

90 Degree Surface Mount Hybrid 850 – 950 MHz

**MA4HYB900-1292T
V1**

Features

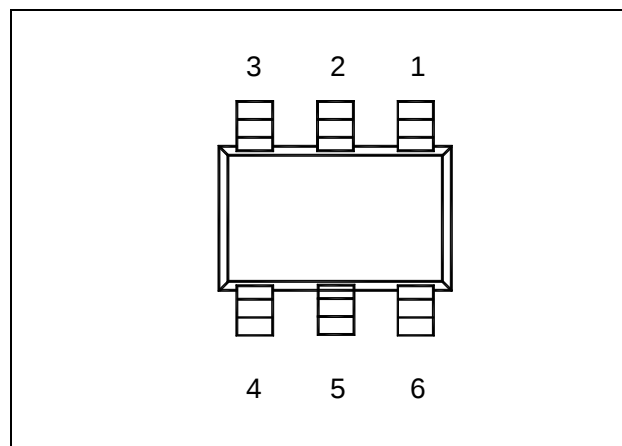
- Monolithic Construction
- Low Insertion Loss (< 1.0 dB)
- Good Port to Port Isolation (> 14 dB)
- Low Amplitude and Phase Imbalance.
- Internally Terminated (50 Ω).
- Low Cost SOT-26 Miniature Plastic Package
- RoHS Compliant

Description and Applications

M/A-COM's MA4HYB900-1292T is a 50 Ω Characteristic Impedance, Monolithic Passive Integrated Circuit designed to provide a 90 degree phase shift during an RF power split. The die uses M/A-COM's unique glass process to realize low loss and high Q passive elements while retaining the advantages of overall size and exceptional reproducibility.

These phase shifters are well suited for use in 50 Ω Rx/Tx system applications particularly where small size and repeatability are required. Typical applications include usage within modulation and demodulation circuit functions for wireless receivers and transmitters.

SOT-26 Package Outline (Topview)



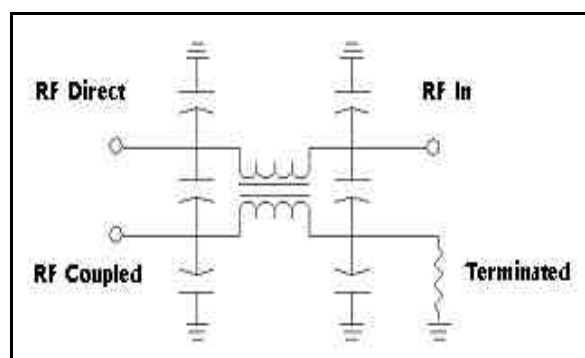
PIN	Function	PIN	Function
1	N/C	4	RF Input
2	GND	5	GND
3	RF Direct Output	6	RF Phase Shift Output (Coupled)

Absolute Maximum Ratings¹

Parameter	Maximum Ratings
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-65 °C to +150 °C
RF C.W. Incident Power	+30 dBm

1. Exceeding these limits may cause permanent damage.

Schematic



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Electrical Specifications @ +25 °C

