MA8334 Series

High Power Multi-Throw PIN Diode Switch Modules

V4

Features

- SPDT and SP3T Series Diode Designs
- Low Intermodulation Distortion, 80 dBc
- High Average Power, 100 W
- Wide Bandwidth, 10 MHz to 1000 MHz
- Low Insertion Loss
- High Isolation
- RoHS Compliant

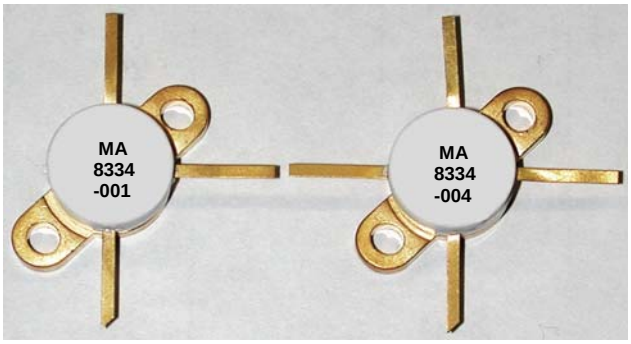
Description and Applications

M/A-COM Technology Solutions MA8334 Series of multi-throw high power switch modules are SPDT and SP3T devices intended for use from 10 MHz to 1000 MHz. They are designed to function with an input power of 100 watts, CW, into a 50 Ω load with a nominal source VSWR of 1.3:1. These switch modules are constructed using advanced hybrid technology and utilize PIN diode chips that have been optimized for low loss and high reliability. These switch modules make use of M/A-COM Tech's, high voltage, CERMACHIP™ PIN diode chip distinguished by its low thermal resistance and low intermodulation distortion. Applications for the MA8334 switch modules include 100W incident power T/R antenna and diversity switches. Typical bias conditions for nominal switch operation are +50mA @ +1V for the low loss condition and -100V @ 0 mA for isolation.

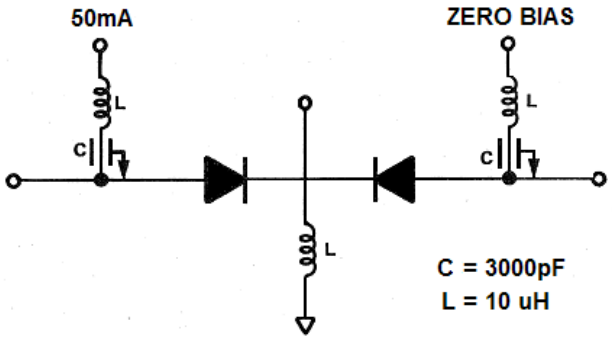
Absolute Maximum Ratings [1]

Parameter	Absolute Maximum
Reverse Voltage	Voltage Rating per Diode
Forward Current	+ 250 mA per diode
Operating Temperature	-65 °C to +125 °C
Storage Temperature	-65 °C to +150 °C
Junction Temperature	+175 °C
Power Dissipation	5 W @ + 25 °C . derated to 0 W @ + 125 °C .

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

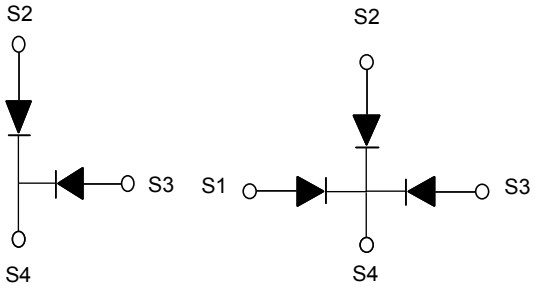


Circuit for Common Cathode Biasing



Suggested Bias Circuit for MA8334-001

Recommended D.C. Bias :
Low Loss: +50 mA @+ 1V, Isolation:-100V @ 0mA



Internal Wiring Diagram

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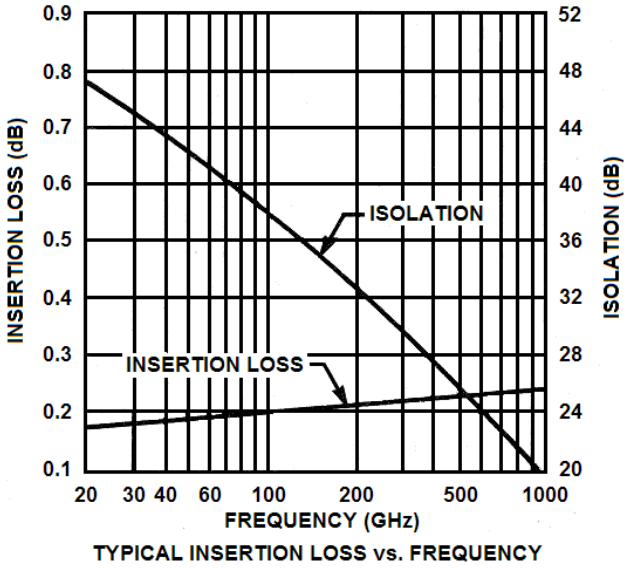
Specifications @ T_A=+25°C

