

GaAs SP8T Reflective Switch, DC - 2500 MHz

V 3.00

SW65-0003

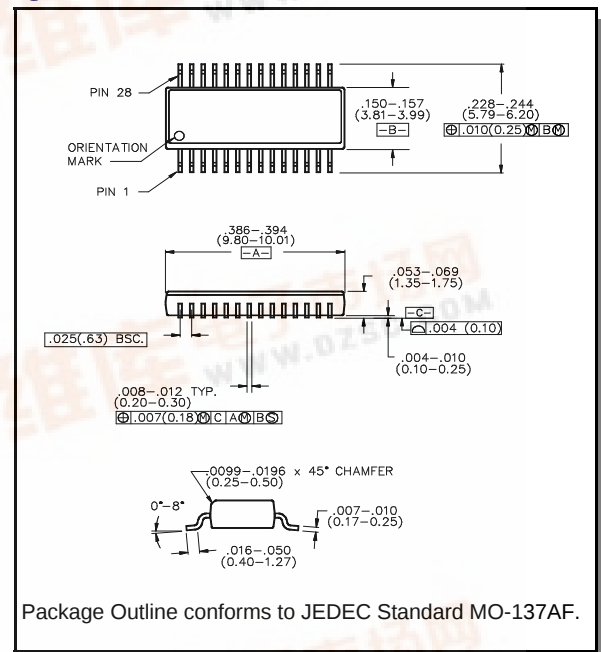
Features

- Cascadable Port
- Building Block for Switch Matrices
- 23 dB Isolation at 2.5 GHz
- Low DC Power Consumption
- Terminated Common Port
- 50 Ohm Nominal Impedance

Description

M/A-COM's SW65-0003 is a GaAs MMIC SP8T reflective switch in a SMT plastic package. The switch has a low loss growth port, J9, that allows for cascading the device into larger multi-throw switches. It can be configured for common arm, J0, match when all the output ports are in isolation. The switch offers excellent broadband performance and repeatability from DC to 2.5 GHz, while maintaining low DC power dissipation. The SW65-0003 is ideally suited for switch matrix and high volume wireless infrastructure and applications.

QSOP-28



Electrical Specifications: $T_A = 25^{\circ}\text{C}$

Parameter	Test Conditions	Frequency	Units	Min.	Typ.	Max.
Insertion Loss		DC - 1.0 GHz	dB	—	1.7	2.0
		DC - 2.0 GHz	dB	—	2.0	2.3
		DC - 2.5 GHz	dB	—	2.5	2.8
Insertion Loss J9 Port		DC - 1.0 GHz	dB	—	1.0	1.3
		DC - 2.0 GHz	dB	—	1.4	1.7
		DC - 2.5 GHz	dB	—	2.0	2.3
Isolation		DC - 1.0 GHz	dB	28	31	—
		DC - 2.5 GHz	dB	20	23	—
Isolation J9 Port		DC - 1.0 GHz	dB	22	25	—
		DC - 2.5 GHz	dB	15	18	—
VSWR Input (J0)		DC - 2.5 GHz	Ratio	—	1.2:1	1.5:1
VSWR (All arms off)		DC - 1.0 GHz	Ratio	—	1.1:1	1.4:1
		DC - 2.0 GHz	Ratio	—	1.8:1	2.1:1
		DC - 2.5 GHz	Ratio	—	2.0:1	2.3:1
VSWR Output		DC - 1.0 GHz	Ratio	—	1.2:1	1.5:1
		DC - 2.5 GHz	Ratio	—	1.3:1	1.6:1
VSWR (J9)		DC - 1.0 GHz	Ratio	—	1.0:1	1.3:1
		DC - 2.5 GHz	Ratio	—	1.3:1	1.6:1
Switching Speed	90% / 10% or 10% / 90% RF		nSec	—	3	10
1 dB Compression	Input Power	—	dBm	+20	+22	—
Input IP2	Two tone inputs to +5 dBm	—	dBm	+65	—	—
Input IP3	Two tone inputs to +5 dBm	—	dBm	+45	—	—
DC Bias	0V	—	μA	—	—	10
	-5V	—	μA	—	—	100



