SAMYANG ELECTRONICS

(SINGLE CHIP)
MBR520 --- MBR5200

SCHOTTKY BARRIER RECTIFIER

VOLTAGE RANGE: 20 --- 200 V
CURRENT: 5.0A

### 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 TO-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

TO-220AC

Dimensions in inches and (millimeters)
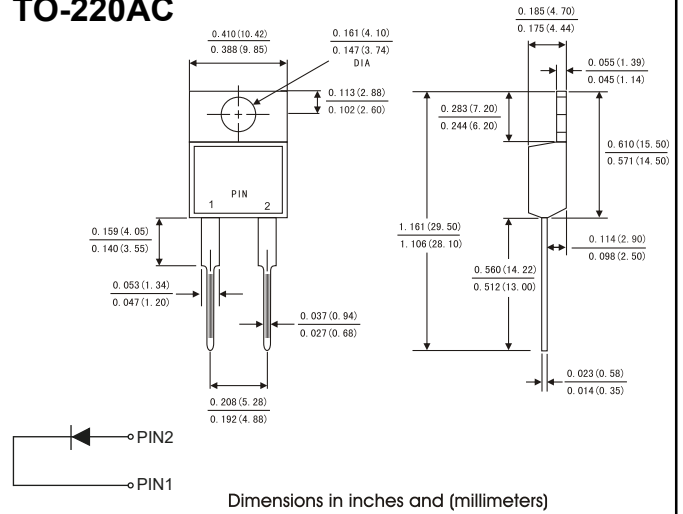
MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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	MBR 520	MBR 530	MBR 540	MBR 550	MBR 560	MBR 580	MBR 5100	MBR 5150	MBR 5200	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	57	71	105	140	Volts
Maximum DC blocking voltage	V_{DC}	20	30	40	50	60	80	100	150	200	Volts
Maximum average forward rectified current 0.375"(9.5mm) lead length(see fig.1)	$I_{(AV)}$					5.0					Amps
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated T_L)	I_{FSM}					150.0					Amps
Maximum instantaneous forward voltage at 5.0 A(Note 1)	V_F		0.55			0.70		0.85	0.90	0.95	Volts
Maximum instantaneous reverse current at rated DC blocking voltage(Note 1) T_A=25℃	I_R					0.2					mA
T_A=100℃			50				25				
Typical junction capacitance(Note 3)	C_J		500				400				pF
Typical thermal resistance (Note 2)	$R_{θJA}$ $R_{θJL}$					25.0 8.0					℃/W
Operating junction temperature range	T_J					-65 to+150					℃
Storage temperature range	T_{STG}					-65 to+150					℃

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

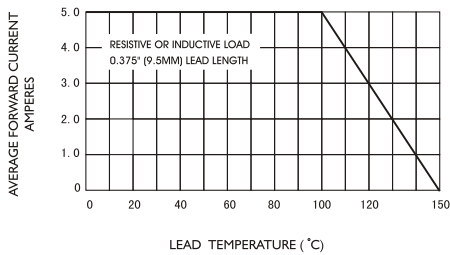www.diode.co.kr

FIG.1-FORWARD CURRENT DERATING CURVE

RESISTIVE OR INDUCTIVE LOAD
0.375" (9.5MM) LEAD LENGTH

AVERAGE FORWARD CURRENT AMPERES

LEAD TEMPERATURE (°C)

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

T_J=TJMAX
8.3ms SINGLE HALF SINE-WAVE
(JEDEC Method)

PEAK FORWARD SURGE CURRENT(AMPERES)

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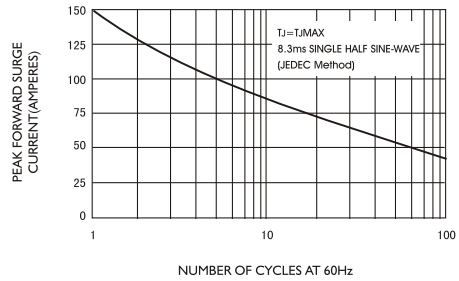
FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

INSTANTANEOUS FORWARD CURRENT(AMPERES)

T_J=150°C
T_J=125°C

PULSE WIDTH=300μS
1% DUTY CYCLE

T_J=25°C

MBR520-MBR540
MBR550-MBR5200

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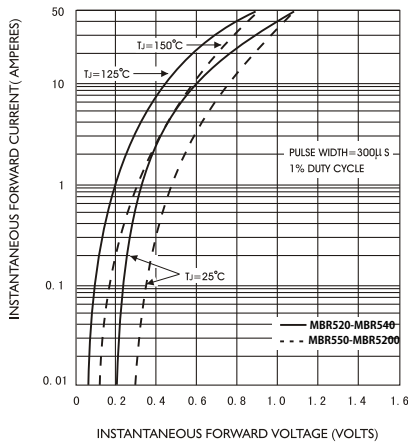
FIG.4-TYPICAL REVERSE CHARACTERISTICS

INSTANTANEOUS REVERSE CURRENT (mA)

T_J=125°C

T_J=75°C

T_J=25°C

MBR520-MBR540
MBR550-MBR5200

PERCENT OF RATED PEAK REVERSE VOLTAGE%

FIG.5-TYPICAL JUNCTION CAPACITANCE

JUNCTION CAPACITANCE(pF)

T_J=25°C
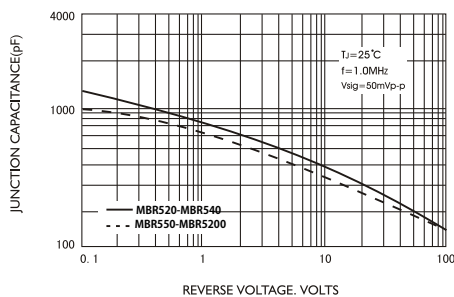f=1.0MHz
Vsig=50mVp-p

MBR520-MBR540
MBR550-MBR5200

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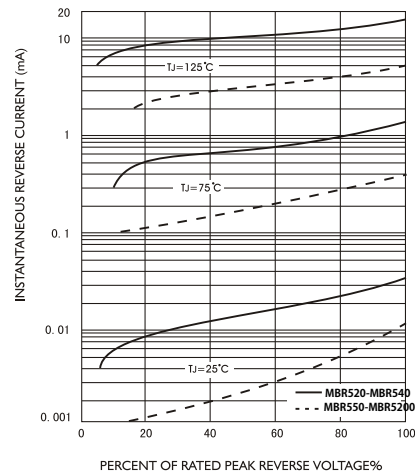
FIG.6-TYPICAL TRANSIENT THERMAL IMPEDANCE

TRANSIENT THERMAL IMPEDANCE, °C/ W

T, PULSE DURATION ,sec.