MBRD1040

10A LOW VF SCHOTTKY BARRIER RECTIFIER

SPICE MODEL: MBRD1040

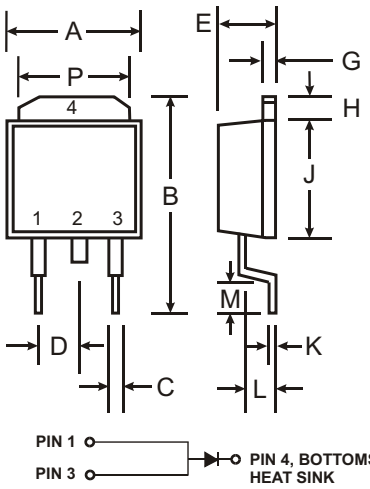
NEW PRODUCT

Features

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Surge Capability
- High Maximum Junction Temperature Rating
- Very Low Forward Voltage Drop
- Very Low Leakage Current
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Applications
- Plastic Material: UL Flammability Classification Rating 94V-0

Mechanical Data

- Case: DPAK Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Marking Information: See Page 2
- Weight: 0.4 grams (approx.)



Note: Pins 1 & 3 must be electrically connected at the printed circuit board.

DPAK		
Dim	**Min**	**Max**
A	6.3	6.7
B	—	10
C	0.3	0.8
D	2.3 Nominal	
E	2.1	2.5
G	0.4	0.6
H	1.2	1.6
J	5.3	5.7
K	0.5 Nominal	
L	1.3	1.8
M	1.0	—
P	5.1	5.5
All Dimensions in mm		

Maximum Ratings @ T_A = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	40	V
RMS Reverse Voltage	$V_{R(RMS)}$	28	V
Average Rectified Output Current (Also see Figure 4)	I_O	10	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load (JEDEC Method)	I_{FSM}	100	A
Typical Thermal Resistance Junction to Case	$R_{\theta JC}$	6.0	°C/W
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	80	°C/W
Operating Temperature Range	T_j	-65 to +150	°C
Storage Temperature Range	T_{STG}	-65 to +150	°C

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 1)	$V_{(BR)R}$	40	—	—	V	I_R = 1mA
Forward Voltage (Note 1)	V_{FM}	— — —	0.45 — 0.47	0.49 0.41 0.51	V	I_F = 8A, T_S = 25°C I_F = 8A, T_S = 125°C I_F = 10A, T_S = 25°C
Peak Reverse Current (Note 1)	I_{RM}	— —	0.1 12.5	0.3 25	mA	T_S = 25°C, V_R = 35V T_S = 100°C, V_R = 35V
Junction Capacitance	C_j	—	700	—	pF	f = 1.0MHz, V_R = 4.0V DC

Notes: 1. Short duration test pulse used to minimize self-heating effect.

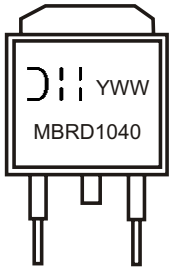
NEW PRODUCT

Ordering Information (Note 2)

Device	Packaging	Shipping
MBRD1040-T	DPAK	2500/Tape & Reel

Notes: 2. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



MBRD1040 = Product type marking code
= Manufacturers' code marking
YWW = Date code marking
Y = Last digit of year ex: 2 for 2002
WW = Week code 01 to 52

