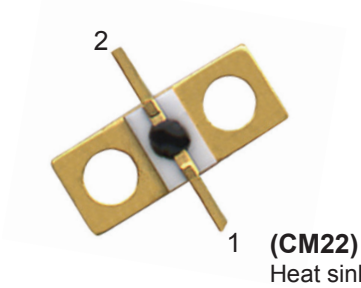
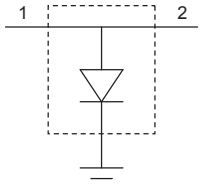
MSWSH-100-30

PIN Diode Shunt Switch Element





(CM22)
Heat sink is cathode, epoxy encapsulation

LEAD FREE
RoHS COMPLIANT

Description

A broadband, high linearity, high power shunt switch element in a 10 x 4 mm bolt channel metal package. This device is designed for WiMax, Wibro, WLAN, TD-SCDMA and other wireless infrastructure applications. It is also suited for 0.1 ~ 6 GHz applications with up to 100 watts of power.

Features

- Supports up to 100 watts when hot switched
- Supports up to 300 watts when cold switched
- Low insertion loss 0.15 dB typical up to 2.7 GHz
- High isolation 31 dB typical up to 2.7 GHz

Electrical Specifications, T_A = +25 °C, RF Parameters from Product Test Board

SYMBOL	TEST CONDITIONS		MIN	TYPICAL	MAX	UNITS
V_{BR}	I_R = 10 µA		700	–	–	V
V_F	I_F = 100 mA		–	850	–	mV
C_J	V_R = 50 V	F = 1 MHz	–	0.4	–	pF
R_S	I_F = 100 mA	F = 500 MHz	–	0.4	0.6	Ω
τ	I_F = 10 mA	I_R = 6 mA 50 %	–	3400	–	ms
W	I - Layer		–	80	–	µm
IL	V_R = 50 volts	F = 2.3 ~ 2.7 GHz	–	0.15	0.25	dB
		F = 6.0 GHz	–	0.35	0.45	dB
IRL	V_R = 50 volts	F = 2.3 ~ 2.7 GHz	15	22	–	dB
		F = 6.0 GHz	10	15	–	dB
Iso	I_F = 100 mA	F = 2.3 ~ 2.7 GHz	28	31	–	dB
		F = 6.0 GHz	23	26	–	dB

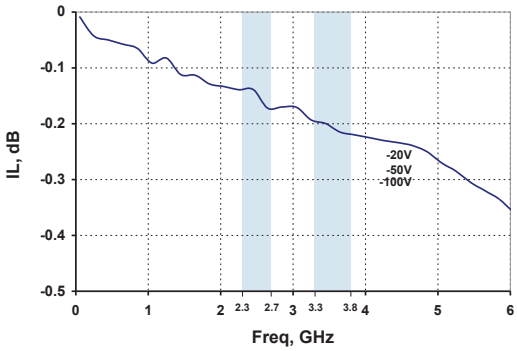
Absolute Maximum Ratings

RATING	LIMITS	UNITS
I_P	1.0	A
θ_{JC}	5.0	°C/W
T_J	+175	°C
T_{STG}	-65 to +150	°C
T_{SOLDER}	+230 °C for 30 seconds	

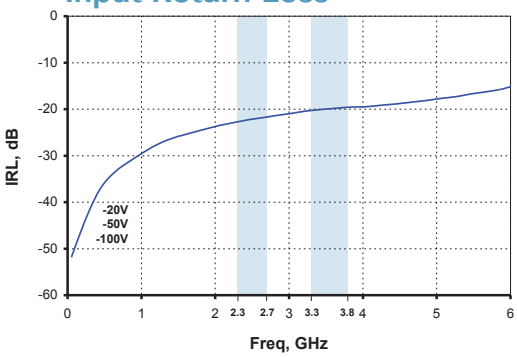
Typical RF Performance on product test board

T_A = 25 °C, Zo = 50 Ω, -10 dBm Small Signal (Unless Otherwise Specified)

