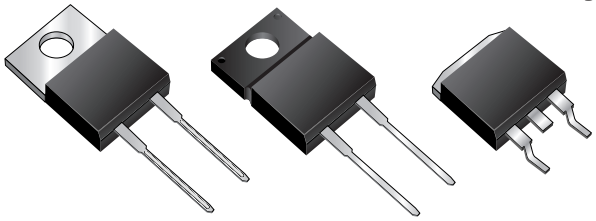
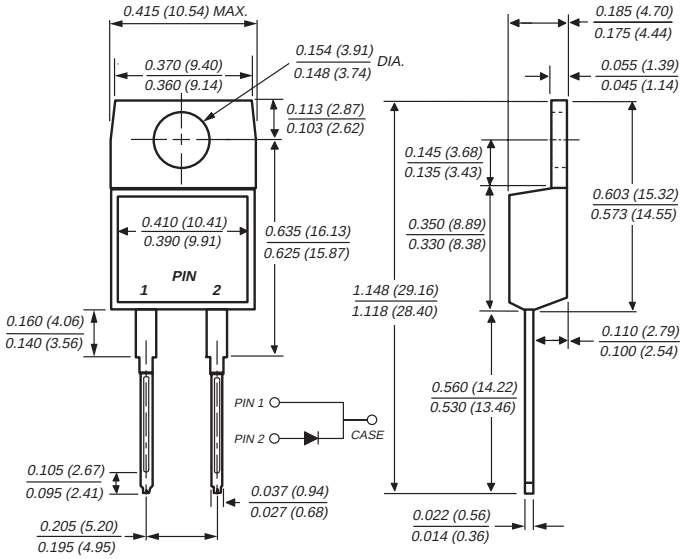
Vishay Semiconductors
formerly General Semiconductor

Schottky Barrier Rectifier

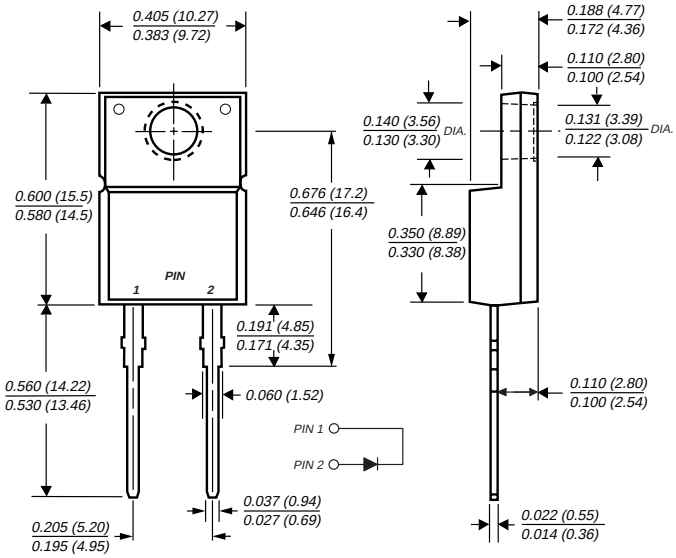
Reverse Voltage 35 to 60V
Forward Current 16A



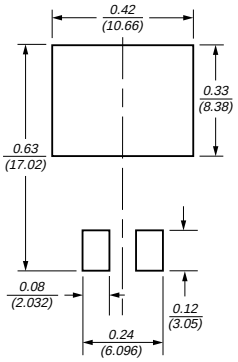
TO-220AC (MBR16xx)



ITO-220AC (MBRF16xx)

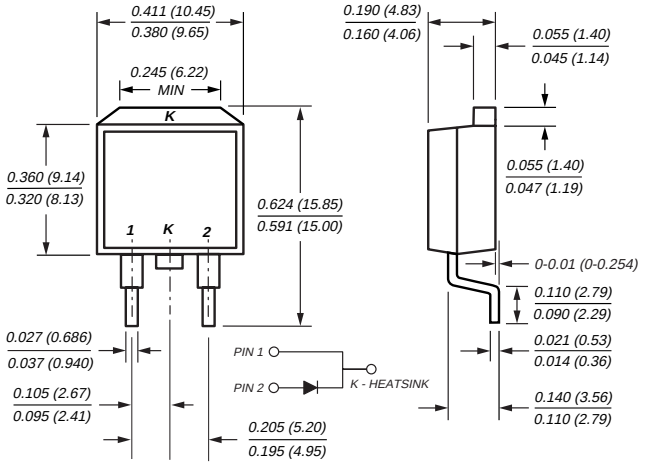


Mounting Pad Layout TO-263AB



Dimensions in inches and (millimeters)

TO-263AB (MBRB16xx)



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 oz., 2.24 g

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

Parameter	Symbol	MBR1635	MBR1645	MBR1650	MBR1660	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 at T_C = 125 °C	$I_{F(AV)}$	16				A
Peak repetitive forward current at T_C = 125°C (rated V_R, sq. wave, 20 KHz)	I_{FRM}	32				A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	150				A
Peak repetitive reverse current at t_p = 2.0µs, 1KHz	I_{RRM}	1.0		0.5		A
Voltage rate of change (rated V_R)	dv/dt	10,000		1,000		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	MBR1635	MBR1645	MBR1650	MBR1660	Unit
Maximum instantaneous forward voltage (Note 4) at I_F = 16A, T_C = 25°C at I_F = 16A, T_C = 125°C	V_F	0.63 0.57		0.75 0.65		V
Maximum instantaneous reverse current at rated DC blocking voltage (Note 4) T_C = 25°C T_C = 125°C	I_R	0.2 40		1.0 50		mA

