

KS03R3-22

SP3T 200W Switch
0.02 – 3 GHz



DESCRIPTION

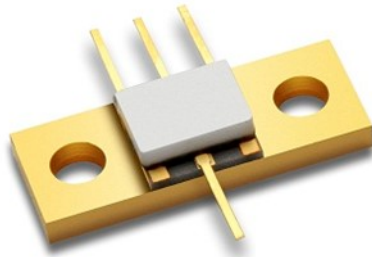
The KS03R3-22 is a low loss SP3T PIN Switch designed for reliable operation to 200 watts CW. Built on a highly thermally conductive Aluminum Nitride (AlN) substrate attached to a copper tungsten flange, this switch is ideal for high performance commercial and military applications where low loss combined with moderate adjacent port isolation is required. In addition, the thick copper under metal provides superior loss performance as well as higher bias current handling than traditional metallization schemes. High power diodes have been chosen to provide the optimum blend of loss, isolation and harmonic performance.

FEATURES

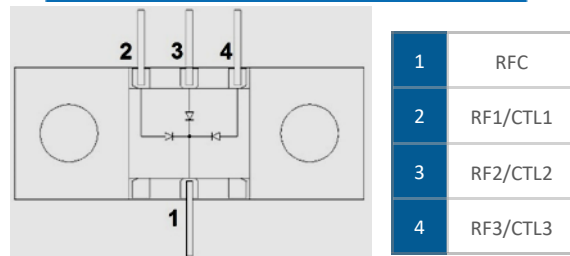
- ✓ High Power PIN Diode Design
- ✓ Broadband operation from 0.02 – 3.0 GHz
- ✓ 4-Lead flange mount package
- ✓ Rugged Aluminum Nitride Carrier with Thick Copper Traces

APPLICATIONS

- ✓ Microwave Radios
- ✓ Military Radios
- ✓ VSAT
- ✓ Telecom Infrastructure
- ✓ Test Equipment



PINOUT



ELECTRICAL CHARACTERISTICS (+25°C)

Parameter	Conditions	Min	Typical	Max	Units
Insertion Loss	0.02 – 1.0 GHz		0.40	0.5	dB
	1.0 – 2.0 GHz		0.55	0.7	dB
	2.0 – 3.0 GHz		0.70	1.0	dB
Isolation	0.02 – 1.0 GHz	26	30		dB
	1.0 – 2.0 GHz	22	26		dB
	2.0 – 3.0 GHz	19	22		dB
VSWR (I/O)	0.02 – 3.0 GHz		1.3:1	1.5:1	

Notes:

1. Insertion loss increases 0.004 dB/°C

ABSOLUTE MAXIMUM RATINGS

Characteristic	Min.	Max.	Units
Control Voltage (Vctl)	-500	0.7	Volts
RF Input Power		200	W ⁽¹⁾
Storage Temperature	-65	+150	°C
Operating Temperature	-55	+85	°C
Control Current		200	mA
Operating Frequency	0.02	3.00	GHz

Notes:

