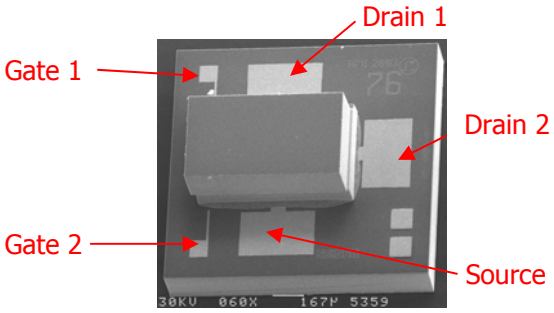
SPDT
DC to 40 GHz, RF – MEMS

FEATURES

- **High Isolation (20 dB typical @10 GHz)**
- **Low Insertion Loss (0.4 dB typical @10 GHz)**
- **Typical On Resistance < 3.0 Ω**
- **Hermetically Sealed**
- **Long Life (>10^{11} cycles) Electrostatic Actuation, High Off Resistance (>1 GΩ), Fast Switching (5 µs), Current Handling (400 mA) ±100V Signal Range, Near Zero Harmonic Distortion, No Quiescent Power Dissipation**



RMSW 220D™

DESCRIPTION

The RMSW220D™ is a Single Pole Double Throw (SPDT) Reflective RF Switch utilizing Radant MEMS Inc. recent breakthrough technology that delivers high-linearity, high-isolation and low-insertion loss in a wafer-scale package.

This device is ideally suited for use in many applications such as wireless (i.e. handsets, WLAN, broadband wireless access, GPS receivers), RF and Microwave Multi-throw switches, Radar Beam Steering Antennas, Phase shifters, and RF Test Equipment.

RF Input Parameters

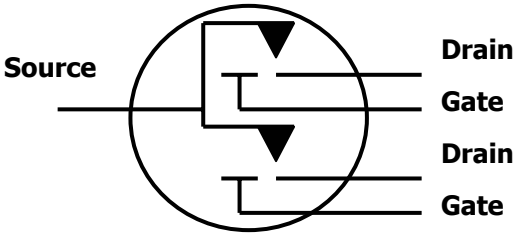
Frequency	2 GHz	5 GHz	10 GHz	25 GHz	35 GHz
Insertion Loss	< 0.3 dB	< 0.4 dB	< 0.5 dB	< 0.6 dB	< 0.8 dB
Isolation	> 32 dB	> 25 dB	> 20 dB	> 17 dB	> 13 dB
Return Loss	< -20 dB	< -20 dB	< -19 dB	< -18 dB	< -16 dB
Input IP3 (Two-tone inputs 10 GHz and 10.001 GHz @ 27 dBm)	> 65 dBm				
RF Power Rating	30 dBm				
Active Life Cycle, (cold-Switched)	10^{11}				

Notes: Product performance specifications and switch operation are for cold switching only. Hot switching with RF input power greater than –10 dBm can degrade lifetime of switch.

DC Input Parameters

Actuation Voltage, typ. **Actuation Power Consumption**	90 2µW @ 1 kHz switching rate
Switch Current, Max. (Cold)	250 mA
Switch Current, Max. (Hot)	50 mA
Switching Time, Max. (10kHz, Varies with Control Voltage)	5 µs
Operating Temperatures	- 40℃ to 85℃
Storage Temperatures	- 55℃ to 150℃

Functional Block Diagram



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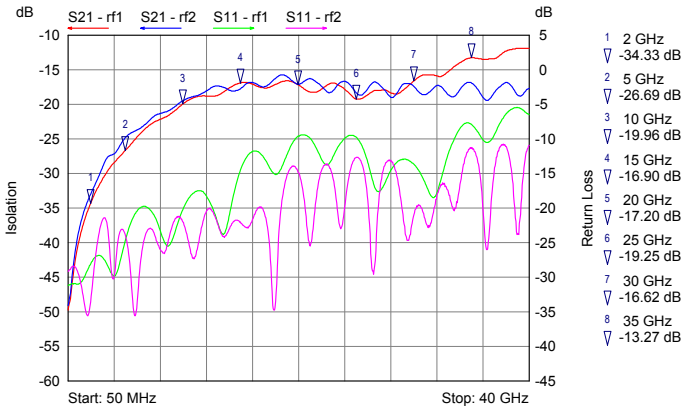
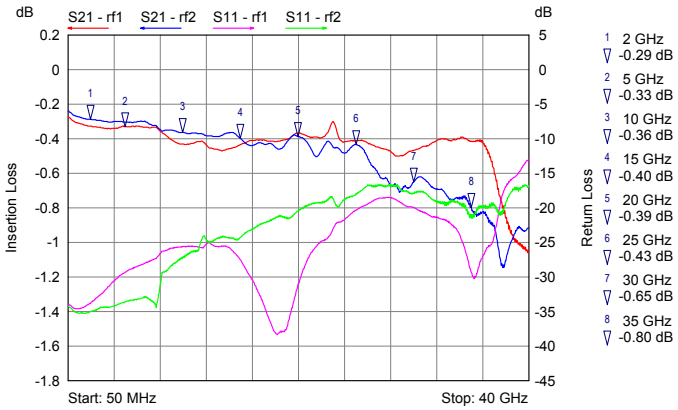
Typical Performance



Isolation



Insertion Loss

*Measurement results include the effects of two 1 mil diameter bond wires on each RF pad.

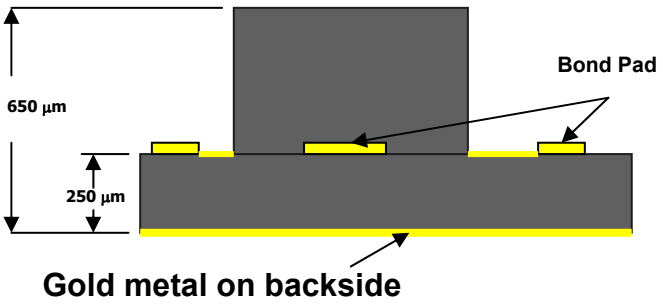
Handling Procedures

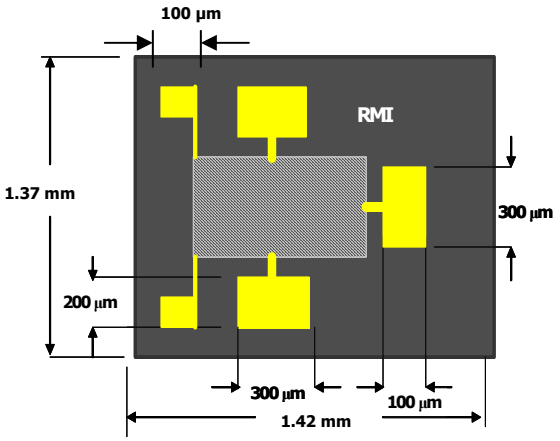
The following precautions should be observed to avoid damage:

Static sensitivity — RF MEMS switches integrated circuits are ESD sensitive and can be damaged by static electricity. Use proper ESD precautions when handling these devices.

Maximum Rating — The absolute maximum input power is 2 watts.

Nominal Device Dimensions





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