

GaAs SPDT Switch DC - 3.0 GHz

Rev. V1

Features

- Low Insertion Loss: < 0.3 dB @ 900 MHz
- Low Power Consumption: < 15 μ A @ -2.3 Volts
- Positive or Negative 2.3 to 8 Volt Control
- Lead-Free SC-70 (SOT-363) Package
- 100% Matte Tin Plating over Copper
- Halogen-Free "Green" Mold Compound
- 260°C Reflow Compatible
- RoHS* Compliant version of SW-456

Description

M/A-COM's MASW-007221 is a GaAs monolithic switch in a lead-free SC-70 (SOT-363) surface mount plastic package. The MASW-007221 is ideally suited for applications where very low power consumption, low insertion loss, very small size, and low cost are required. Typical applications are in dual band systems where switching between small signal components is required, i.e. filter banks, single-band LNA's, converters, etc.

The MASW-007221 can be used in applications up to 0.25 watts in systems such as cellular, PCS, DCS1800, GSM, CDMA, W-CDMA and other analog / digital wireless communication systems.

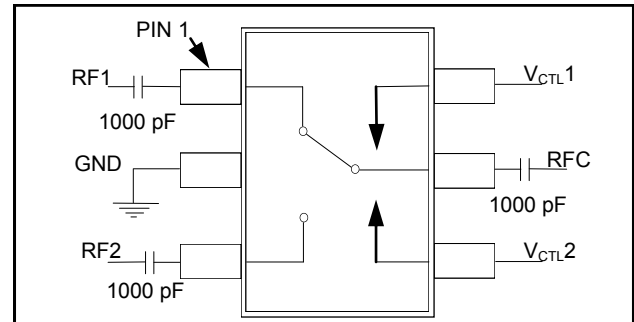
The MASW-007221 is fabricated using a mature 0.5 micron PHEMT process. The process features full passivation for performance and reliability.

Ordering Information ¹

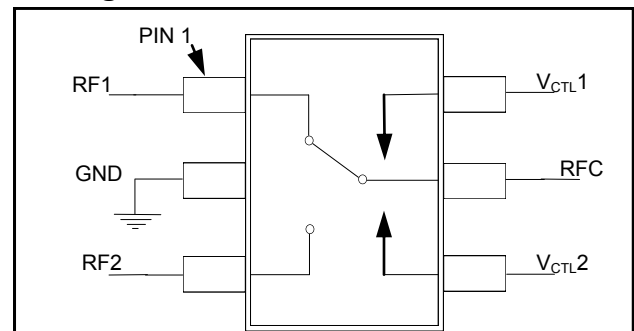
| Part Number | Package |
|--------------------|-----------------|
| MASW-007221-000000 | Bulk Packaging |
| MASW-007221-TR3000 | 3000 piece reel |

1. Reference Application Note M513 for reel size information.

Functional Schematic: Positive Control Voltage



Functional Schematic: Negative Control Voltage



Pin Configuration

| PIN | Function | Description |
|-----|----------|-------------------|
| 1 | RF1 | RF In/Out |
| 2 | GND | RF Ground |
| 3 | RF2 | RF In/Out |
| 4 | V_CTL2 | Voltage Control 2 |
| 5 | RFC | RF Common |
| 6 | V_CTL1 | Voltage Control 1 |

Absolute Maximum Ratings ^{2,3}

| Parameter | Absolute Maximum |
|---|--------------------|
| Input Power (0.5 - 3.0 GHz) 3 V Control 5 V Control | +30 dBm +33 dBm |
| Operating Voltage | +8.5 volts |
| 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.

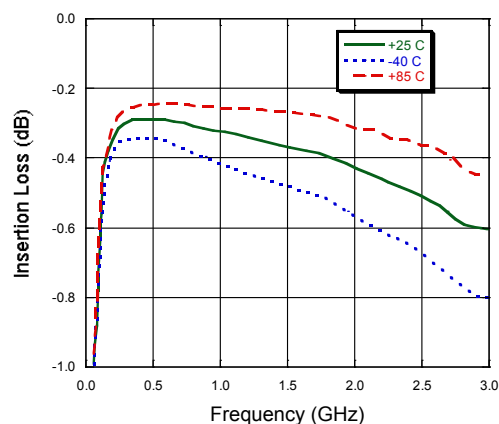
* Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.

