

RF High Average Power Multi-Throw PIN Diode Switch Modules

RoHS Compliant
Parts

MA8334 Series
V3

Features

- SPDT and SP3T Series Diode Designs
 - Lower Intermodulation Distortion, 80 dBc
 - Higher Average Power, 100 W
 - Higher B.W., 10 MHz to 1000 MHz
 - Lower Insertion Loss / Higher Isolation
 - Lead-Free (RoHS Compliant)
- Available with 260 °C Reflow Compatibility

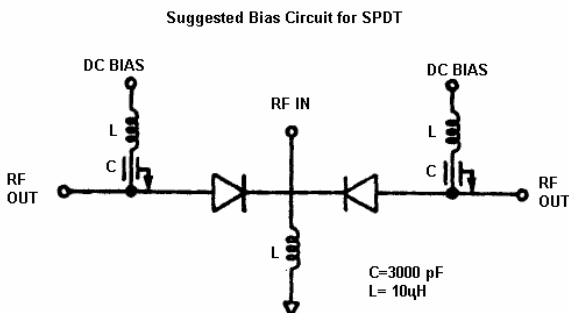
Description and Applications

M/A-COM's MA8334 Series of Multi-Throw High Power Switch Modules are SPDT and SP3T Devices designed for usage from 10 MHz to 1000 MHz. They are rated to operate at 100 Watts CW RF power with Nominal 1.3:1 Source and Load VSWR in 50 Ω.

These switch modules are constructed using Ceramic-Hybrid technology and utilize PIN diode chips optimized for lower loss and higher operating reliability. These Switch Modules employ M/A-COM's High Voltage CERMACHIP PIN diodes for Lower Thermal Resistance and Lower Intermodulation Products.

Application of the MA8334 switch modules include 100 W Incident Power T/R and Diversity Switches. Forward Bias Currents of + 50 mA @ +1V and Reverse Bias Voltages of -100V @ 0 mA are typical values for nominal Switch Operation.

Application Circuit for Common Cathode Biasing



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

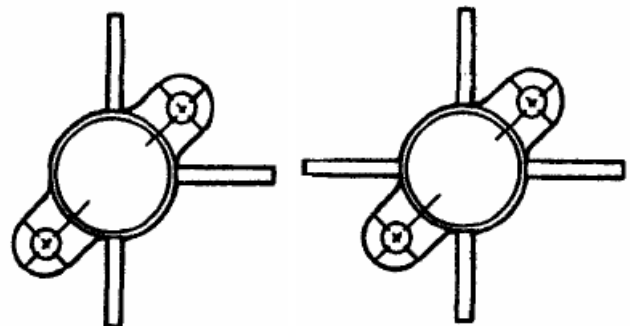
Note: Specifications subject to change without notification

Absolute Maximum Ratings

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.

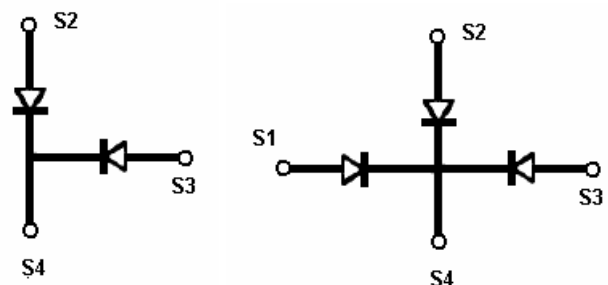
Case Style



844-001

844-004

Internal Wiring Diagram : Common Cathodes



MA8334-001

MA8334-004

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Specifications @ $T_A = +25^\circ\text{C}$

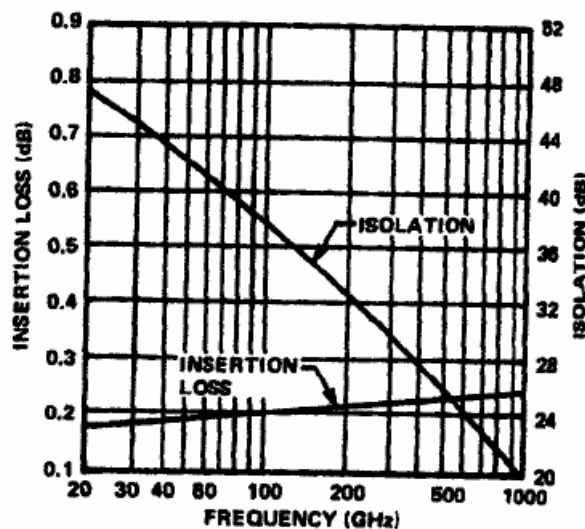
Model Number	Case Style	Maximum ³ CW Input Power (Watts)	Switch Type	Frequency Range (MHz)	Minimum ^{1,2} Isolation (dB)	Maximum ^{1,2} Insertion Loss (dB)	Diode Voltage Rating (Volts)
MA8334-001	844-001	100	SPDT	10-1000	24	0.35	900
MA8334-004	844-004	100	SP3T	10-1000	24	0.35	900

