MASWSS0143

3 Watt Cellular T/R and Antenna Changeover Switch
DC - 3.0 GHz

Rev. V4

Features

- Low Insertion Loss: < 0.4 dB @ 1900 MHz
- Low Current Consumption: <20 µA @ +5V
- High Intercept Point: 58 dBm @ 1 GHz
- Positive or Negative Voltage Control
- CDMA, W-CDMA, TDMA, GSM, PCS and DCS
- Lead-Free Plastic SOT-26 Package
- 100% Matte Tin Plating over Copper
- Halogen-Free "Green" Mold Compound
- 260°C Reflow Compatible
- RoHS* Compliant Version of SW-425

Description

M/A-COM's MASWSS0143 is a GaAs monolithic switch in a lead-free, SOT-26 surface mount plastic package. The MASWSS0143 is ideally suited for applications where very low power consumption, low intermodulation products and very small size are required.

Typical applications include internal / external antenna select switch for portable telephones and data radios. In addition because of its low loss, good isolation, and inherent speed, the MASWSS0143 can be used as a conventional T/R switch or as an antenna diversity switch.

The MASWSS0143 can be used in power applications up to 3 watts in systems such as cellular PCS, CDMA, W-CDMA, TDMA, GSM and other analog / digital wireless communications systems.

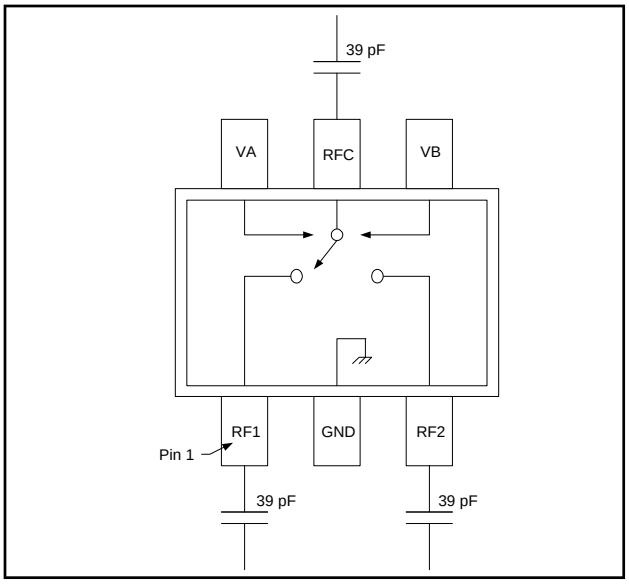
The MASWSS0143 is fabricated using a 0.5 micron gate length GaAs PHEMT process. The process features full chip passivation for increased performance and reliability.

Ordering Information [1]

Part Number	Package
MASWSS0143	Bulk Packaging
MASWSS0143TR	1000 piece reel
MASWSS0143TR-3000	3000 piece reel

1. Reference Application Note M513 for reel size information.

Functional Block Diagram



Pin Configuration

Pin No.	Function	Description
1	RF1	RF In/Out
2	GND	RF Ground
3	RF2	RF In/Out
4	VB	Voltage Control B
5	RFC	RF Common
6	VA	Voltage Control A

Absolute Maximum Ratings [2,3]

Parameter	Absolute Maximum
Input Power (1 GHz) 5 V Control	+36 dBm
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.

- **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.macomtech.com for additional data sheets and product information.

Electrical Specifications: T_A = 25°C, V_{CTL} = 0/5 V, Pin = 30 dBm, Z_0 = 50 Ω [4]

Parameters	Test Conditions	Units	Min.	Typ.	Max.
Insertion Loss	DC - 1 GHz 1 - 2 GHz 2 - 3 GHz	dB dB dB	— — —	0.35 0.40 0.65	0.50 — —
Isolation	DC - 1 GHz 1 - 2 GHz 2 - 3 GHz	dB dB dB	18 — —	22 16 11	— — —
VSWR	DC - 3 GHz	Ratio	—	1.2:1	—
P1dB	1 GHz	dBm	—	36	—
IP2	2-Tone, 5 MHz Spacing, 1 GHz Pin = +10 dBm / Tone	dBm	—	110	—
IP3	2-Tone, 5 MHz Spacing, 1 GHz Pin = +10 dBm / Tone	dBm	—	58	—
2nd Harmonics	Pin = +30 dBm, f_0 = 1 GHz	dBc	—	-78	—
3rd Harmonics	Pin = +30 dBm, f_0 = 1 GHz	dBc	—	-82	-70
Trise, Tfall	10% to 90% RF, 90% to 10% RF	nS	—	60	—
Ton, Toff	50% control to 90% RF, 50% control to 10% RF	nS	—	20	—
Transients		mV	—	20	—
Control Current	V_{CTL} = 5 V	µA	—	5	20

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

Truth Table [5,6]

Control A	Control B	RFC - RF1	RFC - RF2
0	1	Off	On
1	0	On	Off

5. Differential voltage, V (state 1) - V (state 0), must be +2.5 V minimum and must not exceed 8 V.
6. 0 = -8 V to 0 V, 1 = -5.5 V to 8.0 V