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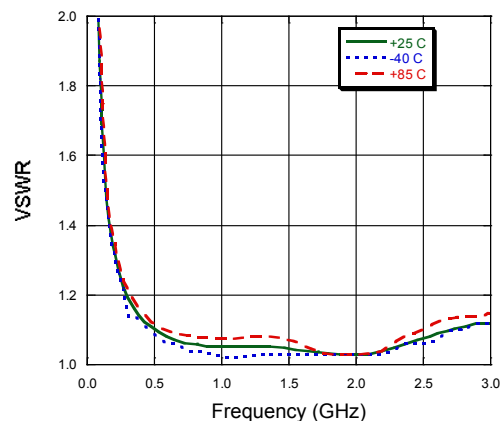
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Typical Performance Curves

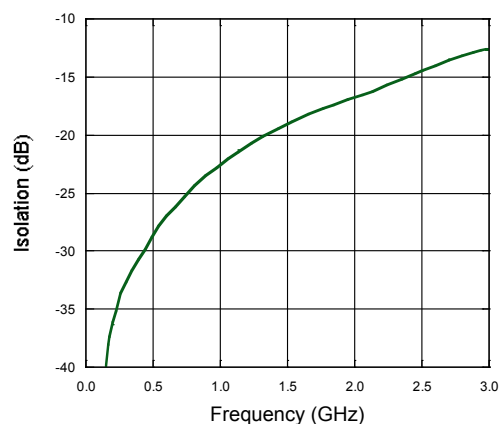
Insertion Loss vs. Frequency Over Temperature



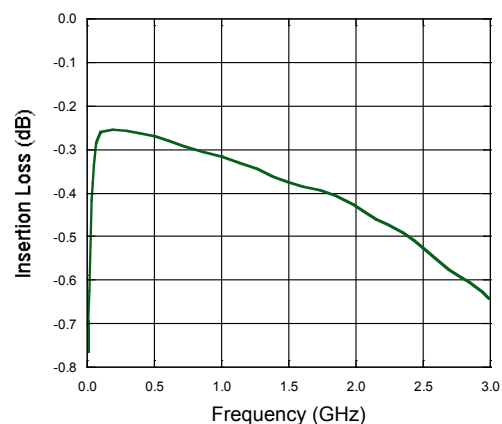
VSWR Over Temperature



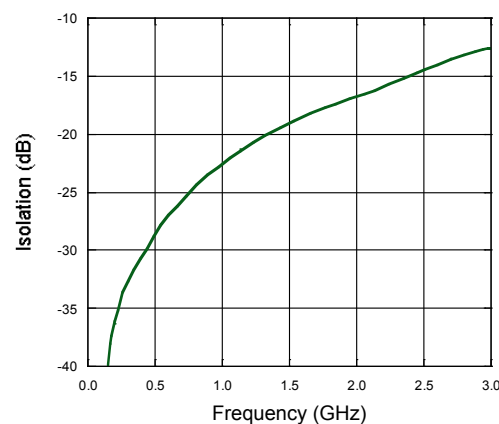
Isolation vs. Frequency Over Temperature



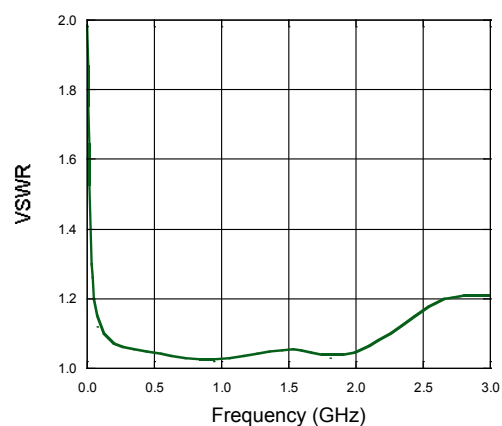
**Insertion Loss vs. Frequency
(+2.3 V Control, 1000 pF Capacitor on RF Ports)**



**Isolation vs. Frequency
(+2.3 V Control, 1000 pF Capacitor on RF Ports)**



**VSWR vs. Frequency
(+2.3 V Control, 1000 pF Capacitor on RF Ports)**



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