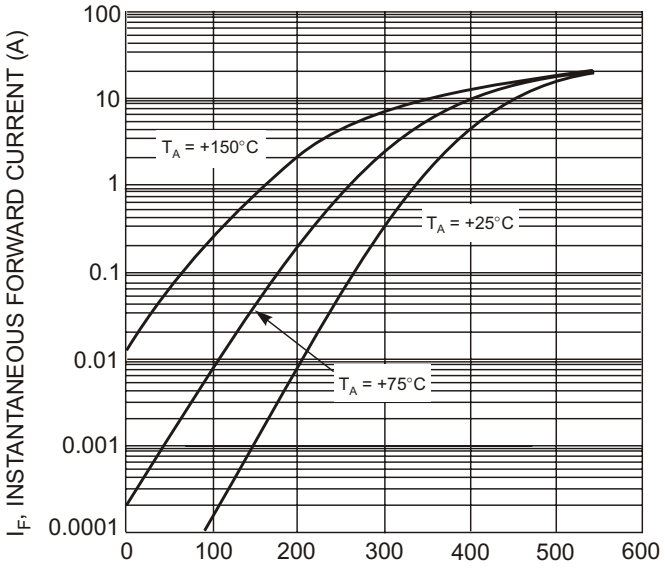


Fig. 1 Typical Forward Characteristics

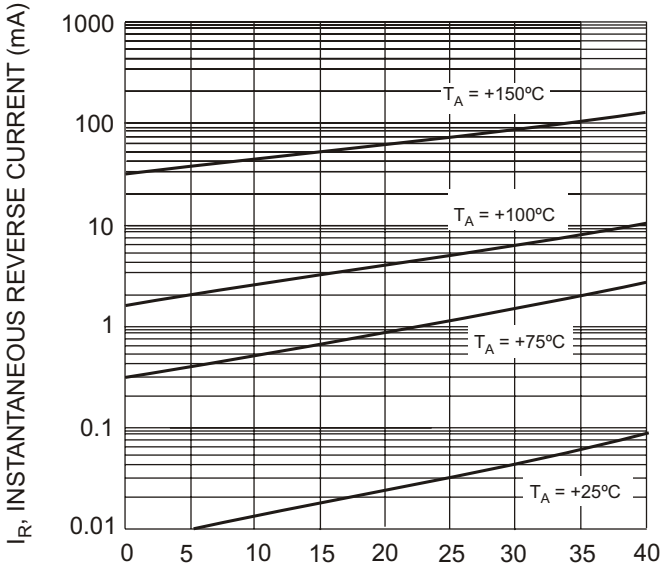


Fig. 2 Typical Reverse Characteristics

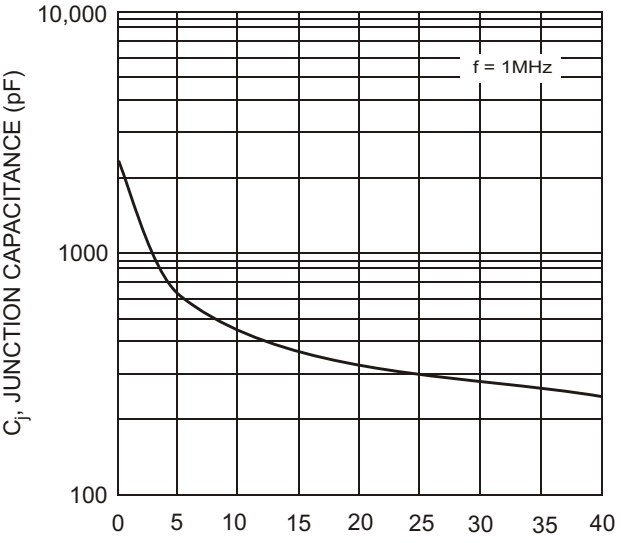


Fig. 3 Typical Junction Capacitance vs. Reverse Voltage

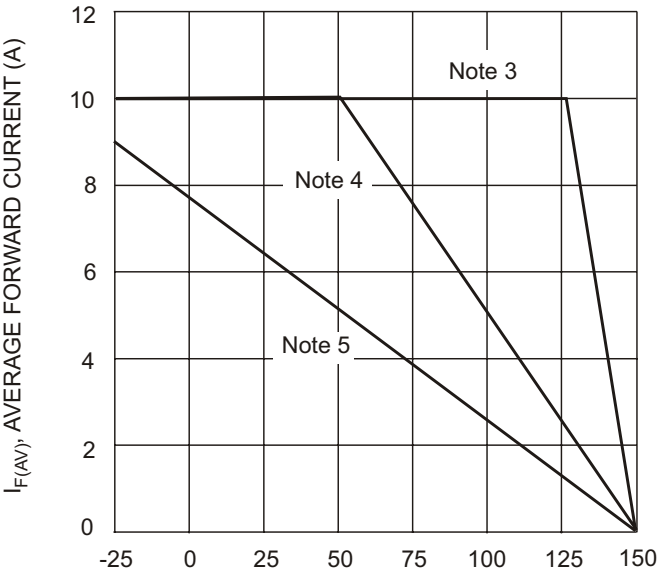


Fig. 4 DC Forward Current Derating

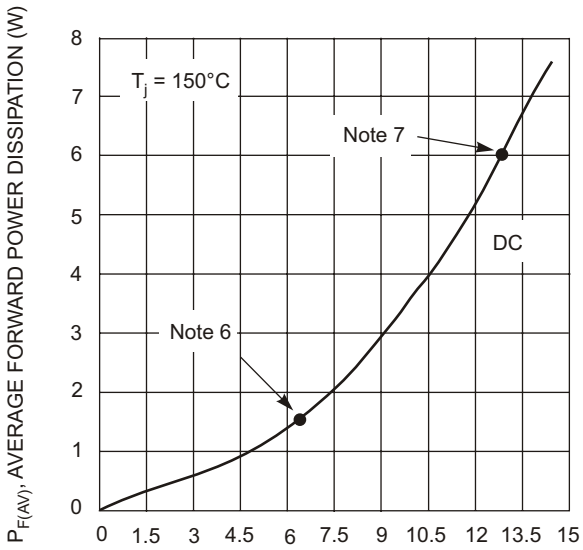


Fig. 5 Forward Power Dissipation (Per Element)

Notes:
3. $T_A = T_{SOLDERING\ POINT}$, $R_{\theta JC}$ = 6.0°C/W, $R_{\theta CA}$ = 0°C/W.
4. Device mounted on GETEK substrate, 2"x2", 2 oz. copper, double-sided, cathode pad dimensions 0.75" x 1.0", anode pad dimensions 0.25" x 1.0". $R_{\theta JA}$ in range of 15-30°C/W.
5. Device mounted on FR-4 substrate, 2"x2", 2 oz. copper, single-sided, pad layout as per Diodes Inc. suggested pad layout document AP02001 which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf. $R_{\theta JA}$ in range of 60-75°C/W.
6. Maximum power disspiation when the device is mounted in accordance to the conditions described in Note 5.
7. Maximum power disspation when the device is mounted in accordance to the conditions described in Note 4.