

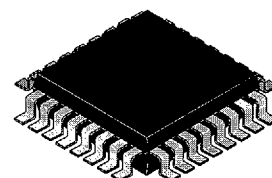
GaAs MMIC SP4T FET Non-Reflective Switch in LQFP 32 Package DC–2 GHz



AS002M4–61

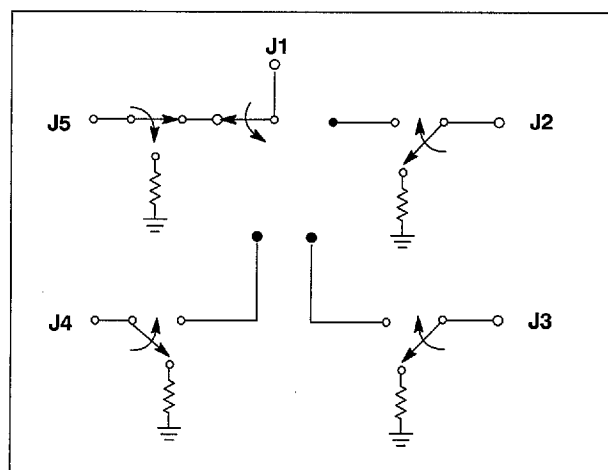
Features

- 32 Lead Plastic Package (LQFP)
- 0.025 Inch Small Size Lead Pitch
- Requires Only 0.133 in² (86 mm²) PCB Space
- High Isolation (52 dB Typical at 900 MHz)
- Non-Reflective All Ports



Description

The AS002M4–61 is a high isolation SP4T FET MMIC non-reflective switch. The switch operates with 0 and –5 volts over the frequency range of DC to 2 GHz. The switch is ideal for cellular base stations when channel switching is required. It can also be used as high isolation SPDT Switch.



Electrical Specifications at 25 °C

Insertion Loss ¹	DC–0.5 GHz	1.7	dB	Max
	DC–1 GHz	2.0	dB	Max
	DC–2 GHz	2.4	dB	Max
Isolation	DC–0.5 GHz	52	dB	Min
	DC–1 GHz	47	dB	Min
	DC–2 GHz	35	dB	Min
VSWR I/O	DC–1 GHz	1.6:1		Max
	DC–2 GHz	1.8:1		Max

1. Insertion Loss changes by 0.003 dB/°C.

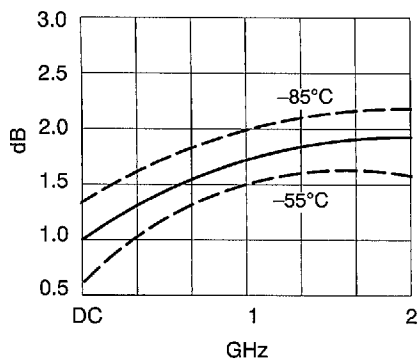
2. Measured in 500 MHz bandwidth with 1 ns risetime pulse.

Operating Characteristics at 25 °C

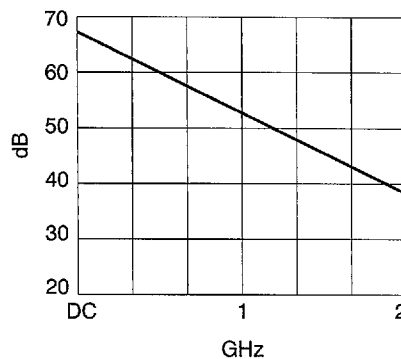
Impedance		50Ω Nominal		
Switching Characteristics				
RISE, FALL (10/90% or 90/10% RF)	15	ns	Typ	
ON, OFF (50% CTL to 90/10% RF)	30	ns	Typ	
Video Feedthru ²	30	mV	Typ	
Input Power for 1 dB Compression				
Control Voltages (Vdc)	0/–5	0/–8		
0.5–2 GHz	+24	+30	dBm	Typ
0.001 GHz	+16	+20	dBm	Typ
Intermodulation Intercept Point (for Two–Tone Input Power up to +13 dBm, V _{DC} = –8V)				
Intercept Points	IP2	IP3		
0.5–2.0 GHz	+62	+40	dBm	Typ
0.001 GHz	+51	+29	dBm	Typ
Control Voltages				
V ₀ (Low)	0 to –0.2V @ 20 μA Max			
V ₀ (High)	–5V @ 100 μA to –9V @ 500 μA Max			