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

Parameter	Symbol	MBR	MBRF	MBRB	Unit
Typical thermal resistance from junction to case	$R_{\Theta JC}$	1.5	3.0	1.5	°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

Ordering Information

Product	Case	Package Code	Package Option
MBR1635 - MBR1660	TO-220AC	45	Anti-Static tube, 50/tube, 2K/carton
MBRF1635 - MBRF1660	ITO-220AC	45	Anti-Static tube, 50/tube, 2K/carton
MBRB1635 - MBRB1660	TO-263AB	31 45 81	13" reel, 800/reel, 4.8K/carton Anti-Static tube, 50/tube, 2K/carton Anti-Static 13" reel, 800/reel, 4.8K/carton

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

Fig. 1 - Forward Current Derating Curve

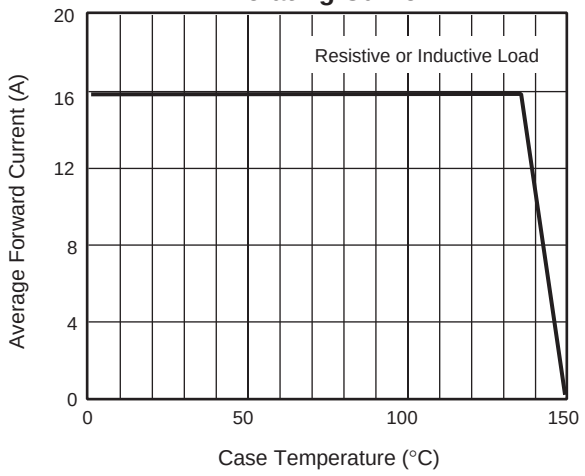


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

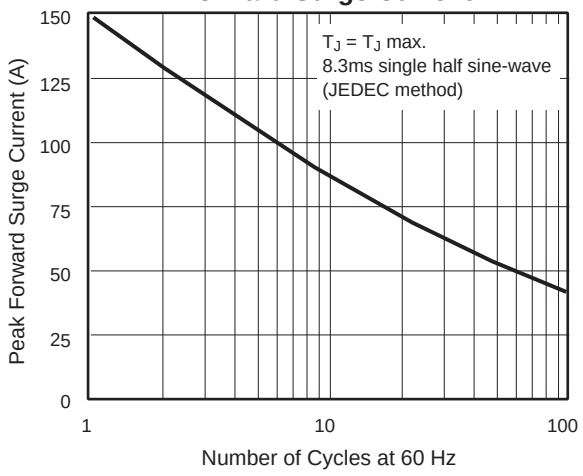


Fig. 3 - Typical Instantaneous Forward Characteristics

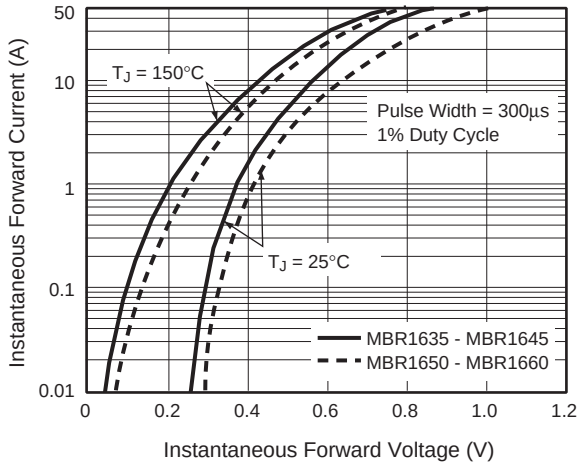


Fig. 4 - Typical Reverse Characteristics

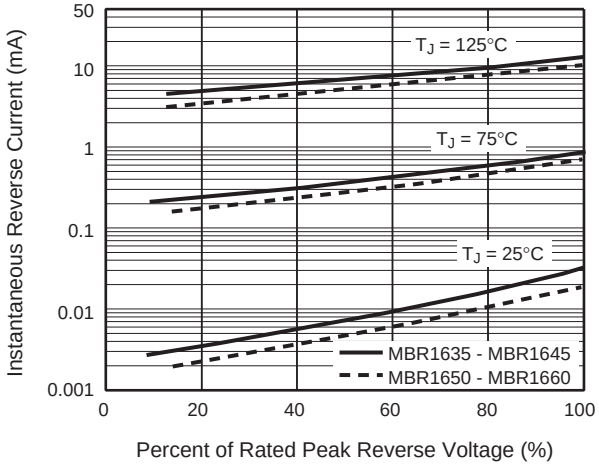


Fig. 5 - Typical Junction Capacitance

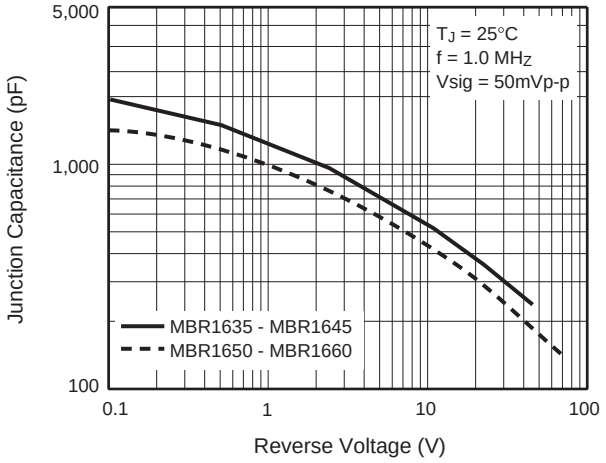


Fig. 6 - Typical Transient Thermal Impedance