SAMYANG ELECTRONICS *MBRF1020 --- MBRF10200*

SCHOTTKY BARRIER RECTIFIER

VOLTAGE RANGE: 20 --- 200 V
CURRENT: 10.0A

FEATURES

◇ Metal-semiconductor junction with guard ring
◇ Epitaxial construction
◇ Low forward voltage drop, low switching losses
◇ High surge capability
◇ For use in low voltage, high frequency inverters free wheeling, and polarity protection applications
◇ The plastic material carries U/L recognition 94V-0

MECHANICAL DATA

◇ Case: JEDEC ITO-220AC, molded plastic
◇ Terminals: Axial lead, solderable per MIL-STD-750, Method 2026
◇ Polarity: As marked
◇ Weight: 0.08 ounces, 2.24 grams
◇ Mounting position: Any

ITO - 220AC
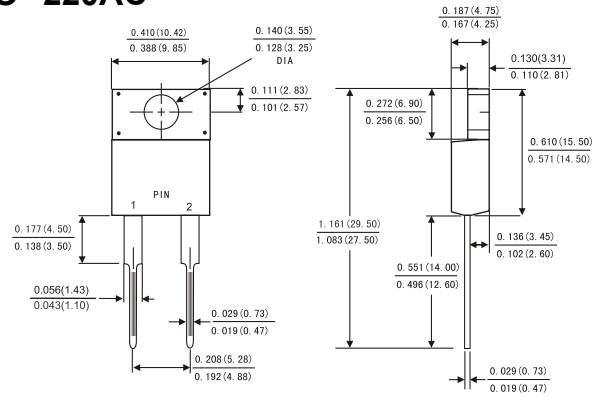
Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25℃ ambient temperature unless otherwise specified.

Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate by 20%.

	Symbols	MBRF 1020	MBRF 1030	MBRF 1040	MBRF 1050	MBRF 1060	MBRF 1080	MBRF 10100	MBRF 10150	MBRF 10200	Units
Maximum repetitive peak reverse voltage	V_{RRM}	20	30	40	50	60	80	100	150	200	Volts
Maximum RMS voltage	V_{RMS}	14	21	28	35	42	56	70	105	140	Volts
Maximum DC blocking voltage	V_{DC}	20	30	40	50	60	80	100	150	200	Volts
Maximum average forward rectified current (see Fig.1)	$I_{(AV)}$	10.0									Amps
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method)	I_{FSM}	150.0									Amps
Maximum instantaneous forward voltage at 10.0 A(Note 1)	V_F	0.60			0.75		0.85		0.90	0.95	Volts
Maximum instantaneous reverse current at rated DC blocking voltage(Note 1) $T_A=25°C$	I_R	0.2									mA
$T_A=125°C$		15			50						
Typical thermal resistance (Note 2)	$R_{\theta JC}$	2.5									˚C/W
Operating junction temperature range	T_J	-65 to +150									˚C
Storage temperature range	T_{STG}	-65 to +150									˚C

NOTE: 1. Pulse test: 300us pulse width, 1% duty cycle.
2. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
3. Thermal resistance junction to ambient
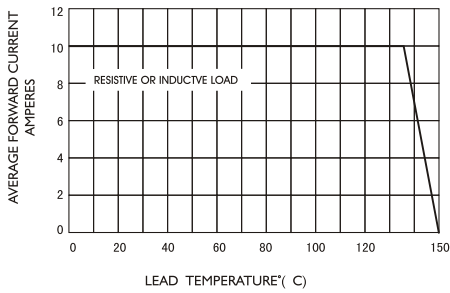
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FIG.1-FORWARD CURRENT DERATING CURVE

RESISTIVE OR INDUCTVE LOAD

AVERAGE FORWARD CURRENT AMPERES

LEAD TEMPERATURE°(C)

FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

PEAK FORWARD SURGE CURRENT(AMPERES)

NUMBER OF CYCLES AT 60Hz
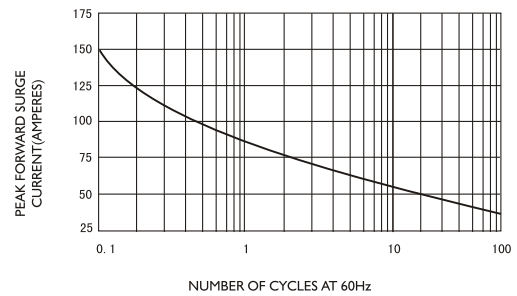
FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

$T_J=125°C$

$T_J=25°C$

PULSE WIDTH=300 μS
1% DUTY CYCLE

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MBRF1020 - MBRF1040

INSTANTANEOUS FORWARD CURRENT(AMPERES)

INSTANTANEOUS FORWARD VOLTAGE (VOLTS)
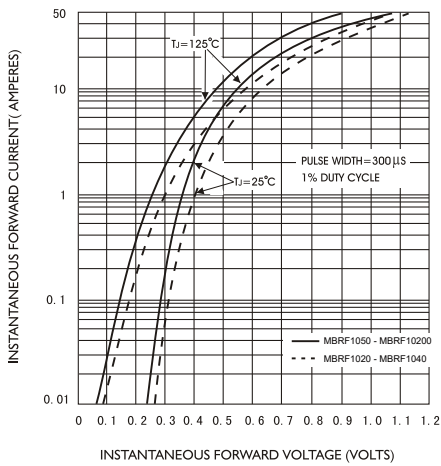
FIG.4-TYPICAL REVERSE CHARACTERISTICS

$T_J=125°C$

$T_J=75°C$

$T_J=25°C$

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MBRF1020 - MBRF1040

INSTANTANEOUS REVERSE CURRENT(mA)

PERCENT OF RATED PEAK REVERSE VOLTAGE%
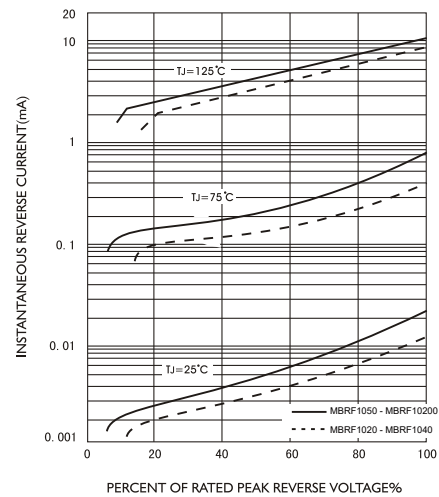
FIG.5-TYPICAL JUNCTION CAPACITANCE

$T_J=25°C$
f=1.0MHz
Vsig=50mVp-p

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JUNCTION CAPACITANCE(pF)

REVERSE VOLTAGE. VOLTS
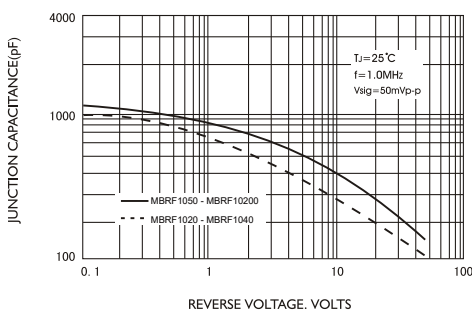
FIG.6-TYPICAL TRANSIENT THERMAL IMPEDANCE

TRANSIENT THERMAL IMPEDANCE, °C/ W

T, PULSE DURATION ,sec.

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