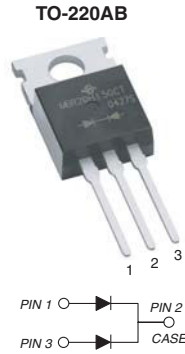


Dual Common-Cathode Schottky Rectifiers

High Barrier Technology for Improved High Temperature Performance



FEATURES

- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- High frequency operation
- Solder dip 275 °C max., 10 s, per JESD 22-B106
- 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.

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2 x 20 A
V_{RRM}	35 V to 60 V
I_{FSM}	350 A, 320 V
V_F at $I_F = 20$ A	0.55 V, 0.60 V
I_R	100 μ A
T_J max.	175 °C

MECHANICAL DATA

Case: TO-220AB

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

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	MBR40H35CT	MBR40H45CT	MBR40H50CT	MBR40H60CT	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	35	45	50	60	V
Maximum average forward rectified current (Fig. 1)	$I_{F(AV)}$	total device		40		A
		per diode		20		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	350		320		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 surge energy (8/20 μ s waveform) per diode	E_{RSM}	20				mJ
Non-repetitive avalanche energy at 25 °C, $I_{AS} = 3.0$ A, $L = 5$ mH per diode	E_{AS}	22.5				mJ
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



ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	TEST CONDITIONS	MBR40H35CT	MBR40H45CT	MBR40H50CT	MBR40H60CT	UNIT
Maximum instantaneous forward voltage per diode	V _F ⁽¹⁾	I _F = 20 A T _J = 25 °C	0.64		0.68		V
		I _F = 20 A T _J = 125 °C	0.55		0.60		
		I _F = 40 A T _J = 25 °C	0.76		0.83		
		I _F = 40 A T _J = 125 °C	0.70		0.73		
Maximum instantaneous reverse current per diode	I _R ⁽²⁾	rated V _R	T _J = 25 °C	100			μA
			T _J = 125 °C	15			mA
Typical junction capacitance	C _J	4.0 V, 1 MHz per diode	1200		920		pF

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	MBR40H35CT	MBR40H45CT	MBR40H50CT	MBR40H60CT	UNIT	
Thermal resistance, junction to case per diode	R _{θJC}	1.8					°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	MBR40H45CT-E3/45	1.58	45	50/tube	Tube