Truth Table

Control Inputs										Condition of Switch									
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	J1	J2	J3	J4	J5	J6	J7	J8	J9	J10 Match
L	H	H	H	H	H	H	H	H	H	On	Off	Off	Off	Off	Off	Off	Off	Off	Off
H	L	H	H	H	H	H	H	H	H	Off	On	Off	Off	Off	Off	Off	Off	Off	Off
H	H	L	H	H	H	H	H	H	H	Off	Off	On	Off	Off	Off	Off	Off	Off	Off
H	H	H	L	H	H	H	H	H	H	Off	Off	Off	On	Off	Off	Off	Off	Off	Off
H	H	H	H	L	H	H	H	H	H	Off	Off	Off	Off	On	Off	Off	Off	Off	Off
H	H	H	H	H	L	H	H	H	H	Off	Off	Off	Off	Off	On	Off	Off	Off	Off
H	H	H	H	H	H	L	H	H	H	Off	Off	Off	Off	Off	Off	On	Off	Off	Off
H	H	H	H	H	H	H	L	H	H	Off	Off	Off	Off	Off	Off	Off	On	Off	Off
H	H	H	H	H	H	H	H	L	H	Off	Off	Off	Off	Off	Off	Off	Off	On	Off
H	H	H	H	H	H	H	H	H	L	Off	Off	Off	Off	Off	Off	Off	Off	Off	On

 V_{IN} Low = 0 to -0.2V @ 10 μ A V_{IN} High = -5V @ 90 μ A

Pin Configuration

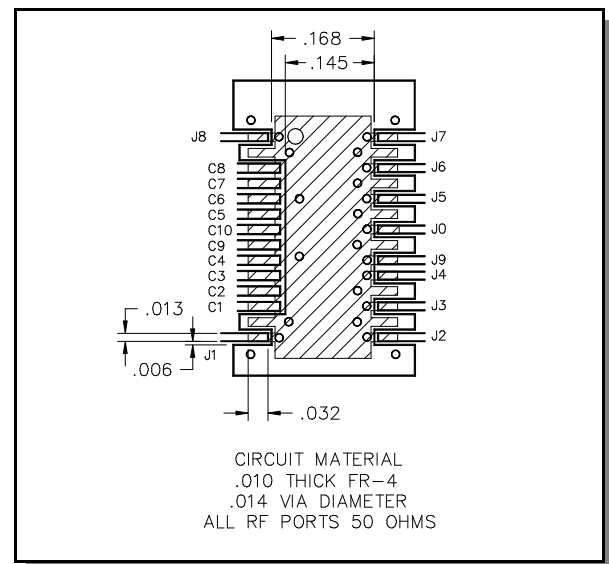
Pin No.	Function	Pin No.	Function
1	J8	15	J2
2	Ground	16	Ground
3	C8	17	J3
4	C7	18	Ground
5	C6	19	J4
6	C5	20	J9
7	C10	21	Ground
8	C9	22	J0
9	C4	23	Ground
10	C3	24	J5
11	C2	25	Ground
12	C1	26	J6
13	Ground	27	Ground
14	J1	28	J7

Absolute Maximum Ratings¹

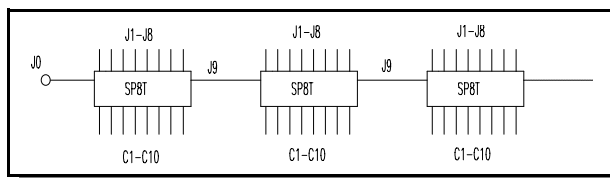
Parameter	Absolute Maximum
Input Power	+34 dBm
Control Voltage	-8.5 volts
Storage Temperature	-65°C to +125°C
Operating Temperature	-40° to +85°C