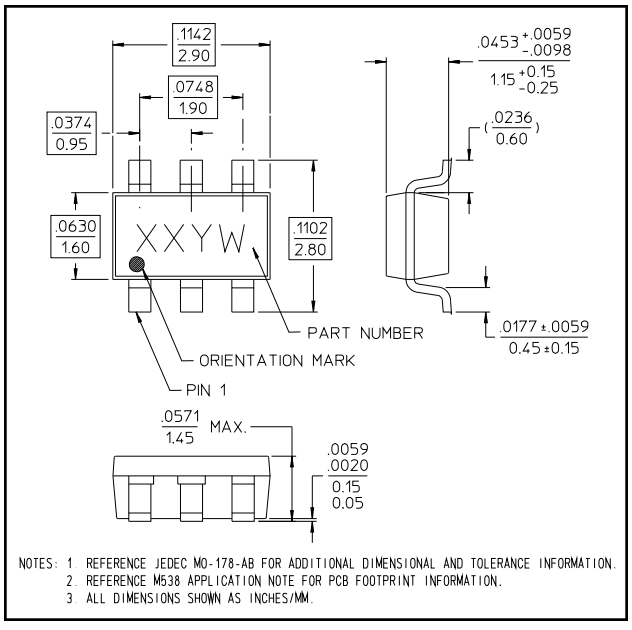
Handling Procedures

Please observe the following precautions 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 SOT-26†



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

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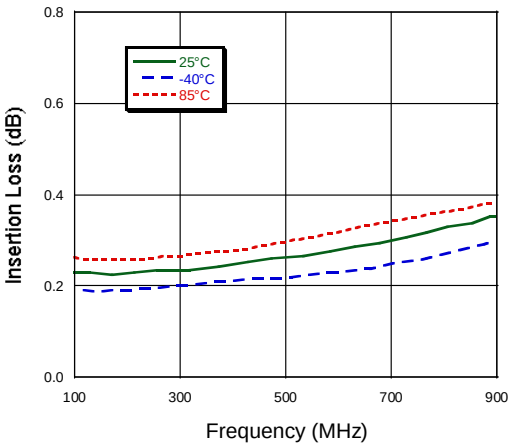
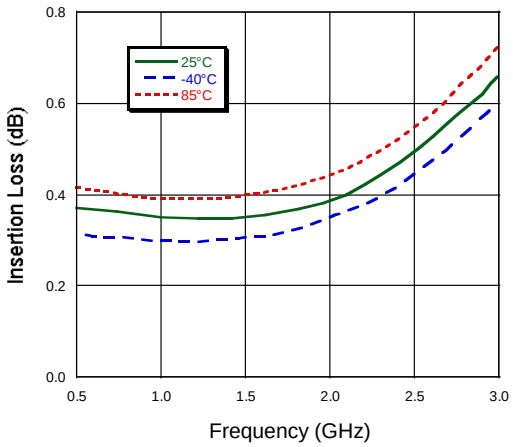
Typical Performance Curves

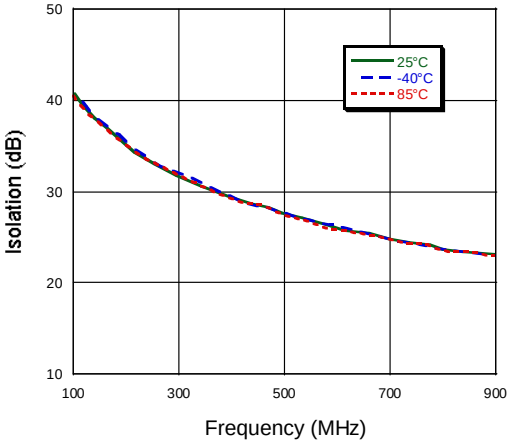
Insertion Loss, 1000 pF



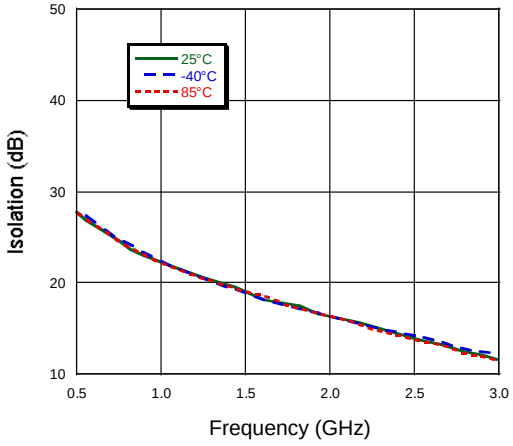
Insertion Loss, 39 pF



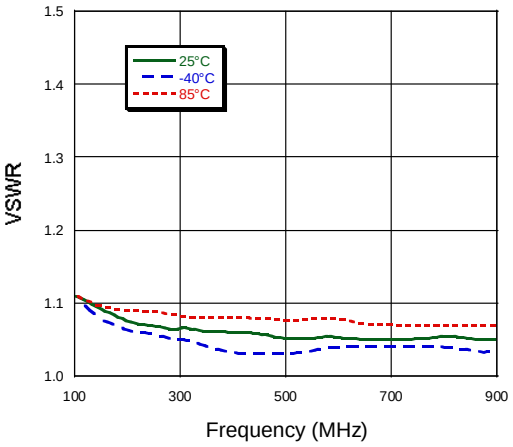
Isolation, 1000 pF



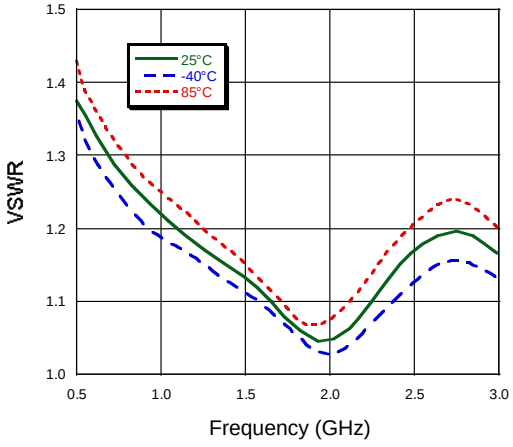
Isolation, 39 pF



VSWR, 1000 pF



VSWR, 39 pF



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Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

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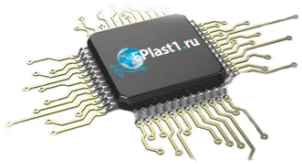
- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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