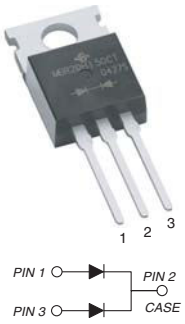
MBR40H35CT, MBR40H45CT, MBR40H50CT, MBR40H60CT

Dual Common Cathode Schottky Rectifiers

High Barrier Technology for Improved High Temperature Performance

TO-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 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.

MECHANICAL DATA

Case: TO-220AB

Molding compound meets UL 94 V-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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 20 A
V_{RRM}	35 V, 45 V, 50 V, 60 V
I_{FSM}	350 A, 320 A
V_F at I_F = 20 A	0.55 V, 0.60 V
I_R	100 µA
T_J max.	175 °C
Package	TO-220AB
Diode variations	Dual Common Cathode

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)	total device	$I_{F(AV)}$	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 µs, 1 kHz		I_{RRM}	1.0				A
Peak non-repetitive reverse surge energy (8/20 µs 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/µs
Operating junction and storage temperature range		T_J, T_{STG}	- 65 to + 175				°C

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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	$R_{\theta JC}$	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)

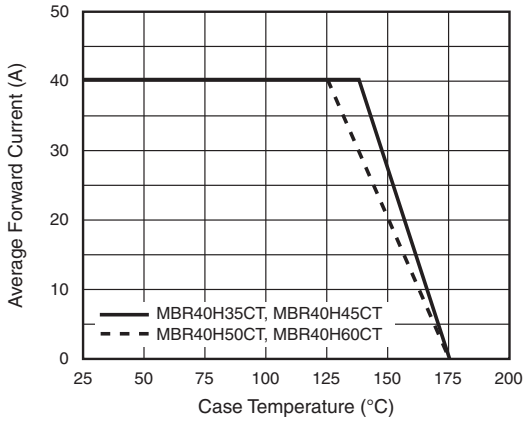


Fig. 1 - Forward Derating Curve Per Diode

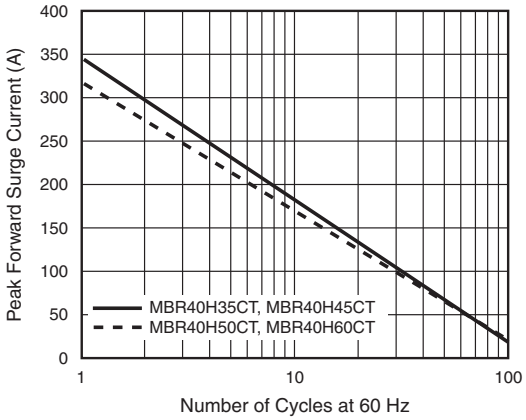


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

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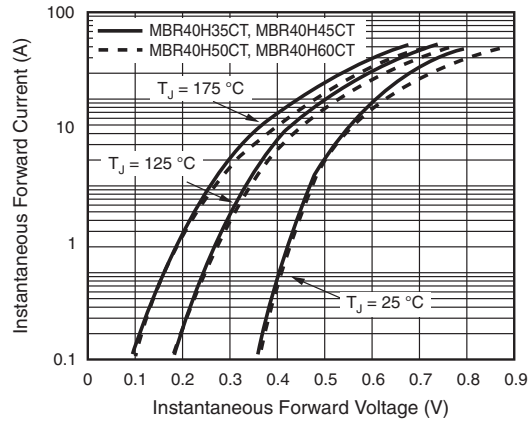


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

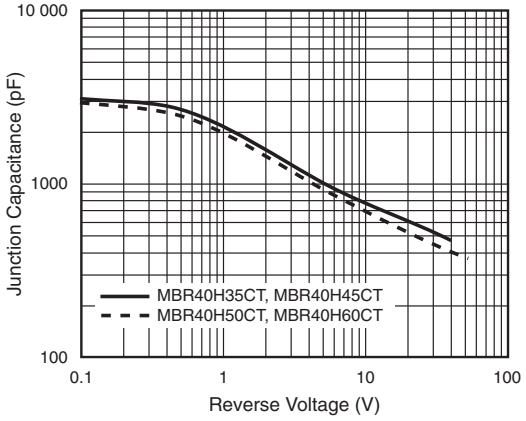


Fig. 5 - Typical Junction Capacitance Per Diode

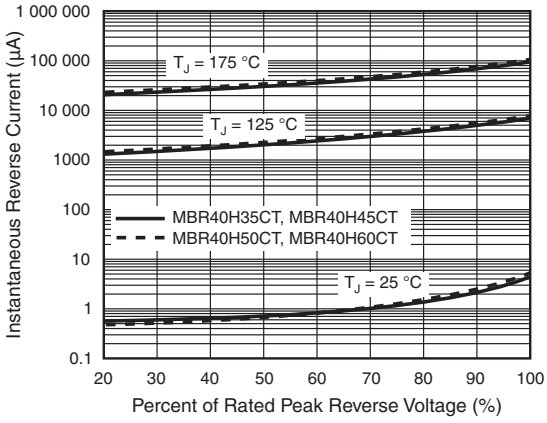


Fig. 4 - Typical Reverse Characteristics Per Diode

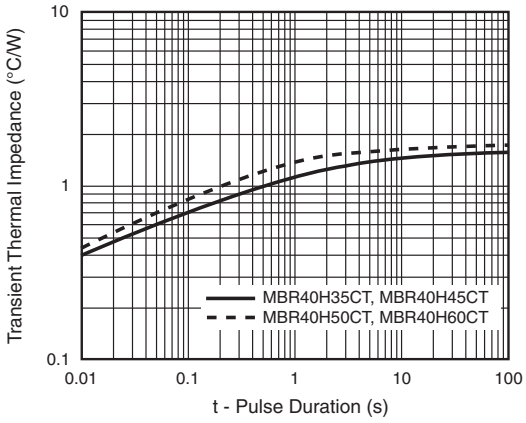
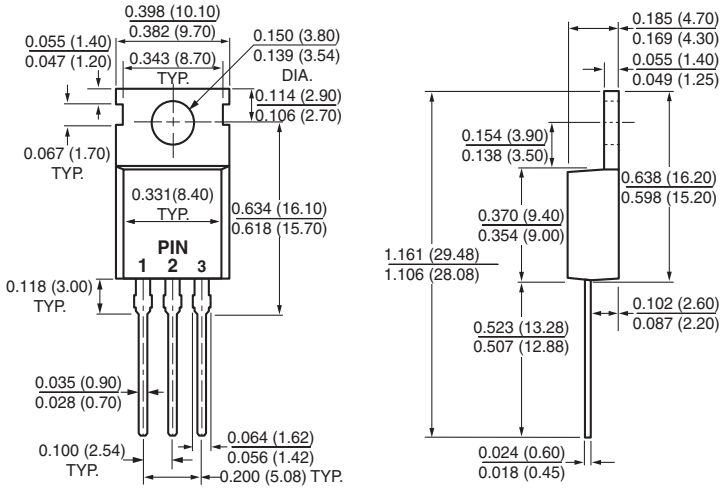


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB



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