

Features and Benefits

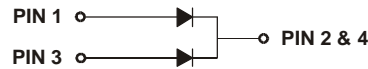
- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Surge Capability
- High Current Capability and Low Forward Voltage Drop
- Surge Overload Rating to 150A Peak
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Applications
- **Lead Free Finish, RoHS Compliant (Note 1)**

Mechanical Data

- Case: D²PAK
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish — Tin. Solderable per MIL-STD-202, Method 208 **(E3)**
- Polarity: See Diagram
- Weight: 1.7 grams (approximate)



Top View



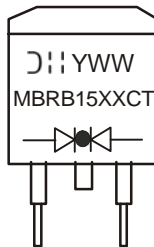
Polarity

Ordering Information (Note 2)

Device	Packaging	Shipping
MBRB1530CT-T	D ² PAK	800/Tape & Reel, 13-inch
MBRB1535CT-T	D ² PAK	800/Tape & Reel, 13-inch
MBRB1540CT-T	D ² PAK	800/Tape & Reel, 13-inch
MBRB1545CT-T	D ² PAK	800/Tape & Reel, 13-inch

- Notes:
1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes
 2. For packaging details, visit our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



MBRB15XXCT = Product Type Marking Code Where
 xx = 30, 35, 40 or 45, Depending on Device Type
 D = Manufacturers' Code Marking
 YWW = Date Code Marking
 Y = Last Digit of Year (ex: 2 for 2002)
 WW = Week Code (01 to 53)

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

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

Characteristic	Symbol	MBRB 1530CT	MBRB 1535CT	MBRB 1540CT	MBRB 1545CT	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	30	35	40	45	V
Working Peak Reverse Voltage	V_{RWM}					
DC Blocking Voltage	V_R					
RMS Reverse Voltage	$V_{R(RMS)}$	21	24.5	28	31.5	V
Average Rectified Output Current @ $T_C = 105^\circ\text{C}$	I_O	15				A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	150				A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Terminal	$R_{\theta JT}$	3.0	$^\circ\text{C}/\text{W}$
Operating Temperature Range (Note 3)	T_J	$V_R \leq 80\% V_{RRM}$	-65 to +150
		$V_R \leq 50\% V_{RRM}$	≤ 180
		DC Forward Mode	≤ 200
Storage Temperature Range	T_{STG}	-65 to +175	$^\circ\text{C}$

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Forward Voltage, per Element @ $I_F = 7.5\text{A}$	V_{FM}	0.7	V
Voltage Rate of Change	dv/dt	10,000	$\text{V}/\mu\text{s}$
Peak Reverse Current @ $T_A = 25^\circ\text{C}$	I_{RM}	0.1	mA
at Rated DC Blocking Voltage (Note 4) @ $T_A = 100^\circ\text{C}$		15	
Maximum Reverse Recovery Time (Note 5)	t_{rr}	30	ns
Typical Total Capacitance (Note 6)	C_T	250	pF

- Notes:
- The heat generated must be less than the thermal conductivity from Junction-to-Ambient: $dP_D/dT_J < 1/R_{\theta JA}$
 - 300 μs pulse width, 2% duty cycle.
 - Reverse recovery test conditions: $I_F = 0.5\text{A}$, $I_R = 1.0\text{A}$, $I_{rr} = 0.25\text{A}$ (see figure 1).
 - Measured at 1.0 MHz and applied reverse voltage of 4.0V DC.

