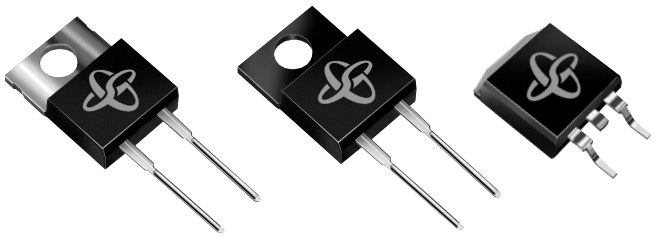
GENERAL SEMICONDUCTOR®

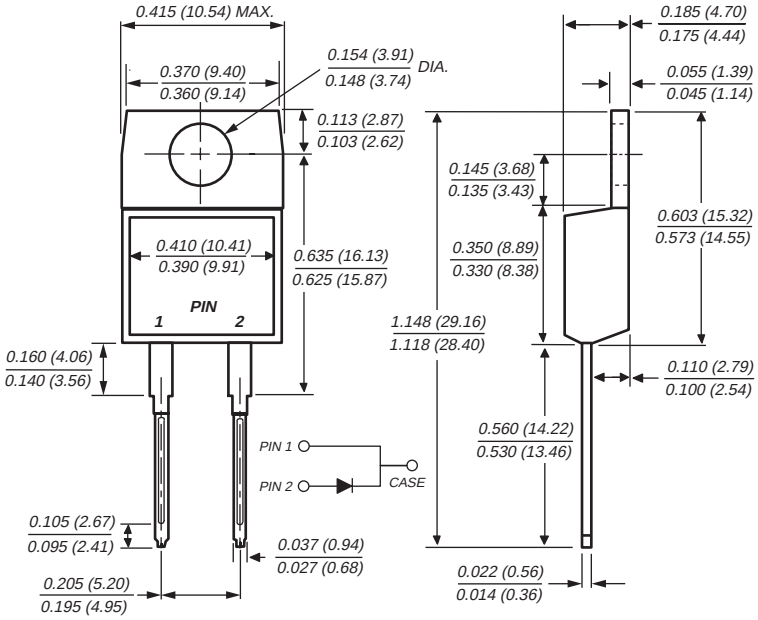
MBR10xx, MBRF10xx & MBRB10xx Series

Schottky Barrier Rectifier

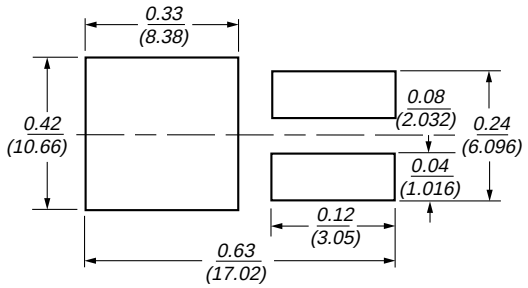
Reverse Voltage 35 to 60V
Forward Current 10A



TO-220AC (MBR10xx)