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

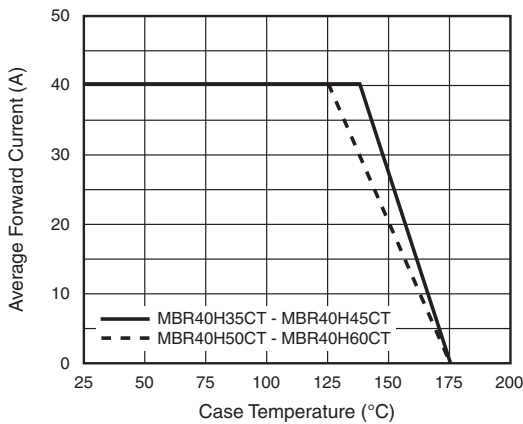


Fig. 1 - Forward Derating Curve Per Diode

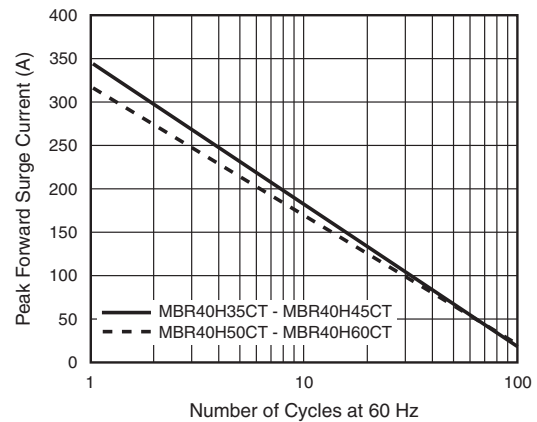


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

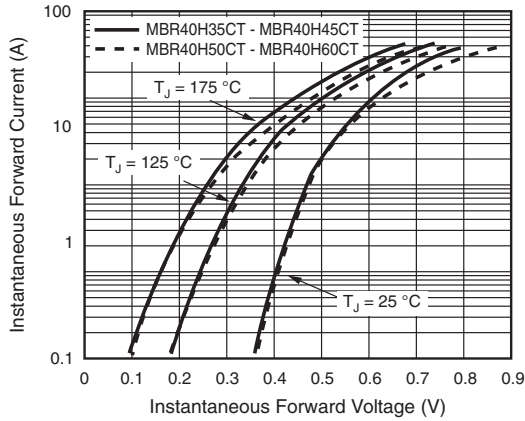


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

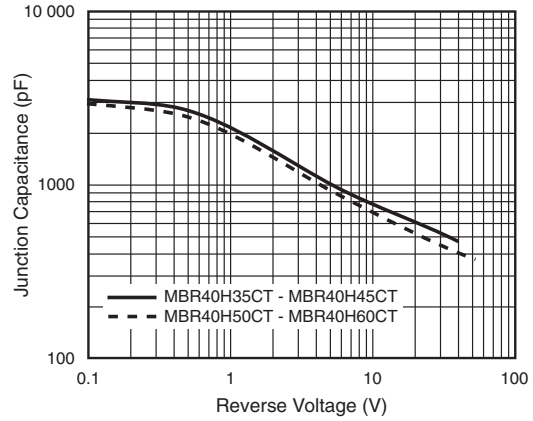


Fig. 5 - Typical Junction Capacitance Per Diode

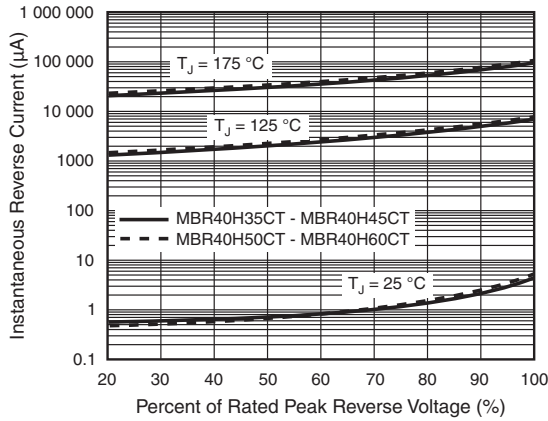


Fig. 4 - Typical Reverse Characteristics Per Diode

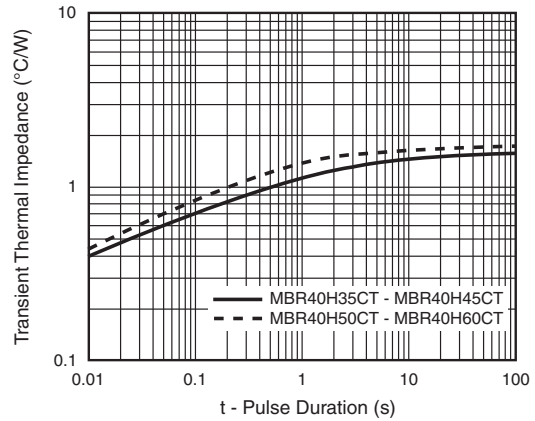
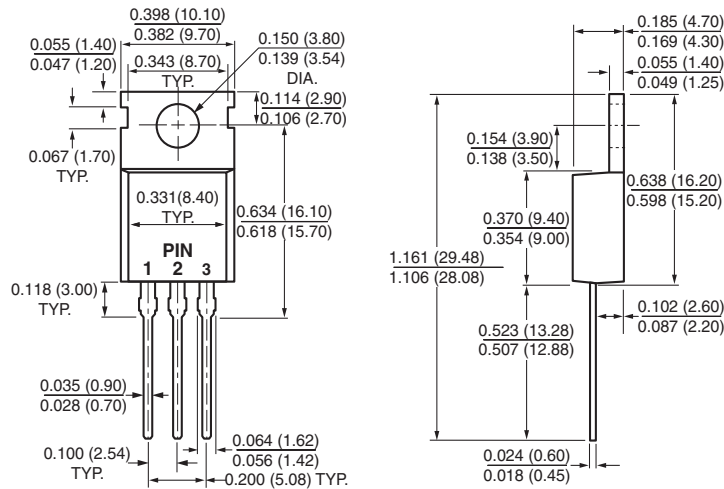


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB





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