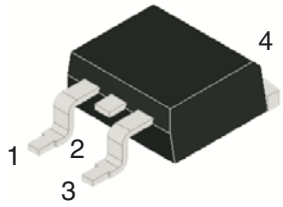
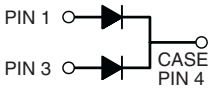
6.0 Amp. Surface Mount High Temperature Technology Schottky Barrier Rectifier

TO-252AA (DPAK)





Voltage	Current
40V	6.0 A

FEATURES

- Low profile package
- Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- Low forward voltage drop
- High forward surge current capability
- Solder dip 260°C, 10s
- AEC-Q101 qualified
- Component in accordance to RoHS 2011/65/EU and WEEE 2002/96/EC
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260° C
- Low leakage current

AUTOMOTIVE GRADE Available

Pb

e3

RoHS COMPLIANT

MECHANICAL DATA

- **Case:** TO-252AA (DPAK). Epoxy meets UL 94V-0 flammability rating.
- **Polarity:** As marked on the body.
- **Terminals:** Matte tin plated leads, solderable per MIL-STD-750 Method 2026, J-STD-002 and JESD22-B102. Consumer grade, meets JESD 201 class 1A whisker test.
- **HE3 suffix** for high reliability grade, meets JESD 201 class 2 whisker test.

TYPICAL APPLICATIONS

Used in low voltage high frequency inverters, freewheeling, dc-to-dc converters, and polarity protection applications.

Maximun Ratings and Electrical Characteristics at 25°C

Marking Code		MBRDH640CTG
V_{RRM}	Maximum recurrent peak reverse voltage (V)	40
V_{RMS}	Maximum RMS voltage (V)	31
V_{DC}	Maximum DC blocking voltage (V)	40
$I_{F\ (AV)}$	Maximum average forward rectified current @ T_C = 130 °C Total Device Per Diode	6 A 3 A
I_{FSM}	Peak Forward Surge Current 8.3 ms. single Half Sine-wave Superimposed on Rated Load (Jedec Method)	75 A
T_j	Operating junction temperature range	– 65°C to + 175 °C
T_{stg}	Storage temperature range	– 65°C to + 175 °C

Electrical Characteristics at Tamb = 25 °C

V_F	Max. instantaneous forward voltage per diode at I_F = 3 A (Note 1)	T_c = 25°C	0.70 V
		T_c = 125°C	0.65 V
	Max. instantaneous forward voltage per diode at I_F = 6 A (Note 1)	T_c = 25°C	0.90 V
		T_c = 125°C	0.85 V
I_R	Maximum D.C. Reverse Current @ Tc = 25 °C		0.1 mA
	at Rated DC Blocking Voltage @ Tc = 125 °C (Note 3)		15 mA
R_{thj-C}	Typical Thermal Resistance (Note 2)		6.0 °C/W

Notes: 1. Pulse Test: 300µ Pulse Width, 1% Duty Cycle
2. Thermal Resistance from Junction to Case per diode
3. Pulse test: Pulse width ≤ 40ms

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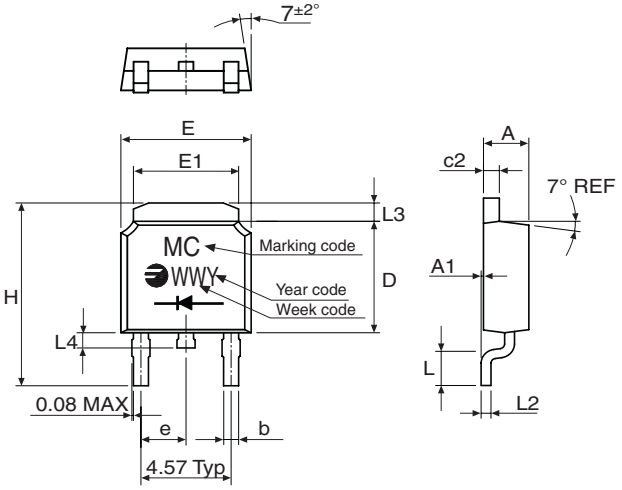
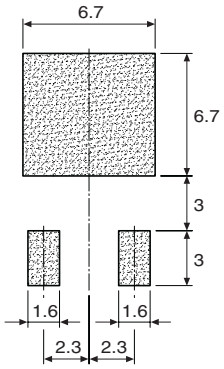
Ordering information

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
MBRDH640CTG 00 TR	TR	13" diameter tape and reel	2,500	0.30
MBRDH640CTG 00 HE3 TR	TR	13" diameter tape and reel	2,500	0.30

Package Outline Dimensions: (mm) TO-252AA (DPAK)



Mounting Pad Layout



REF.	DIMENSIONS Milimeters		
	Min.	Nominal	Max.
A	2.18	2.3	2.39
A1	0	0.127	0.127
b	0.64	0.75	0.89
c2	0.46	0.51	0.56
D	5.97	6.1	6.22
E	6.47	6.6	6.73
E1	5.20	5.34	5.46
e		2.28BSC	
H	9.77	10.03	10.28
L	1.31	1.44	1.57
L2	0.46	0.51	0.56
L3	0.89	1.02	1.14
L4	0.51	0.76	1.02

