GaAs SPDT Terminated Switch
DC - 2.5 GHz

SW-338
V6

Features

- Very Low Power Consumption
- High Isolation: 30 dB up to 2 GHz
- Very High Intercept Point: 46 dBm IP_3
- Nanosecond Switching Speed
- Temperature Range: -40°C to +85°C
- Low Cost SOIC-8 Plastic Package
- Tape and Reel Packaging Available

Description

M/A-COM's SW-338 is a GaAs MMIC SPDT terminated switch in a low cost SOIC 8-lead surface mount plastic package. The SW-338 is ideally suited for use where very low power consumption is required.

Typical applications include transmit/receive switching, switch matrices, and filter banks in systems such as radio and cellular equipment, PCM, GPS, fiber optic modules, and other battery powered radio equipment.

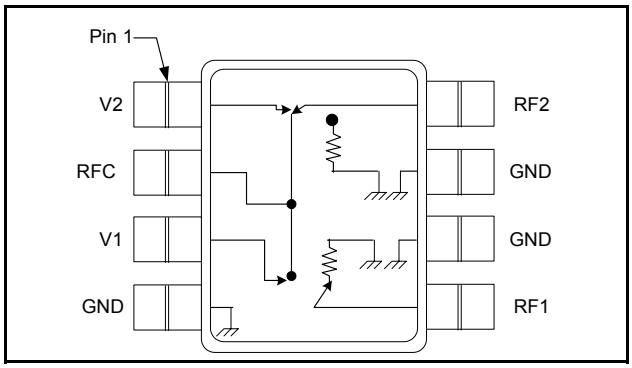
The SW-338 is fabricated with a monolithic GaAs MMIC using a mature 1-micron process. The process features full chip passivation for increased performance and reliability.

Ordering Information

Part Number	Package
SW-338	Bulk Packaging
SW-338TR	1000 piece reel
SW-338SMB	Sample Test Board

Note: Reference Application Note M513 for reel size information.

Functional Schematic



Pin Configuration

Pin No.	Function	Pin No.	Function
1	V2	5	RF Port 1
2	RF Common	6	Ground
3	V1	7	Ground
4	Ground	8	RF Port 2

Absolute Maximum Ratings [1,2]

Parameter	Absolute Maximum
Input Power 0.05 GHz 0.5 - 2.0 GHz	 +27 dBm +34 dBm
Control Voltage	-8.5 V $\leq$ Vc $\leq$ + 5 V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C

1. Exceeding any one or combination of these limits may cause permanent damage to this device.
2. M/A-COM does not recommend sustained operation near these survivability limits.

• **North America** Tel: 800.366.2266 / Fax: 978.366.2266
• **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
• **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Visit www.macom.com for additional data sheets and product information.

Electrical Specifications: T_A = 25°C, Vc = 0 V / -2.9 V, Z_0 = 50 Ω

Parameter	Test Conditions	Units	Min.	Typ. [3]	Max.
Insertion Loss	DC - 0.5 GHz 0.5 - 1.0 GHz 1.0 - 2.0 GHz	dB dB dB	— — —	0.55 0.60 0.65	— 0.7 —
Isolation	DC - 0.5 GHz 0.5 - 1.0 GHz 1.0 - 2.0 GHz	dB dB dB	— 36 —	50 43 35	— — —
VSWR On/Off	DC - 2.0 GHz	Ratio	—	1.1:1	—
Trise, Tfall	10% to 90% RF, 90% to 10 % RF	nS	—	10	—
Ton, Toff	50% Control to 90% RF, 50% Control to 10% RF	nS	—	20	—
Transients	In-Band	mV	—	25	—
1 dB Compression Point	Input Power 0.05 GHz 0.5 - 2.0 GHz	 dBm dBm	 — —	 25 30	 — —
2nd Order Intercept	Measured Relative to Input Power (for two-tone input power up to +5 dBm) 0.05 GHz 0.5 - 2.0 GHz	 dBm dBm	 — —	 60 65	 — —
3rd Order Intercept	Measured Relative to Input Power (for two-tone input power up to +5 dBm) 0.05 GHz 0.5 - 2.0 GHz	 dBm dBm	 — —	 40 46	 — —
Control Current	|Vc| = 2.9 V	µA	—	15	35

3. Typical values represent performance at middle of frequency range noted.

Truth Table [4]

Control Inputs		Condition of Switch RF Common to Each RF Port	
V1	V2	RFC-RF1	RFC-RF2
1	0	ON	OFF
0	1	OFF	ON

