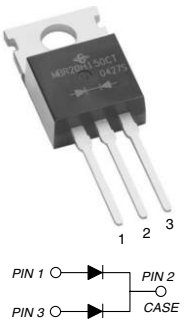
Dual Common-Cathode Schottky Rectifiers

High Barrier Technology for Improved High Temperature Performance

TO-220AB



FEATURES

- Guardring for overvoltage protection
- Low power losses, high efficiency
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- High frequency operation
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

RoHS COMPLIANT

TYPICAL APPLICATIONS

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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	20 A x 2
V_{RRM}	35 V to 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

MECHANICAL DATA

Case: TO-220AB

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test

Mounting Torque: 10 in-lbs maximum

Polarity: As marked

MAXIMUM RATINGS (T_C = 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 per diode	$I_{F(AV)}$	40 20				A
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 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

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

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

THERMAL CHARACTERISTICS (T_C = 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 specified)

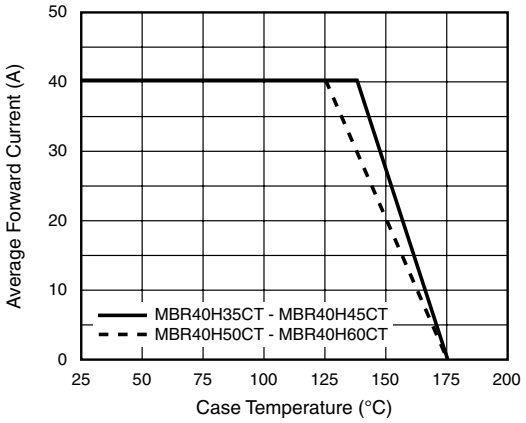


Figure 1. Forward Derating Curve Per Diode

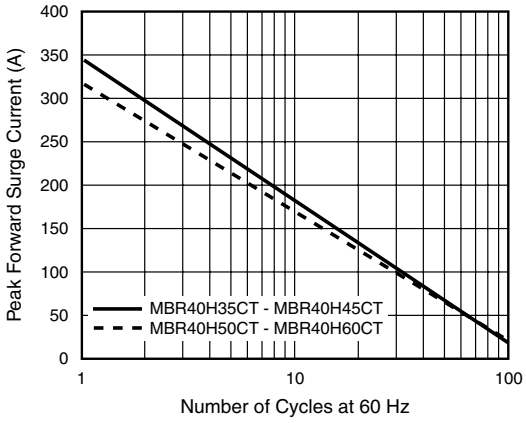


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

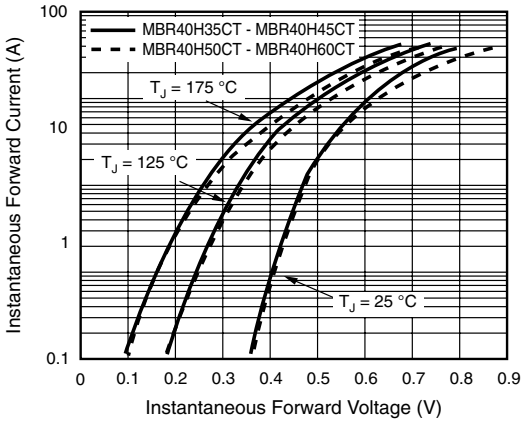


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

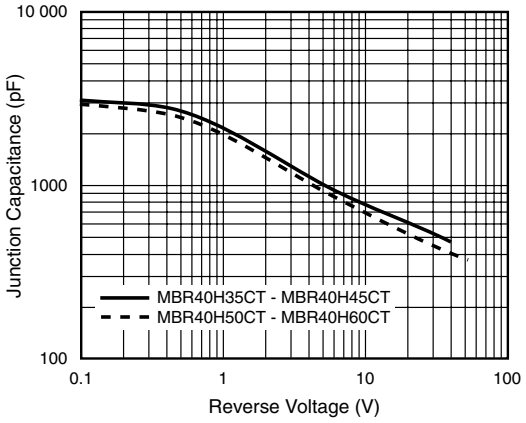


Figure 5. Typical Junction Capacitance Per Diode

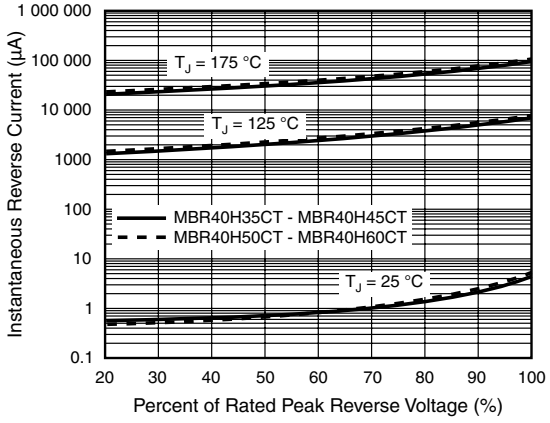


Figure 4. Typical Reverse Characteristics Per Diode

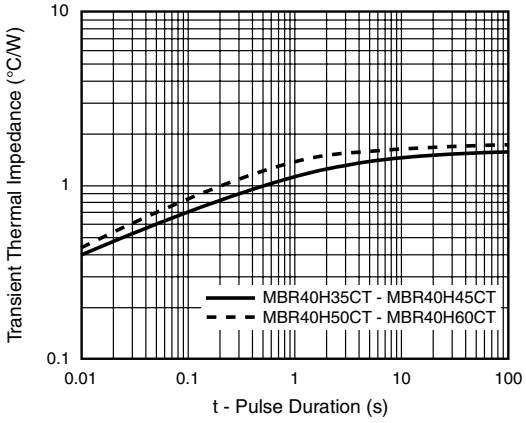
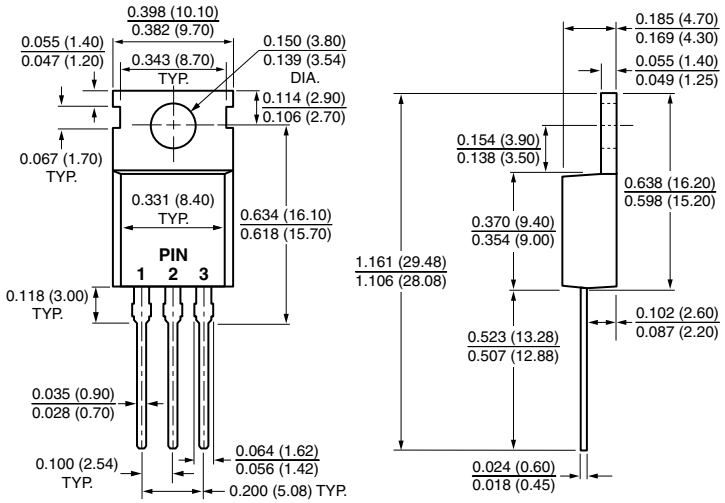


Figure 6. Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB



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