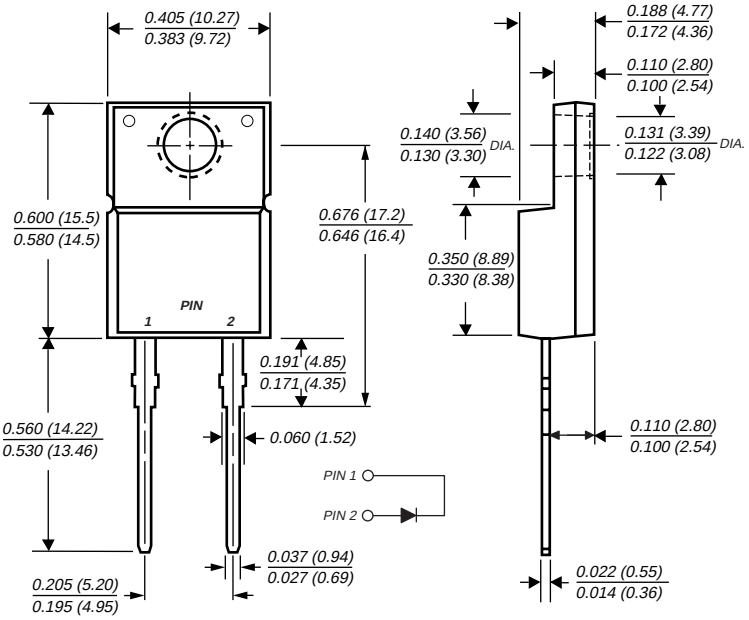


Mounting Pad Layout TO-263AB

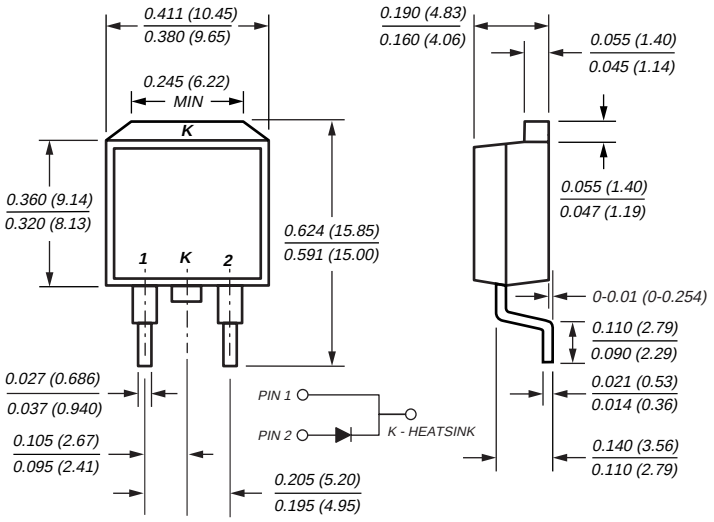


Dimensions in inches and (millimeters)

ITO-220AC (MBRF10xx)



TO-263AB (MBRB10xx)



Features

- Plastic package has Underwriters Laboratory Flammability Classifications 94V-0
- Metal silicon junction, majority carrier conduction
- Low power loss, high efficiency
- Guardring for overvoltage protection
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds, 0.25" (6.35mm) from case

Mechanical Data

Case: JEDEC TO-220AC, ITO-220AC & TO-263AB molded plastic body

Terminals: Plated leads, solderable per MIL-STD-750, Method 2026

Polarity: As marked

Mounting Position: Any

Mounting Torque: 10 in-lbs maximum

Weight: 0.08 ounce, 2.24 grams

1/6/00

GENERAL SEMICONDUCTOR®

MBR10xx, MBRF10xx & MBRB10xx Series

Schottky Rectifier

Maximum Ratings (T_C = 25°C unless otherwise noted)

Parameter	Symbol	MBR1035	MBR1045	MBR1050	MBR1060	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	35	45	50	60	V
Working peak reverse voltage	V_{RWM}	35	45	50	60	V
Maximum DC blocking voltage	V_{DC}	35	45	50	60	V
Maximum average forward rectified current (SEE FIG. 1)	$I_{F(AV)}$	10				A
Peak repetitive forward current at T_C = 135°C (sq. wave, 20 KHz)	I_{FRM}	20				A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) per leg	I_{FSM}	150				A
Peak repetitive reverse current per leg at t_p = 2.0µs, 1KHz	I_{RRM}	1.0		0.5		A
Voltage rate of change (rated V_R)	dv/dt	10,000				V/µs
Operating junction temperature range	T_J	–65 to +150				°C
Storage temperature range	T_{STG}	–65 to +175				°C
RMS Isolation voltage (MBRF type only) from terminals to heatsink with t = 1.0 second, RH ≤ 30%	V_{ISOL}	4500 (NOTE 1) 3500 (NOTE 2) 1500 (NOTE 3)				V

Electrical Characteristics (T_C = 25°C unless otherwise noted)

Parameter	Symbol	MBR1035	MBR1045	MBR1050	MBR1060	Unit
Maximum instantaneous forward voltage per leg (Note 4)						
at I_F = 10A, T_C = 25°C	V_F	–		0.80		V
at I_F = 10A, T_C = 125°C		0.57		0.70		
at I_F = 20A, T_C = 25°C		0.84		0.95		
at I_F = 20A, T_C = 125°C		0.72		0.85		
Maximum instantaneous reverse current at rated DC blocking voltage (Note 4) T_C = 25°C	I_R	0.10				mA
T_C = 125°C		15				

Thermal Characteristics (T_C = 25°C unless otherwise noted)

Parameter	Symbol	MBR	MBRF	MBRB	Unit
Maximum thermal resistance, junction to case	$R_{\Theta JC}$	2.0	4.0	2.0	°C/W

Notes:
(1) Clip mounting (on case), where lead does not overlap heatsink with 0.110" offset
(2) Clip mounting (on case), where leads do overlap heatsink
(3) Screw mounting with 4-40 screw, where washer diameter is ≤ 4.9 mm (0.19")
(4) Pulse test: 300µs pulse width, 1% duty cycle

GENERAL SEMICONDUCTOR®

MBR10xx, MBRF10xx & MBRB10xx Series

Ratings and Characteristic Curves (T_A = 25°C unless otherwise noted)

