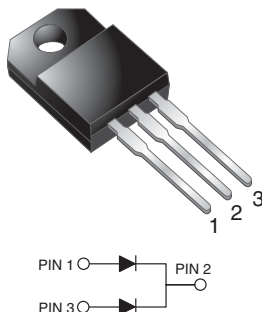


Dual Common Cathode Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance

ITO-220AB



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
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106
- AEC-Q101 qualified available
- Automotive ordering code: base P/NHE3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT

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: ITO-220AB

Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade
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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 15 A
V_{RRM}	45 V
I_{FSM}	150 A
V_F	0.56 V
I_R	80 μ A
T_J max.	175 °C
Package	ITO-220AB
Circuit configuration	Common cathode

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	MBRF30H45CT	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	45	V
Working peak reverse voltage	V_{RWM}	45	V
Maximum DC blocking voltage	V_{DC}	45	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	total device 30	A
		per diode 15	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	150	A
Peak repetitive reverse surge current per diode at $t_p = 2$ μ s, 1 kHz	I_{RRM}	1.0	A
Peak non-repetitive reverse energy (8/20 μ s waveform)	E_{RSM}	25	mJ
Non-repetitive avalanche energy per diode at 25 °C, $I_{AS} = 4$ A, $L = 10$ mH	E_{AS}	80	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/ μ s
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

**ELECTRICAL CHARACTERISTICS** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	TEST CONDITIONS		SYMBOL	MBRF30H45CT		UNIT
Maximum instantaneous forward voltage per diode	I _F = 15 A	T _C = 25 °C	V _F ⁽¹⁾	-	0.62	V
	I _F = 15 A	T _C = 125 °C		0.49	0.56	
	I _F = 30 A	T _C = 25 °C		-	0.73	
	I _F = 30 A	T _C = 125 °C		0.62	0.67	
Maximum reverse current per diode at working peak reverse voltage		T _J = 25 °C	I _R ⁽²⁾	-	80	μA
		T _J = 125 °C		5.0	15	mA

Notes(1) Pulse test: 300 μs pulse width, 1 % duty cycle(2) Pulse test: pulse width $\leq 40\text{ ms}$ **THERMAL CHARACTERISTICS** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	MBRF30H45CT	UNIT
Typical thermal resistance junction to case per diode	$R_{\theta JC}$	4.5	$^{\circ}\text{C/W}$

ORDERING INFORMATION (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
ITO-220AB	MBRF30H45CT-E3/45	1.99	45	50/tube	Tube
ITO-220AB	MBRF30H45CTHE3_A/P ⁽¹⁾	1.99	P	50/tube	Tube

Note

(1) AEC-Q101 qualified

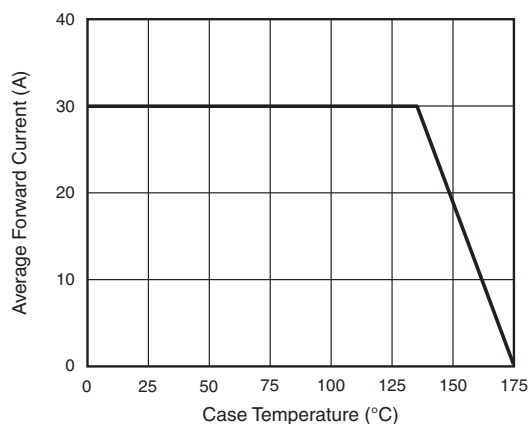
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Fig. 1 - Forward Derating Curve