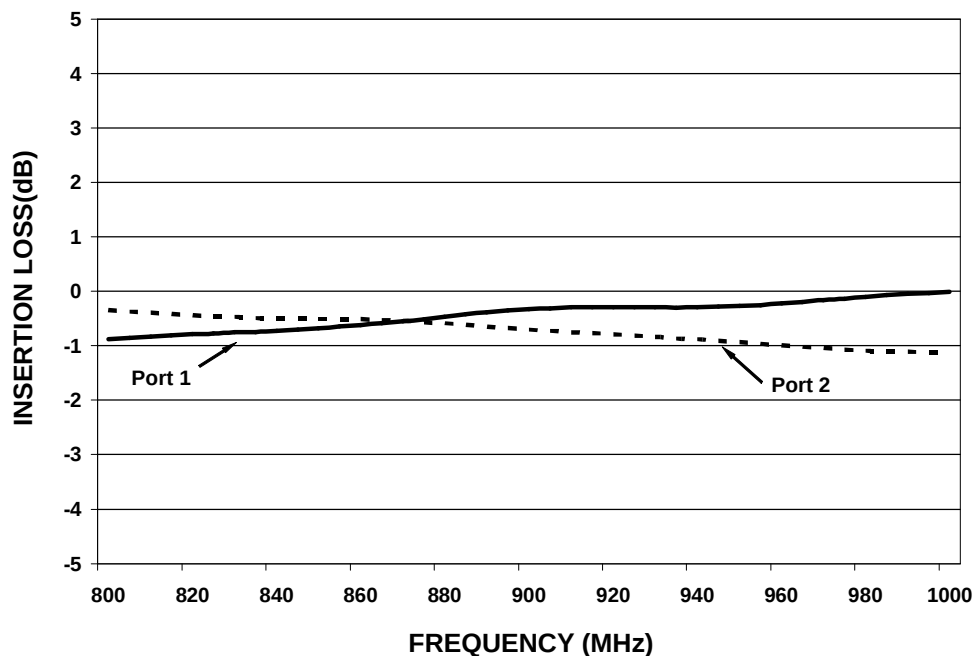
Parameter	Frequency Range	Units	Min.	Typ.	Max.
Insertion Loss	900 MHz 850-950 MHz	dB		0.5 0.6	0.65 0.75
Isolation	900 MHz 850-950 MHz	dB		17.0 18.0	
Input Return Loss	900 MHz 850-950 MHz	dB		18.0 18.0	
Output Return Loss	900 MHz 850-950 MHz	dB		19.5 19.0	
Amplitude Balance	900 MHz 850-950 MHz	dB		0.35 0.4	
Phase Delta	900 MHz 850-950 MHz	deg	91.0 90.0	92.5 92.0	93.5 94.0
Phase Balance	900 MHz 850-950 MHz	deg		0.4 0.8	1.5 2.0

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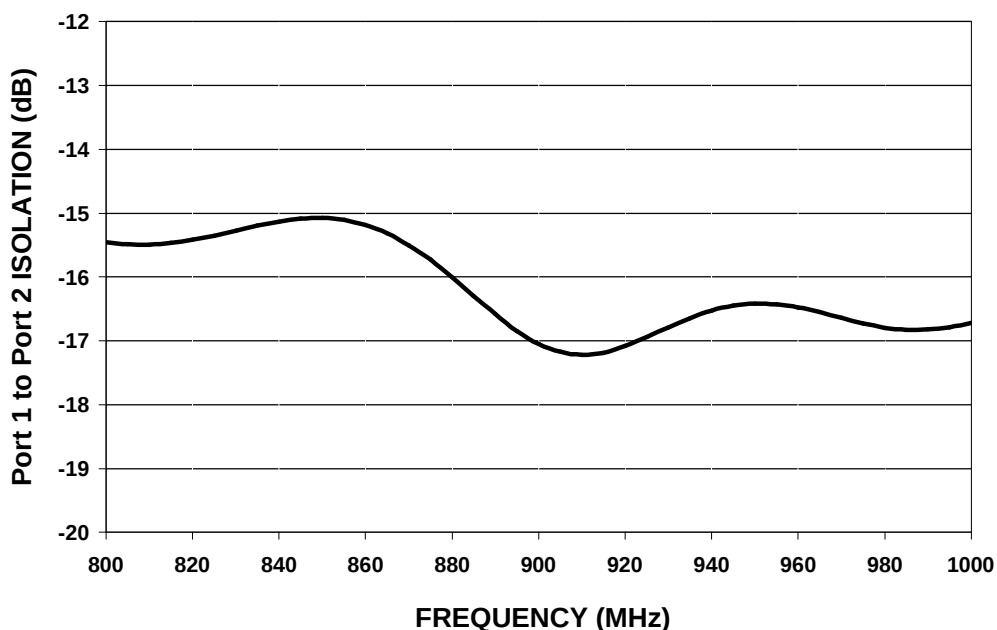
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Typical Performance Curves