FIG. 1 - FORWARD CURRENT DERATING CURVE

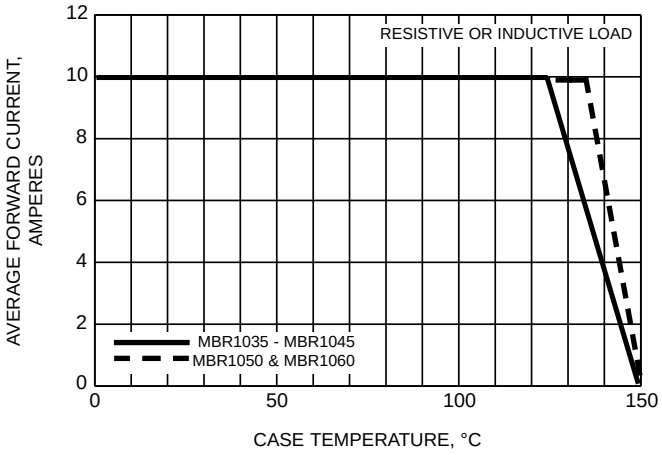


FIG. 2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

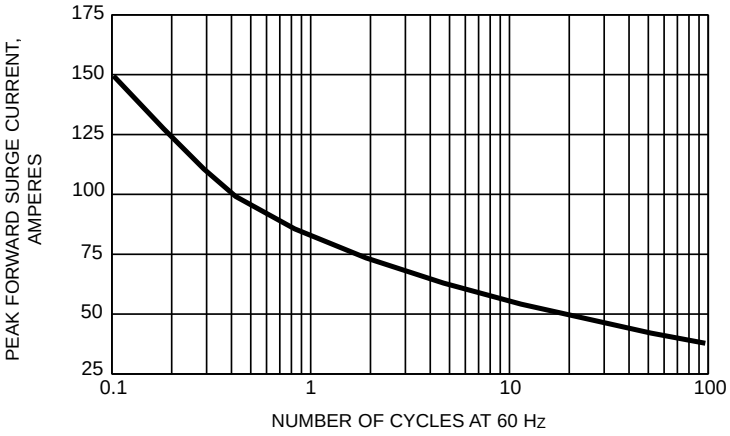


FIG. 3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

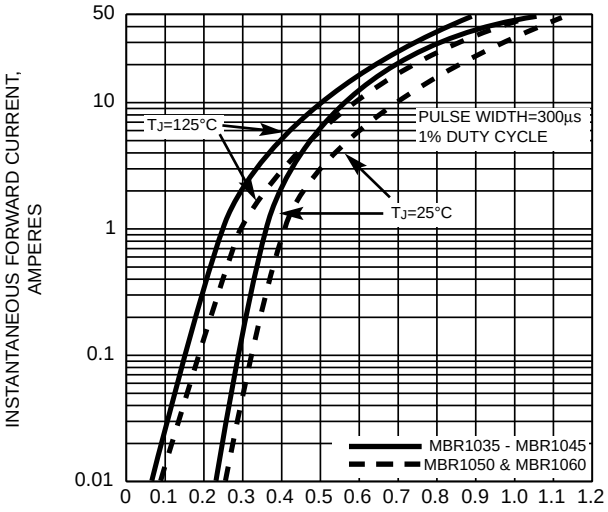


FIG. 4 - TYPICAL REVERSE CHARACTERISTICS

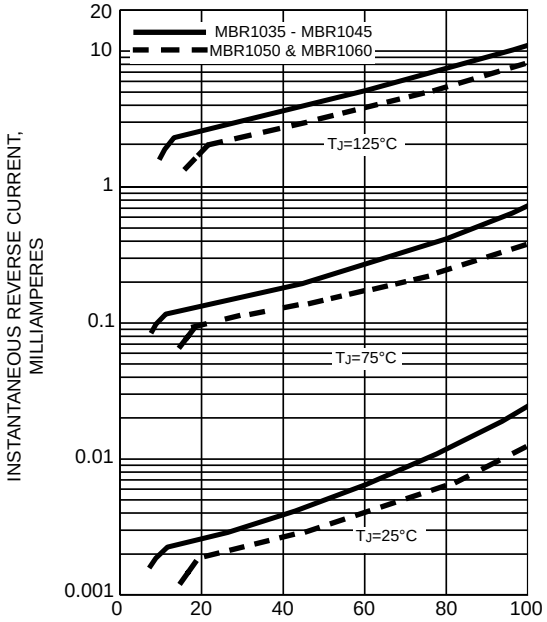


FIG. 5 - TYPICAL JUNCTION CAPACITANCE

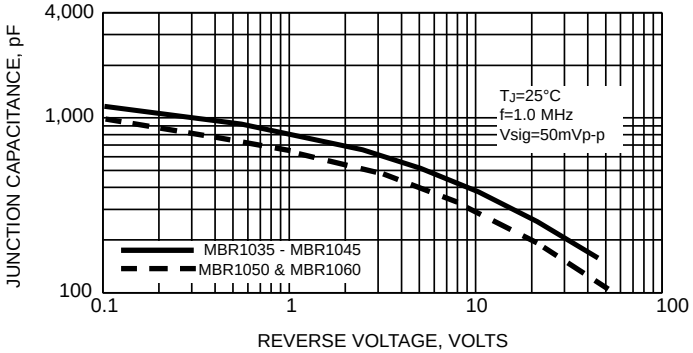


FIG. 6 - TYPICAL TRANSIENT THERMAL IMPEDANCE