Performance Data

Performance

Notes:

- For the MA8334-001 and the MA8334-004 Switches, the Small Signal Insertion Loss and Isolation measurements are performed at 450MHz with the "ON" Port Forward Biased @ + 50mA, +1V and the "OFF" Port Reverse Biased at 0V, 0 mA. For (100 W) High Signal conditions, the " ON " Port is Forward Biased @ + 50mA, +1V and the "OFF" Port is Reverse Biased at -100V, 0 mA.
- Maximum Small Signal VSWR for all Switches is 1.35:1 with Source and Load VSWR < 1.05 :1 in 50 Ω System at specified 450 MHz frequency.
- Nominal Thermal Resistance for Each Diode is 20 $^\circ\text{C}/\text{W}$.
- Useful Switch Design Application Note: AG312 " Design with PIN Diodes " located at <http://www.macom.com/Application%20Notes/pdf/ag312.pdf>



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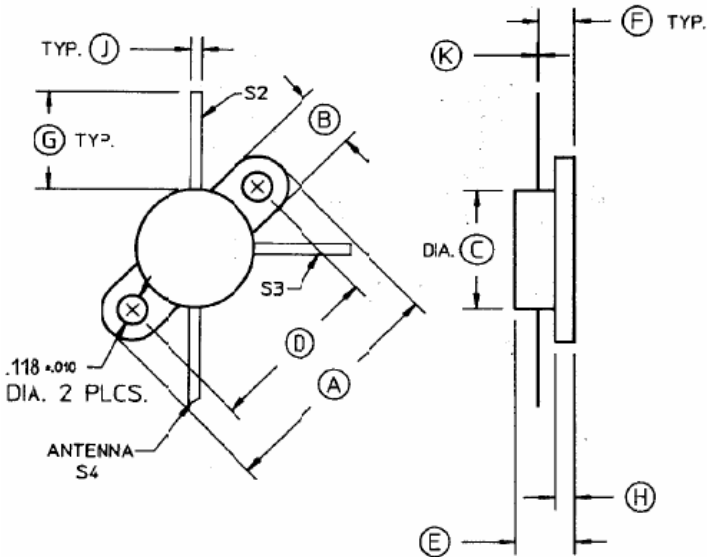
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Case Dimensions

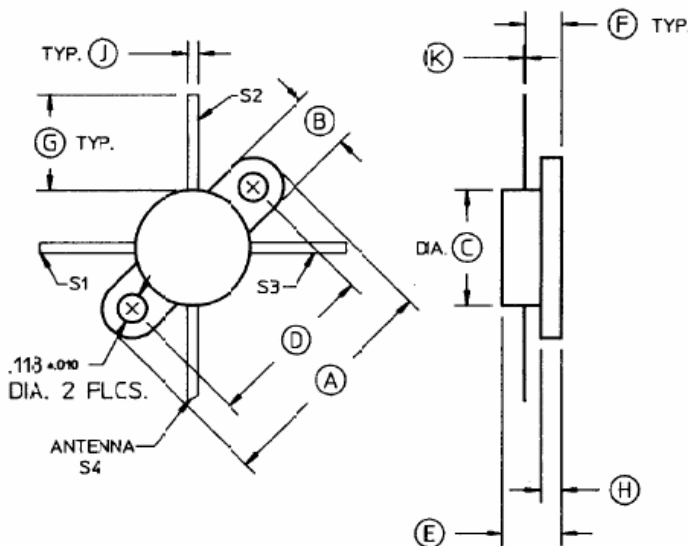
Case style 844-001



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	.10	2.29	2.79
J	.045	.055	1.14	1.40
K	.005	.007	.127	.178

Lead S1 removed

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
G	.400	.420	10.2	10.7
H	.090	.10	2.29	2.79
J	.045	.055	1.14	1.40
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No lead removed