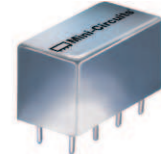


Phase Shifter

50Ω 180° Voltage Variable 13 to 16 MHz

SPH-16+



CASE STYLE: A01
PRICE: \$32.20 ea. QTY (1-9)

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

Maximum Ratings

| | |
|---|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Input Power | 20 dBm max. |
| Control Voltage | 15V |
| 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 |
| CASE GROUND | 2,3,5,8 |

^ pins must be connected together externally

Features

- low insertion loss, 1.2 dB typ.
- hermetically sealed

Applications

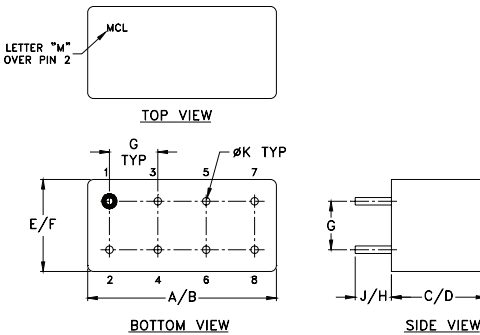
- signal processing

Phase Shifter Electrical Specifications

| FREQUENCY (MHz) | PHASE RANGE (Degrees) | INSERTION LOSS (dB) | | CONTROL VOLTAGE (V) | CONTROL BANDWIDTH (kHz) | VSWR (:1) | |
|-----------------|-----------------------|---------------------|------|---------------------|-------------------------|-----------|------|
| | | Typ. | Max. | | | Typ. | Max. |
| 13-16 | 180 | 1.2 | 2.5 | 0-7 | DC-50 | 1.2 | 1.7 |

Maximum operating power, 0 dBm

Outline Drawing



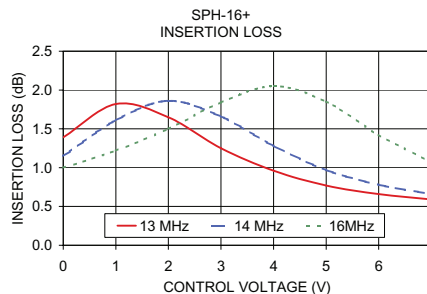
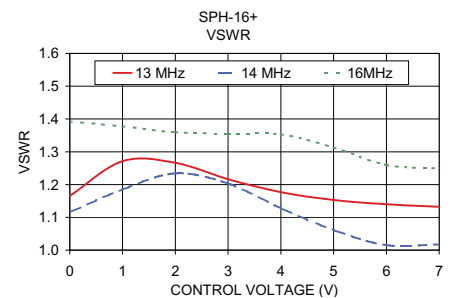
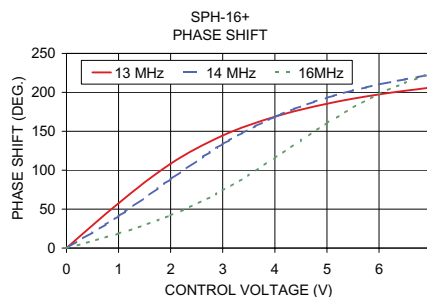
Outline Dimensions (inch/mm)

| 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 | wt | |
| .200 | .20 | .14 | .031 | grams | |
| 5.08 | 5.08 | 3.56 | 0.79 | 5.2 | |

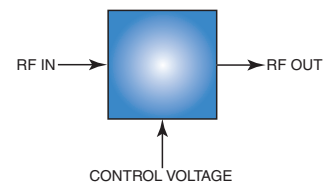
Typical Performance Data

| Control Voltage (V) | Phase Shift* (Degrees) | | | VSWR (:1) | | | Insertion Loss (dB) | | |
|---------------------|------------------------|--------|--------|-----------|--------|--------|---------------------|--------|--------|
| | 13 MHz | 14 MHz | 16 MHz | 13 MHz | 14 MHz | 16 MHz | 13 MHz | 14 MHz | 16 MHz |
| 0.00 | 0.00 | 0.00 | 0.00 | 1.17 | 1.12 | 1.39 | 1.39 | 1.15 | 1.00 |
| 1.00 | 57.44 | 41.06 | 18.65 | 1.27 | 1.18 | 1.38 | 1.82 | 1.61 | 1.22 |
| 2.00 | 108.31 | 88.40 | 42.06 | 1.27 | 1.23 | 1.36 | 1.65 | 1.86 | 1.50 |
| 3.00 | 144.57 | 133.55 | 74.05 | 1.22 | 1.20 | 1.36 | 1.25 | 1.66 | 1.84 |
| 4.00 | 168.76 | 168.44 | 115.77 | 1.18 | 1.13 | 1.35 | 0.96 | 1.28 | 2.05 |
| 5.00 | 185.36 | 193.01 | 160.59 | 1.15 | 1.06 | 1.31 | 0.77 | 0.97 | 1.85 |
| 6.00 | 197.26 | 210.26 | 198.14 | 1.14 | 1.01 | 1.26 | 0.66 | 0.78 | 1.42 |
| 7.00 | 206.27 | 222.75 | 225.09 | 1.13 | 1.02 | 1.25 | 0.59 | 0.66 | 1.07 |

* Normalized at control voltage = 0 V



electrical schematic



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-Circuits' applicable established test performance criteria and measurement instructions.
- The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