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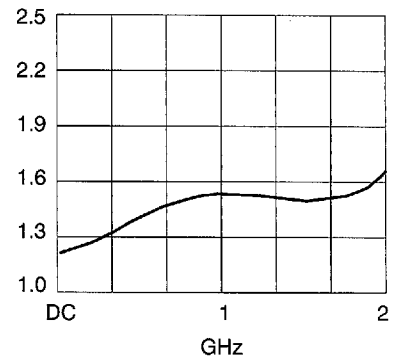
Performance Data



Insertion Loss vs. Frequency

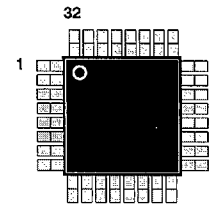
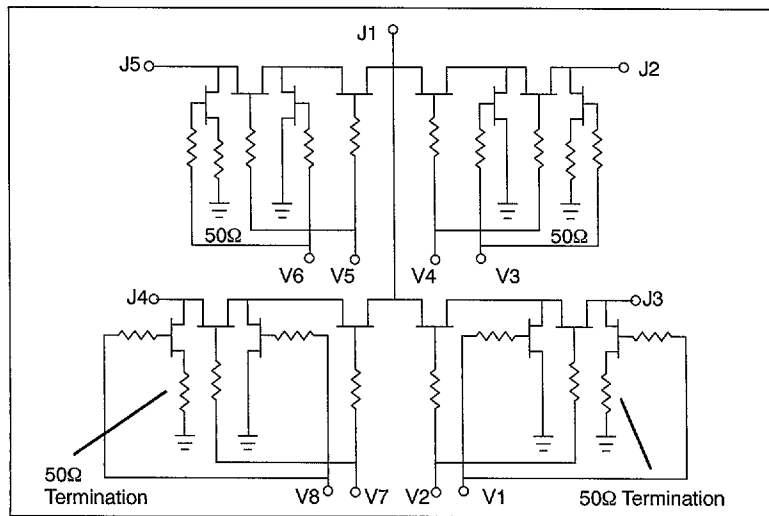


Isolation vs. Frequency



VSWR vs. Frequency

Switch Schematic



Truth Table

Insertion Loss Path J1 to:	J3		J2		J5		J4	
	V1	V2	V3	V4	V5	V6	V7	V8
J2	0	-5	-5	0	-5	0	-5	0
J3	-5	0	0	-5	-5	0	-5	0
J4	0	-5	0	-5	-5	0	0	-5
J5	0	-5	0	-5	0	-5	-5	0

Pin Out

Pin #	Description	Pin #	Description
1	GND	17	V8
2	GND	18	V7
3	GND	19	V6
4	J1	20	V5
5	GND	21	V4
6	GND	22	V3
7	GND	23	V2
8	GND	24	V1
9	J5	25	GND
10	GND	26	GND
11	GND	27	GND
12	GND	28	J3
13	J4	29	GND
14	GND	30	GND
15	GND	31	GND
16	GND	32	J2

Absolute Maximum Ratings

RF Input Power: 2W > 500 MHz 0/-8V
0.5W @ 50 MHz 0/-8V

Control Voltage: +0.2V, -10V

Operating Temperature: -55°C to 125°C

Storage Temperature: -65°C to 150°C

Thermal Resistance: 25°C/W

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RF GaAs MMIC Products in Metal Packages

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