MOTOROLA
SEMICONDUCTOR
TECHNICAL DATA

MBR030
MBR040

Advance Information

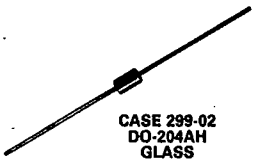
SCHOTTKY RECTIFIERS

0.5 AMPERE
30–40 VOLTS

SWITCHMODE RECTIFIERS

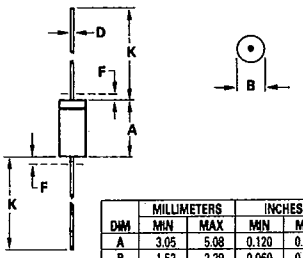
. . . designed for use in switching power supplies, inverters, and as free wheeling diodes, these devices have the following features:

- Low Forward Voltage
- Low Leakage Current
- DO-204AH (DO-35) Glass Package



CASE 299-02
DO-204AH
GLASS

3



DIM	MILLIMETERS MIN	MILLIMETERS MAX	INCHES MIN	INCHES MAX
A	3.05	5.08	0.120	0.200
B	1.52	2.29	0.060	0.090
D	0.46	0.56	0.018	0.022
F	—	1.27	—	0.050
K	25.40	38.10	1.000	1.500

All JEDEC dimensions and notes apply.

NOTES:
1. PACKAGE CONTOUR OPTIONAL WITHIN A AND B. HEAT SLUGS, IF ANY, SHALL BE INCLUDED WITHIN THIS CYLINDER, BUT NOT SUBJECT TO THE MINIMUM LIMIT OF B.
2. LEAD DIAMETER NOT CONTROLLED IN ZONE F TO ALLOW FOR FLASH, LEAD FINISH BUILDUP AND MINOR IRREGULARITIES OTHER THAN HEAT SLUGS.
3. POLARITY DENOTED BY CATHODE BAND.
4. DIMENSIONING AND TOLERANCING PER ANSI Y14.5, 1973.

MAXIMUM RATINGS

Rating	Symbol	MBR030	MBR040	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	30	40	Volts
Average Rectified Forward Current (Rated V_R) T_L = 90°C, L = 3/8" T_A = 60°C, L = 3/8", (Mt. Method #1)	$I_{F(AV)}$	0.5 0.5		Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	15.0		Amps
Operating Junction and Storage Temperature	T_J, T_{stg}	−65 to +150		

THERMAL CHARACTERISTICS

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance, Junction to Lead = 3/8"	$R_{\theta JL}$	180	190	°C/W

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Typ	Max	Unit
Instantaneous Foward Voltage (1) (i_F = 0.1 A, T_J = 25°C) (i_F = 0.5 A, T_J = 25°C)	v_F	0.460 0.610	0.500 0.750	Volts
Reverse Current (Rated dc Voltage, T_J = 150°C) (Rated dc Voltage, T_J = 25°C)	i_R	0.6 0.003	1.0 0.001	mA

(1) Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

This document contains information on a new product. Specifications and information herein are subject to change without notice.

MECHANICAL CHARACTERISTICS

CASE: Glass

FINISH: External leads are plated and are readily solderable

POLARITY: Cathod indicated by polarity band.

WEIGHT: 0.2 Gram (approximately).

MAXIMUM LEAD TEMPERATURE FOR SOLDERING PURPOSES: 230°C, 1/8" from case for 10 seconds.

FIGURE 1 — TYPICAL FORWARD VOLTAGE

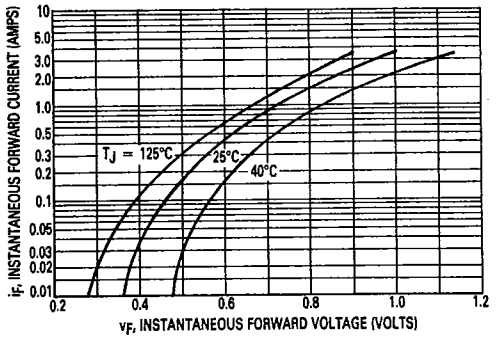


FIGURE 2 — CURRENT DERATING, PRINTED CIRCUIT BOARD MOUNTING

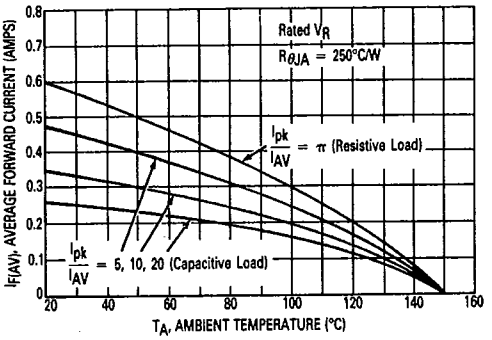


FIGURE 3 — TYPICAL CAPACITANCE

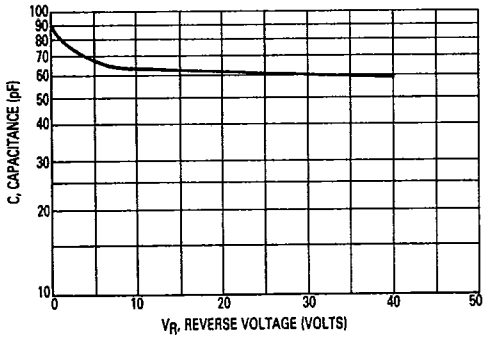


FIGURE 4 — CURRENT DERATING, LEAD TEMPERATURE

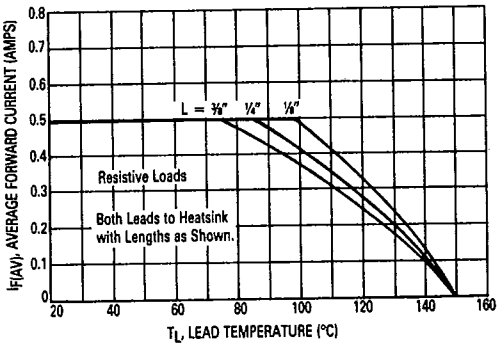
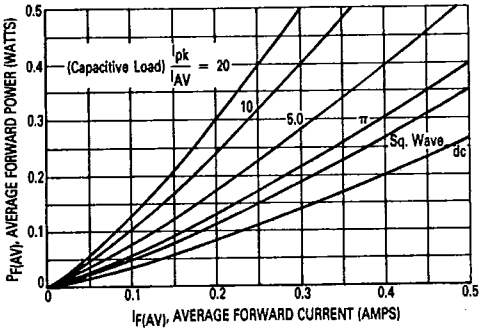


FIGURE 5 — FORWARD POWER DISSIPATION



NOTE 1

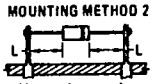
Data shown for thermal resistance junction-to-ambient (θ_{JA}) for the mountings shown is to be used as typical guideline values for preliminary engineering or in case the tie point temperature cannot be measured.

TYPICAL VALUES FOR θ_{JA} IN STILL AIR

MOUNTING METHOD	1/8	1/4	3/8	$R_{\theta JA}$
1	200	225	250	°C/W
2	210	235	260	°C/W
3		150		°C/W

MOUNTING METHOD 1

MOUNTING METHOD 2



Vector pin mounting

MOUNTING METHOD 3