BAX54 - BAX55

ULTRA FAST DIODE RING MODULATOR ASSEMBLIES

SILICON PLANAR EPITAXIAL DIODES

GENERAL DESCRIPTION - These silicon PLANAR epitaxial diode ring modulator assemblies are designed for applications in multichannel equipments working at very high speed. They are hermetically sealed in either TO-5 or TO-18 packages. The excellent thermal conductivity of the packages permits operation up to 400 mW.

ABSOLUTE MAXIMUM RATINGS of each diode (Note 1)

Maximum Temperatures

T_{STG}	Storage Temperature	-55°C to + 200°C
T_A	Operating Temperature	+ 175°C Maximum

Maximum Power Dissipation (Note 2)

P	Total Dissipation at 25°C Ambient Temperature	0.4 Watt

Maximum Voltage (T_A = 25°C unless otherwise noted)

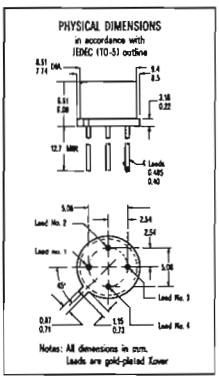
WIV	Working Inverse Voltage	40 Volts

Maximum Currents (T_A = 25°C unless otherwise noted)

I_F	Forward Continuous DC Current	300 mA
I_O	Average Rectified Current	200 mA
i_F (surge)	Peak Forward Surge Current (1 sec. Pulse Width)	1 Amp.
i_F (surge)	Peak Forward Surge Current (1 µsec. Pulse Width)	4 Amps.

ELECTRICAL CHARACTERISTICS of each diode (25°C free air temperature unless otherwise noted)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
V_F	Forward Voltage (Note 3)	0.98	1.15	1.5	V	I_F = 500 mA
V_F	Forward Voltage (Note 3)	0.94	1.05	1.2	V	I_F = 300 mA
V_F	Forward Voltage (Note 3)	0.89	0.98	1.1	V	I_F = 200 mA
V_F	Forward Voltage (Note 3)	0.82	0.88	1	V	I_F = 100 mA
V_F	Forward Voltage (Note 3)	0.75	0.8	0.9	V	I_F = 50 mA
V_F	Forward Voltage	0.65	0.68	0.75	V	I_F = 10 mA
V_F	Forward Voltage	0.63	0.65	0.71	V	I_F = 5 mA
V_F	Forward Voltage	0.55	0.58	0.66	V	I_F = 1 mA
I_R	Reverse Current		20	100	nA	V_R = 40 V
I_R (125°C)	Reverse Current		15	100	µA	V_R = 40 V
BV	Breakdown Voltage	60			V	I_R = 100 µA
t_{rr}	Reverse Recovery Time (Note 4)			25	nsec	$I_F = I_R = 10 \div 200$ mA
C_o	Capacitance (Note 5)		1.2	3	pF	V_R = 0 f = 1 MHz
$\Delta V_F/°C$	Forward Voltage Temperature Coefficient		-1.8		mV/°C	
MATCHED CHARACTERISTICS						
ΔV_F	Forward Voltage Match (-55°C to 100°C)			5	mV	I_F = 10 µA to 10 mA



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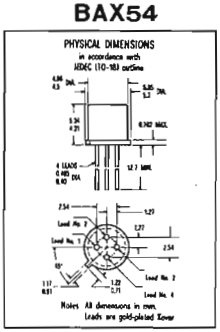

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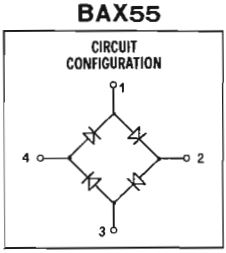
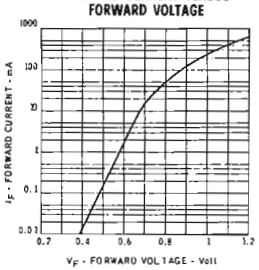


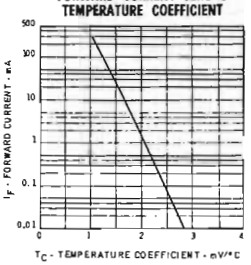
TYPICAL ELECTRICAL CHARACTERISTICS OF EACH DIODE

(25° C free air temperature unless otherwise noted)

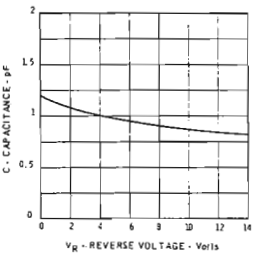
FORWARD CURRENT VERSUS FORWARD VOLTAGE



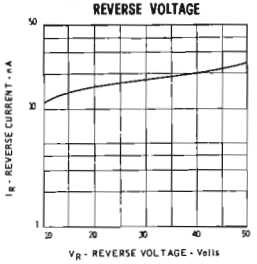
FORWARD CURRENT VERSUS TEMPERATURE COEFFICIENT



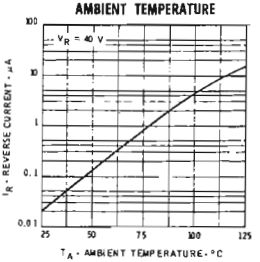
CAPACITANCE VERSUS REVERSE VOLTAGE



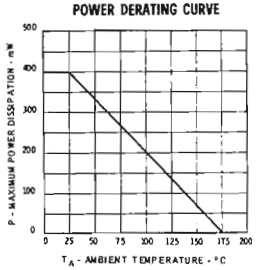
REVERSE CURRENT VERSUS REVERSE VOLTAGE



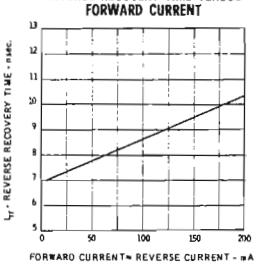
REVERSE CURRENT VERSUS AMBIENT TEMPERATURE



POWER DERATING CURVE



REVERSE RECOVERY TIME VERSUS FORWARD CURRENT



NOTES:

(1) Ratings apply to individual diodes. For multiple diode operation total power must not exceed power dissipation rating listed.

(2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

(3) Pulse Conditions : length = 300µsec; duty cycle = 1%.

(4) Recovery to 10% of i_R.

(5) Capacitance C_o cannot be monitored indipendently on each diode in a bridge configuration In measuring this on parameter bridge configurations, the capacitance limit is 4/3 the limit listed in the electrical characteristics.