching capabilities ranging from low level to 2 amps. The Series J255 / 255 latching relay configuration is double-pole double-throw (DPDT), so the relay offers excellent switching density and versatility

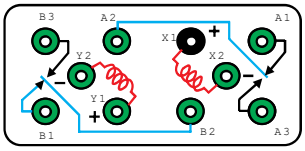
The J255 / 255 features:

- Low level to 2 amps
- Wide range of switching capabilities
- Smallest relay package capable of switching 2 amps
- Modernized assembly process
- Qualified to MIL-PRF-39016/45 (J255 only)

Teledyne Relays' Series J255/255 offers:

- All welded construction.
- Wire leads, gold-plated or solder-coated
- Matched seal for superior hermeticity
- Gold-plated contact assembly
- Advanced cleaning techniques

SCHEMATIC



J255 / 225
(Shown with coil X last energized)

ENVIRONMENTAL AND PHYSICAL SPECIFICATIONS

Temperature (Ambient)	–65°C to +125°C
Vibration (General Note I)	30 g's 10 to 2500 Hz
Shock (General Note I)	100 g's, 6ms half sine
Enclosure	Hermetically sealed
Weight	0.46 oz. (13g) max.

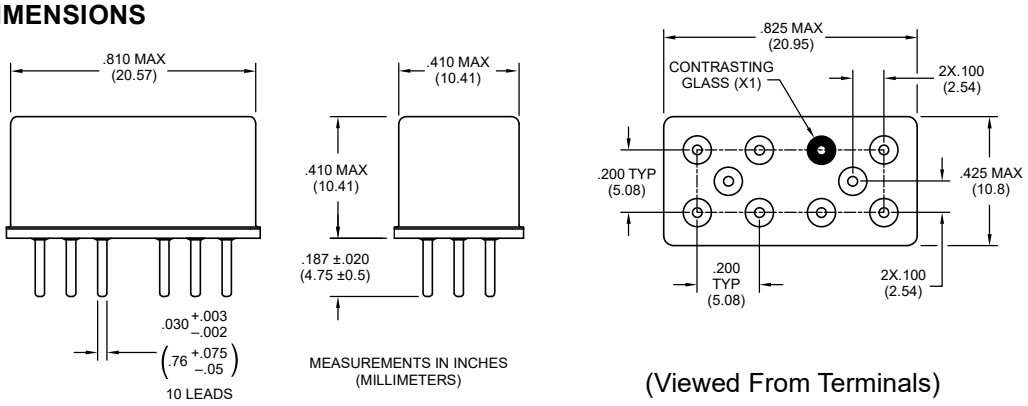
SERIES J255 / 255 / 257
GENERAL ELECTRICAL SPECIFICATIONS (@25°C)

Contact Arrangement	2 Form C (DPDT)		
Contact Resistance	Low Level: 0.05 Ω max. before life 0.15 Ω max after life High Level: 0.05 Ω max before life 0.10 Ω max after life		
Contact Load Rating (DC)	Resistive: 2 A/ 28 Vdc Inductive: 750 mA/ 28 Vdc (320mH) Lamp: 160 mA / 28 Vdc (320mH) Low level: 10 to 50 µA @ 10 to 50 mV		
Contact Load Rating (AC)	Resistive: 150 mA / 115 Vac, 60 and 400 Hz (Case grounded)		
Contact Life Ratings	1,000,000 cycles (typical) at low level 100,000 cycles (typical) at 0.5 A / 28 Vdc resistive 100,000 cycles min. at all other loads specified above		
Contact Overload Rating	4 A / 28 Vdc Resistive (100 cycles min.)		
Contact Bounce	4.0 ms maximum		
Operating Time	3.0 ms maximum at nominal rated coil voltage		
Minimum Operate Pulse	9 ms at nominal rated coil voltage		
Insulation Resistance	1,000 MΩ min. between mutually isolated terminals		
Dielectric Strength	Between case, frame or enclosure and all contacts in the latched and non-latched positions	Sea Level 1,000 Vrms (60Hz)	Sea Level 350 Vrms (60Hz)
	Between case, frame or enclosure and coils	500 Vrms (60Hz)	350 Vrms (60Hz)
	Between all contacts and coils	1,000 Vrms (60Hz)	350 Vrms (60Hz)
	Between open contacts in the latched and non-latched positions	500 Vrms (60Hz)	350 Vrms (60Hz)
	Between coils	500 Vrms (60Hz)	350 Vrms (60Hz)
	Between contact poles	1,000 Vrms (60Hz)	350 Vrms (60Hz)

