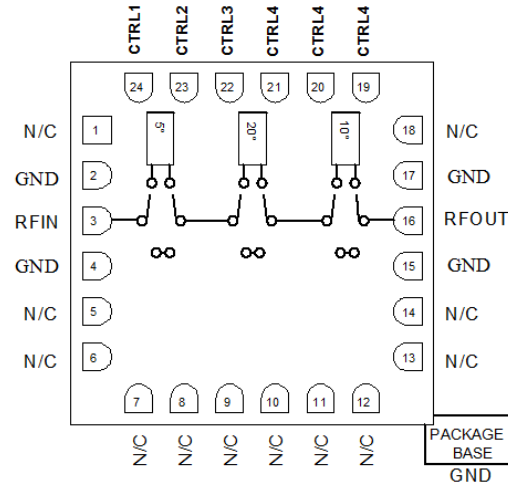


**Features**

- Frequency: 1-3GHz
- 3-Bit Digital Control Phase Shifter
- Phase Shift Range: 35°
- Minimum Phase Shift: 5°
- Phase Shift Accuracy RMS: 3.5°
- Insertion Loss: 1.8dB Typical
- Amplitude Variation: 0.8dB Typical
- Input/Output: 50Ω
- Package Size : 4x4x0.8mm

**Typical Applications**

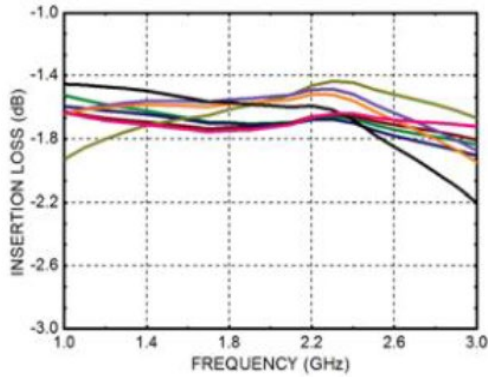
- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

**Functional Block Diagram**

**Electrical Specifications**

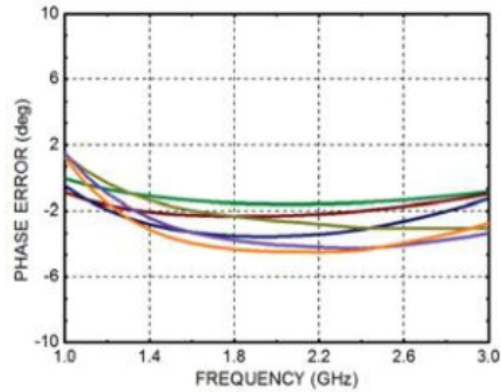
TA = +25°C, Vctl = 0/-5V

Parameters	Min.	Typ.	Max.	Units
Frequency	1		3	GHz
Insertion Loss		1.8	2.5	dB
Insertion Loss Variation		0.8		dB
Phase Shift Accuracy RMS		3.5		°
Phase-shifting Amplitude Modulation		±0.5		dB
Amplitude Variation		0.8		dB
Input Return Loss		15		dB
Output Return Loss		15		dB
P1dB - Input 1dB Compression		24		dBm
Switching Speed		30		ns

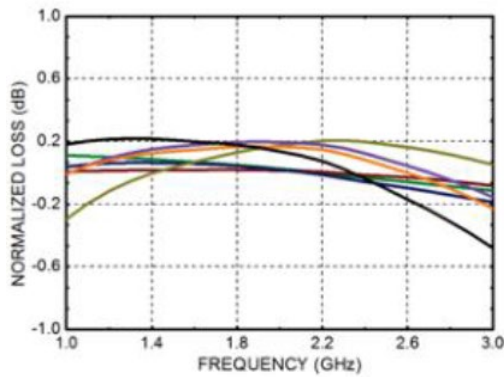
### Insertion Loss(Full-state)



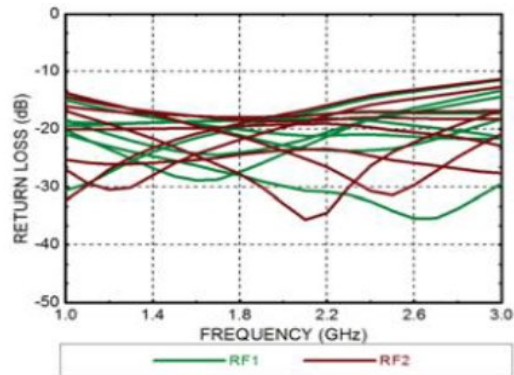
### Phase Shift Accuracy(Full-state)



### Amplitude Modulation(Full-state)



### Return Loss(Full-state)



**Absolute Maximum Ratings**

Control Voltage, Vctl	-8V
RF Input Power	+24dBm
Operating Temperature	-55°C to +85 °C
Storage Temperature	-55°C to +150 °C

