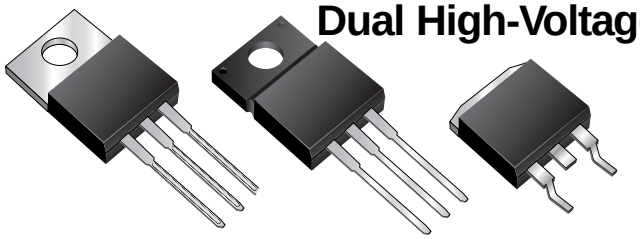
MBR25HxxCT, MBRF25HxxCT & MBRB25HxxCT Series

New Product

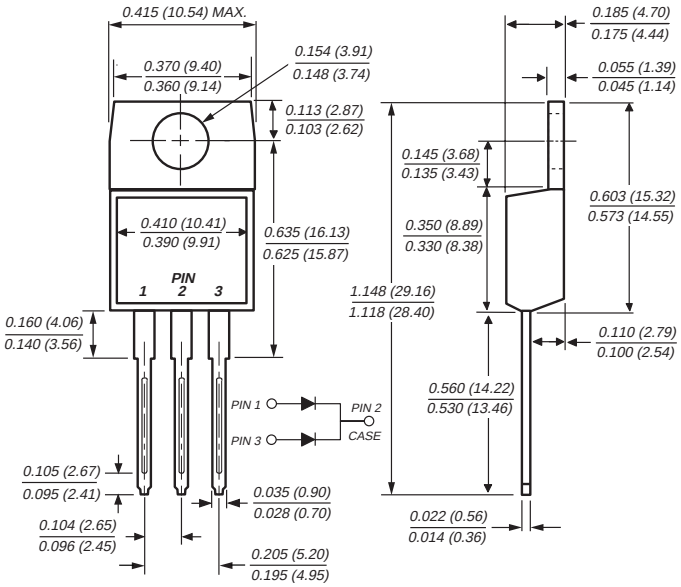
Vishay Semiconductors
formerly General Semiconductor

Dual High-Voltage Schottky Rectifiers

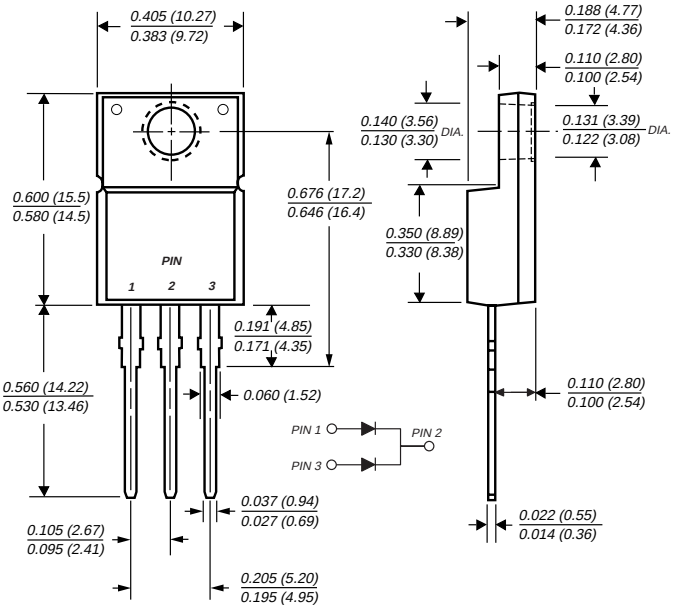


Reverse Voltage 35 to 60 V
Forward Current 30 A

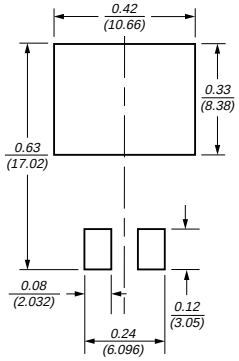
TO-220AB (MBR25HxxCT)



ITO-220AB (MBRF25HxxCT)

