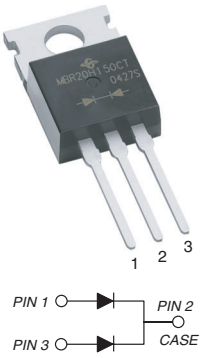
Dual Common-Cathode Schottky Rectifiers

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 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

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-002B and JESD22-B102D

E3 suffix for commercial grade

Mounting Torque: 10 in-lbs maximum

Polarity: As marked

MAJOR RATINGS AND 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

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 (see Fig. 1)	Total device Per leg	$I_{F(AV)}$	40 20				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	Per leg	I_{FSM}	350		320		A
Peak repetitive reverse current per leg at t_p = 2 µs, 1 kHz		I_{RRM}	1.0				A
Peak non-repetitive reverse surge energy (8/20 µs waveform)	Per leg	E_{RSM}	20				mJ
Non-repetitive avalanche energy at 25 °C, I_{AS} = 3.0 A, L = 5 mH	Per leg	E_{AS}	22.5				mJ
Voltage rate of change (rated V_R)		dv/dt	10000				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**	**MBR40H40CT**	**MBR40H50CT**	**MBR40H60CT**	**UNIT**
Maximum instantaneous forward voltage per leg (1)	at I_F = 20 A T_J = 25 °C at I_F = 20 A T_J = 125 °C at I_F = 40 A T_J = 25 °C at I_F = 40 A 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 leg (1)	at rated V_R T_J = 25 °C T_J = 125 °C	I_R	100 15				µA mA
Typical junction capacitance	at 4.0 V, 1 MHz	C_J	1200		920		pF

Note:

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)						
PARAMETER	**SYMBOL**	**MBR40H35CT**	**MBR40H40CT**	**MBR40H50CT**	**MBR40H60CT**	**UNIT**
Thermal resistance from junction to case per leg	$R_{\theta JC}$	1.8				°C/W

ORDERING INFORMATION					
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)

