GaAs IC SP6T Non-Reflective Switch With Driver 20 MHz–2 GHz

Alpha

AE002M6-77

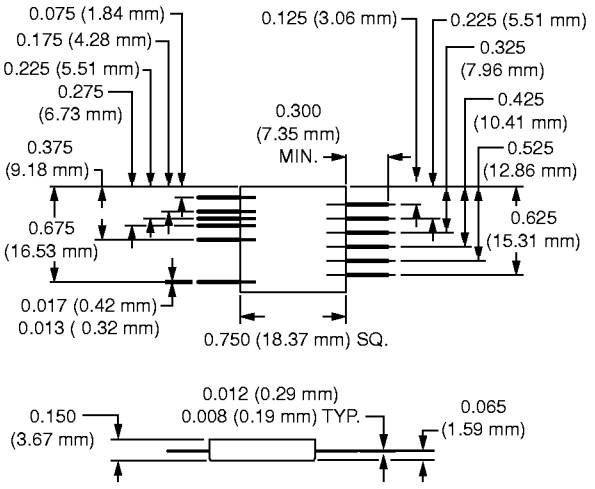
Features

- Single 5 V Supply Voltage
- Non-Reflective All Ports
- Three Line Control
- Capable of Meeting MIL-STD Requirements[4]

Description

The AE002M6-77 is a SP6T non-reflective MMIC switch. This switch integrates GaAs IC and silicon CMOS devices. It operates with a single fixed 5 V supply voltage and three line logic control. This device is used in high reliability and commercial applications.

-77



Electrical Specifications at 25°C

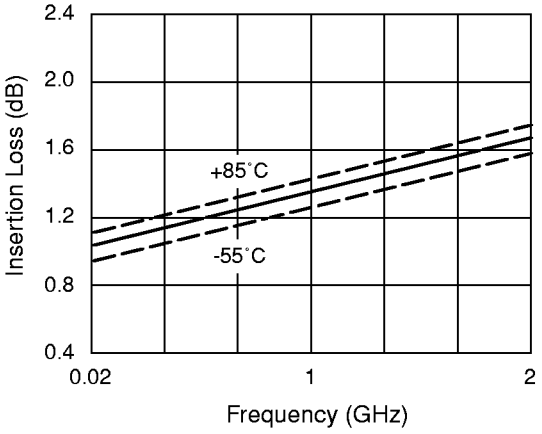
Parameter[1]	Frequency	Min.	Typ.	Max.	Unit
Insertion Loss[2]	0.02–0.5 GHz 0.50–1.0 GHz 1.00–2.0 GHz		1.4 1.6 2.0	1.5 1.8 2.2	dB dB dB
Isolation	0.02–0.5 GHz 0.50–1.0 GHz 1.00–2.0 GHz	45 38 30	50 40 35		dB dB dB
VSWR (I/O)	0.02–0.5 GHz 0.50–1.0 GHz 1.00–2.0 GHz		1.25:1 1.40:1 1.60:1	1.3:1 1.5:1 1.7:1	

Operating Characteristics at 25°C

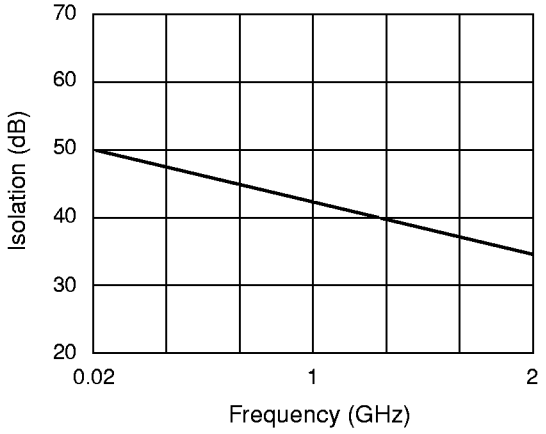
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics	Rise, Fall (10/90% or 90/10% RF) On, Off (50% CTL to 90/10% RF) Video Feedthru[3]			15 50 30		ns ns mV
Input Power for 1 dB Compression	5 V (7 V)	0.5–2 GHz 0.001 GHz		24 (28) 16 (20)		dBm dBm
Intermodulation Intercept Point (IP3)	For Two-tone Input Power 13 dBm	0.5–2 GHz 0.02 GHz		46 35		dBm dBm
Control Voltages	V_{Low} V_{High}		0 2.0		0.8 5.5	V V
Supply Voltages	5 V @ 50 µA Typ. 7 V @ 100 µA Typ.					

1. All measurements made in a 50 Ω system, unless otherwise specified.
2. Insertion loss changes by 0.003 dB/°C.
3. Video feedthru measured with 1 ns risetime pulse and 500 MHz bandwidth.
4. See Quality/Reliability section.

Typical Performance Data



Insertion Loss vs. Frequency



Isolation vs. Frequency

Truth Table

Control Input "1" TTL Logic High			Condition of Switch RF Common to Each RF PC
A2	**A1**	**A0**	
0	0	1	RF1
0	1	0	RF2
0	1	1	RF3
1	0	0	RF4
1	0	1	RF5
1	1	0	RF6

Absolute Maximum Ratings

Characteristic	Value
RF Input Power (RF In)	2 W > 500 MHz 0/7 V 0.5 W @ 50 MHz 0/7 V
Bias Voltage (V_B)	7.0 V
Control Voltage (V_C)	≤ 7.0 V
Operating Temperature (T_{OP})	-55°C to +125°C
Storage Temperature (T_{ST})	-65°C to +150°C
Thermal Resistance (Θ_{JC})	25°C/W

Do not allow control voltage to exceed bias voltage.

Pin Out