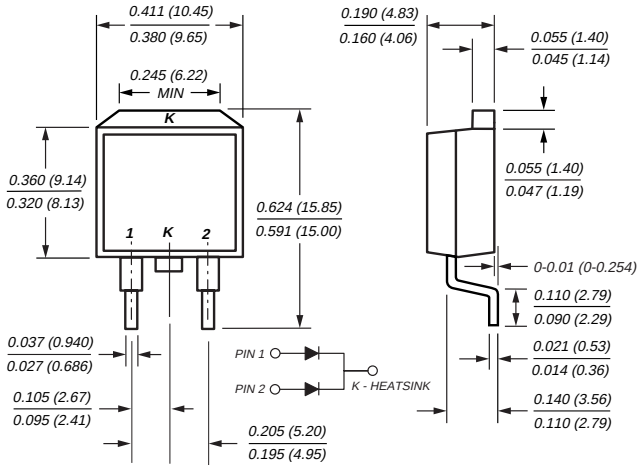


Mounting Pad Layout TO-263AB



Dimensions in inches and (millimeters)

TO-263AB (MBRB25HxxCT)



Features

- Plastic package has Underwriters Laboratory Flammability Classification 94 V-0
- Dual rectifier construction, positive center tap
- Metal silicon junction, majority carrier conduction
- Low forward voltage drop, low power loss and high efficiency
- Guardring for overvoltage protection
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Rated for reverse surge and ESD
- 175 °C maximum operation junction temperature

Mechanical Data

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

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

High temperature soldering guaranteed: 250 °C/10 seconds, 0.25" (6.35 mm) from case

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	MBR25H35CT	MBR25H45CT	MBR25H50CT	MBR25H60CT	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
Max. average forward rectified current (see fig. 1) *Total device* / *Per leg*	$I_{F(AV)}$	30 15				A
Peak repetitive forward current at T_C = 150°C (rated V_R, 20KHz sq. wave)	I_{FRM}	30				A
Non-repetitive avalanche energy per leg at 25°C, I_{AS} = 4A, L = 10mH	E_{AS}	80				mJ
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 surge current per leg at t_p = 2.0µs, 1KHz	I_{RRM}	1.0		0.5		A
Peak non-repetitive reverse energy (8/20µs waveform)	E_{RSM}	25		20		mJ
Electrostatic discharge capacitor voltage Human body model: C = 100pF, R = 1.5kΩ	V_C	25				kV
Voltage rate of change (rated V_R)	dv/dt	10,000				V/µs
Operating junction temperature range	T_J	–65 to +175				°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[1] 3500[2] 1500[3]				V

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

Parameter			Symbol	MBR25H35CT, MBR25H45CT		MBR25H50CT, MBR25H60CT		Unit
				Typ	Max	Typ	Max	
Maximum instantaneous forward voltage per leg[4]	at I_F = 15A	T_J = 25°C	V_F	–	0.64	–	0.70	V
	at I_F = 15A	T_J = 125°C		0.50	0.54	0.56	0.60	
	at I_F = 30A	T_J = 25°C		–	0.74	–	0.85	
	at I_F = 30A	T_J =125°C		0.63	0.67	0.68	0.72	
Maximum instantaneous reverse current at rated DC blocking voltage per leg[4]		T_J = 25°C	I_R	–	100	–	100	µA
		T_J =125°C		6.0	20	4.0	20	mA

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

Parameter	Symbol	MBR	MBRF	MBRB	Unit
Thermal resistance from junction to case per leg	$R_{\theta JC}$	1.5	4.5	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
MBR25H35CT – MBR25H60CT	TO-220AB	45	Anti-Static tube, 50/tube, 2K/carton
MBRF25H35CT – MBRF25H60CT	ITO-220AB	45	Anti-Static tube, 50/tube, 2K/carton
MBRB25H35CT – MBRB25H60CT	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

