

# MINIATURE ANALOG DIODE PHASE SHIFTERS

0.1–8.0 GHz

# SERIES MQ

## GENERAL INFORMATION

The MQ Series are miniature analog phase shifters that continuously change the phase of a microwave signal by varying a D.C. voltage. Since the D.C. voltage applied to the diode is a reverse bias, the current drain is negligible (typically less than 10 microamperes). A balanced stripline configuration keeps the VSWR and amplitude ripple to a minimum for all values of phase shift.

## GENERAL SPECIFICATIONS

<b>Frequency Range:</b>	0.1 to 8.0 GHz
<b>RF Impedance:</b>	50 OHMS
<b>D.C. Voltage:</b>	0 volts to +28 volts
<b>RF Power:</b>	10 mW peak or CW, operating. Destruct level is 1 W, CW, 100 W peak.
<b>Temperature Information:</b>	The units can be used over a $-55^{\circ}\text{C}$ to $+85^{\circ}\text{C}$ temperature range. However, the phase will change either $\pm 5^{\circ}$ or $+5\%$ , whichever is greater.
<b>Switching Speed:</b>	Series MQ phase shifters can be driven from any phase value to any other value in 10 nanoseconds.
<b>Connectors:</b>	SMA connectors

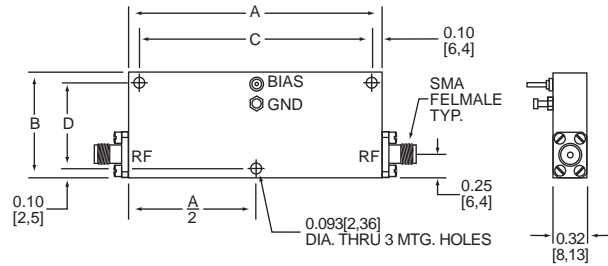


FIGURE 2

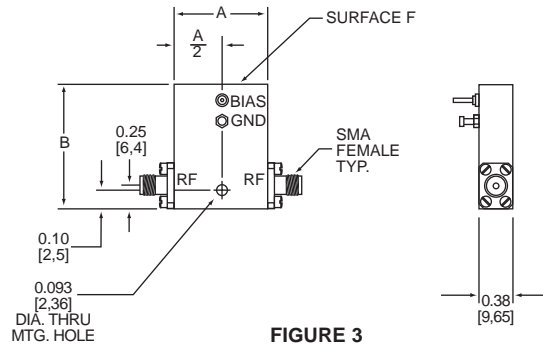


FIGURE 3

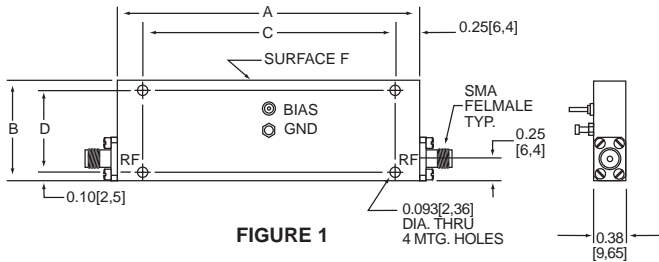


FIGURE 1

## ELECTRICAL PERFORMANCE

## MECHANICAL OUTLINES

Model No.	Frequency Range (GHz)	Phase Shift Minimum (Degrees)	Insertion Loss Maximum (dB)	Amplitude Ripple Maximum ( $\pm$ dB)	VSWR Maximum	Figure	No. of Mounting Holes	A in [mm]	B in [mm]	C in [mm]	D in [mm]
MQ-13	0.1–0.2	360	5.0	1.25	2.5	1	4	6.00 [152,4]	3.00 [76,2]	5.500 [139,7]	2.800 [71,12]
MQ-14	0.2–0.4	60	0.75	0.25	1.50	2	3	1.20 [30,48]	1.50 [38,1]	1.000 [25,4]	1.300 [33,02]
MQ-27	0.5–1.0	180	4.0	0.7	1.75	2	3	2.80 [71,12]	1.10 [27,94]	2.600 [66,04]	0.900 [22,86]
MQ-28	0.5–1.0	360	6.0	1.25	2.0	1	4	4.50 [114,3]	1.10 [27,94]	4.000 [101,6]	0.900 [22,86]
MQ-34	1.0–2.0	360	6.5	1.5	2.25	1	4	3.80 [96,5]	1.20 [30,48]	3.300 [83,82]	1.000 [25,4]
MQ-44	2.0–4.0	180	4.0	0.75	2.0	2	3	2.40 [61,0]	1.00 [25,4]	2.200 [55,9]	0.800 [20,3]
MQ-45	2.0–4.0	360	7.0	1.75	2.25	1	4	3.50 [88,9]	1.00 [25,4]	3.000 [76,2]	0.800 [20,3]
MQ-59	4.0–8.0	40	1.4	0.25	2.0	3	1	0.60 [15,2]	1.00 [25,4]	—	—
MQ-60	4.0–8.0	360	8.5	2.0	2.5	1	4	3.00 [76,2]	1.00 [25,4]	2.500 [63,5]	0.800 [20,3]

KEY: Inches[Millimeters] .XX  $\pm$  .03 .XXX  $\pm$  .010 [.X  $\pm$  0.8 .XX  $\pm$  0.25]



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