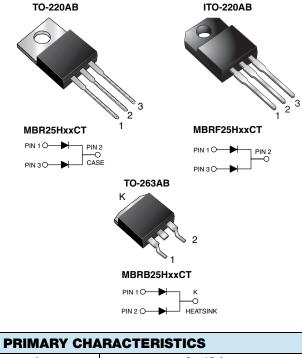


MBR25HxxCT, MBRF25HxxCT, MBRB25HxxCT

Vishay General Semiconductor

Dual Common Cathode Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



I _{F(AV)}	2 x 15 A				
V _{RRM}	35 V to 60 V				
I _{FSM}	150 A				
V _F	0.54 V, 0.60 V				
I _R	100 µA				
T _J max.	175 °C				
Package	TO-220AB, ITO-220AB, TO-263AB				
Diode variations	Common cathode				

FEATURES

- Power pack
- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- High frequency operation
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for TO-263AB package)
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106 (for TO-220AB and ITO-220AB package)
- AEC-Q101 qualified available
 Automotive ordering code: base P/NHE3_A
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters, or polarity protection application.

MECHANICAL DATA

Case: TO-220AB, ITO-220AB, TO-263AB Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified Base P/NHE3_X - RoHS-compliant, AEC-Q101 qualified ("_X" denotes revision code, e.g. A, B, ...) **Terminals:** matte tin plated leads, solderable per

J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: as marked

Mounting Torque: 10 in-lbs maximum

MAXIMUM RATINGS ($T_C = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER		SYMBOL	MBR25H35CT	MBR25H45CT	MBR25H60CT	UNIT
Maximum repetitive peak reverse voltage		V _{RRM}	35	45	60	
Working peak reverse voltage		V _{RWM}	35	45	60	V
Maximum DC blocking voltage		V _{DC}	35	45	60	
	total device	I	30			_
Max. average forward rectified current (fig. 1)	per diode	I _{F(AV)}	15			A
Non-repetitive avalanche energy per diode at 25 °C, $I_{AS} = 4 \text{ A}, \text{ L} = 10 \text{ mH}$		E _{AS}	80			mJ
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I _{FSM}	150			А
Peak repetitive reverse surge current per diode at $t_p = 2.0 \ \mu s$, 1 kHz		I _{RRM}	1.0 0.5		0.5	Α
Peak non-repetitive reverse energy (8/20 µs waveform)			25 20		20	mJ
Electrostatic discharge capacitor voltage Human body model: C = 100 pF, R = 1.5 k Ω		V _C	25			kV
Voltage rate of change (rated V _R)		dV/dt	10 000			V/µs
Operating junction and storage temperature range		T _J , T _{STG}	-65 to +175			°C
Isolation voltage (ITO-220AB only) from terminal to heatsink t = 1 min		V _{AC}	1500			V

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RoHS

COMPLIANT



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ELECTRICAL CHARACTERISTICS ($T_c = 25 \ ^{\circ}C$ unless otherwise noted)								
PARAMETER	SYMBOL	TEST CONDITIONS		MBR25H35CT MBR25H45CT		MBR25H60CT		UNIT
				TYP.	MAX.	TYP.	MAX.	1
Maximum instantaneous forward voltage per diode	V _F ⁽¹⁾	I _F = 15 A	T _J = 25 °C	-	0.64	-	0.70	- V
			T _J = 125 °C	0.50	0.54	0.56	0.60	
		I _F = 30 A	T _J = 25 °C	-	0.74	-	0.85	
			T _J = 125 °C	0.63	0.67	0.68	0.72	
Maximum reverse current per diode	I _B ⁽²⁾	Rated V _R	T _J = 25 °C	-	100	-	100	μA
	'R (=/		T _J = 125 °C	6.0	20	4.0	20	mA

Notes

 $^{(1)}\,$ Pulse test: 300 μs pulse width, 1 % duty cycle

⁽²⁾ Pulse test: pulse width \leq 40 ms

THERMAL CHARACTERISTICS ($T_C = 25$ °C unless otherwise noted)							
PARAMETER	SYMBOL	MBR	MBRF	MBRB	UNIT		
Thermal resistance, junction to case per diode	$R_{\theta JC}$	1.5	4.5	1.5	°C/W		