4. 0 = 0 V ± 0.2 V, 1 = -2.9 V to -5.0 V

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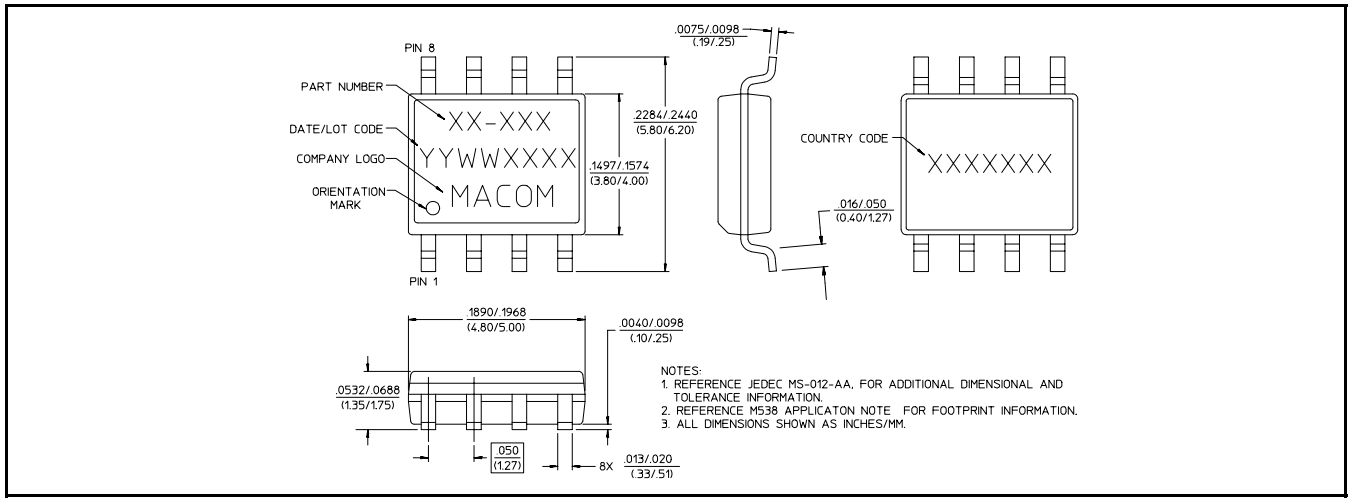
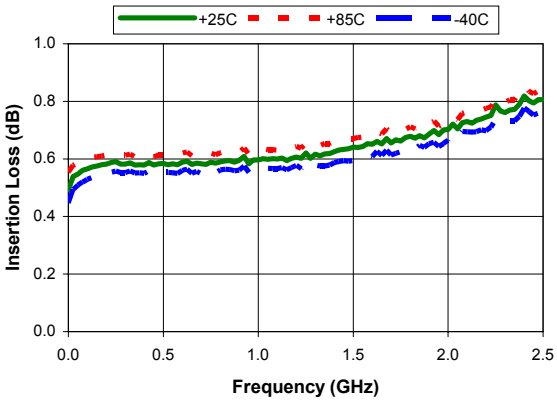
SO-8

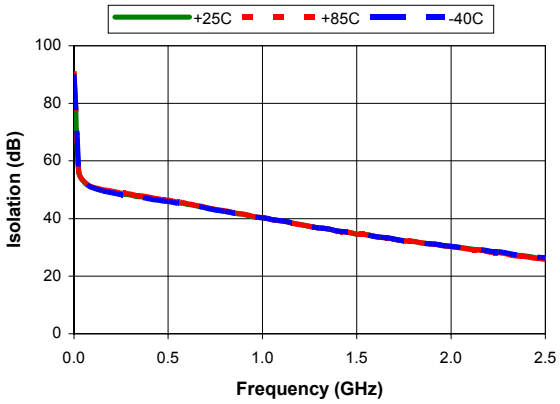


Typical Performance Curves

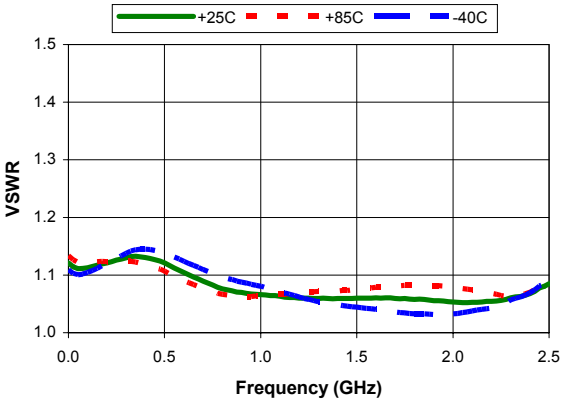
Insertion Loss



Isolation



VSWR vs. Frequency



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