

QQ-60

Digitally Controlled Analog Phase Shifters

Features

- 8 bit Digital logic standard
- Octave bands up to 18 GHz
- RF power operation 10mW peak/CW, RF power survival 100mW peak/CW
- Custom configurations available



Specifications:

Parameter	Specification	Units
Frequency Range (min)	4.0 – 8.0	GHz
Phase Shift	360	Degrees
Insertion Loss (Max)	8	dB
Amplitude Ripple (Max)	1.5	±dB
VSWR (Max)	2.0:1	Ratio

Screening:

Internal Visual per MIL-STD-883, Method 2017
Temperature Cycle: -65 °C to +100 °C, 10 cycles

Hermetically-sealed switches are fine and gross leak checked per MIL-STD-883, Method 1014.

Optional High-Rel screening available upon request. Contact the factory to discuss your screening requirements.

Environmental Specifications:

Designed to meet:

MIL-E-5400, MIL-STD-202, MIL-E-16400

Operating Temp: -0 °C to +60°C

Storage Temp: -65°C to +150°C

Humidity: MIL-STD-202F, M103, Cond B

Shock: MIL-STD-202F, M213, Cond B

Altitude: MIL-STD-202F, M105, Cond B

Vibration: MIL-STD-202F, M204, Cond B

Thermal Shock: MIL-STD-202F, M107, Cond A

Temperature Cycle: MIL-STD-202F, M105C, Cond D

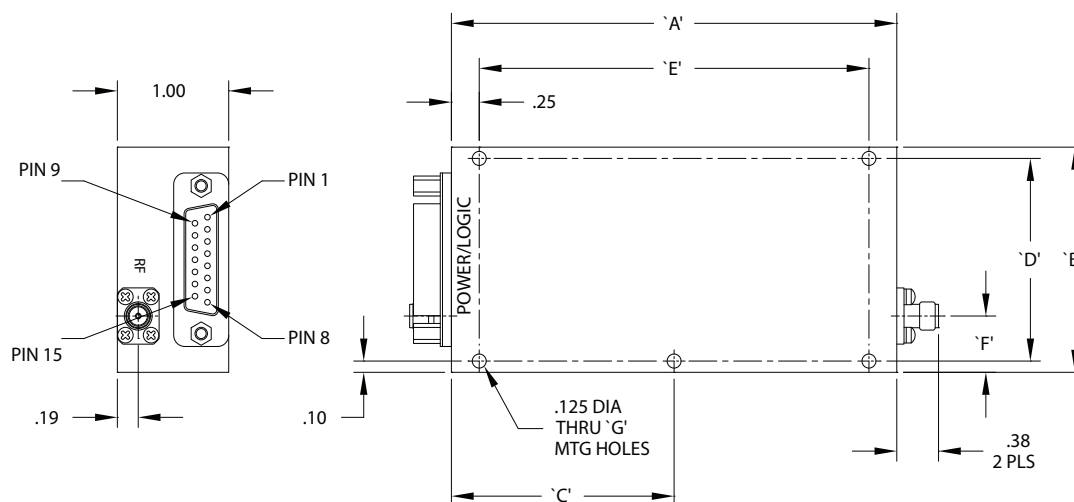
Additional Electrical Specifications:

DC Supply: +15 V ±0.5 V @ +50 mA
-15 V ±0.5 V @ -50 mA
Control: 8 Bits command
Logic Levels: TTL/HMOS

Mechanical Specifications:

Case Style: QQ Outline
Connectors: SMA Female per MIL-C-39012
Connector Control: 15 Pin D
Mounting: ø0.10" through holes (4) places

Outline Drawing:



Outline	A'	B'	C'	D'	E'	F'	G'
1	5.00	2.00	N/A	1.80	4.50	0.50	4 PLCS

OUTLINE CASE STYLE QQ

Notes:

1. The voltages required are $\pm 15V @ 50mA$.
2. The Phase shift varies with frequency at any voltage setting. This variation, referenced to 0° at logic 0 for each frequency, is approximately $\pm 15\%$ for octave models, 10% for models with 25% bandwidth, and $\pm 7.5\%$ for models with 10% bandwidth. Phase flatness of the QQ-65 & QQ-74 is $\pm 25\%$.
3. Switching speed on all models is 200 nS .
4. Monotonicity is Guaranteed.
5. Least Significant BIT = Total Phase Shift divided by the number of steps. $8 \text{ BITS} = 256 \text{ steps}$.

Custom Options – Contact the Factory

- Gray epoxy paint per MIL-C-22750
- Video transient suppression
- GPO connectors
- ECL logic input
- Phase and amplitude tracking
- Other frequency ranges available from 1 MHz to 26 GHz
- Reversed logic
- Available without SMA connectors for drop-in applications
- High rel screening

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ISO 9001:2008 certified



Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.