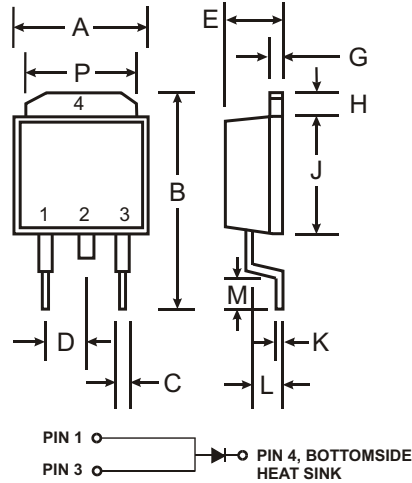


### Features

- 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.)



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		

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

### Maximum Ratings @ T<sub>A</sub> = 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 <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	40	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	28	V
Average Rectified Output Current (Also see Figure 4)	I <sub>O</sub>	10	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load (JEDEC Method)	I <sub>FSM</sub>	100	A
Typical Thermal Resistance Junction to Case	R <sub>θJC</sub>	6.0	°C/W
Typical Thermal Resistance Junction to Ambient	R <sub>θJA</sub>	80	°C/W
Operating Temperature Range	T <sub>j</sub>	-65 to +150	°C
Storage Temperature Range	T <sub>STG</sub>	-65 to +150	°C

### Electrical Characteristics @ T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 1)	V <sub>(BR)R</sub>	40	—	—	V	I <sub>R</sub> = 1mA
Forward Voltage (Note 1)	V <sub>FM</sub>	—	0.45 — 0.47	0.49 0.41 0.51	V	I <sub>F</sub> = 8A, T <sub>S</sub> = 25°C I <sub>F</sub> = 8A, T <sub>S</sub> = 125°C I <sub>F</sub> = 10A, T <sub>S</sub> = 25°C
Peak Reverse Current (Note 1)	I <sub>RM</sub>	—	0.1 — 12.5	0.3 — 25	mA	T <sub>S</sub> = 25°C, V <sub>R</sub> = 35V T <sub>S</sub> = 100°C, V <sub>R</sub> = 35V
Junction Capacitance	C <sub>j</sub>	—	700	—	pF	f = 1.0MHz, V <sub>R</sub> = 4.0V DC

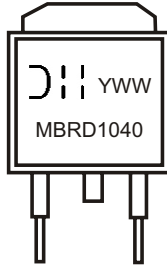
Notes: 1. Short duration test pulse used to minimize self-heating effect.

