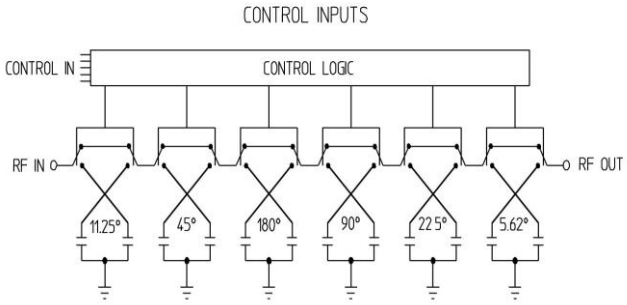
# PTB & PTM-64A SERIES – 6-BIT DIGITAL PHASE SHIFTER

## TECHNICAL FEATURE

## FEATURES

- 10 to 250 MHz
- Low RF Transients
- Fast Switching Time
- Monotonic Output
- BNC or SMA




### PRINCIPAL SPECIFICATIONS

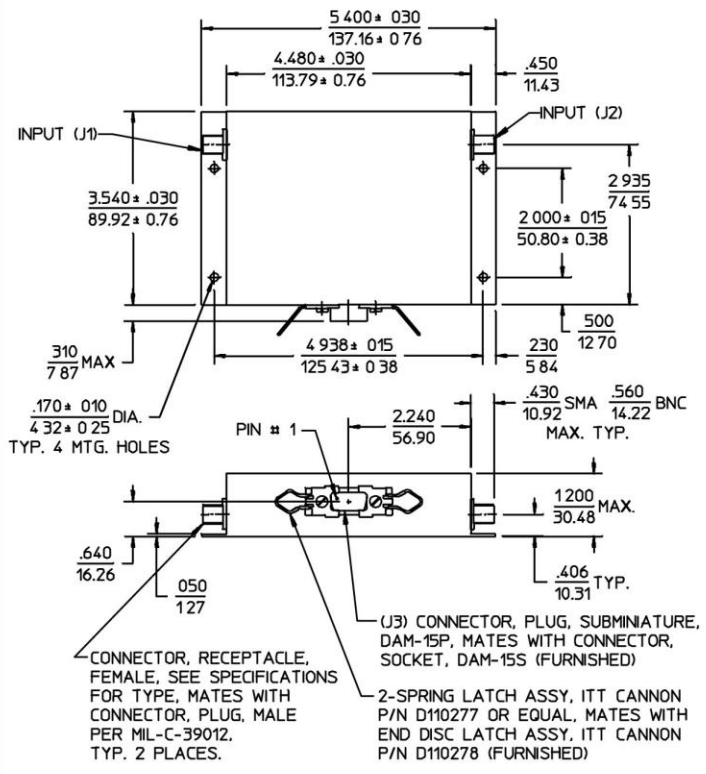
| Calibration Frequency $f_c$, MHz | SMA Model Number | BNC Model Number |
|---|---|---|
| 10 - 250 | PTM-64A-**B | PTB-64A-**B |

For complete model number replace ** with desired calibration frequency, fc, in MHz

### GENERAL SPECIFICATIONS

| | |
|---|---|
| Usable Bandwidth: | $f_c \pm 2.5\%$ |
| Phase Shift Range:: | 0° to 360° nom.@$f_c$ |
| Least Significant Bit: | 5.6° |
| Most Significant Bit: | 180° |
| Accuracy @ $f_c$: | 1/2 of LSB typ. (guaranteed monotonic) |
| Impedance: | 50 Ω nom. |
| VSWR: | 1.35:1 max. |
| Insertion Loss, $I_L$: | 3 dB nom. |
| $I_L$, Variation vs. Cont: | ±0.5 dB @ $f_c$ |
| Input Power: | +10 dBm max. |
| Control Input: | 6 Bit TTL |
| Logic Sense: | Positive |
| Supply Power: | +5 VDC @ 350 mA nom.<br>+15 VDC @ 100 mA nom. |
| Settling Time: | 100 ns typ., 250 ns max. |
| Weight, nominal: | 10 oz (285 g) |
| Operating Temp: | – 55° to +85°C |

### Package Outline




NOTES: 1. Tolerance on 3 place decimals ± .020(.51) except as noted.
2. Dimensions in inches over millimeters.

### Phase Shift Increments

| Bit | 1 (LSB) | 2 | 3 | 4 | 5 | 6 MSB) |
|---|---|---|---|---|---|---|
| Phase | 5.5° | 11.2° | 22.5° | 45.0° | 90.0° | 180° |

**General Notes:**

1. PTM-64A series phase shifters are controlled directly from TTL logic circuits and are available for center frequencies from 10 to 250 MHz.
2. Their lumped element design is inherently narrow band since it utilizes a quadrature hybrid in each switch section. However, this approach provides much smoother phase transitions than a switched cable design since the switching does not take place in the RF signal path. This feature makes the PTM-64A series preferable for applications where minimizing switching transients is important.
3. Accuracy and temperature stability of each phase shift section allows for a resolution of 5.6°, but as total phase shift increases, overall accuracy deteriorates due to cumulative internal reflections.

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