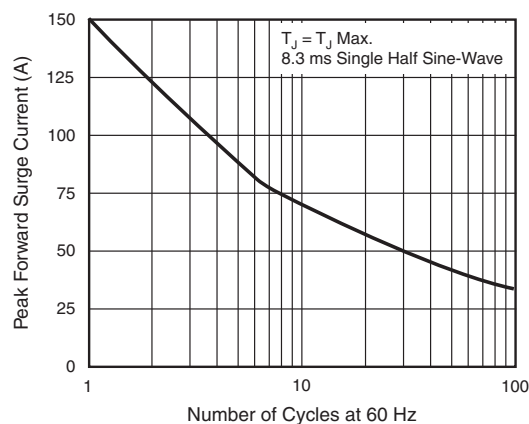


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

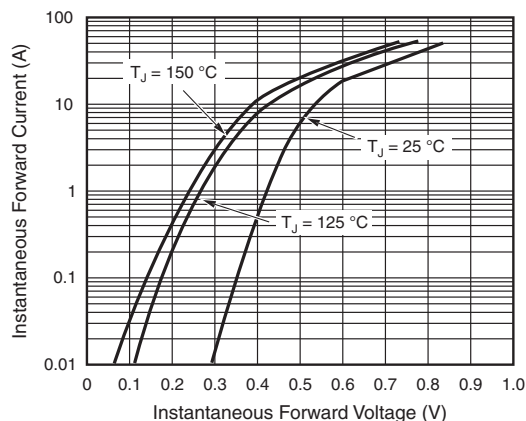


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

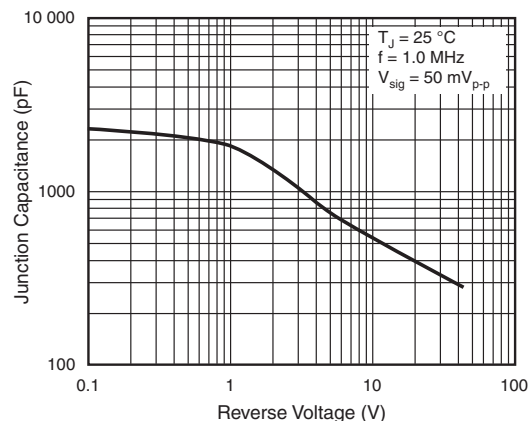


Fig. 5 - Typical Junction Capacitance Per Diode

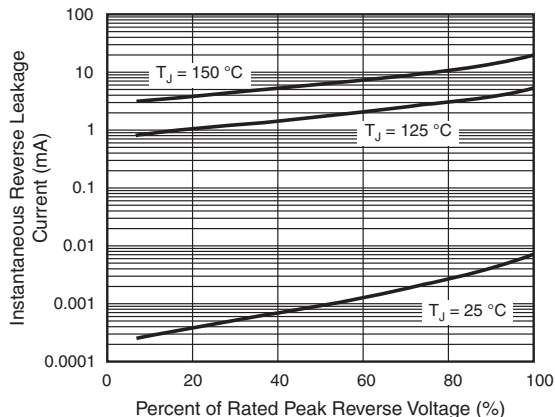


Fig. 4 - Typical Reverse Characteristics Per Diode

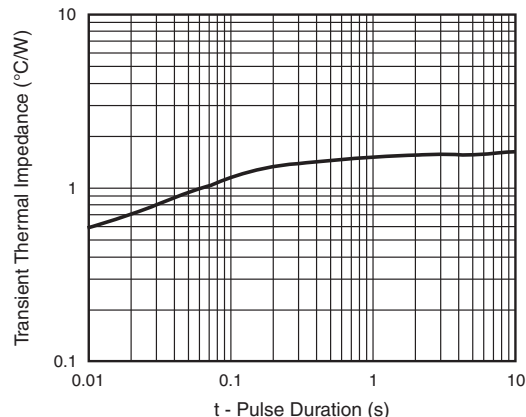
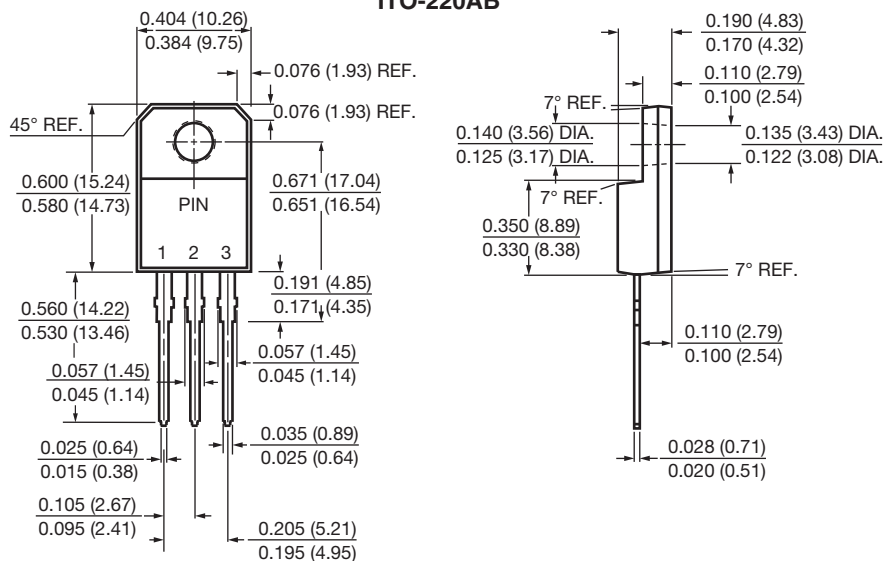


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

ITO-220AB





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