

## SAMYANG ELECTRONICS

(SINGLE CHIP) MBR620 --- MBR6200

### SCHOTTKY BARRIER RECTIFIER

#### FEATURES

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

#### MECHANICAL DATA

- - MIL-STD-202,Method 208
- ◇Polarity: As marked
- $\bigcirc$  Weight: 0.014 ounces, 0.4 grams
- ♦ Mounting position: Any

#### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

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

		Symbols	MBR 620	MBR 630	MBR 640	MBR 650	MBR 660	MBR 680	MBR 6100	MBR 6150	MBR 6200	Units
Maximum repetitive peak reverse voltage		Vrrm	20	30	40	50	60	80	100	150	200	Volts
Maximum RMS voltage		Vrms	14	21	28	35	42	57	71	105	140	Volts
Maximum DC blocking voltage		Vdc	20	30	40	50	60	80	100	150	200	Volts
Maximum average forward rectified current 0.375"(9.5mm) lead length(see fig.1)		(AV)	6.0									Amps
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated TL)		FSM	150.0									Amps
Maximum instantaneous forward voltage at 6.0 A(Note 1 )		VF		0. 60 0.75			D.85	0.90	0.95	Volts		
Maximum instantaneous reverse current at rated DC blocking voltage(Note 1)	T₄=25°C		0.2									mA
	T <sub>A</sub> =100°C	R	50 25									
Typical junction capacitance(Note 3)		CJ	500 400							РF		
Typical thermal resistance (Note 2)		R <sub>θ</sub> ja R <sub>θ</sub> jl	25.0 8.0									°C/W
Operating junction temperature range		TJ	-65 to+150									°C
Storage temperature range		Tstg	-65 to+150									°C

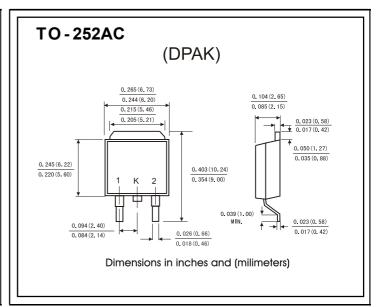
NOTE: 1. Pulse test: 300us pulse width, 1% duty cycle.

2. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.

3. Thermal resistance junction to ambient

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#### VOLTAGE RANGE: 20 --- 200 V CURRENT: 6.0A



# **RATINGS AND CHARACTERISTIC CURVES**

FIG.1-FORWARD CURRENT DERATING CURVE

FIG.2-MAXIMUM NON-REPETITIVE PEAK

FORWARD SURGE CURRENT

10 FORWARD CURRENT AMPERES 175 RESISTIVE OR INDUCTIVE LOAD i Tj=TjMAX 8.0 150 8.3ms SINGLE HALF SINE-WA PEAK FORWARD SURGE CURRENT(AMPERES) (JEDEC Method) 6. C 125 100 4.0 AVERAGE 75 2.0 50 0 0 50 100 150 25 LEAD TEMPERATURE (\*C) 1 10 100 NUMBER OF CYCLES AT 60Hz FIG.3-TYPICAL INSTANTANEOUS FORWARD **CHARACTERISTICS** FIG.4-TYPICAL REVERSE CHARACTERISTICS INSTANTANEOUS REVERSE CURRENT MILL (AMPERES) 20 50 10 INSTANTANEOUS FORWARD CURRENT( AMPERES) 10 TJ=125℃ PULSE WIDTH=300µ S 1% DUTY CYCLE 1 1 0.1 TJ=75°C 0.1 0.01 MBR620-MBR640 - - - MBR650-MBR6200 0.01 1 . TJ 0.3 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 0 0.1 0.2 0.001 20 40 60 80 INSTANTANEOUS FORWARD VOLTAGE (VOLTS) PERCENT OF RATED PEAK REVERSE VOLTAGE% FIG.5-TYPICAL JUNCTION CAPACITANCE FIG.6-TYPICAL TRANSIENT THERMAL IMPEDANCE TRANSIENT THERMAL IMPEDANCE, °C/ W 100 4000 TJ=25℃ JUNCTION CAPACITANCE(pF) f=1.0MHz Vsig=50m<sup>1</sup> 10 1000 # MBR620-MBR640 - - - MBR650-MBR6200 100 0.1 111 0.01 40 0.1 100 REVERSE VOLTAGE. VOLTS T, PULSE DURATION ,sec.

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