1. Operation of this device above any one of these parameters may cause permanent damage.

PCB Layout



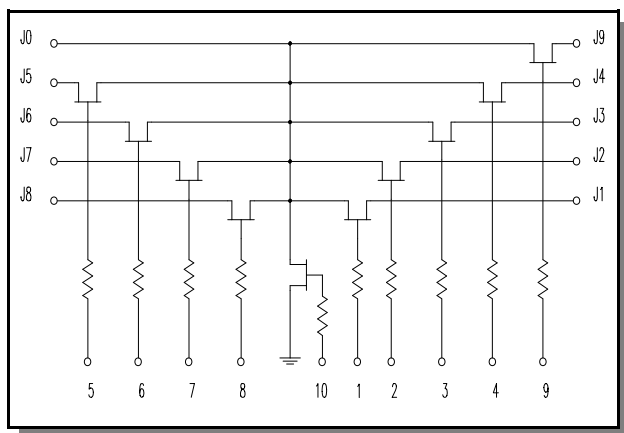
Cascadable Application



Specifications subject to change without notice.

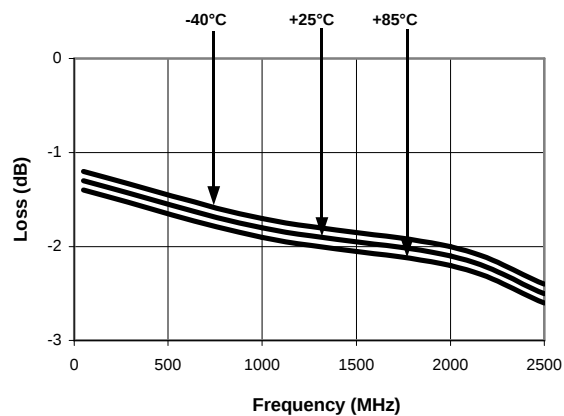
■ North America: Tel. (800) 366-2266
 ■ Asia/Pacific: Tel.+81-44-844-8296, Fax +81-44-844-8298
 ■ Europe: Tel. +44 (1344) 869 595, Fax+44 (1344) 300 020