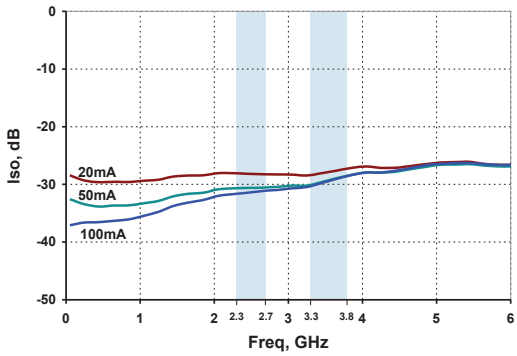
Insertion Loss



Input Return Loss

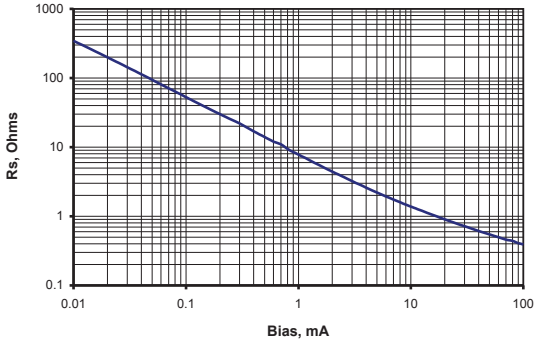


Isolation



Series Resistance vs. Current

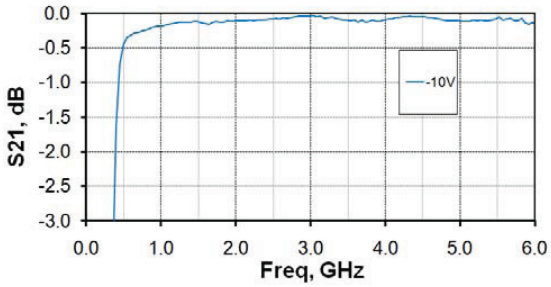
(Freq = 500 MHz)