INSERTION LOSS: (Port 1 = RF Input – RF Direct Output , Port 2 = RF Input – RF Phase Shift Output)



ISOLATION: (Isolation = RF Direct Output – RF Phase Shift Output)

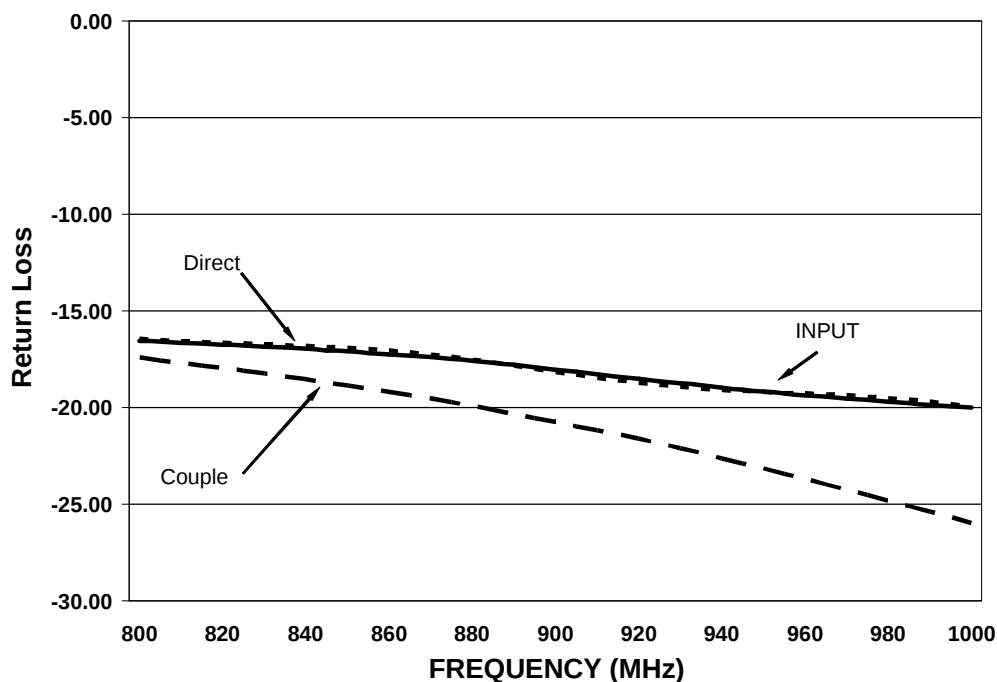


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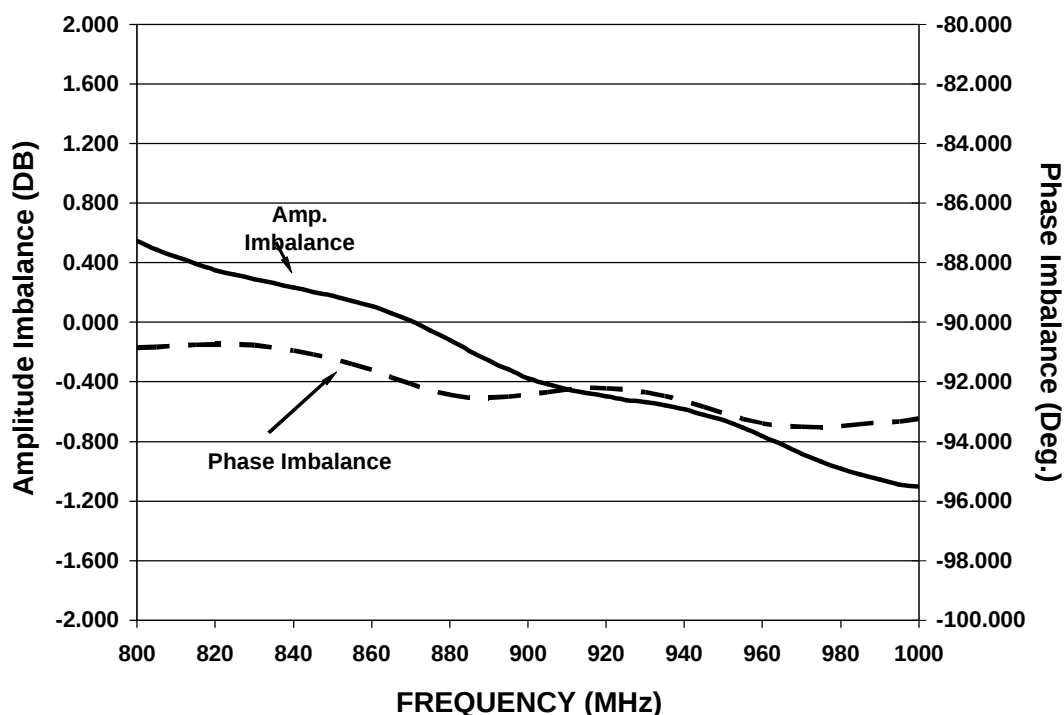
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Typical Performance Curves (cont'd)

