



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



GaAs SPDT Switch DC - 3.0 GHz

Rev. V1

Features

- Low Insertion Loss: 0.4 dB @ 2.4 GHz
- Moderate Isolation: 25 dB @ 2.4 GHz
- Low Power Consumption: 5 μ A @ +3.0 V
- Lead-Free SC-70 (SOT-363) Package
- 100% Matte Tin Plating over Copper
- Halogen-Free “Green” Mold Compound
- RoHS* Compliant and 260°C Reflow Compatible

Description

M/A-COM's MASW-008075 is a GaAs PHEMT MMIC SPDT switch in a lead-free SC-70 (SOT-363) surface mount plastic package. The MASW-008075 is ideally suited for applications where very small size and low cost are required.

Typical applications are transmit / receive (Tx / Rx) switching in linear systems such as WLAN 802.11b/g. Other applications include 1.9 GHz and 2.4 GHz DECT and linear systems operating up to 3.0 GHz.

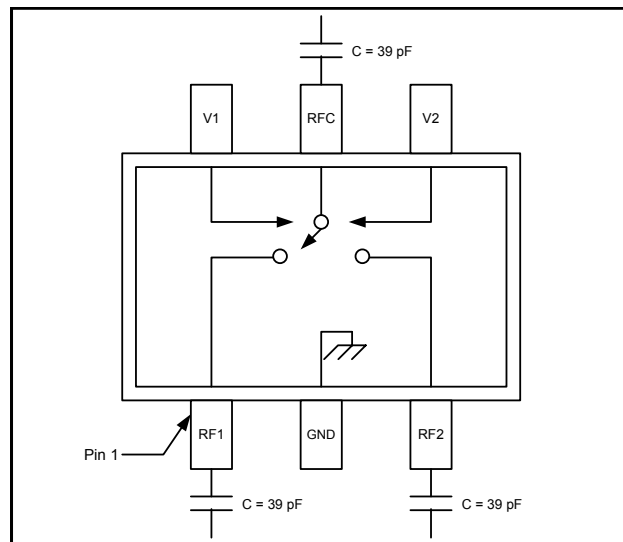
The MASW-008075 is fabricated using a 0.5 micron gate length GaAs PHEMT process. The process features full passivation for performance and reliability.

Ordering Information ¹

Part Number	Package
MASW-008075-000000	Bulk packaging
MASW-008075-TR3000	3000 piece reel
MASW-008075-001SMB	Sample Board

1. Reference Application Note M513 for reel size information.

Functional Schematic



Pin Configuration

Pin No.	Pin Name	Description
1	RF1	RF Port 1
2	GND	Ground
3	RF2	RF Port 2
4	V2	Control 2
5	RFC	RF Input
6	V1	Control 1

Absolute Maximum Ratings ^{2,3}

Parameter	Absolute Maximum
Input Power (0.5 - 3.0 GHz) 3 V Control	+30 dBm
Voltage	-8.5 V \leq V _c \leq +8.5 V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C

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

* Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.

GaAs SPDT Switch DC - 3.0 GHz

Rev. V1

Electrical Specifications: $T_A = 25^\circ\text{C}$, $V_C = 0\text{ V} / 3\text{ V}$, $Z_0 = 50\ \Omega$ ⁴

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Insertion Loss ⁵	1.0 GHz	dB	—	0.3	—
	2.4 GHz	dB	—	0.4	0.5
Isolation	1.0 GHz	dB	—	23	—
	2.4 GHz	dB	23	25	—
VSWR	0.05 - 3.0 GHz	Ratio	—	1.2:1	—
IIP2	Two Tone, +5 dBm / Tone, 5 MHz Spacing 2.4 GHz	dBm	—	80	—
IIP3	Two Tone, +5 dBm / Tone, 5 MHz Spacing 2.4 GHz	dBm	—	48	—
Input P1dB	—	dBm	—	28	—
Trise, Tfall	10% to 90% RF and 90% to 10% RF	nS	—	35	—
Ton, Toff	50% control to 90% RF, 50% control to 10% RF	nS	—	40	—
Transients	—	mV	—	10	—
Current	$V_C = 3.0\text{ V}$	μA	—	5	10

4. For positive voltage control, external DC blocking capacitors are required on all RF ports.

5. Insertion Loss can be optimized by varying the DC blocking capacitor value, e.g. 1000 pF for 100 MHz – 1.0 GHz, 39 pF for 0.5 - 3.0 GHz.