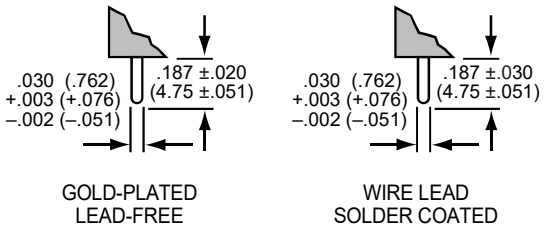
DETAILED ELECTRICAL SPECIFICATIONS (@25°C)

BASE PART NUMBERS (255, 255)		**255-5 J255-5**	**255-12 J255-12**	**255-26 J255-26**
Coil Voltage (Vdc)	**Nom.**	5.0	12.0	26.5
	Max.	6.7	16.0	32.0
Latch and Reset Voltage (Vdc)	**Min.**	1.0	2.6	5.2
	Max.	3.8	9.0	18.0
Coil Resistance (Ohms ±10%)		45	254	1000

SERIES J255 / 255
OUTLINE DIMENSIONS



TERMINAL CONNECTIONS



(SEE PART NUMBER EXAMPLE)

Part Numbering System

255 - 26 L / Q

- Relay Series: 255 = 255 Series; See Schematic Below
- Nominal Coil Voltage: 5 = 5 V; 6 = 6V; 12 = 12V; 26 = 26.5 V
- Screening and Reliability Level (See Appendix for Screening Options)
- Q = Solder-Coated Leads (Sn60 / Pb40); G = Gold-Plated Leads (RoHS Compliant); R = RoHS Compliant Solder (Sn99.3 / Cu 0.7); Blank = 0.187" Gold-Plated or Solder-Coated

J 255 - 26 L / Q

- Military (JAN) Designator
- Relay Series
- Nominal Coil Voltage: 5 = 5 V; 6 = 6V; 12 = 12V; 26 = 26.5 V
- Screening and Reliability Level (See Appendix for Screening Options)
- Q = Solder-Coated Leads (Sn60 / Pb40); G = Gold-Plated Leads (RoHS Compliant); R = RoHS Compliant Solder (Sn99.3 / Cu 0.7)

GENERAL NOTES

1. Vibration (sinusoidal): MIL-STD-202, method 204, test condition D (except frequency shall be 10 to 2,500 Hz). Contact chatter shall not exceed 10 µs maximum for closed contacts, and 1 µs maximum closure for open contacts. Vibration (random): MIL-STD-202, method 214, test condition IG. Contact chatter shall not exceed 10 µs maximum for closed contacts, and 1 µs maximum closure for open contacts (applicable to qualification and group C testing only).

2. Shock (half-sine pulse): MIL-STD-202, method 213, test condition C (100 g's). Contact chatter shall not exceed 10 µs maximum for closed contacts, and 1 µs maximum closure for open contacts.

3. Dimensions are in inches. Metric equivalents in parentheses for reference only.

4. Unless otherwise specified, tolerance is ±.010 (0.25mm).

5. Indicated terminal is marked with a contrasting bead.

6. Unless otherwise specified, relays will be supplied with either gold-plated or solder coated leads. The slash and characters appearing after the slash are not marked on the relay.

7. When latching relays are installed in equipment, the latch and reset coils should not be pulsed simultaneously.

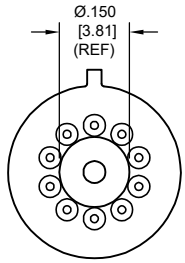
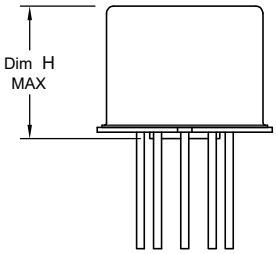
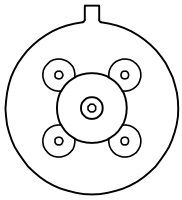
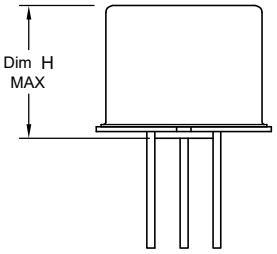
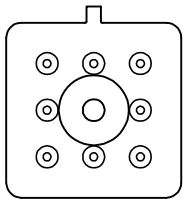
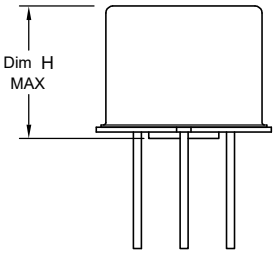
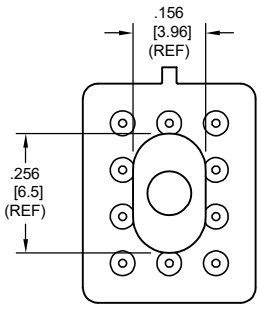
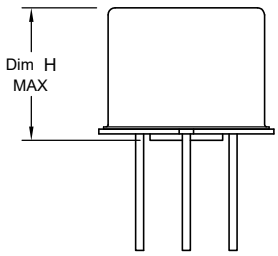
8. Each relay possesses high-level and low level capabilities. However, relays previously tested or used above 10 mA resistive at 6 Vdc maximum or peak AC open circuits not recommended for subsequent use in low-level applications.

