

# Phase Shifter

50Ω 180° Voltage Variable 700 to 1000 MHz

## JSPHS-1000+

### Maximum Ratings

|                       |                |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C  |
| Storage Temperature   | -55°C to 100°C |
| RF Input Power        | 20 dBm max.    |
| Control Voltage       | 28V            |

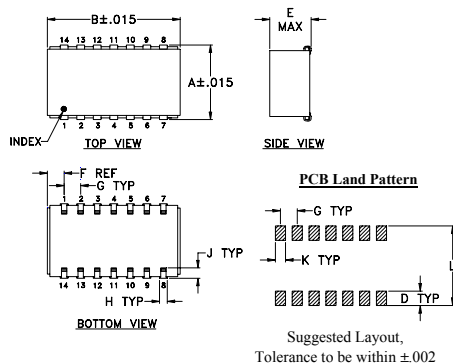
Permanent damage may occur if any of these limits are exceeded.

### Pin Connections

|        |                          |
|--------|--------------------------|
| IN     | 1                        |
| OUT    | 7                        |
| BIAS   | 4,6 <sup>^</sup>         |
| GROUND | 2,3,5,8,9,10,11,12,13,14 |

<sup>^</sup> proper operation is achieved with pins 4 or 6 or both connected to BIAS.

### Outline Drawing



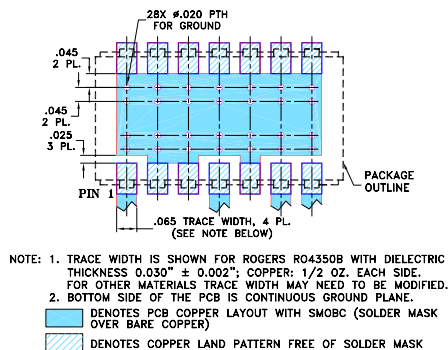
### Outline Dimensions (inch mm)

| A     | B     | C  | D    | E    | F    | G    |
|-------|-------|----|------|------|------|------|
| .450  | .803  | -- | .100 | .250 | .102 | .100 |
| 11.43 | 20.40 | -- | 2.54 | 6.35 | 2.59 | 2.54 |

| H    | J    | K    | L     | wt    |
|------|------|------|-------|-------|
| .047 | .065 | .065 | .470  | grams |
| 1.19 | 1.65 | 1.65 | 11.94 | 3.0   |

### Demo Board MCL P/N: TB-122 Suggested PCB Layout (PL-030)



#### Notes

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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### Features

- low insertion loss, 1.4 dB typ.
- good VSWR, 1.3:1 typ.
- solder-plated J-leads for excellent solderability and strain relief
- aqueous washable

### Applications

- cellular



Generic photo used for illustration purposes only

CASE STYLE: BK276

### +RoHS Compliant

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

### Phase Shifter Electrical Specifications

| FREQUENCY (MHz) | PHASE RANGE (Degrees) | INSERTION LOSS (dB) |      | CONTROL VOLTAGE (V) | CONTROL BANDWIDTH (kHz) | VSWR (:1) |      |
|-----------------|-----------------------|---------------------|------|---------------------|-------------------------|-----------|------|
|                 | Min.                  | Typ.                | Max. |                     |                         | Typ.      | Max. |
| 700-850         | 180                   | 1.2                 | 2.3  | 0-15                | DC-50                   | 1.2       | 2.6  |
| 850-1000        | 160                   | 1.2                 | 2.0  | 0-15                | DC-50                   | 1.2       | 2.0  |

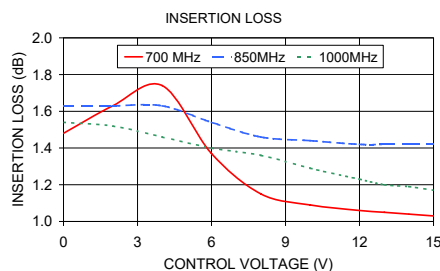
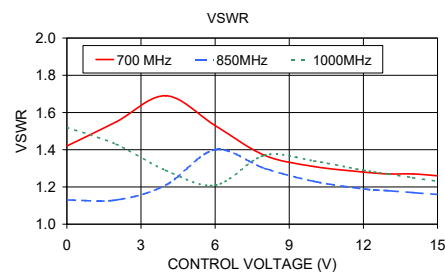
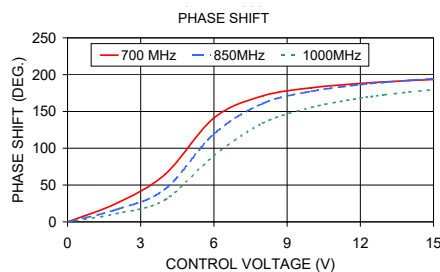
Maximum operating power, 0 dBm

DC input resistance at Control port: 18200 ohms typ.

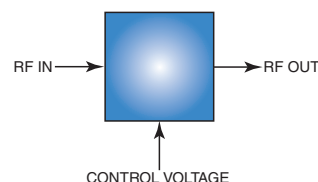
### Typical Performance Data

| Control Voltage (V) | Phase Shift* (Degrees) |         |          | VSWR (:1) |         |          | Insertion Loss (dB) |         |          |
|---------------------|------------------------|---------|----------|-----------|---------|----------|---------------------|---------|----------|
|                     | 700 MHz                | 850 MHz | 1000 MHz | 700 MHz   | 850 MHz | 1000 MHz | 700 MHz             | 850 MHz | 1000 MHz |
| 0.00                | 0.00                   | 0.00    | 0.00     | 1.42      | 1.13    | 1.52     | 1.48                | 1.63    | 1.54     |
| 2.00                | 25.08                  | 16.78   | 11.21    | 1.55      | 1.13    | 1.43     | 1.63                | 1.63    | 1.52     |
| 4.00                | 64.66                  | 44.54   | 30.16    | 1.69      | 1.21    | 1.29     | 1.74                | 1.63    | 1.46     |
| 6.00                | 141.20                 | 119.49  | 89.61    | 1.53      | 1.40    | 1.21     | 1.37                | 1.54    | 1.40     |
| 8.00                | 171.07                 | 160.75  | 134.12   | 1.37      | 1.30    | 1.37     | 1.15                | 1.46    | 1.36     |
| 10.00               | 182.16                 | 177.41  | 155.54   | 1.31      | 1.23    | 1.34     | 1.09                | 1.44    | 1.29     |
| 12.00               | 188.09                 | 186.53  | 168.05   | 1.28      | 1.19    | 1.29     | 1.06                | 1.42    | 1.23     |
| 13.00               | 190.18                 | 189.72  | 172.58   | 1.27      | 1.18    | 1.27     | 1.05                | 1.42    | 1.20     |
| 14.00               | 191.91                 | 192.37  | 176.43   | 1.27      | 1.17    | 1.25     | 1.04                | 1.42    | 1.19     |
| 15.00               | 193.41                 | 194.57  | 179.67   | 1.26      | 1.16    | 1.23     | 1.03                | 1.42    | 1.17     |

\* Normalized at control voltage = 0V



### electrical schematic



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