Model Number	Case Style	Maximum[3] CW Input Power (Watts)	Switch Type	Frequency Range (MHz)	Minimum Isolation[1,2] (dB)	Maximum Insertion Loss[1,2] (dB)	Nominal Carrier Lifetime[4] TL (µS)	Diode Voltage Rating (Volts)
MA8334-001	844-001	100	SPDT	10-1000	24	0.35	8	900
MA8334-004	844-004	100	SP3T	10-1000	24	0.35	8	900

Performance Notes:

1) For the MA8334-001 and the MA8334-004 switches, the small signal insertion loss and isolation measurements are performed at 450 MHz with the “ON” port forward biased @ +50mA, +1V and the “OFF” port reverse biased at 0V, 0mA. For (100W) high signal conditions, the “ON “ port is forward biased @ +50mA, +1V and the “OFF” port is reverse biased at –100V, 0mA.
2) Maximum small signal VSWR for all switches is 1.35:1 with source and load VSWR < 1.05 :1 in 50 Ω system at 450 MHz
3) Nominal thermal resistance for each diode is 20°C/W.
4) Bias conditions +10mA/-6mA

Performance Data



TYPICAL INSERTION LOSS vs. FREQUENCY

Note: Specifications subject to change without notification

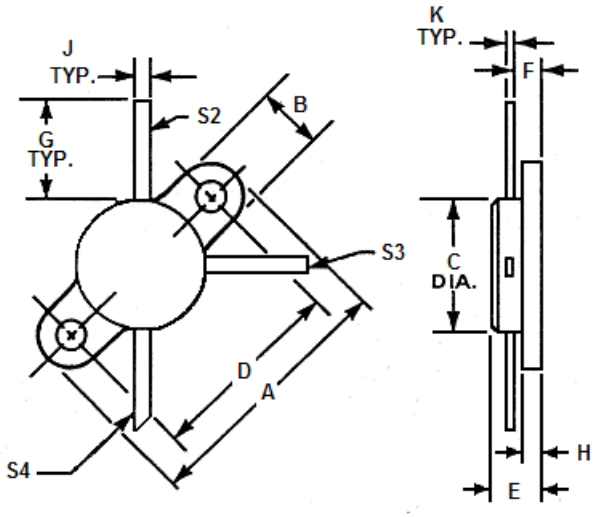
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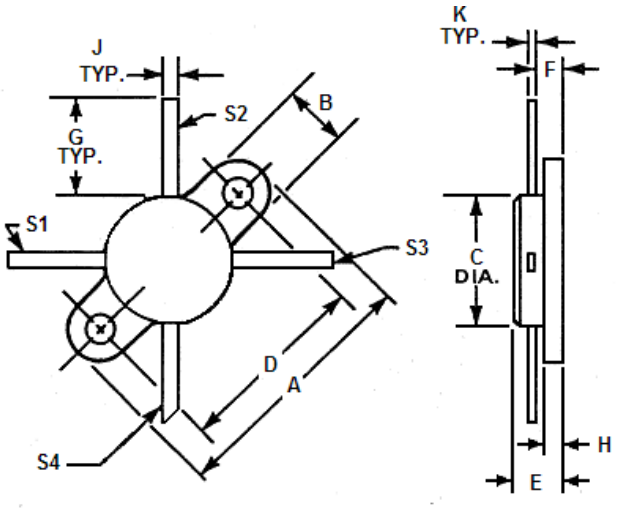
Case Dimensions

Case style 844-001



DIM.	INCHES		MM	
	MIN.	MAX.	MIN.	MAX.
A	.970	.980	24.6	24.9
B	.245	.255	6.22	6.48
C	.485	.495	12.3	12.6
D	.720	.730	18.3	18.5
E	.250	.292	6.35	7.42
F	.155	.182	3.94	4.62
G	.400	.420	10.2	10.7
H	.090	.110	2.29	2.79
J	.045	.055	1.14	1.40
K	.005	.007	.127	.178

Case style 844-004



DIM.	INCHES		MM	
	MIN.	MAX.	MIN.	MAX.
A	.970	.980	24.6	24.9
B	.245	.255	6.22	6.48
C	.485	.495	12.3	12.6
D	.720	.730	18.3	18.5
E	.250	.292	6.35	7.42
F	.155	.182	3.94	4.62
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