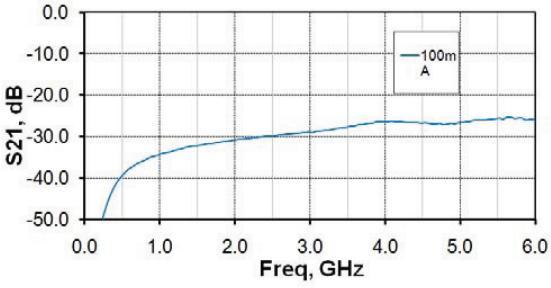
Typical RF Performance on Demo Board

T_A = 25 °C, Zo = 50 Ω, -10 dBm Small Signal, 100 mA Bias

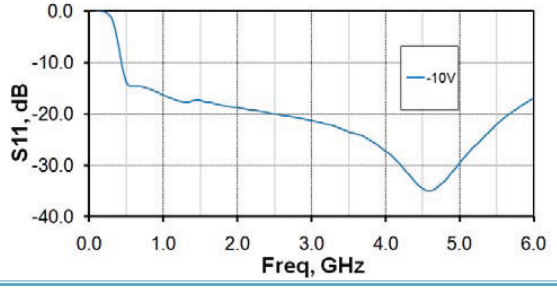
Insertion Loss



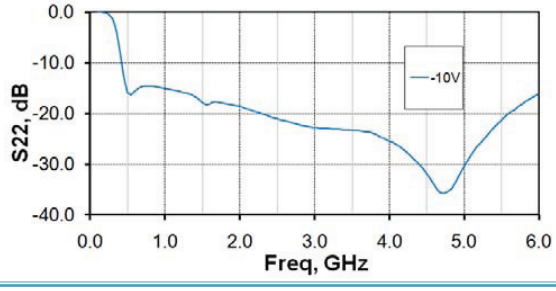
Isolation



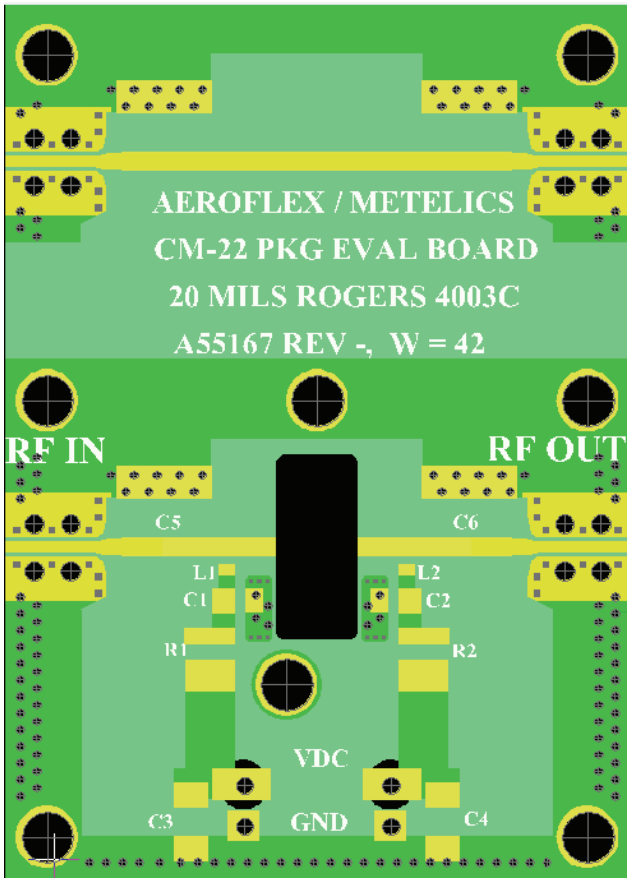
Input Return Loss



Output Return Loss

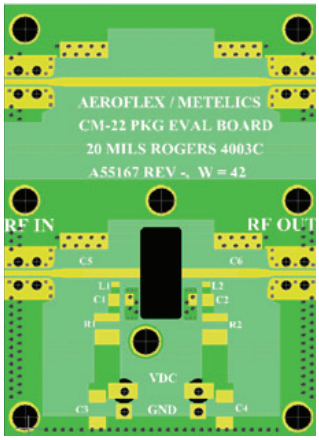


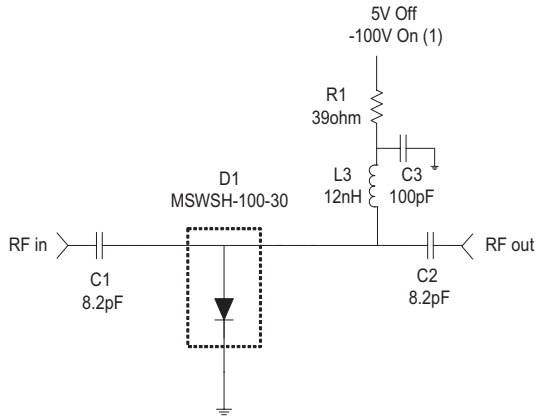
Demo Board Outline, Dimensions & Schematic



Dimensions: 1.50 in (3.81 cm) X 2.10 in (5.33cm)

Actual Size



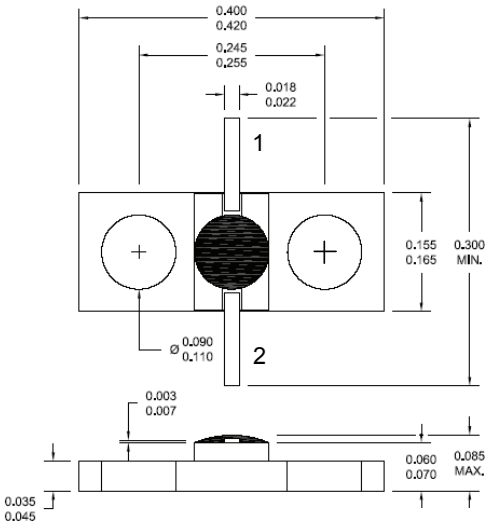


notes:
(1) Different Input power require different reverse bias voltage

Parts List

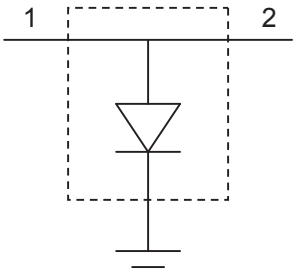
COMPONENT	VALUE	DESCRIPTION	MANUFACTURE	P/N
R1	39 Ω	Chip Resistor, 0.5 W, 5%	KOA Speer	RK73B3ATTD390J
C1, C2	8.2 pF	Capacitor, 0402 pkg, 20%	ATC	ATC600L8R2BT200T
C3	100 pF	Chip Capacitor, 0603 pkg, 20%	ATC	ATC600S101JT250XT
L1	12 nF	Chip Inductor, 0402 pkg, 10%	ATC	ATC0402WL120JT
D1	NA	PIN Diode Shunt Switch	Aeroflex / Metelics	MSWSH-100-30
PCB	NA	Demo Board, 10 mils Rogers RO4003C	Aeroflex / Metelics	A55167 REV -

Package Outline (CM22) and Electrical Schematic



(Inches)

PIN	FUNCTION
1,2	ANODE
Base Flange:	CATHODE, RF and DC GROUND



Aeroflex / Metelics Inc.
Aeroflex Microelectronic Solutions
975 Stewart Drive
Sunnyvale, CA 94085
TEL: 408-737-8181

54 Grenier Field Road
Londonderry, NH 03053
TEL: 603-641-3800

Sales
888-641-SEMI (7364)
metelics-sales@aeroflex.com

www.aeroflex.com/Microwave www.aeroflex.com/Metelics

ISO 9001: 2008 certified companies

AEROFLEX
A passion for performance.

Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.