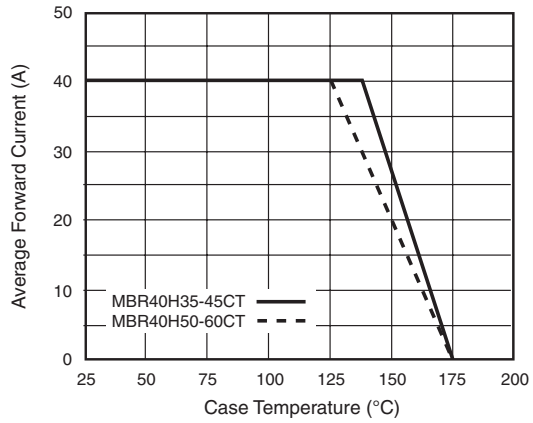


Figure 1. Forward Derating Curve Per Leg

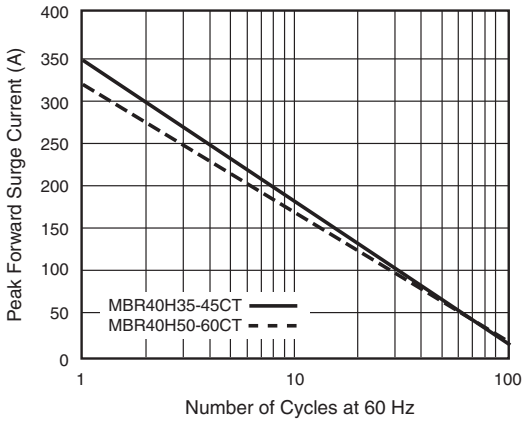


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Leg

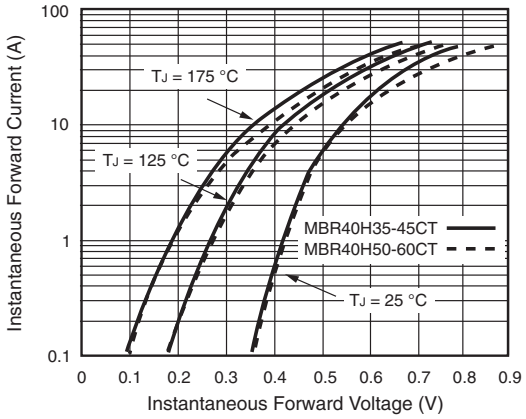


Figure 3. Typical Instantaneous Forward Characteristics Per Leg

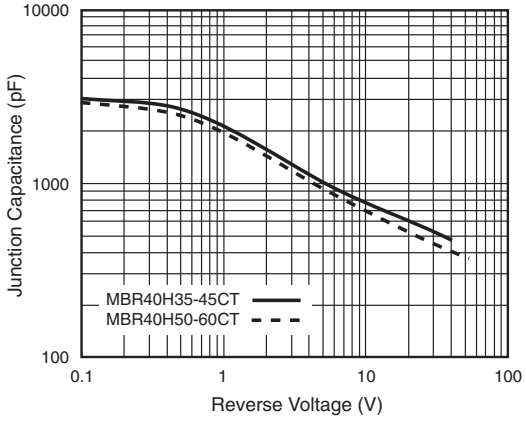


Figure 5. Typical Junction Capacitance Per Leg

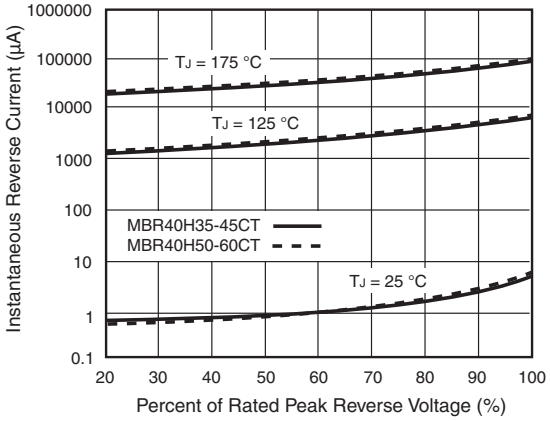


Figure 4. Typical Reverse Characteristics Per Leg

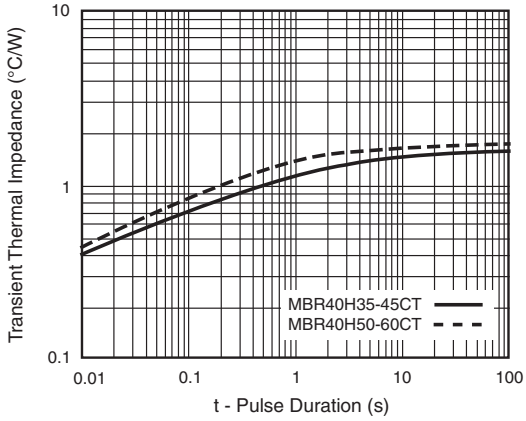
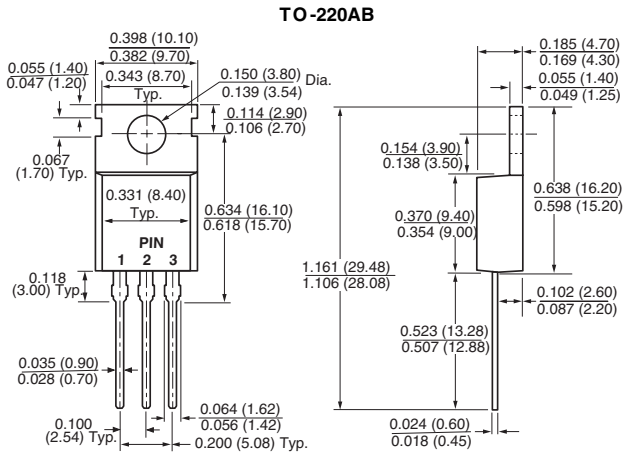


Figure 6. Typical Transient Thermal Impedance Per Leg

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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