

## FCB-205 Series, 5 Amperes, DPDT



### Product Facts

- Hermetically Sealed
- All Welded Construction
- Balanced Force
- Permanent Magnet Drive
- Contacts rated low level to 5 Amps VDC and 115/200 VAC 400 Hz, 3 Phase
- Weight .54 ounces max. (15.4 grams)
- Qualified to M83536/1, /2

The Series FCB-205 relay is a polarized single-side stable design, where the flux from a permanent magnet provides the armature holding force in the deactivated state, and its flux path is switched and combined with the coil flux in the operated state. This results in appreciably

increased contact pressure in both states over that of a spring return nonpolar design. We also manufacture other forms of the FCB relay:

**FCB-405** — 5 Amp 4PDT Relay

### General Specifications

#### Temperature Rating —

-70°C TO + 125°C

#### Altitude — 300,000 Feet

#### Shock\* —

Z, Y, & X Enclosures —

200 g for 6 mS

W & M Enclosures (Stud Mtg.) —

100 g for 6 mS

T Enclosure (Socket Mounted in Track) —

50 g for 11 mS

#### Vibration, Sinusoidal\* —

Z, Y, & X Enclosures —

0.12 DA 10 to 70 Hz, 30 g 70-3000Hz

W & M Enclosures (Stud Mtg.) —

0.12 DA 10 to 57 Hz, 20 g 57-3000Hz

T Enclosure (Socket Mounted in Track) —

0.06 DA 10 to 57 Hz, 10 g 57 to 500Hz,

20 g 500 to 3000 Hz

#### Vibration, Random\* —

Z, Y, & X Enclosures —

0.4 g<sup>2</sup>/Hz 50-2000Hz

T, W & M Enclosures —

0.2 g<sup>2</sup>/Hz 50-2000Hz

#### Dielectric Strength —

At Sea Level —

All circuits to ground and circuit to

circuit — 1000 V rms

Coil to ground — 1000 V rms

At 80,000 Feet — 250 V rms

#### Insulation Resistance —

Initial (500 VDC) — 100 MΩ Min.

After Life or Environmental Tests —

50 MΩ Min.

#### Operate Time at Nominal

Voltage — 4 ms or less

#### Release Time at Nominal

Voltage — 4 ms or less

\* Max. contact opening under vibration or shock 10 microseconds

### Contact Rating — Amperes Ratings Are Continuous Duty

| Type of Load | Life (Min.)<br>Cycles x 10 <sup>3</sup> | 28 VDC | 115VAC<br>400Hz | 115/200VAC<br>400Hz, 3Ø |
|--------------|-----------------------------------------|--------|-----------------|-------------------------|
| Resistive    | 100                                     | 5      | 5               | 5                       |
| Inductive    | 20                                      | 3      | 5               | 5                       |
| Motor        | 100                                     | 2      | 3               | 3                       |
| Lamp         | 100                                     | 1      | 1               | 1                       |

\*60 Hz loads rated for 10,000 operations

Low Level Switching Capability: With contacts operating a load of 10 to 50 microamperes at 10 to 50 millivolts, the contact resistance miss detection level shall be 100 ohms max. Cycling rate is 1 to 12 per second, for 100,000 operations.

**Overload Current** — 20 AMPS DC, 30 AMPS 400Hz

**Rupture Current** — 25 AMPS DC, 40 AMPS 400Hz

**Contact Make Bounce** — 1.0 MILLISECOND AT NOMINAL VOLTAGE

**Max. Contact Drop at 5 Amps** — INITIAL 0.100 VOLTS

**End of Life** — 0.125 VOLTS

### Coil Data

| Coil Code | Nominal Voltages | Freq. Hz | DC Res. (B) | Over Temperature Range |                        |                       |
|-----------|------------------|----------|-------------|------------------------|------------------------|-----------------------|
|           |                  |          |             | Pickup or Below Volts  | Dropout or Above Volts | Must Hold Voltage (C) |
| 1         | 6                | DC       | 20 Ω        | 4.5                    | 0.3                    | 2.5                   |
| 2         | 12               | DC       | 95 Ω        | 9.0                    | 0.75                   | 4.5                   |
| 3         | 28               | DC       | 500 Ω       | 18.0                   | 1.5                    | 7.0                   |
| 4 (A)     | 28               | DC       | 500 Ω       | 18.0                   | 1.5                    | 7.0                   |
| 5         | 48               | DC       | 1600 Ω      | 36.0                   | 2.5                    | 14.0                  |