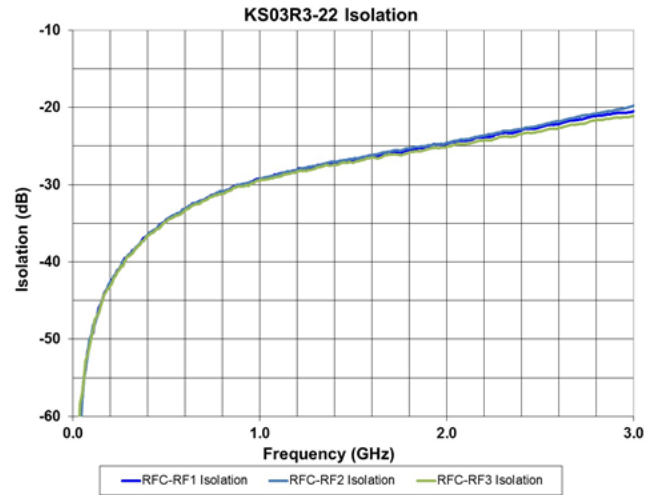
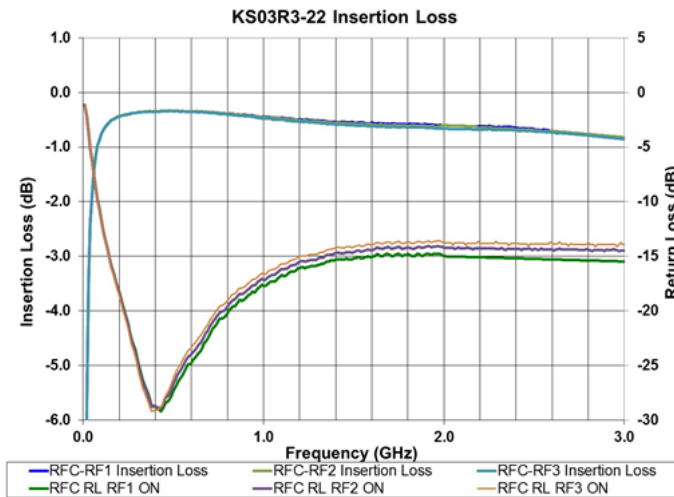
1. Max Base Plate Temp = +85°C. For temperatures above +85°C derate linearly to +150°C using $P_{max} = P_{max}(150 - T_{amb})/125$

TRUTH TABLE/CONTROL VOLTAGES

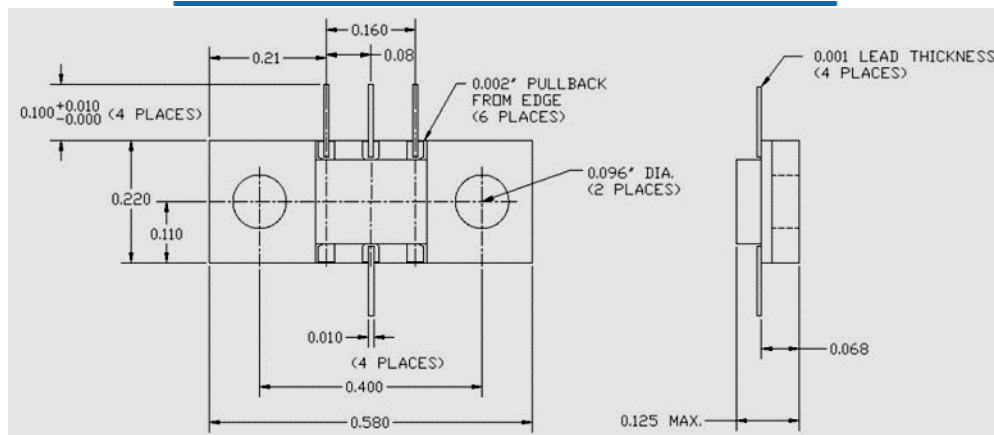
(I_{ctl} = 100mA, V_{Low} = -50 to -400V)

CTL1	CTL2	CTL3	RFC – RF1	RFC – RF2	RFC – RF3
Ictl	Vrb-	Vrb-	Loss	Isolation	Isolation
Vrb-	Ictl	Vrb-	Isolation	Loss	Isolation
Vrb-	Vrb-	Ictl	Isolation	Isolation	Loss

TYPICAL PERFORMANCE (+25°C)



OUTLINE DRAWING



SCHEMATIC

NOTES

1. Voltages for CTL1 – CTL3 should be chosen to maintain reverse bias through peak RF voltage excursions during the OFF state and to maintain proper forward bias current (ICTL) during ON state. See truth table.
2. C1 – C4 should be large enough to provide low loss at the lowest operating frequency.
3. L1 – L4 should be large enough to provide high impedances at the lowest operating frequency.
4. C5 – C7 should be large enough to adequately filter supply noise from CTL1 – CTL3.