**Recommended Operating Conditions**

Parameter	Min.	Typ.	Max.	Units
CTRL	-5		0	V

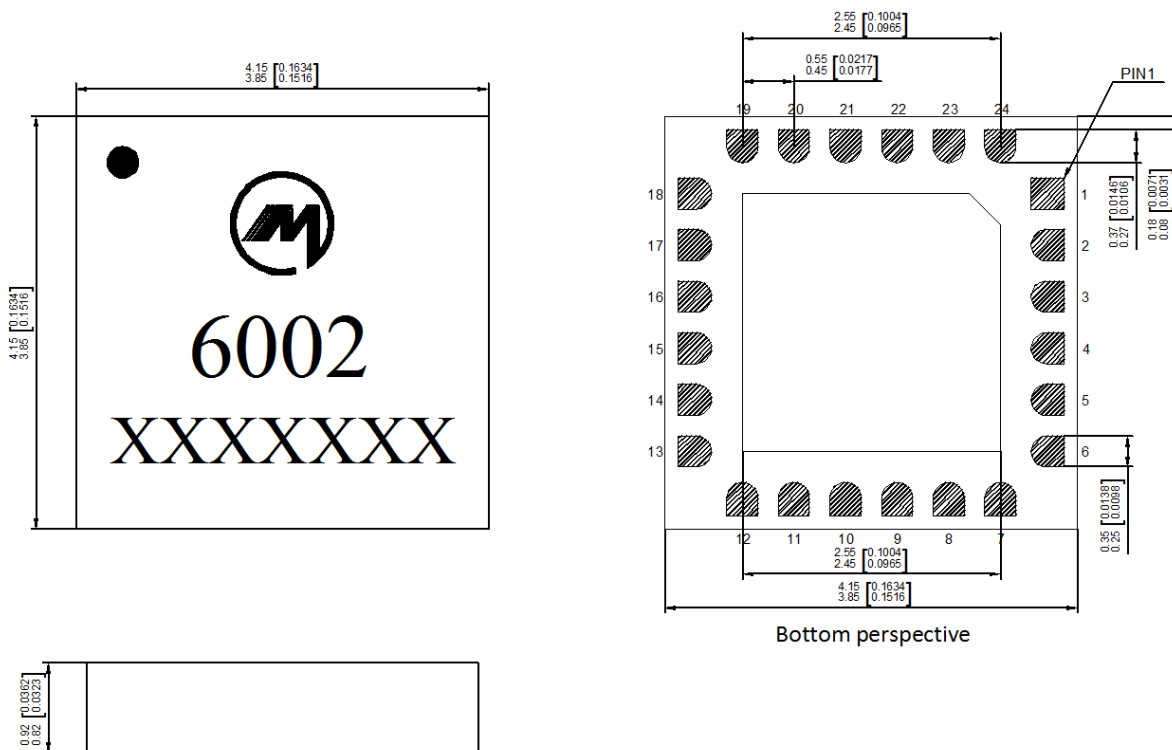

**ELECTROSTATIC SENSITIVE DEVICE  
OBSERVE HANDLING PRECAUTIONS**
**Truth Table**

Phase Shifter Setting	5°		20°		10°	
	CTRL1	CTRL2	CTRL3	CTRL4	CTRL5	CTRL6
0°(Reference)	1	0	1	0	1	0
5°	0	1	1	0	1	0
20°	1	0	0	1	1	0
10°	1	0	1	0	0	1

Logic "0" = LOW(-5V), Logic "1" = High(0V)



### Outline Drawing: All Dimensions in mm[inches]

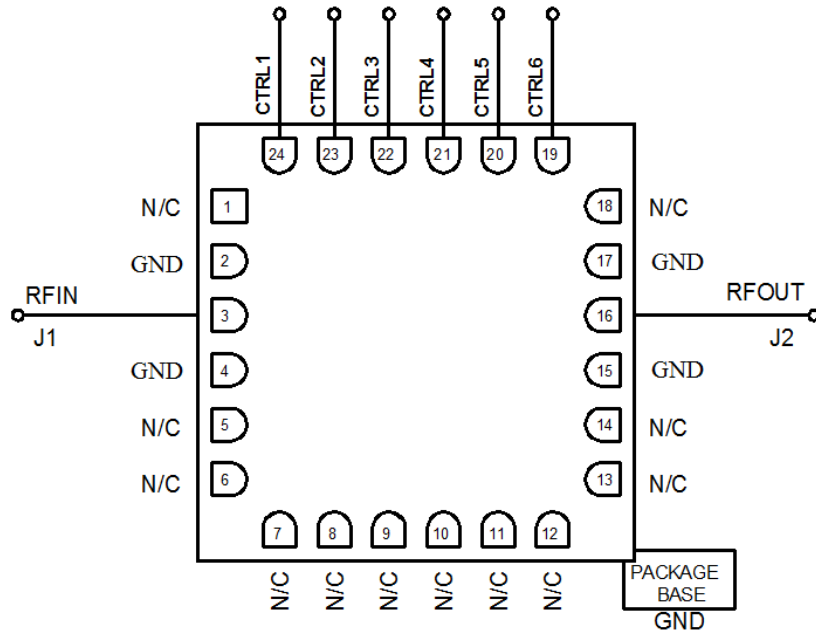


#### Notes:

1. Package body material : Alumina.
2. Lead and ground paddle plating: Gold flash over nickel.
3. Dimensions are in millimeters(inches).
4. Lead spacing tolerance is non-cumulative.



### Assembly Drawing



### Pin Descriptions

No	Function	Description
1,5,6,7,8,9,10,11,12,13,14,18	NC	No connection. These pins may be connected to RF ground. Performance will not be affected.
3	RF IN	RF Signal Input.
16	RF OUT	RF Signal Output.
19,20,21,22,23,24	CTRL	Control Ports
2,4,15,17	GND	These pins & exposed ground paddle must be connected to RF/DC ground
	GND	Package bottom must be connected to RF/DC ground



# MILLER MMIC

## MM6002Q4B

V1.0.0

GaAs Plastic QFN 4x4mm  
3-Bit Digital Control Phase Shifter  
1-3GHz

MM6002Q4B

GaAs QFN 4x4mm 3-Bit Digital Control Phase Shifter 1-3GHz

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