

### ■ Features

- Electrostatic discharge (ESD) test under IEC6100-4-2 standard >16KV(MBR2040~MBR2065). standard >10KV(MBR20100~MBR20200).
- Low power loss, high efficiency.
- High current capability, low forward voltage drop.
- High surge capability.
- Guardring for overvoltage protection.
- Ultra high-speed switching.
- Silicon epitaxial planar chip, metal silicon junction.
- Suffix "G" indicates Halogen-free part, ex.MBR2040G.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228

### ■ Mechanical data

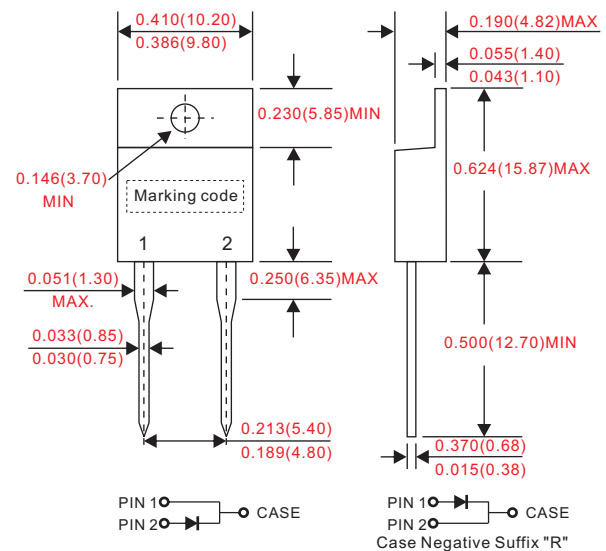
- Epoxy : UL94-V0 rated flame retardant.
- Case : JEDEC TO-220AC molded plastic body over passivated chip.
- Lead : Axial leads, solderable per MIL-STD-202, Method 208 guaranteed.
- Polarity: Color band denotes cathode end.
- Mounting Position : Any.
- Weight : Approximated 2.24 gram.

### ■ Maximum ratings and electrical characteristics

Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

### ■ Outline

TO-220AC



Parameter	Conditions	Symbol	MIN.	TYP.	MAX.	UNIT
Forward rectified current	See Fig.1	$I_o$			20	A
Forward surge current	8.3ms single half sine-wave superimposed on rate load (JEDEC method)	$I_{FSM}$			300	A
Reverse current	$V_R = V_{RRM} T_A = 25^\circ C$	$I_R$			0.1	mA
	$V_R = V_{RRM} T_A = 125^\circ C$				10	
Diode junction capacitance	f=1MHz and applied 4V DC reverse voltage	$C_j$		150		pF
Thermal resistance	Junction to ambient	$R_{BJA}$		30		°C/W
Storage temperature		$T_{STG}$	-55		+175	°C

Symbol	Marking code	Max. repetitive peak reverse voltage $V_{RRM}$ (V)	Max. RMS voltage $V_{RMS}$ (V)	Max. DC blocking voltage $V_R$ (V)	Max. forward voltage @10A, $T_A = 25^\circ C$ $V_F$ (V)	Max. forward voltage @10A, $T_A = 125^\circ C$ $V_F$ (V)	Operating temperature $T_J$ (°C)
MBR2040	MBR2040	40	28	40	0.70	0.57	-50 ~ +150
MBR2045	MBR2045	45	31.5	45			
MBR2060	MBR2060	60	42	60	0.79	0.70	
MBR2065	MBR2065	65	45.5	65			
MBR20100	MBR20100	100	70	100	0.81	0.71	-50 ~ +175
MBR20150	MBR20150	150	105	150	0.87	0.77	
MBR20200	MBR20200	200	140	200	0.90	0.80	

