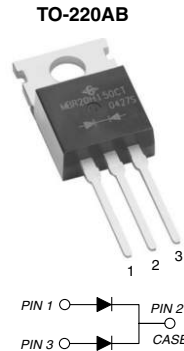




Dual Common-Cathode Schottky Rectifiers

High Barrier Technology for Improved High Temperature Performance



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.

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

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 μ A
T_J max.	175 °C

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)	$I_{F(AV)}$	40		20		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	350		320		A
Peak repetitive reverse 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)	E_{RSM}	20				mJ
Non-repetitive avalanche energy at 25 °C, $I_{AS} = 3.0$ A, $L = 5$ mH	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 _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	T _J = 25 °C	V _F	0.64	0.68	0.60	0.83	V
	I _F = 20 A	T _J = 125 °C						
	I _F = 40 A	T _J = 25 °C						
	I _F = 40 A	T _J = 125 °C						
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 _{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 specified)

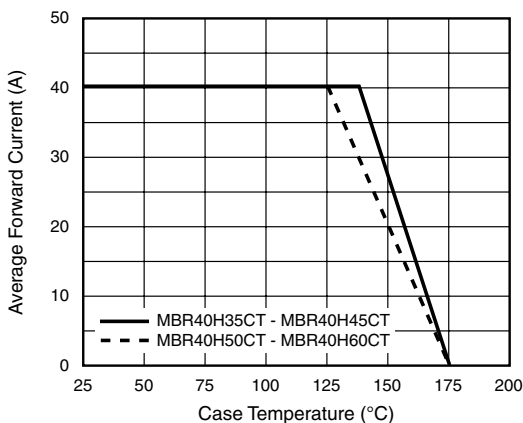


Figure 1. Forward Derating Curve Per Diode

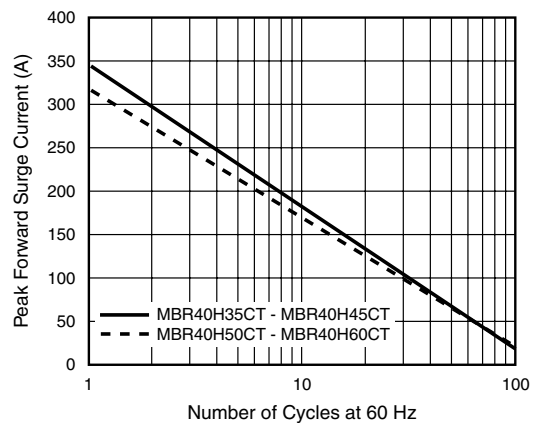


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

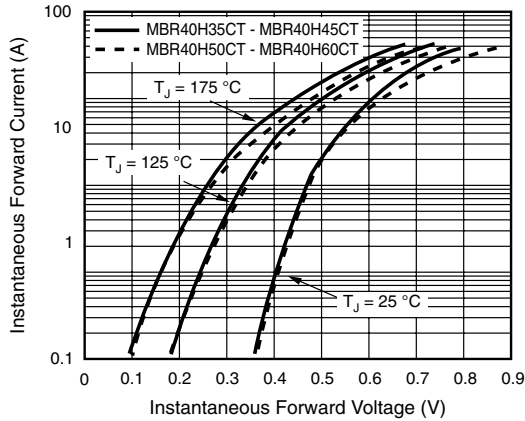


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

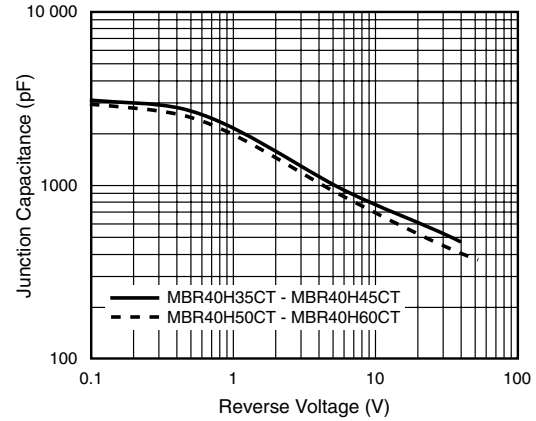


Figure 5. Typical Junction Capacitance Per Diode

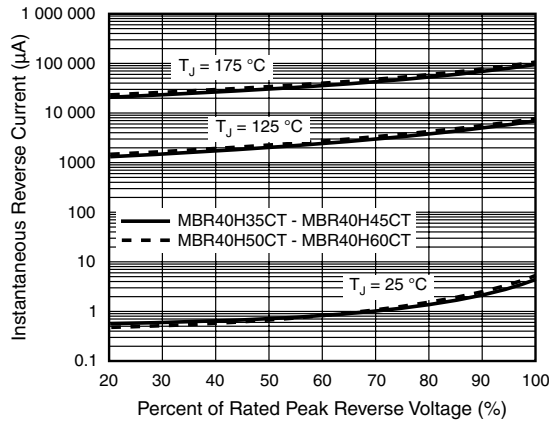


Figure 4. Typical Reverse Characteristics Per Diode

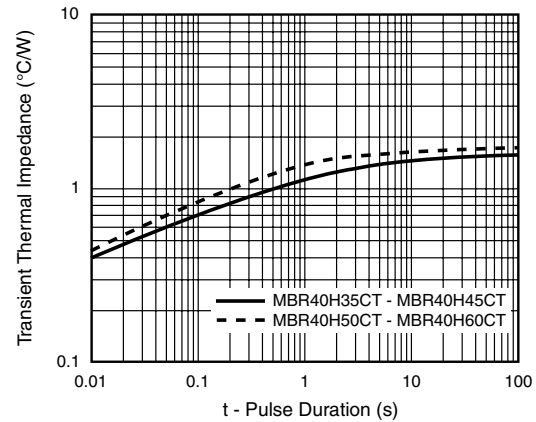
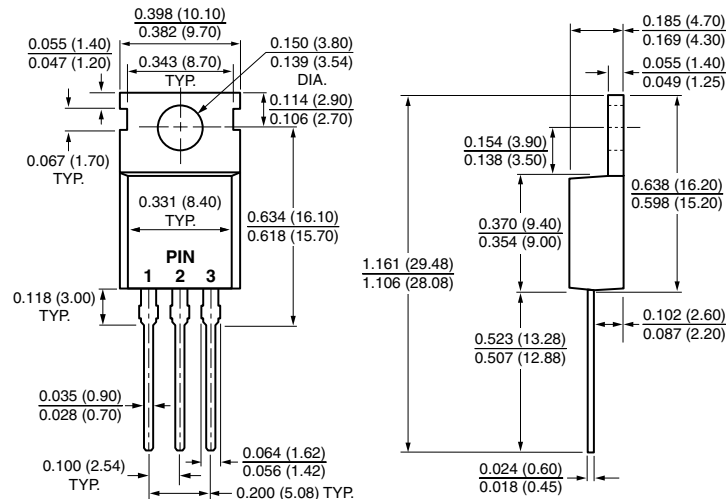


Figure 6. Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB





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