A. CODE 4 COILS HAVE BACK EMF SUPPRESSION TO 42 VOLTS MAX.

B. DC COIL RESISTANCE ± 10% AT 25°C

C. RELAY WILL STAY IN PICKED-UP STATE DOWN TO MUST HOLD VOLTAGES SHOWN.

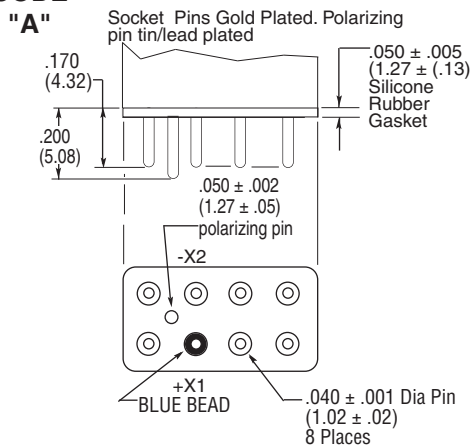
D. MAX. OVERVOLTAGE: 6 & 12 VDC COILS 120% OF NOMINAL; ALL OTHERS 110% OF NOMINAL.

## FCB-205 Series, 5 Amperes, DPDT (Continued)

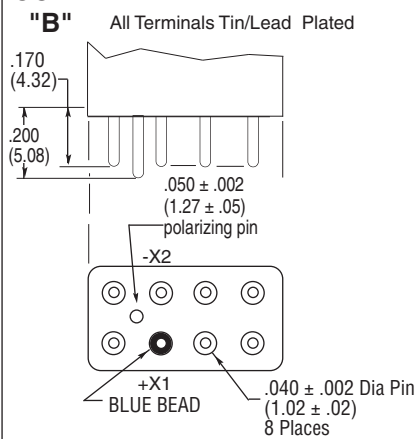
Below are shown the standard terminal types and the enclosures available. Specify the assembly as indicated under How To Order. Dimensions are shown in inches  $\pm .010$  and (Millimeters  $\pm .25$ ).

### Terminals

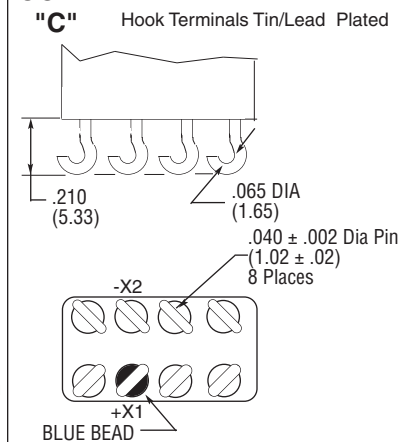
#### CODE "A" Socket Pin Terminals



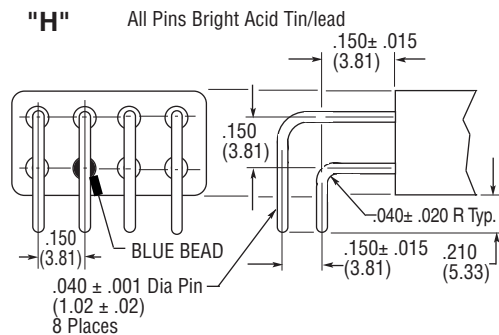
#### CODE "B" Solder Pin Terminals



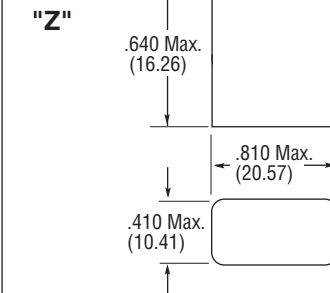
#### CODE "C" Solder Hook Terminals



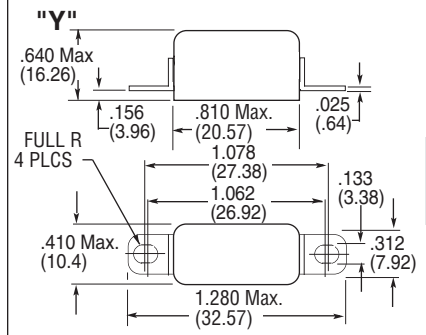
#### CODE "H" 90° Solder Pins



#### CODE "Z"



#### CODE "Y"



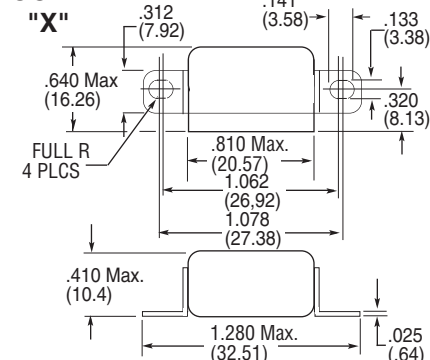
### Enclosures

All Enclosures have Cupro-Nickel Cans bright acid tin/lead plated after assembly to terminal headers.

