Phase Shifters

Continuously Variable Analog and Switch Line Digital Phase Shifters

Data Sheet 10/26/17

The most important thing we build is trust

Analog Diode Phase Shifters

Description

Analog Phase Shifters continuously changes the phase of a microwave signal by varying a DC voltage. Since the DC voltage applied to the diode is reverse bias, the current drain is negligible (typically less than 10uA). A balanced stripline configuration keeps the VSWR and amplitude ripple to a minimum for all values of phase.

Frequency Range (GHz)	Part Number	Phase Shift (Degrees)	Insertion Loss (Max) (dB)	Amplitude Ripple (Max) (±dB)	VSWR (Max) (Ratio)
0.25 - 0.5	PQ-17	360	4.5	1.25	2.0:1
0.5 - 1.0	PQ-27	180	4	0.4	1.75:1
0.5 - 1.0	PQ-28	360	5	1.25	2.0:1
1.0 - 2.0	PQ-34	360	5.5	1.5	2.0:1
2.0 - 4.0	PQ-44	180	4	0.5	1.75:1
2.0 - 4.0	PQ-45	360	6	1.5	2.0:1
2.0 - 4.0	PQ-59	40	1.25	0.3	1.75:1
4.0 - 8.0	PQ-60	360	8	1.5	2.0:1
7.0 - 12.0	PQ-66	360	14	2.0	2.5:1
8.0 – 12.0	PQ-72	60	2	0.5	2.0:1
8.0 – 10.0	PQ-73	180	6	1	2.0:1

Part Number	"A"	"B"	"C"	"D"	"E"	"F"	"G"	Outline
PQ-17	7.75	2.50	N/A	2.30	7.25	0.75	4PLCS	10
PQ-27	5.00	2.00	N/A	1.80	4.50	0.25	4PLCS	3
PQ-28	7.75	2.50	N/A	2.30	7.25	0.25	4PLCS	4
PQ-34	6.50	2.50	N/A	2.30	6.00	0.25	4PLCS	8
PQ-44	5.00	2.00	N/A	1.80	4.50	0.25	4PLCS	3
PQ-45	6.50	2.00	N/A	1.80	6.00	0.25	4PLCS	5
PQ-59	1.25	2.00	0.63	1.80	0.75	0.25	3PLCS	2
PQ-60	5.00	2.00	N/A	1.80	4.50	0.50	4PLCS	9
PQ-66	5.00	2.00	N/A	1.80	4.50	0.50	4PLCS	9
PQ-72	1.25	2.00	0.63	1.80	0.75	0.25	3PLCS	2
PQ-73	3.00	2.0	1.5	1.80	2.50	0.25	3PLCS	7

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Digital Phase Shifters

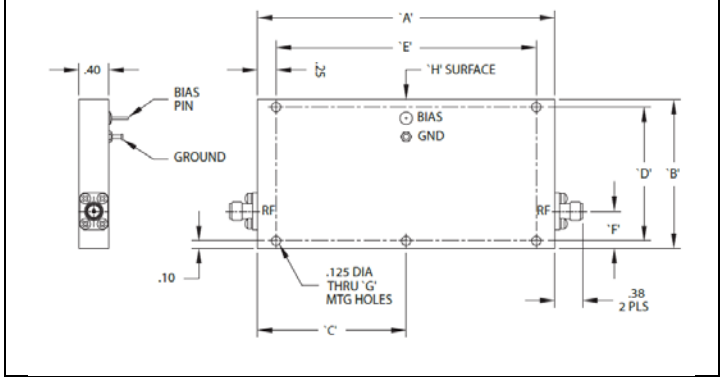
Description

Digitally Controlled Phase Shifters vary the phase of a microwave signal in response to a TTL compatible logic input signal. The unit consists of an analog phase shifter, series ACPS, plus a digital to analog converter. A balanced stripline configuration keeps the VSWR and amplitude change to a minimum for all values of phase. Standard units operate with 8 BITS allowing 256 discrete values of phase.

Frequency Range (GHz)	Part Number	Phase Shift (Degrees)	Insertion Loss (Max) (dB)	Amplitude Ripple (Max) (±dB)	VSWR (Max) (Ratio)
0.25 - 0.5	QQ-17	360	4.5	1.25	2.0:1
0.5 - 1.0	QQ-27	180	4	0.4	1.75:1
0.5 - 1.0	QQ-28	360	5	1.25	2.0:1
1.0 - 2.0	QQ-34	360	5.5	1.5	2.0:1
2.0 - 4.0	QQ-44	180	4	0.5	1.75:1
2.0 - 4.0	QQ-45	360	6	1.5	2.0:1
4.0 - 8.0	QQ-60	360	8	1.5	2.0:1
7.0 - 12.0	QQ-66	360	14	2.0	2.5:1
8.0 – 10.0	QQ-73	180	6	1.0	2.0:1

Part Number	"A"	"B"	"C"	"D"	"E"	"F"	"G"	Outline
QQ-17	7.75	2.50	N/A	2.30	7.25	0.75	4PLCS	2
QQ-27	5.00	2.00	N/A	1.80	4.50	0.50	4PLCS	1
QQ-28	7.75	2.50	N/A	2.30	7.25	0.25	4PLCS	5
QQ-34	7.75	2.50	N/A	2.30	7.25	0.25	4PLCS	5
QQ-44	5.50	2.00	N/A	1.80	4.50	0.25	4PLCS	6
QQ-45	6.50	2.00	N/A	1.80	6.00	0.25	4PLCS	3
QQ-60	5.00	2.00	N/A	1.80	4.50	0.50	4PLCS	1
QQ-66	5.00	2.00	N/A	1.80	4.50	0.50	4PLCS	1
QQ-73	3.00	2.00	1.50	1.80	2.50	0.30	3PLCS	4

Outline Case Style Analog Diode



Outline Case Style Digital