

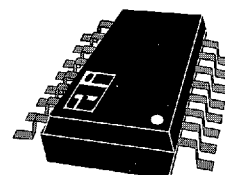
GaAs MMIC FET 10 Watt Diversity Switch In SOW 16 Package DC–2.0 GHz



AS117–45

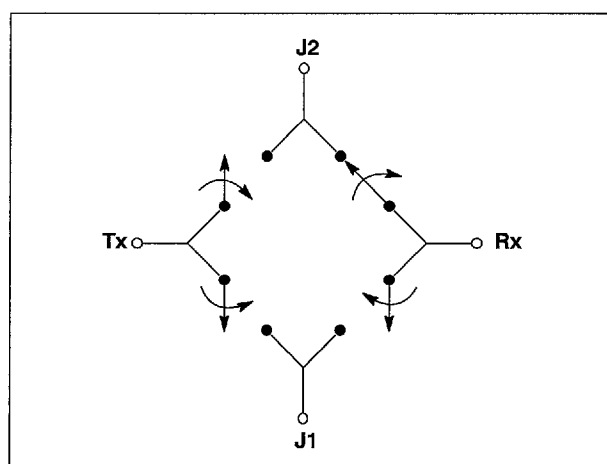
Features

- High Power ($P - 1 \text{ dB} \geq 10 \text{ Watts}$)
- Integrated Decoder Chip that Provides Two Line Voltage Control
- Independent Four Port Switch
- Portable Radio TR Switching



Description

The AS117–45 is a 4 port switch with two line DC voltage control. This device is designed for portable radio TR switching with up to 10 watt power handling capability.



Electrical Specifications at 25°C

Insertion Loss	DC – 1000 MHz	0.9	dB	Max
Receiver Mode	DC – 2000 MHz	2.0	dB	Max
(Rx– J1, J2)				
Insertion Loss	DC – 1000 MHz	0.7	dB	Max
Transmit Mode	DC – 2000 MHz	1.5	dB	Max
(Tx–J1, J2)				
Isolation	DC – 1000 MHz	30	dB	Min
Transmit Mode	DC – 2000 MHz	18	dB	Min
(Tx – Rx)				
Isolation	DC – 1000 MHz	13	dB	Min
Transmit Mode	DC – 2000 MHz	8	dB	Min
(Tx–J1, J2)				
Isolation	DC – 1000 MHz	15	dB	Min
Receive Mode	DC – 2000 MHz	8	dB	Min
(Rx – J1, J2)				
VSWR ¹	DC – 1000 MHz	1.3:1	dB	Max
	DC – 2000 MHz	1.8:1	dB	Max

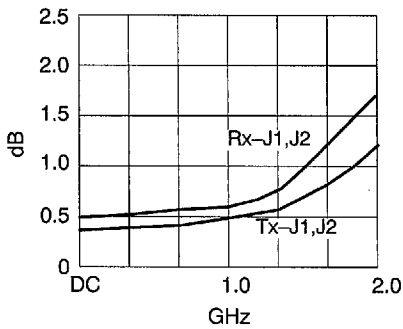
1. Insertion loss state.

Operating Characteristics at 25°C

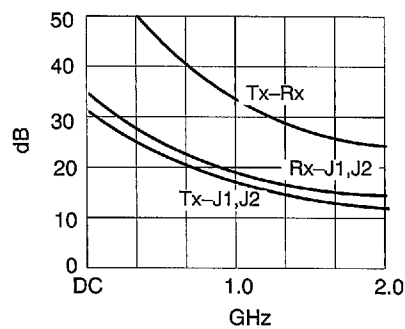
Impedance	50 Ohms Nominal			
Switching Characteristics				
RISE, FALL (10/90% or 90/10% RF)	60	ns	Typ	
ON, OFF (50% CTL to 90/10% RF)	200	ns	Typ	
Input Power for 1 dB Compression				
Control Voltages (Vdc)	0/−5	0/−8		
900 MHz	33	37	dBm	Typ
Intermodulation Intercept Point at 900 MHz (for two-tone input power up to 10 dBm)				
Control Voltage (Vdc)	IP3			
−5	61		dBm	Typ
−8	65		dBm	Typ
Bias Voltages – VSS				
−5V @ 50 μA Max				
−10V @ 200 μA Max				
Transmit Mode (4W) Bias Voltages				
Vss = 800 μA Max @ −12V				
V1, V2 = 100 μA Max @ −12V				

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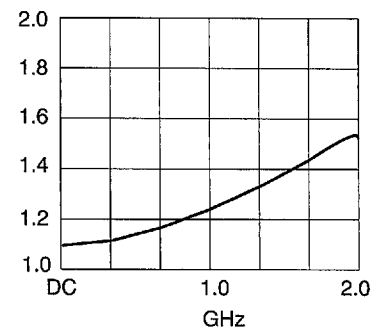
Typical Performance Data



Insertion Loss vs. Frequency

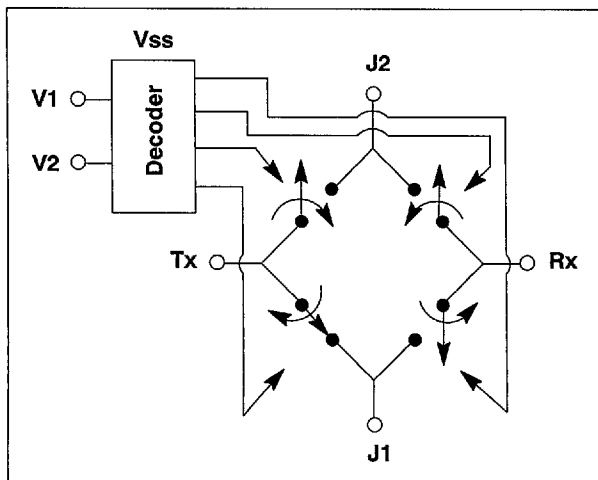


Isolation vs. Frequency



VSWR vs. Frequency

Functional Diagram

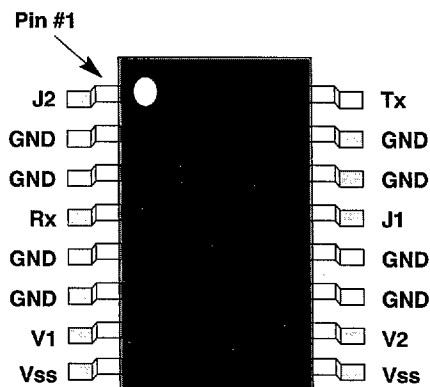


Truth Table

V1	V2	State
0	0	Tx – J1
Vss	0	Tx – J2
0	Vss	Rx – J1
Vss	Vss	Rx – J2

$V_{SS} = -5 \text{ to } 10\text{V}$

Pin Out



Absolute Maximum Ratings

RF Input Power:	12W > 500–2000 MHz, 0/–12V
Control Voltage:	+0.2, –12V (Never allow control voltage to exceed bias voltage.)
Operating Temperature:	–40°C to +85°C
Storage Temperature:	–65°C to +150°C
Thermal Resistance:	87°C/W
Bias Voltage (Vss)	–12V Max

RF GaAs MMIC Products in Metal Packages

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