9. Relays may be subjected to 260°C (1 minute) peak solder reflow temperature.

10. For HI-REL applications, contact factory at (800) 284-7007.

11 . The suffix letter L and M to designate the applicable failure rate level shall be added to the applicable listed dash number. Failure rate level (percent per 10,000 cycles): L = 3.0; M = 1.0.

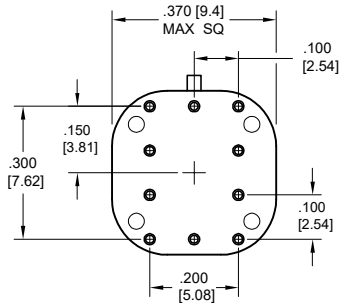
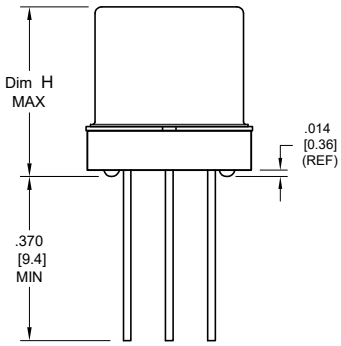
APPENDIX A : Spacer Pads

Pad designation and bottom view dimensions	Height	For use with the following:	Dim. H Max.
 “M4” Spacer Pad for TO-5		ER412	.295 (7.49)
		712, RF300, RF, RF700, RF703	.300 (7.62)
		ER422, 722	.305 (7.75)
		ER432	.400 (10.16)
		732, RF303	.410 (10.41)
		RF312	.350 (8.89)
 “M4”Spacer Pad for TO-5		ER411	.295 (7.49)
		RF311	.300 (7.62)
		RF331	.410 (10.41)
 “M4” Spacer Pad for Centigrid®		172	.305 (7.75)
		ER114, J114	.300 (7.62)
		ER134, J134	.400 (10.16)
		RF100	.315 (8.00)
		RF103	.420 (10.67)
 “M9”Spacer Pad for Centigrid®		122C, A152	.320 (8.13)
		ER116C, J116C	.300 (7.62)
		ER136C, J136C	.400 (10.16)
		RF180	.325 (8.25)
		A150	.305 (7.75)

Notes:

1. Spacer pad material: Polyester film.
2. To specify an “M4” or “M9” spacer pad, refer to the mounting variants portion of the part numbering example in the applicable datasheet.
3. Dimensions are in inches (mm).
4. Unless otherwise specified, tolerance is ± .010” (.25 mm).
5. Add 10 mΩ to the contact resistance shown in the datasheet.
6. Add 0.01 oz. (0.25 g) to the weight of the relay assembly shown in the datasheet.

APPENDIX A : Spreader Pads

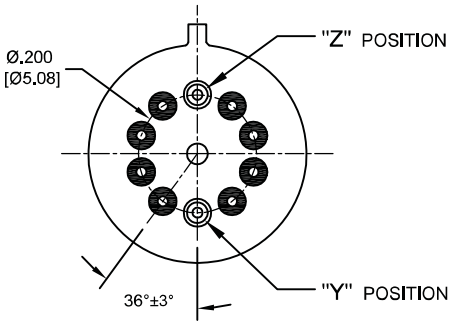
Pad designation and bottom view dimensions	Height	For use with the following:	Dim. H Max.
 "M" Spreader Pad 5/ 6/		ER411T, ER412, J412	.388 (9.86)
		712	.393 (9.99)
		ER432, J432	.493 (12.52)
		732	.503 (12.78)
		J421, J422, ER422, 722	.398 (10.11)