ORDERING INFORMATION (Example)							
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
TO-220AB	MBR25H45CT-E3/45	1.85	45	50/tube	Tube		
ITO-220AB	MBRF25H45CT-E3/45	1.99	45	50/tube	Tube		
TO-263AB	MBRB25H45CT-E3/45	1.35	45	50/tube	Tube		
TO-263AB	MBRB25H45CT-E3/81	1.35	81	800/reel	Tape and reel		
TO-220AB	MBR25H60CT-E3/4W (1)	1.85	4W	50/tube	Tube		
TO-220AB	MBR25H45CTHE3/45 ⁽¹⁾	1.85	45	50/tube	Tube		
ITO-220AB	MBRF25H45CTHE3/45 (1)	1.99	45	50/tube	Tube		
TO-263AB	MBRB25H45CTHE3/45 (1)	1.35	45	50/tube	Tube		
TO-263AB	MBRB25H45CTHE3/81 (1)	1.35	81	800/reel	Tape and reel		
TO-263AB	MBRB25H45CTHE3_A/P ⁽¹⁾	1.35	Р	50/tube	Tube		
TO-263AB	MBRB25H45CTHE3_A/I ⁽¹⁾	1.35	I	800/reel	Tape and reel		

Note

⁽¹⁾ AEC-Q101 qualified



MBR25HxxCT, MBRF25HxxCT, MBRB25HxxCT

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RATINGS AND CHARACTERISTICS CURVES ($T_C = 25$ °C unless otherwise noted)

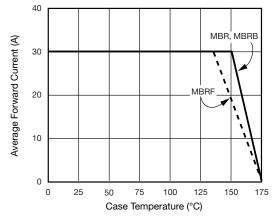


Fig. 1 - Forward Derating Curve (Total)

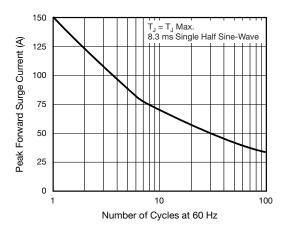


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

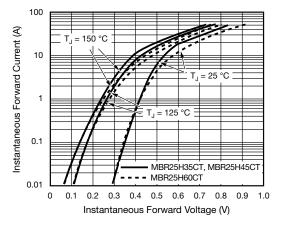


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

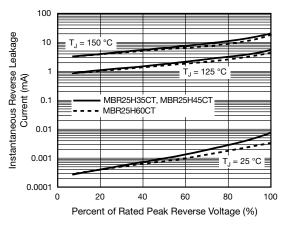


Fig. 4 - Typical Reverse Characteristics Per Diode

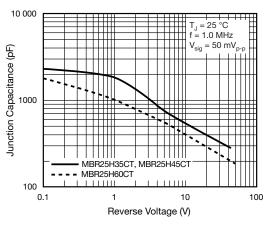


Fig. 5 - Typical Junction Capacitance Per Diode

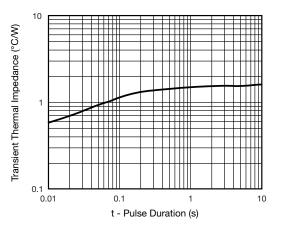


Fig. 6 - Typical Transient Thermal Impedance Per Diode

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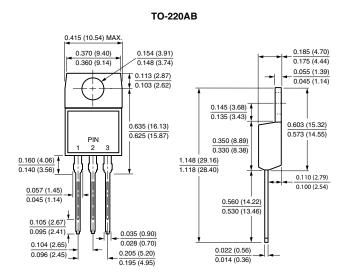
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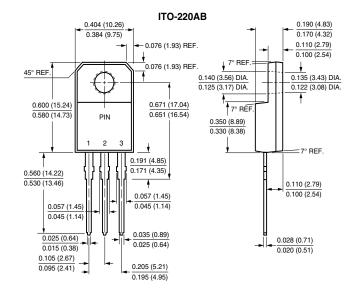


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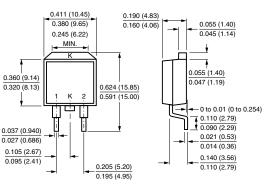
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

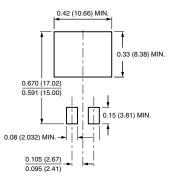




TO-263AB



Mounting Pad Layout



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