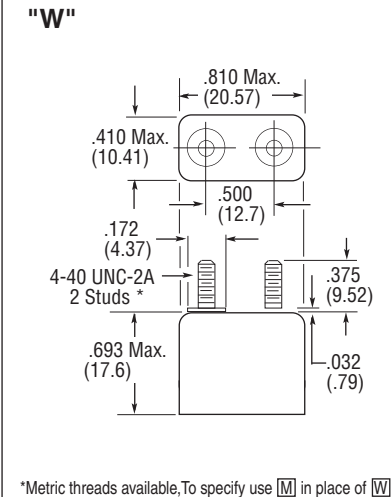
Dimensions: Inches  $\pm .010$  (mm  $\pm .25$ )

Enclosure "T" is for use with track mounted sockets and requires socket pin terminals, but no gasket. The gasket is included in the socket assembly.

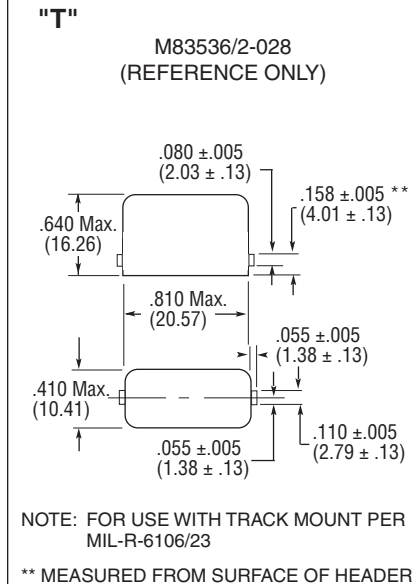
#### CODE "X"



#### CODE "W"



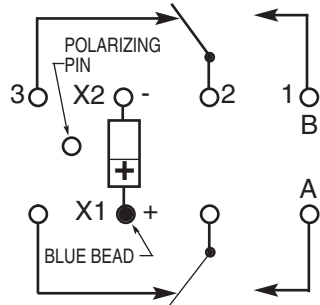
#### CODE "T"



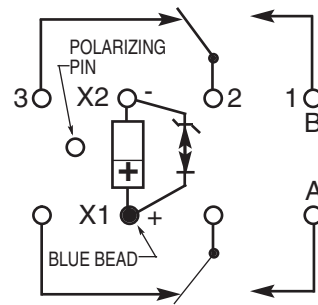
## FCB-205 Series, 5 Amperes, DPDT (Continued)

### Terminal Wiring

#### DC Coils



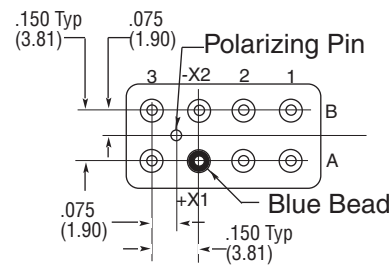
#### Transient Suppression



**NOTE:** Polarity must be observed with DC coil supply. Relay is polarized with a permanent magnet and will not operate or be damaged by reverse polarity.

Diodes used in transient suppression and in AC rectifier circuits have peak inverse voltage rating of 600 VDC minimum. Zener diodes have a minimum rating of 1 watt.

Terminal designations are for reference only and do not appear on the header.



TERMINAL VIEW

### HOW TO ORDER

|                                                  |                      |
|--------------------------------------------------|----------------------|
|                                                  | <b>FCB-205-A Y 4</b> |
| <b>RELAY TYPE</b>                                | _____                |
| <b>TERMINALS</b> (Socket Pins)                   | _____                |
| <b>ENCLOSURE</b> (With Flanges)                  | _____                |
| <b>COIL</b> (28 VDC With Transient Suppression). | _____                |

\* The part number example shown on this page is for catalog items. For a list of specific QPL part numbers, please see the index in Section 15.

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