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

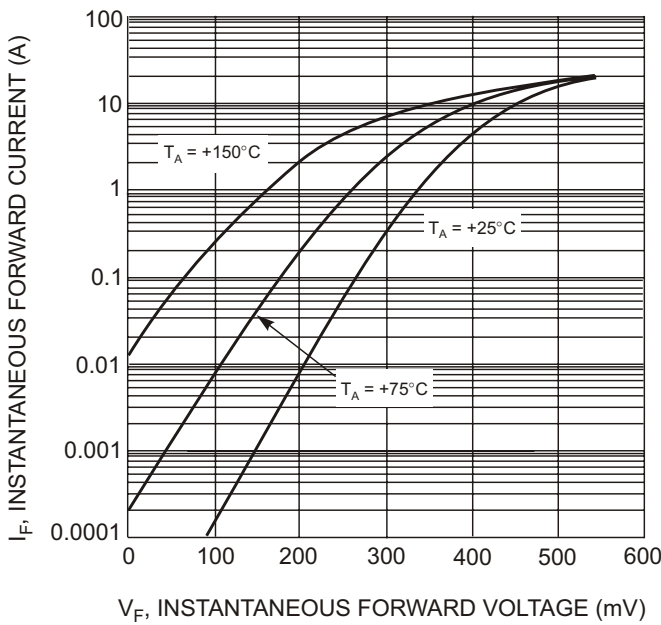


Fig. 1 Typical Forward Characteristics

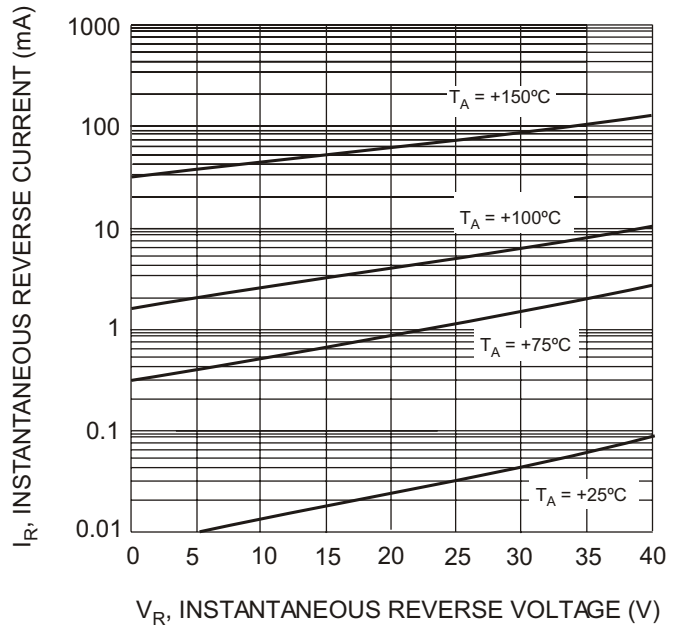


Fig. 2 Typical Reverse Characteristics

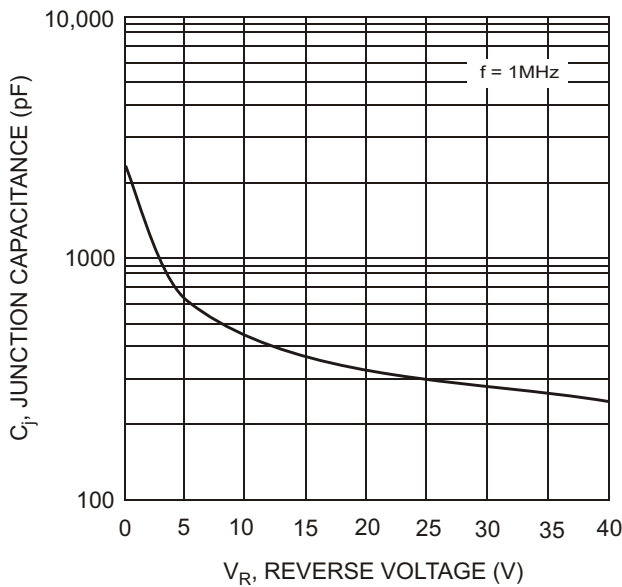


Fig. 3 Typical Junction Capacitance vs. Reverse Voltage

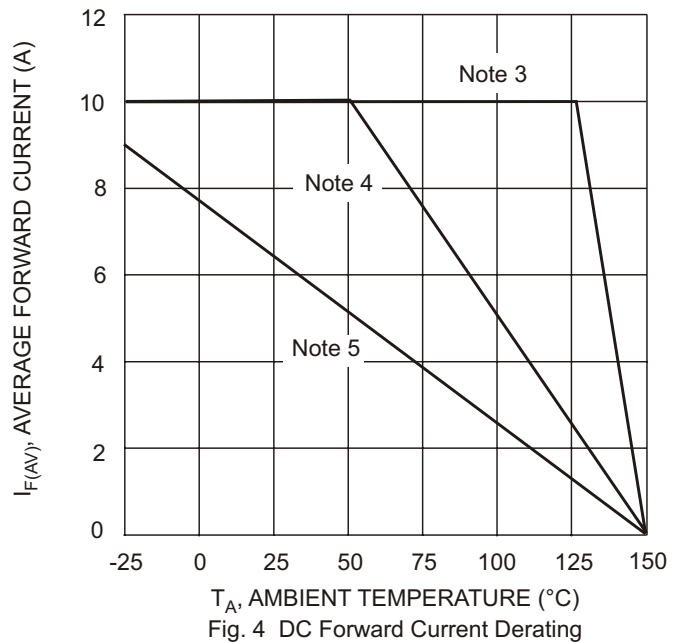


Fig. 4 DC Forward Current Derating

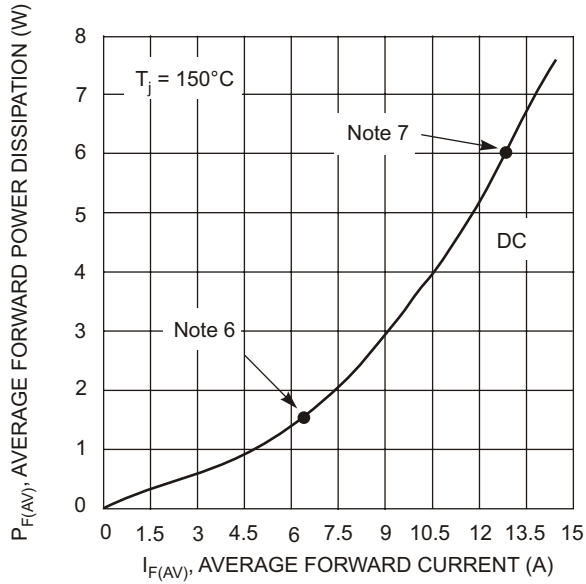


Fig. 5 Forward Power Dissipation (Per Element)

- Notes:
- $T_A = T_{\text{SOLDERING POINT}}$ ,  $R_{\theta JC} = 6.0^\circ\text{C/W}$ ,  $R_{\theta CA} = 0^\circ\text{C/W}$ .
  - 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.
  - 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.
  - Maximum power dissipation when the device is mounted in accordance to the conditions described in Note 5.
  - Maximum power dissipation when the device is mounted in accordance to the conditions described in Note 4.