

Plug-In

# Phase Detector

50Ω High Output 1 to 100 MHz

RPD-1+

## Maximum Ratings

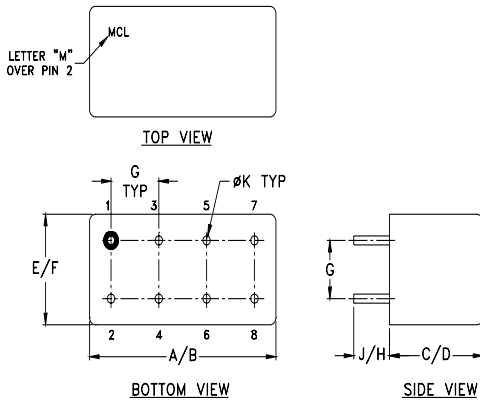
|                       |                |
|-----------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature   | -55°C to 100°C |
| Input Power           | 50mW           |
| Peak IF current       | 20mA           |

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

## Pin Connections

|              |         |
|--------------|---------|
| RF REF (RF2) | 8       |
| RF IN (RF1)  | 1       |
| DC OUT (I)   | 3,4     |
| GROUND       | 2,5,6,7 |
| CASE GROUND  | 2       |

## Outline Drawing



## Outline Dimensions (inch mm)

| A     | B     | C    | D     | E    | F     |
|-------|-------|------|-------|------|-------|
| .770  | .800  | .385 | .400  | .370 | .400  |
| 19.56 | 20.32 | 9.78 | 10.16 | 9.40 | 10.16 |
| G     | H     | J    | K     |      |       |
| .200  | .20   | .14  | .031  |      |       |
| 5.08  | 5.08  | 3.56 | 0.79  |      |       |
|       |       |      |       | wt   | grams |
|       |       |      |       |      | 5.2   |

## Features

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

## Applications

- monitoring circuits
- leveling circuits
- PLL

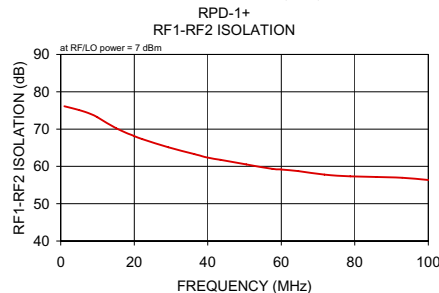
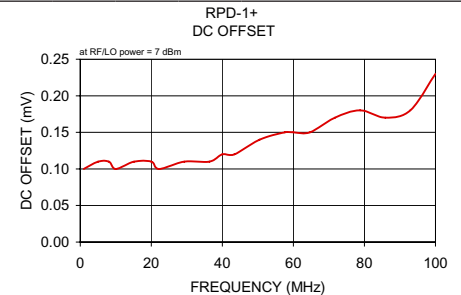
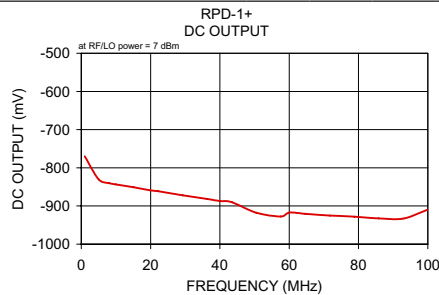
## Phase Detector Electrical Specifications

| FREQUENCY (MHz) | POWER IN                 | SCALE FACTOR | IMPEDANCE (ohms) | ISOLATION (dB)  | OUTPUT POLARITY     | DC OUTPUT (mV)                     | FIGURE OF MERIT    |
|-----------------|--------------------------|--------------|------------------|-----------------|---------------------|------------------------------------|--------------------|
| RF1<br>RF2      | I<br>RF1<br>RF2<br>(dBm) | mV/deg.      | Output Load I    | RF1/RF2<br>Min. | RF1/RF2<br>In-Phase | Max. Offset<br>Typ. Min. Typ. Max. | Typ.               |
| 1-100           | DC-50                    | 7            | 8                | 500             | 40                  | neg.                               | 1000 700 0.2 1 143 |

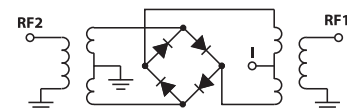
DC output decreases to 550mV over 1-10 MHz as temperature decreases to -55°C

## Typical Performance Data

| Frequency (MHz) | DC Output mV       | DC Offset mV       | RF1-RF2 Isolation (dB) |
|-----------------|--------------------|--------------------|------------------------|
|                 | $\bar{X}$ $\sigma$ | $\bar{X}$ $\sigma$ | $\bar{X}$              |
| 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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