Truth Table^{6,7}

Control V1	Control V2	RFC-RF1	RFC-RF2
0	1	On	Off
1	0	Off	On

6. Differential voltage, V (state 1) - V (state 0), must be +2.3 V minimum and must not exceed 8.5 V.

7. 0 = 0 V \pm 0.2 V, 1 = +2.5 V to 5.0 V

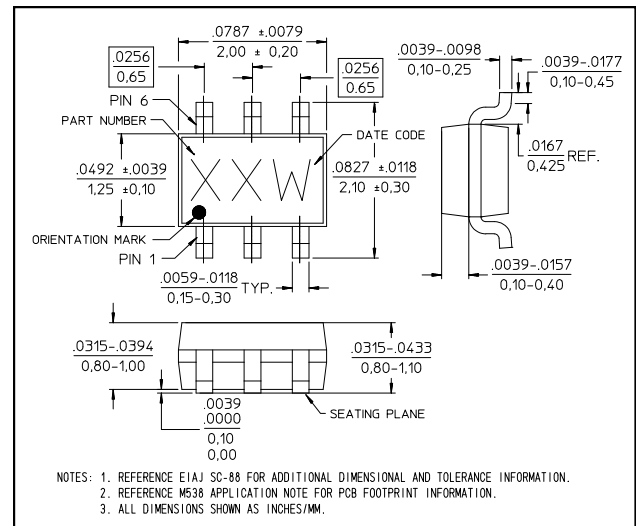
Handling Procedures

The following precautions should be observed to avoid damage:

Static Sensitivity

Gallium Arsenide Integrated Circuits are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.

Lead-Free SC-70 (SOT-363)[†]

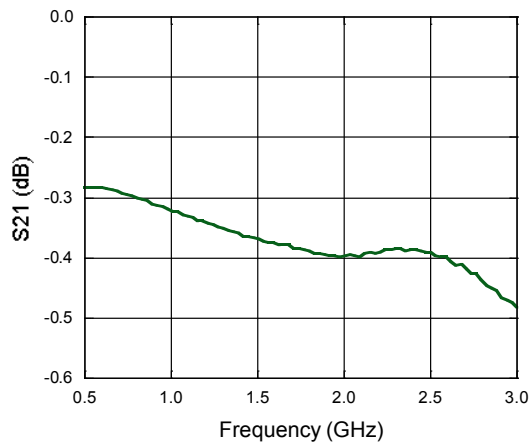


[†] Reference Application Note M538 for lead-free solder reflow recommendations.

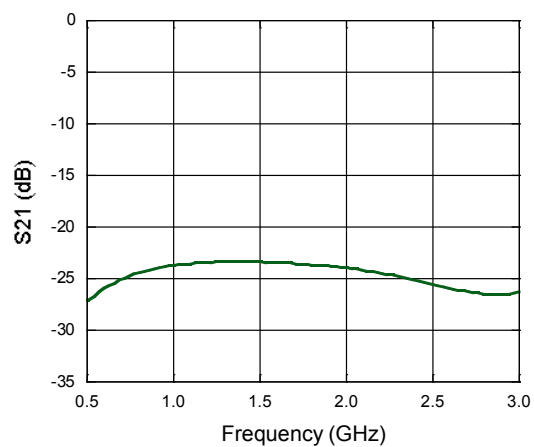
Meets JEDEC moisture sensitivity level 1 requirements.

Typical Performance Curves

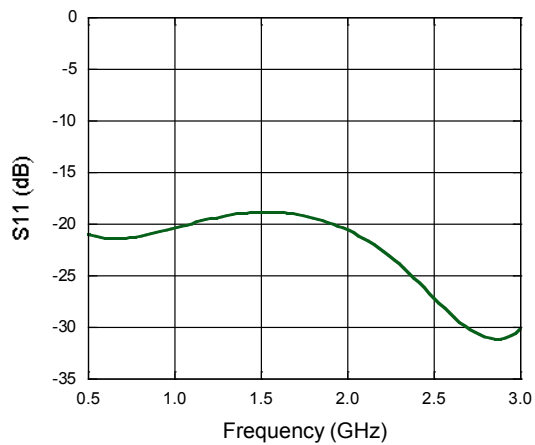
Insertion Loss



Isolation



Return Loss



M/A-COM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with M/A-COM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.

4

M/A-COM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.
Visit www.macom.com for additional data sheets and product information.