

# MBRP400100CTL

## POWERTAP II Switch-mode Power Rectifier

These state-of-the-art devices use the Schottky Barrier principle with a platinum barrier metal.

### Features

- Dual Diode Construction; May be Paralleled for Higher Current Output
- Guard-Ring for Stress Protection
- Low Forward Voltage Drop
- 175°C Operating Junction Temperature
- Recyclable Epoxy
- Guaranteed Reverse Avalanche Energy Capability
- Improved Mechanical Ratings
- Pb-Free Package is Available\*

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	100	V
Average Rectified Forward Current (At Rated $V_R$ , $T_C = 100^\circ\text{C}$ ) Per Leg Per Device	$I_{F(AV)}$	200 400	A
Peak Repetitive Forward Current (At Rated $V_R$ , Square Wave, 20 kHz, $T_C = 100^\circ\text{C}$ )	$I_{FRM}$	400	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	$I_{FSM}$	2500	A
Peak Repetitive Reverse Current (2.0 $\mu\text{s}$ , 1.0 kHz)	$I_{RRM}$	2.0	A
Storage and Operating Case Temperature Range	$T_{stg}$ , $T_C$	-55 to +175	$^\circ\text{C}$
Operating Junction Temperature	$T_J$	-55 to +175	$^\circ\text{C}$
Voltage Rate of Change (Rated $V_R$ )	$dv/dt$	1000	V/ $\mu\text{s}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

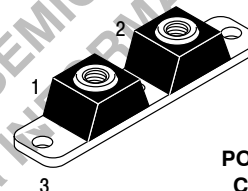
\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



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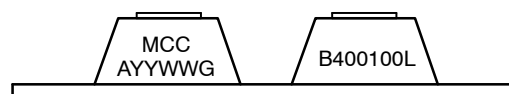
[www.onsemi.com](http://www.onsemi.com)

### SCHOTTKY BARRIER RECTIFIER 400 AMPERES, 100 VOLTS



POWERTAP II  
CASE 357C  
PLASTIC

### MARKING DIAGRAM



B400100L = Specific Device Code  
MCC = Mold Compound Code  
A = Assembly Location  
YY = Year  
WW = Work Week  
G = Pb-Free Package

### ORDERING INFORMATION

Device	Package	Shipping
MBRP400100CTL	POWERTAP II	25 Units/Tray
MBRP400100CTLG	POWERTAP II (Pb-Free)	25 Units/Tray

# MBRP400100CTL

## THERMAL CHARACTERISTICS

Rating	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case Per Leg	$R_{\theta JC}$	0.45	$^{\circ}\text{C/W}$

## ELECTRICAL CHARACTERISTICS

Rating		Symbol	Value		Unit
Maximum Instantaneous Forward Voltage (Note 1)	Per Leg  (I <sub>F</sub> = 200 A) (I <sub>F</sub> = 400 A)	V <sub>F</sub>	T <sub>C</sub> = 25°C	T <sub>C</sub> = 125°C	V
			0.83	0.69	
			0.97	0.82	
Maximum Instantaneous Reverse Current (Note 1)	Per Leg  (Rated DC Voltage)	I <sub>R</sub>	T <sub>C</sub> = 25°C	T <sub>C</sub> = 125°C	mA
			6.0	80	

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

1. Pulse Test: Pulse Width = 380  $\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

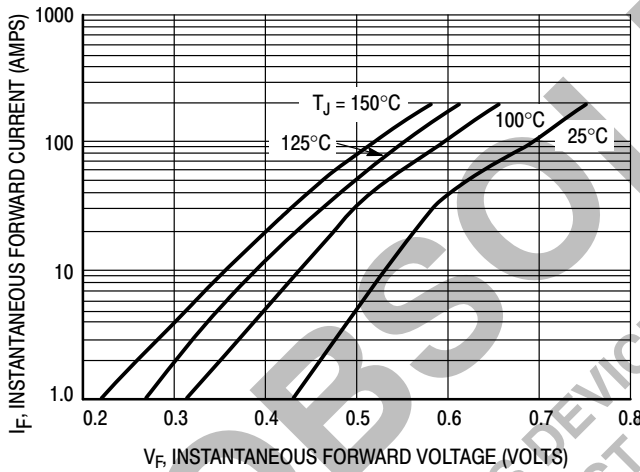


Figure 1. Typical Forward Voltage

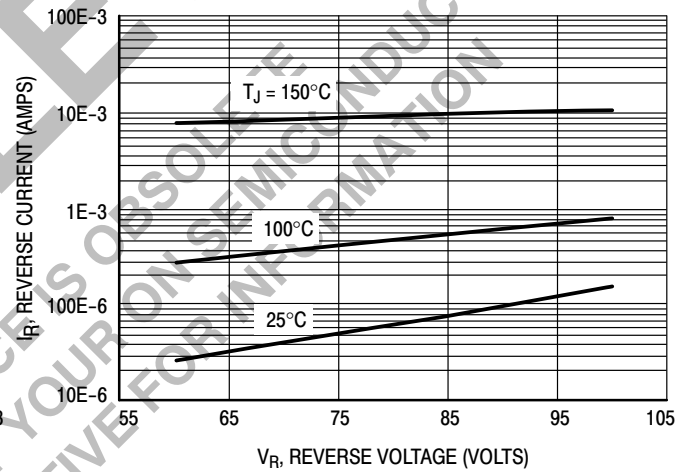
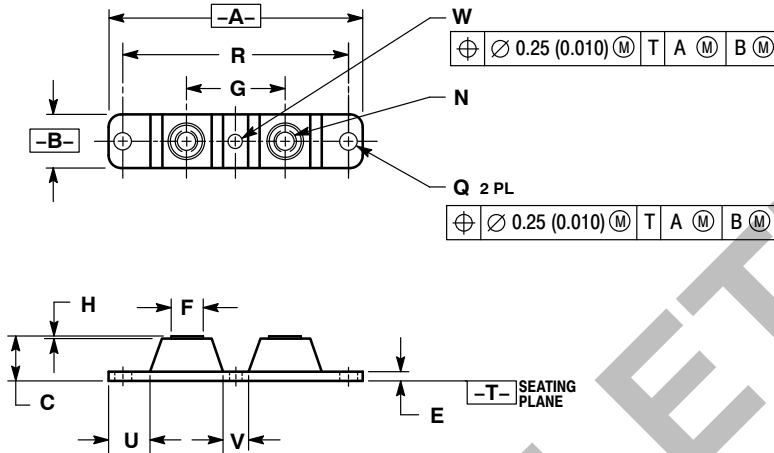


Figure 2. Typical Reverse Current

# MBRP400100CTL

## PACKAGE DIMENSIONS


CASE 357C-03  
POWERTAP  
PLASTIC PACKAGE  
ISSUE E



### NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. TERMINAL PENETRATION: 5.97 (0.235) MAXIMUM.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	3.450	3.635	87.63	92.33
B	0.700	0.810	17.78	20.57
C	0.615	0.640	15.63	16.26
E	0.120	0.130	3.05	3.30
F	0.435	0.445	11.05	11.30
G	1.370	1.380	34.80	35.05
H	0.007	0.030	0.18	0.76
N	1/4-20UNC-2B	1/4-20UNC-2B		
Q	0.270	0.285	6.86	7.23
R	31.50 BSC		80.01 BSC	
U	0.600	0.630	15.24	16.00
V	0.330	0.375	8.39	9.52
W	0.170	0.190	4.32	4.82

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