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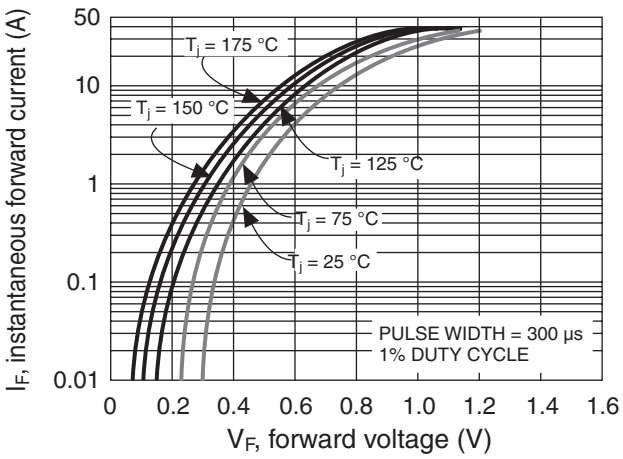
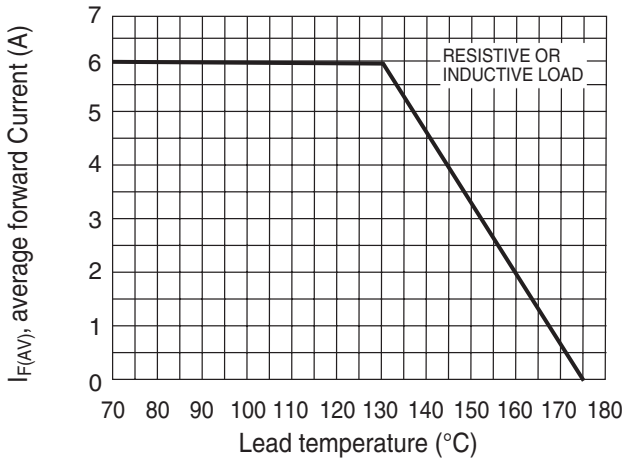
Ratings and Characteristics (Ta 25 ºC unless otherwise noted)

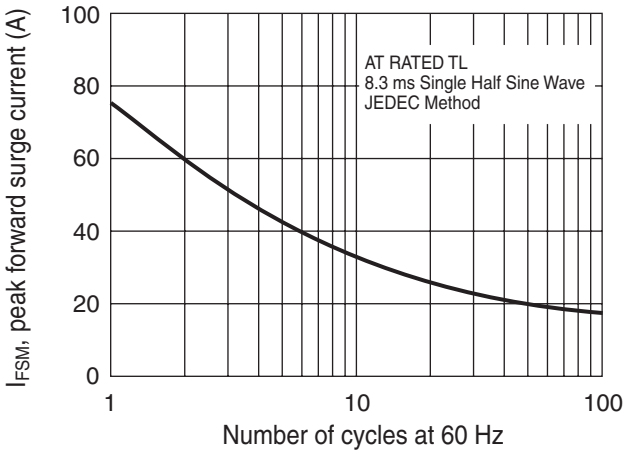
TYPICAL FORWARD CHARACTERISTIC



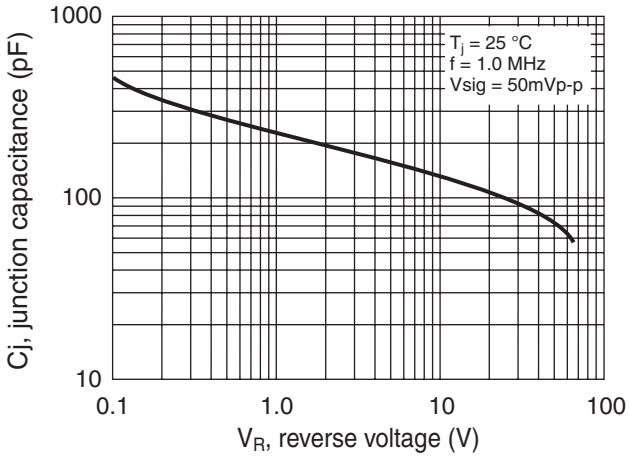
MAXIMUM FORWARD CURRENT DERATING CURVE



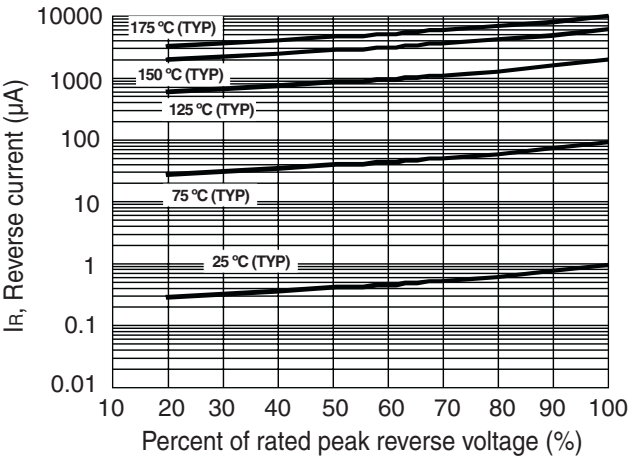
MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT



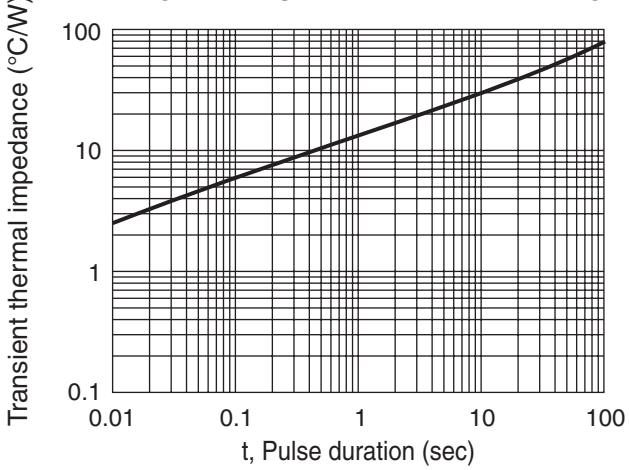
TYPICAL JUNCTION CAPACITANCE



TYPICAL REVERSE CHARACTERISTIC



TYPICAL TRANSIENT THERMAL IMPEDANCE



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