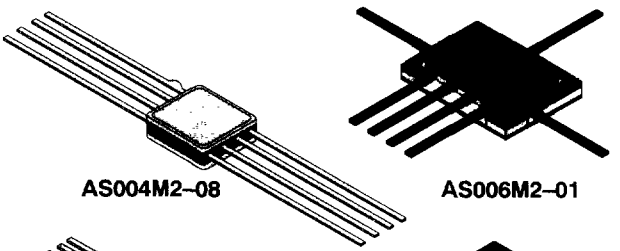
GaAs MMIC SPDT FET Switch
Non–Reflective DC–6 GHz

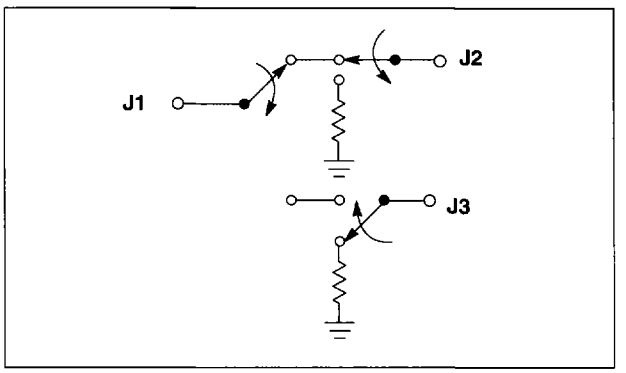
Alpha

AS006M2–01, AS006M2–10, AS004M2–08, AS004M2–11

Features

- Broadband DC–6 GHz
- Non–Reflective
- Low DC Power Consumption
- Excellent Intermodulation Products\Temp. Stability
- Meets MIL–STD–883 Screening Requirements





Description

The GaAs SPDT non–reflective chip is offered in four separate packages for convenience of mounting. At the higher frequencies, 4– 6 GHz, the 7 lead flat pack has optimum performance since all leads are RF isolated. These devices are useful as modulators and switches in military, instrumentation and commercial communication applications.

Electrical Specifications at 25°C

Option		–01, –10	–08, –11		
Insertion Loss[1]	DC–0.5 GHz	0.9	0.9	dB	Max
	DC–1 GHz	1.0	1.0	dB	Max
	DC–2 GHz	1.2	1.2	dB	Max
	DC–4 GHz	1.6	1.6	dB	Max
	DC–6 GHz	1.9	–	dB	Max
Isolation	DC–0.5 GHz	60	60	dB	Min
	DC–1 GHz	55	52	dB	Min
	DC–2 GHz	50	43	dB	Min
	DC–4 GHz	42	30	dB	Min
	DC–6 GHz	30	–	dB	Min
VSWR	DC–1 GHz	1.3:1	1.3:1		Max
	DC–2 GHz	1.5:1	1.5:1		Max
	DC–4 GHz	1.8:1	1.8:1		Max
	DC–6 GHz	2.0:1	–		

Operating Characteristics at 25°C

Impedance		50Ω Nominal		
Switching Characteristics				
RISE, FALL (10/90% or 90/10% RF)	3	ns	Typ	
ON, OFF (50% CTL to 90/10% RF)	6	ns	Typ	
Video Feedthru[2]	20	mV	Typ	
Input Power for 1 dB Compression				
Control Voltages (Vdc)	**0/–5**	**0/–8**		
0.5–6 GHz	+24	+30	dBm	Typ
0.001 GHz	+16	+20	dBm	Typ
Intermodulation Intercept Point (For Two–Tone Input Power up to +13 dBm)				
Intercept Points	**IP2**	**IP3**		
0.5–6 GHz	+68	+46	dBm	Typ
0.001 GHz	+57	+35	dBm	Typ
Control Voltages				
V_0 (Low)	0 to –0.2V @ 20 μA Max			
V_0 (High)	–5V @ 50 μA to –9V @ 200 μA Max			

1. Insertion Loss changes by 0.003 dB/°C.
2. Measured in 500 MHz bandwidth with 1 ns risetime pulse.

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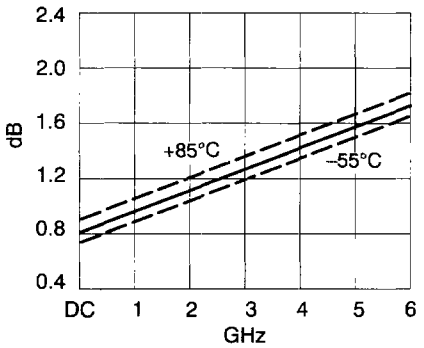
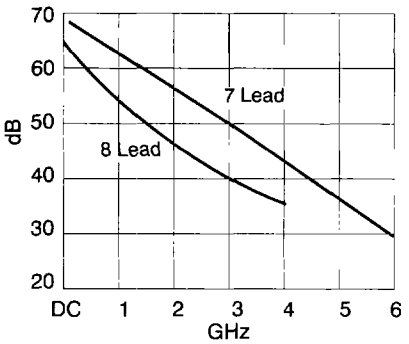
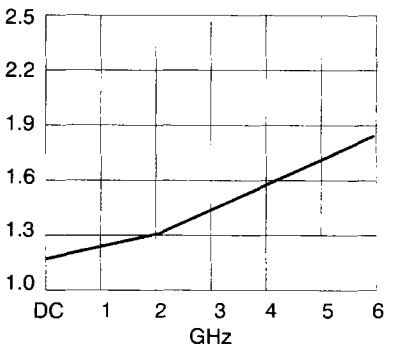
Performance Data



Insertion Loss vs. Frequency

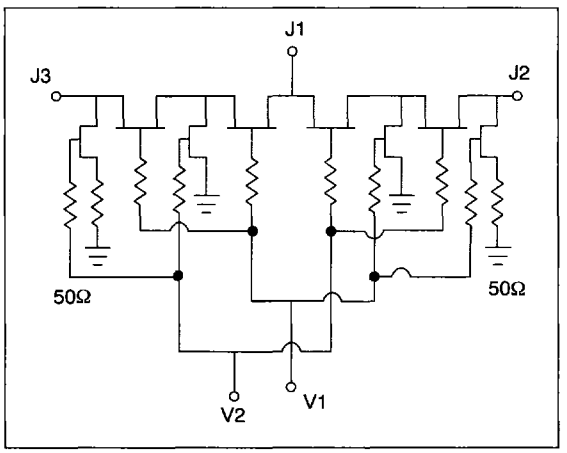


Isolation vs. Frequency



VSWR vs. Frequency

Switch Schematic



Truth Table

V1	V2	J1–J2	J1–J3
–5	0	Insertion Loss	Isolation
0	–5	Isolation	Insertion Loss

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

Pin Outs