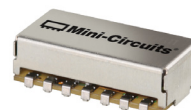


Surface Mount

# Phase Shifter

50Ω 180° Voltage Variable 2150 to 2484 MHz

JSPHS-2484+



CASE STYLE: BK276

## 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            |

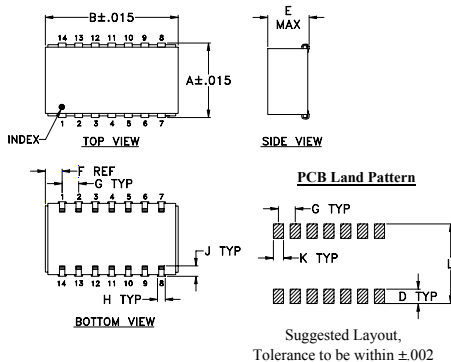
Permanent damage may occur if any of these limits are exceeded.

## Pin Connections

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

^ proper operation is achieved with pins 4 or 6 or both connected to BIAS.

## Outline Drawing



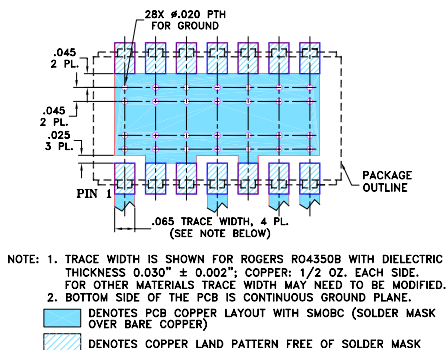
## Outline Dimensions (inch mm)

| 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)



## Features

- low insertion loss, 2.0 dB typ.
- good VSWR, 1.5:1 typ.
- J-leads for excellent solderability and strain relief
- aqueous washable

## Applications

- mobile
- radio location

## Phase Shifter Electrical Specifications

| FREQUENCY (MHz) | PHASE RANGE (Degrees) | INSERTION LOSS (dB) | CONTROL VOLTAGE (V) | CONTROL BANDWIDTH (kHz) | VSWR (:1) |
|-----------------|-----------------------|---------------------|---------------------|-------------------------|-----------|
|                 | Min.                  | Typ. Max.           |                     | Typ.                    | Typ. Max. |
| 2150-2484       | 180                   | 2.0 5.6             | 0-15                | DC-50                   | 1.5 2.0   |

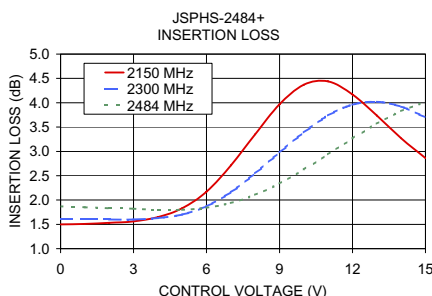
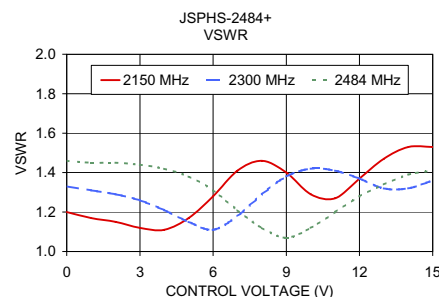
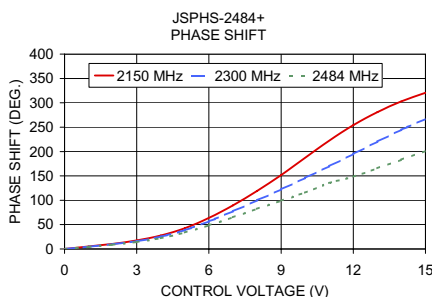
Maximum operating power, 0 dBm

DC input resistance at Control port: 2000 ohms typ.

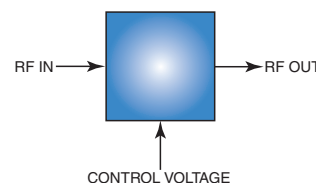
## Typical Performance Data

| Control Voltage (V) | Phase Shift* (Degrees) |          |          | VSWR (:1) |          |          | Insertion Loss (dB) |          |          |
|---------------------|------------------------|----------|----------|-----------|----------|----------|---------------------|----------|----------|
|                     | 2150 MHz               | 2300 MHz | 2484 MHz | 2150 MHz  | 2300 MHz | 2484 MHz | 2150 MHz            | 2300 MHz | 2484 MHz |
| 0.0                 | 0.01                   | 0.00     | 0.00     | 1.20      | 1.33     | 1.46     | 1.50                | 1.60     | 1.87     |
| 1.0                 | 5.06                   | 4.69     | 4.22     | 1.17      | 1.31     | 1.45     | 1.51                | 1.60     | 1.85     |
| 2.0                 | 10.50                  | 9.70     | 8.68     | 1.15      | 1.29     | 1.45     | 1.53                | 1.60     | 1.83     |
| 3.0                 | 17.42                  | 16.05    | 14.29    | 1.12      | 1.26     | 1.44     | 1.56                | 1.60     | 1.82     |
| 4.0                 | 27.60                  | 25.25    | 22.27    | 1.11      | 1.21     | 1.42     | 1.65                | 1.63     | 1.80     |
| 5.0                 | 42.79                  | 38.72    | 33.71    | 1.17      | 1.15     | 1.38     | 1.83                | 1.70     | 1.80     |
| 6.0                 | 63.72                  | 56.65    | 48.52    | 1.28      | 1.11     | 1.31     | 2.17                | 1.87     | 1.84     |
| 7.0                 | 89.57                  | 77.62    | 65.24    | 1.41      | 1.18     | 1.21     | 2.71                | 2.16     | 1.94     |
| 8.0                 | 119.07                 | 99.77    | 82.32    | 1.46      | 1.29     | 1.12     | 3.35                | 2.55     | 2.11     |
| 9.0                 | 151.83                 | 122.45   | 99.06    | 1.40      | 1.38     | 1.07     | 3.97                | 2.98     | 2.34     |
| 10.0                | 187.02                 | 145.74   | 115.49   | 1.29      | 1.42     | 1.12     | 4.37                | 3.39     | 2.63     |
| 11.0                | 222.21                 | 169.98   | 135.24   | 1.27      | 1.41     | 1.20     | 4.44                | 3.74     | 2.94     |
| 12.0                | 254.14                 | 195.10   | 148.56   | 1.37      | 1.37     | 1.28     | 4.17                | 3.96     | 3.27     |
| 13.0                | 280.85                 | 220.25   | 165.52   | 1.47      | 1.32     | 1.28     | 3.74                | 4.02     | 3.57     |
| 14.0                | 302.85                 | 244.62   | 183.15   | 1.53      | 1.32     | 1.39     | 3.27                | 3.92     | 3.83     |
| 15.0                | 320.70                 | 266.91   | 201.15   | 1.53      | 1.36     | 1.41     | 2.86                | 3.70     | 4.02     |

\* Normalized at control voltage = 0V



## electrical schematic



## Notes

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[www.minicircuits.com](http://www.minicircuits.com) P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

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