# HALF-SIZE CRYSTAL CAN MAGNETIC-LATCHING MILITARY RELAY DPDT

| SERIES | RELAY TYPE |
|---|---|
| 255 / 257 | 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 /257 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 / 257 latching relay configuration is double-pole double-throw (DPDT), so the relay offers excellent switching density and versatility

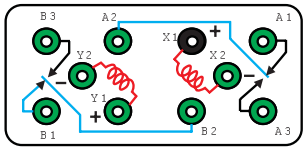
**The J255 / 255 / 257 features:**

- 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)

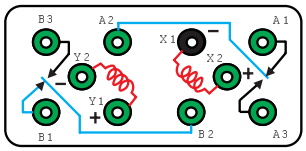
Teledyne Relays' Series J255/255/257 offers:

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

## SCHEMATICS




**J255 / 225**
*(Shown with coil X last energized)*




**257**
*(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. |

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## 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<br>0.15 Ω max after life<br>High Level: 0.05 Ω max before life<br>0.10 Ω max after life | | |
| **Contact Load Rating (DC)** | Resistive: 2 A/ 28 Vdc<br>Inductive: 750 mA/ 28 Vdc (320mH)<br>Lamp: 160 mA / 28 Vdc (320mH)<br>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<br>100,000 cycles (typical) at 0.5 A / 28 Vdc resistive<br>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<br>1,000 Vrms (60Hz) | Sea Level<br>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, 257 , J255)** | | **255-5<br>257-5<br>J255-5** | **255-6<br>257-6<br>J255-6** | **255-12<br>257-12<br>J255-12** | **255-26<br>257-26<br>J255-26** |
|---|---|---|---|---|---|
| **Coil Voltage (Vdc)** | **Nom.** | 5.0 | 6.0 | 12.0 | 26.5 |
| | **Max.** | 6.7 | 8.0 | 16.0 | 32.0 |
| **Latch and Reset Voltage (Vdc)** | **Min.** | 1.0 | 1.3 | 2.6 | 5.2 |
| | **Max.** | 3.8 | 4.5 | 9.0 | 18.0 |
| **Coil Resistance (Ohms ±10%)** | | 45 | 63 | 254 | 1000 |


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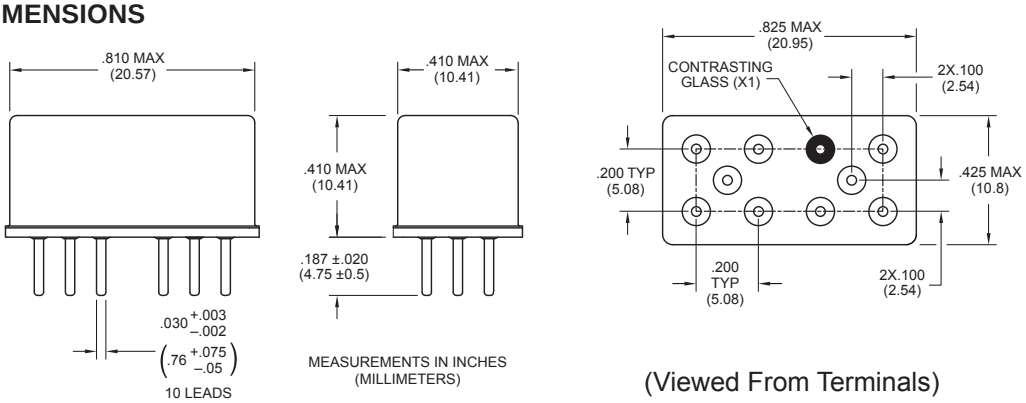
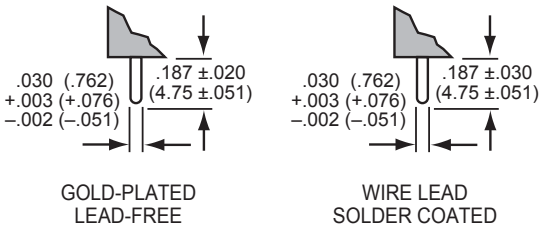
## SERIES J255 / 255 / 257 OUTLINE DIMENSIONS




## TERMINAL CONNECTIONS




(SEE PART NUMBER EXAMPLE)

## *Part Numbering System*

255 - 26 L / Q

Relay Series
255 = 255 Series
257 = 257 Series
See Schematic Below

Nominal Coil Voltage
5 = 5 V
6 = 6V
12 = 12V
26 = 26.5 V

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

Screening and Reliability Level
(See Appendix for Screening Options)

J 255 - 26 L / Q

Military (JAN) Designator

Relay Series

Nominal Coil Voltage
5 = 5 V
6 = 6V
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26 = 26.5 V

Q = Solder-Coated Leads (Sn60 / Pb40)
G = Gold-Plated Leads (RoHS Compliant)
R = RoHS Compliant Solder (Sn99.3 / Cu 0.7)

Screening and Reliability Level
(See Appendix for Screening Options)

## 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.


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