### Rating and characteristic curves

Fig.1 - Forward Current Derating Curve

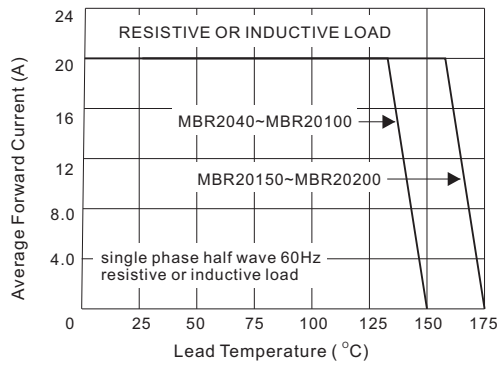


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

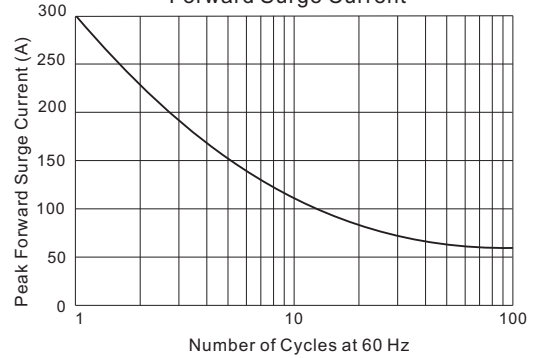


Fig. 3A - Typical Instantaneous Forward Characteristics

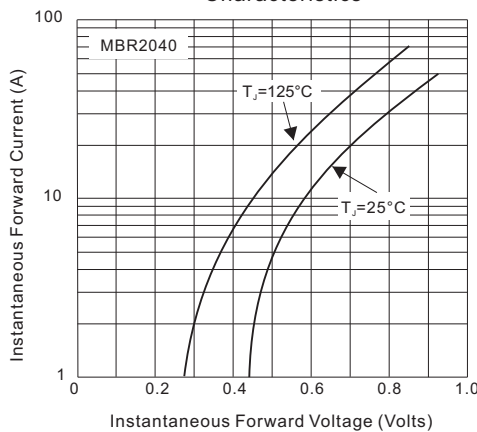


Fig. 3B - Typical Instantaneous Forward Characteristics

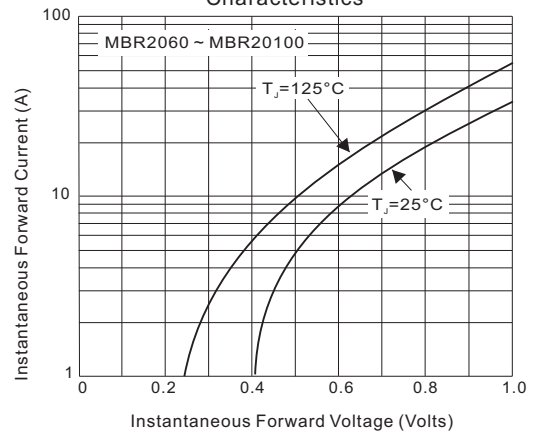


Fig. 3C - Typical Instantaneous Forward Characteristics

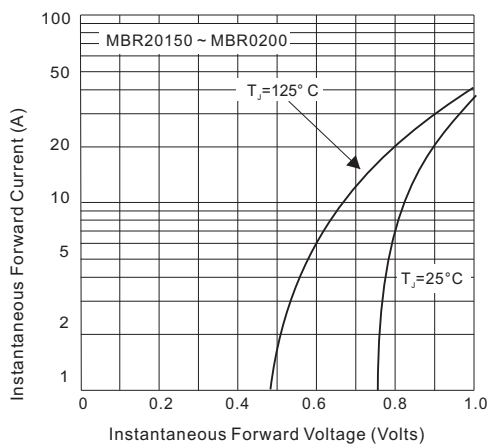
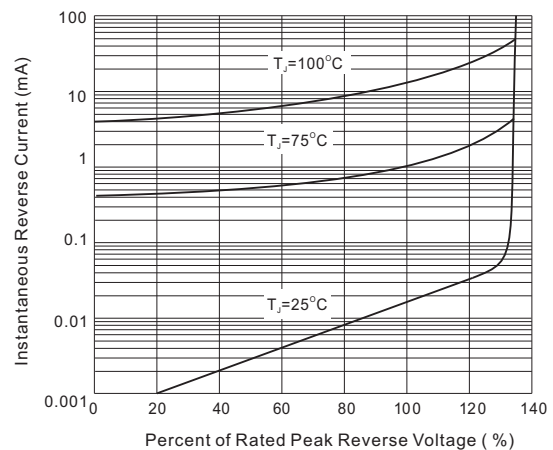


Fig. 4 - Typical Reverse Characteristics



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