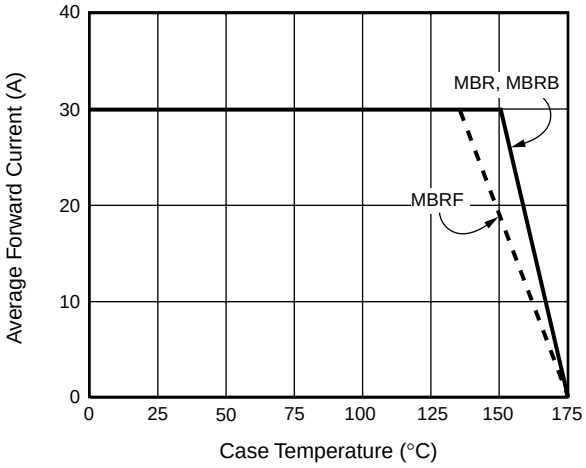


Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current Per Leg

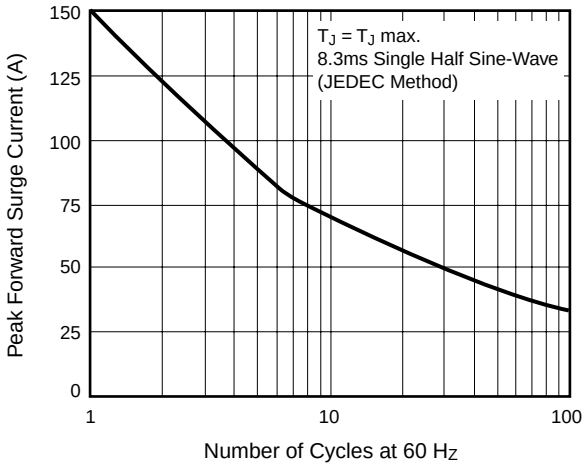


Fig. 3 – Typical Instantaneous Forward Characteristics Per Leg

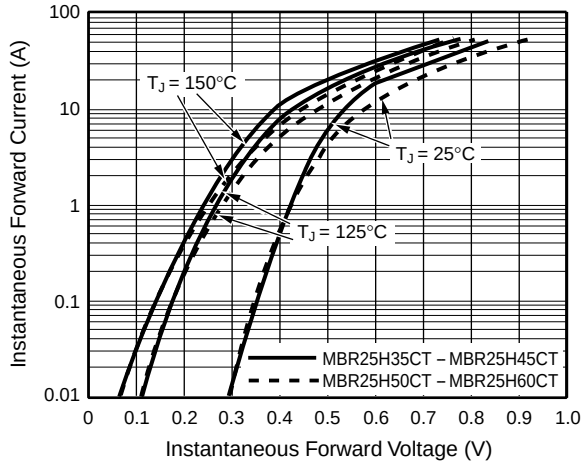


Fig. 4 – Typical Reverse Characteristics Per Leg

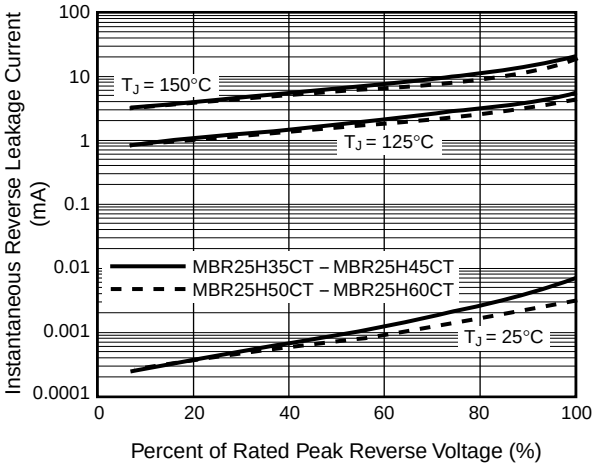


Fig. 5 – Typical Junction Capacitance Per Leg

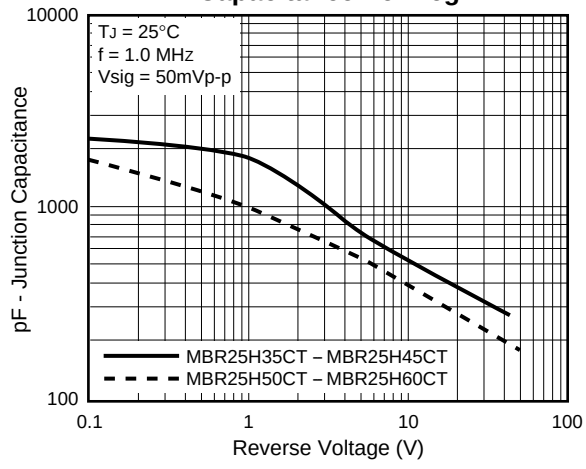


Fig. 6 – Typical Transient Thermal Impedance Per Leg