

# Coaxial Phase Detector

50Ω High Output 1 to 100 MHz

## ZRPD-1+



Generic photo used for illustration purposes only

CASE STYLE: M22

Connectors Model  
**BNC** ZRPD-1+  
**BRACKET (OPTION "B")**  
**BRACKET (OPTION "BR")**

**+RoHS Compliant**

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

### Maximum Ratings

|                       |                |
|-----------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature   | -55°C to 100°C |
| Input Power           | 50mW           |
| Peak IF current       | 20mA           |

Permanent damage may occur if any of these limits are exceeded.

### Coaxial Connections

|              |   |
|--------------|---|
| RF REF (RF2) | 1 |
| RF IN (RF1)  | 3 |
| DC OUT (I)   | 2 |

### Features

- wideband, 1 to 100 MHz
- low DC offset, 0.2 mV typ.
- high DC output, 1000 mV typ.

### Applications

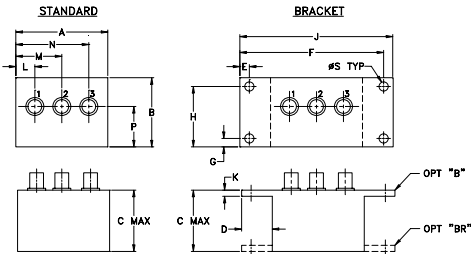
- monitoring circuits
- leveling circuits
- PLL

### Phase Detector Electrical Specifications

| FREQUENCY (MHz) | POWER IN | SCALE FACTOR | IMPEDANCE (ohms) Output Load I | ISOLATION (dB) | OUTPUT POLARITY | DC OUTPUT (mV) |                  | FIGURE OF MERIT |     |
|-----------------|----------|--------------|--------------------------------|----------------|-----------------|----------------|------------------|-----------------|-----|
|                 |          |              |                                |                |                 | Max. Typ.      | Offset Typ. Max. |                 |     |
| 1-100           | DC-50    | 7            | 8                              | 500            | 40              | neg.           | 1000 700         | 0.2 1           | 143 |

DC output decreases to 550mV over 1-10 MHz as temperature decreases to -55°C

### Outline Drawing

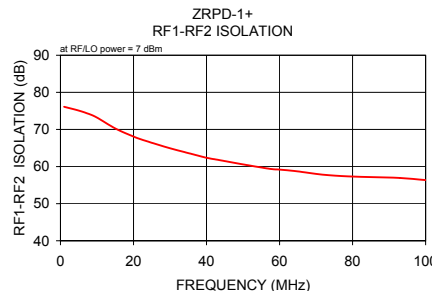
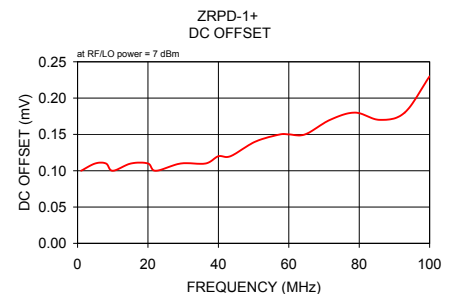
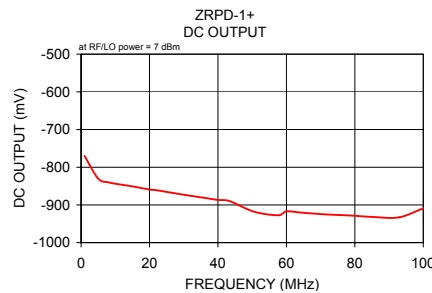


### Outline Dimensions (inch/mm)

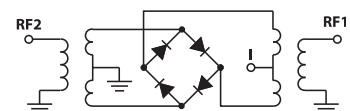
|       |       |       |       |       |       |      |       |
|-------|-------|-------|-------|-------|-------|------|-------|
| A     | B     | C     | D     | E     | F     | G    | H     |
| 2.25  | 1.38  | 1.24  | .50   | .150  | 3.100 | .138 | 1.238 |
| 57.15 | 35.05 | 31.50 | 12.70 | 3.81  | 78.74 | 3.51 | 31.45 |
| J     | K     | L     | M     | N     | P     | S    | wt    |
| 3.25  | .10   | .40   | 1.15  | 1.86  | .64   | .150 | grams |
| 82.55 | 2.54  | 10.16 | 29.21 | 47.24 | 16.26 | 3.81 | 74.0  |

### Typical Performance Data

| Frequency (MHz) | DC Output mV |          | DC Offset mV |          | RF1-RF2 Isolation (dB) |
|-----------------|--------------|----------|--------------|----------|------------------------|
|                 | $\bar{X}$    | $\sigma$ | $\bar{X}$    | $\sigma$ |                        |
| 1.00            | -769.98      | 14.85    | 0.10         | 0.16     | 76.12                  |
| 5.00            | -830.34      | 8.90     | 0.11         | 0.18     | 75.09                  |
| 8.07            | -840.24      | 14.44    | 0.11         | 0.18     | 74.07                  |
| 10.00           | -843.71      | 14.61    | 0.10         | 0.18     | 73.19                  |
| 15.14           | -851.12      | 17.01    | 0.11         | 0.19     | 70.19                  |
| 20.00           | -859.20      | 18.91    | 0.11         | 0.19     | 68.10                  |
| 22.21           | -861.26      | 20.52    | 0.10         | 0.20     | 67.28                  |
| 29.29           | -872.02      | 22.55    | 0.11         | 0.21     | 65.14                  |
| 36.36           | -881.57      | 24.77    | 0.11         | 0.22     | 63.29                  |
| 40.00           | -886.86      | 25.39    | 0.12         | 0.23     | 62.38                  |
| 43.43           | -889.93      | 26.41    | 0.12         | 0.23     | 61.76                  |
| 50.50           | -917.82      | 25.99    | 0.14         | 0.25     | 60.51                  |
| 57.57           | -927.50      | 28.69    | 0.15         | 0.27     | 59.35                  |
| 60.00           | -917.14      | 33.08    | 0.15         | 0.26     | 59.18                  |
| 64.64           | -920.62      | 38.60    | 0.15         | 0.27     | 58.73                  |
| 71.71           | -925.22      | 45.18    | 0.17         | 0.31     | 57.82                  |
| 78.79           | -928.03      | 51.83    | 0.18         | 0.31     | 57.35                  |
| 85.86           | -932.34      | 57.31    | 0.17         | 0.31     | 57.15                  |
| 92.93           | -932.98      | 60.65    | 0.18         | 0.38     | 56.93                  |
| 100.00          | -909.17      | 74.27    | 0.23         | 0.43     | 56.36                  |



### electrical schematic



### Notes

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