RETURN LOSS: RF Direct Output = PIN 3, RF Input = PIN 4, RF Coupled Output = PIN 6



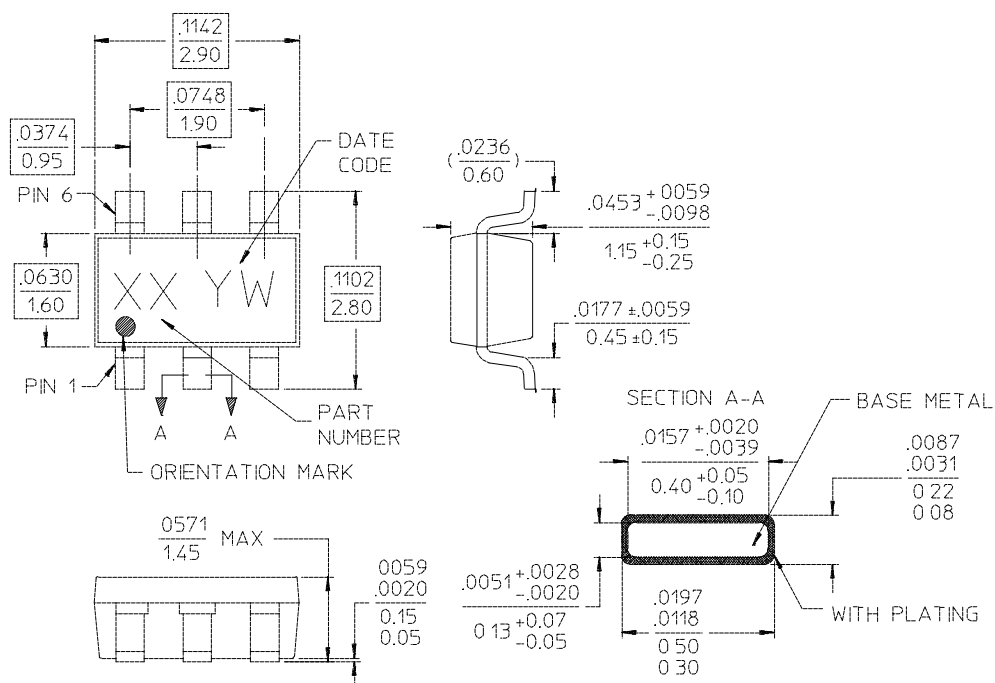
AMPLITUDE & PHASE Imbalance



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Case Style - SOT-26



- NOTES: 1 REFERENCE JEDEC MO-178-AB FOR ADDITIONAL DIMENSIONAL AND TOLERANCE INFORMATION.
2. REFERENCE M538 APPLICATION NOTE FOR PCB FOOTPRINT INFORMATION.
3 ALL DIMENSIONS SHOWN AS INCHES/MM

Ordering Information

Part Number	Package
MA4HYB900-1292T	Tape and Reel