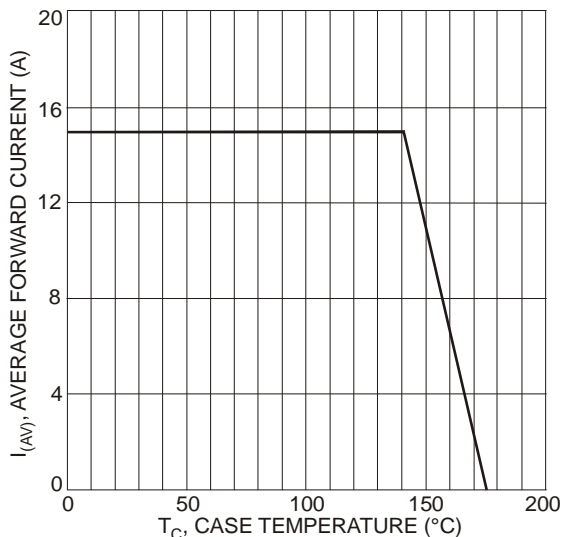


Fig. 1 Forward Current Derating Curve

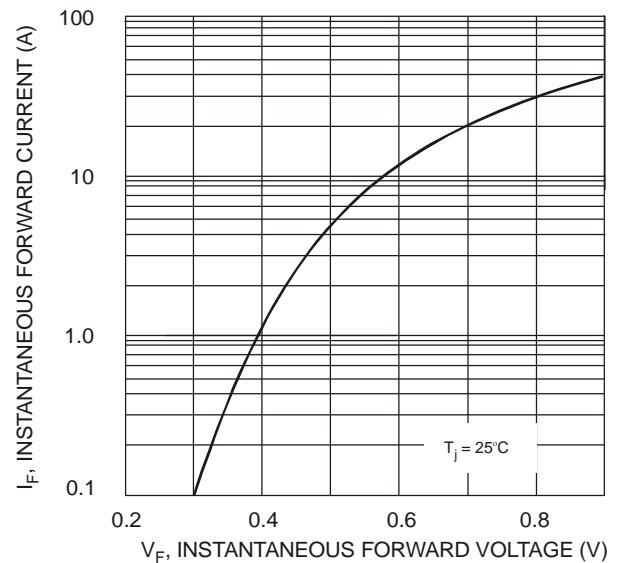


Fig. 2 Typical Forward Characteristics, per Element

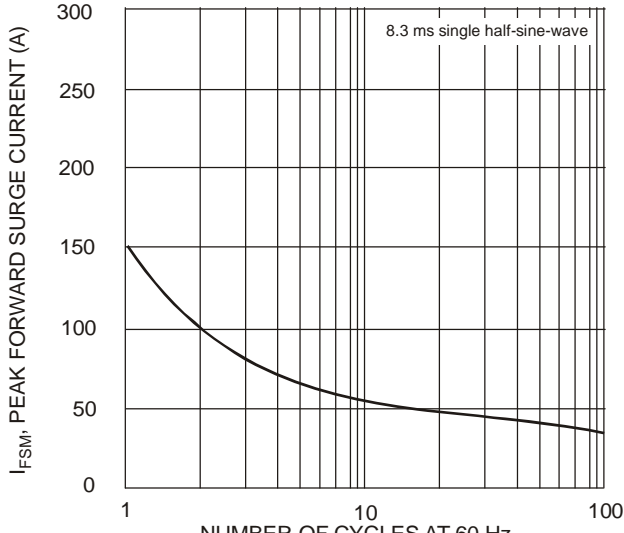


Fig. 3 Max Non-Repetitive Surge Current

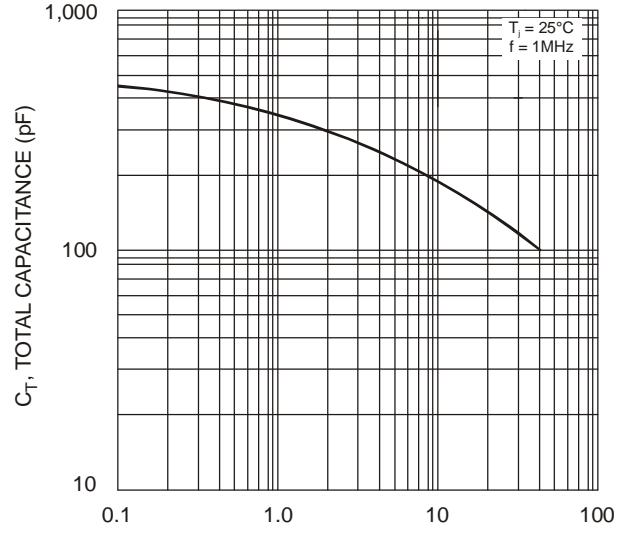


Fig. 4 Typical Total Capacitance

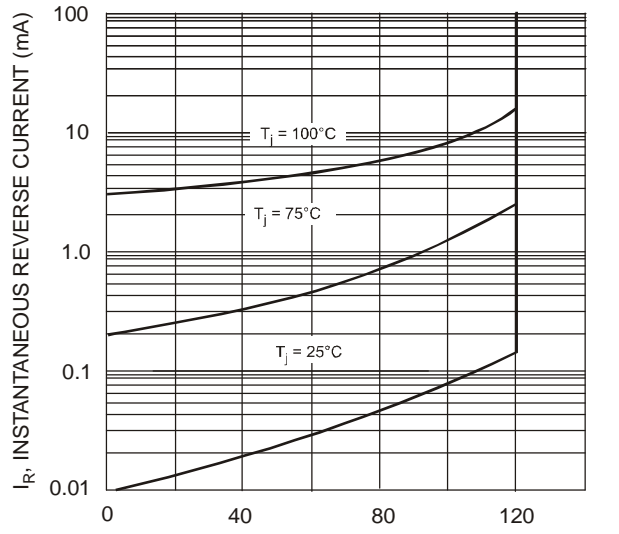
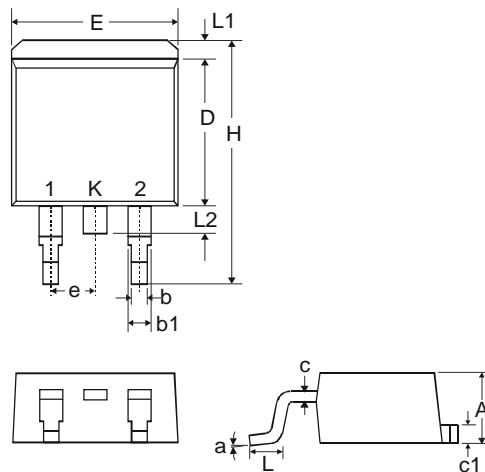


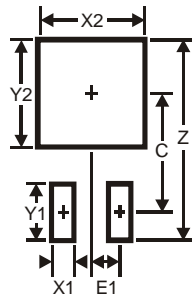
Fig. 5 Typical Reverse Characteristics, per element

Package Outline Dimensions



D ² PAK		
Dim	Min	Max
A	4.07	4.82
b	0.51	0.99
b1	1.15	1.77
c	0.356	0.58
c1	1.143	1.65
D	8.39	9.65
E	9.66	10.66
e	2.54 Typ	
H	14.61	15.87
L	1.78	2.79
L1	—	1.67
L2	—	1.77
a	0°	8°
All Dimensions in mm		

Suggested Pad Layout



Dimensions	Value (in mm)
Z	16.9
X1	1.1
X2	10.8
Y1	3.5
Y2	11.4
C	9.5
E1	2.5

IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

A. Life support devices or systems are devices or systems which:

1. are intended to implant into the body, or
2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

Copyright © 2011, Diodes Incorporated

www.diodes.com