Notes:

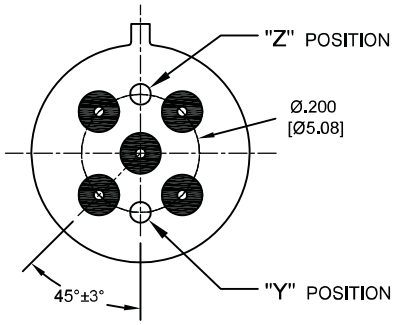
1. Spreader pad material: Diallyl Phthalate.
2. To specify an "M", "M2" or "M3" spreader pad, refer to the mounting variants portion of the part number example in the applicable datasheet.
3. Dimensions are in inches (mm).
4. Unless otherwise specified, tolerance is ± .010" (0.25 mm).

5/. Add 25 mΩ to the contact resistance shown in the datasheet.
6/. Add .01 oz. (0.25 g) to the weight of the relay assembly shown in the datasheet.
7/. Add 50 mΩ to the contact resistance shown in the datasheet.
8/. Add 0.025 oz (0.71 g) to the weight of the relay assembly shown in the datasheet.
9/. M3 pad to be used only when the relay has a center pin (e.g. ER411M3-12A, 722XM3-26.)

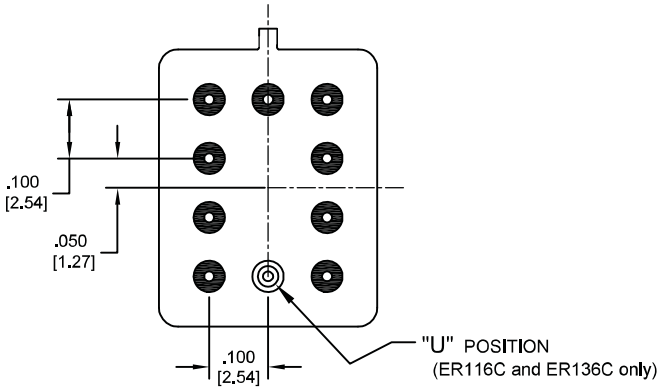
APPENDIX A : Ground Pin Positions



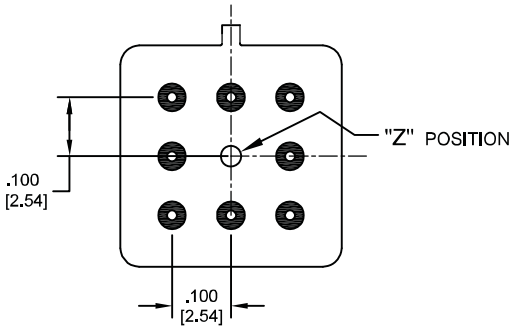
TO-5 Relays:
ER412, ER412T, ER422, ER432, ER432T, 712, 712TN, 400H, 400K, 400V, RF300, RF303, RF341, RF312, RF332, RF310, RF313, RF320, RF323, SI800, SI803, RF700, RF703



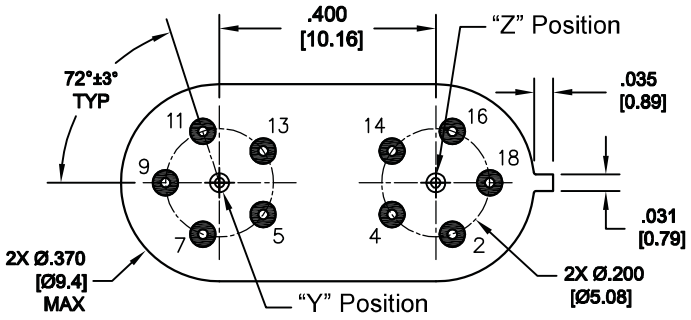
TO-5 Relays:
ER411, RF311, RF331



Centigrid® Relays:
RF180, ER116C, 122C, ER136C



Centigrid® Relays:
RF100, RF103, ER114, ER134, 172



Loopback Relays:
LB363

◯ Indicates ground pin position

● Indicates glass insulated lead position

◎ Indicates ground pin or lead position depending on relay type

NOTES
1. Terminal views shown
2. Dimensions are in inches (mm)
3. Tolerances: ± .010 (±.25) unless otherwise specified
4. Ground pin positions are within .015 (0.38) dia. of true position
5. Ground pin head dia., 0.035 (0.89) ref: height 0.010 (0.25) ref.
6. Lead dia. 0.017 (0.43) nom.