Switch Schematic

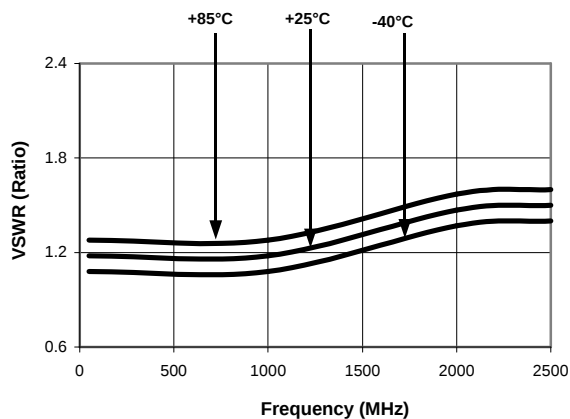


Typical Performance Curves

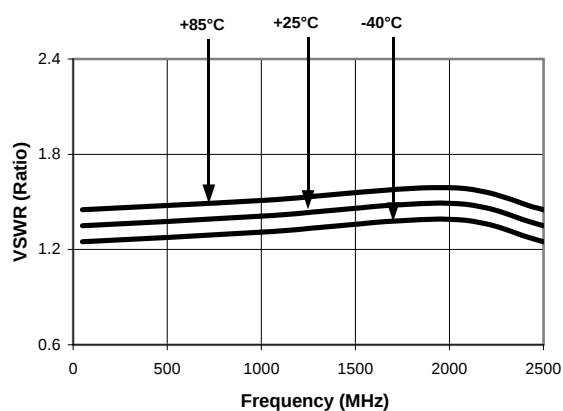
Insertion Loss vs. Frequency



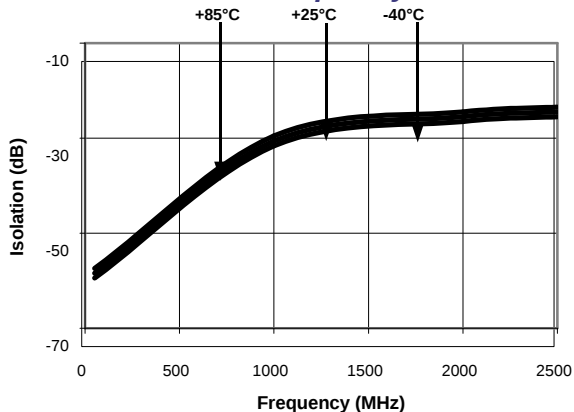
VSWR vs. Frequency



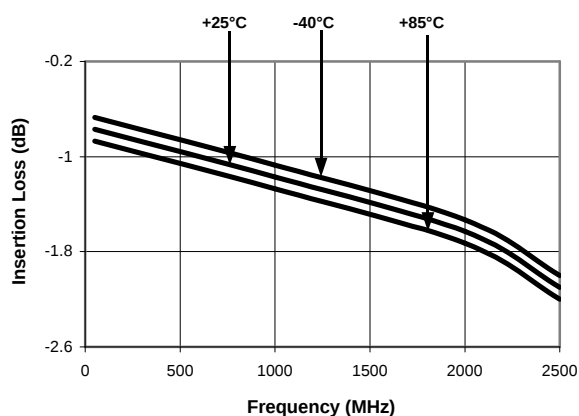
Output VSWR vs. Frequency



Isolation vs. Frequency



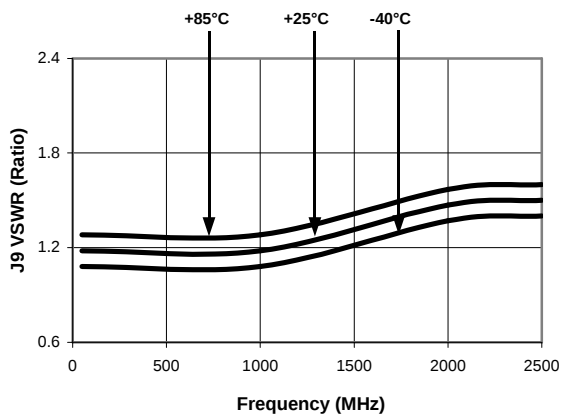
Growth Insertion Loss vs. Frequency



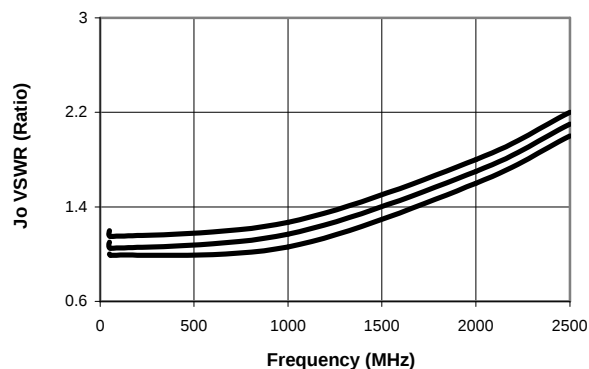
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Typical Performance Curves

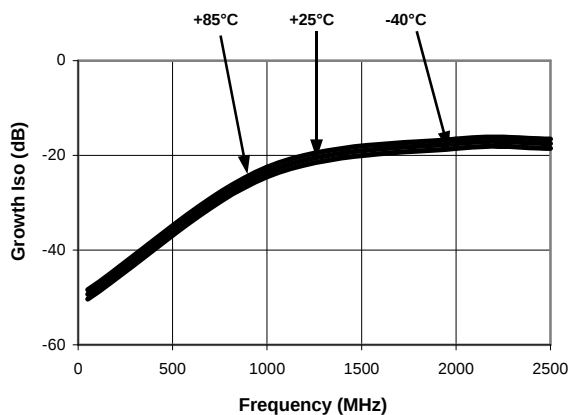
Growth VSWR vs. Frequency



J0 VSWR All Arms off vs. Frequency



Growth Isolation vs. Frequency



Ordering Information

Part Number	Package
SW65-0003	QSOP-28 Lead Plastic
SW65-0003TR	Tape and Reel (1K Reel)
SW65-0003-TB	Unit mounted on a test board

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