

Features and Benefits

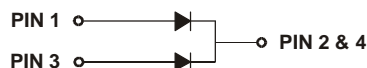
- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- High Surge Capability
- High Current Capability and Low Forward Voltage Drop
- Surge Overload Rating to 150A Peak
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Applications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



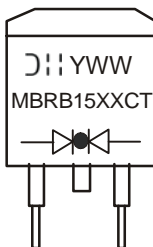
Polarity

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
⌐ = 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	$^\circ\text{C/W}$
Operating Temperature Range (Note 3)	$V_R \leq 80\% V_{RRM}$	-65 to +150	$^\circ\text{C}$
	$V_R \leq 50\% V_{RRM}$	≤ 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.

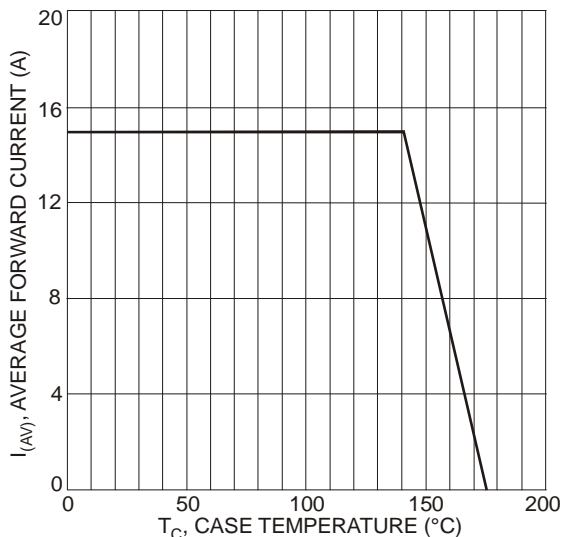


Fig. 1 Forward Current Derating Curve

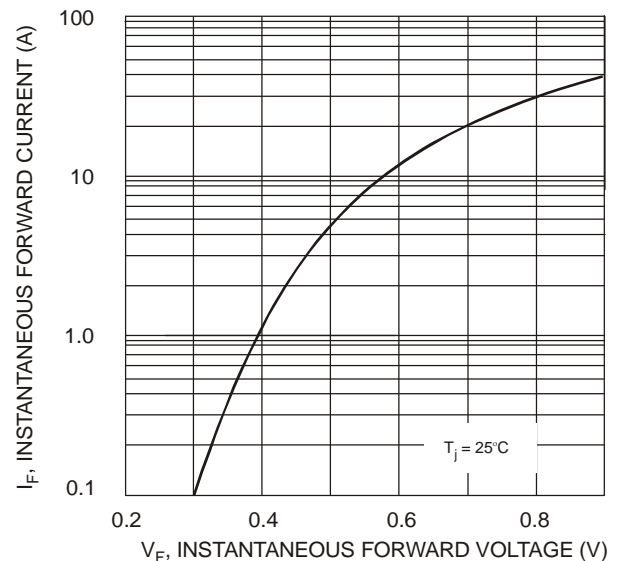


Fig. 2 Typical Forward Characteristics, per Element

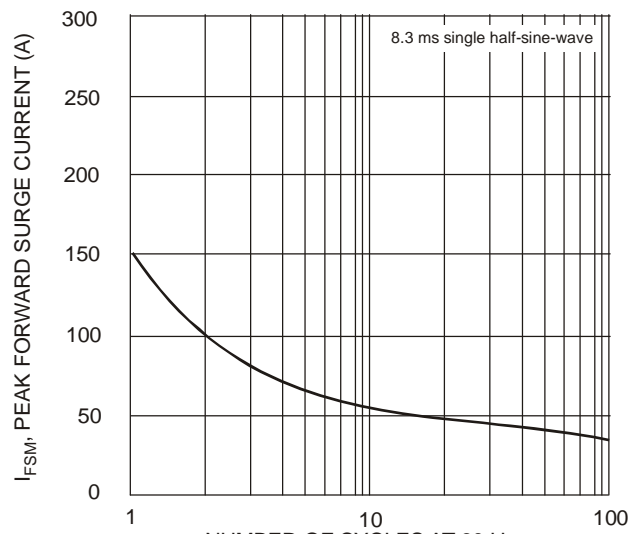


Fig. 3 Max Non-Repetitive Surge Current

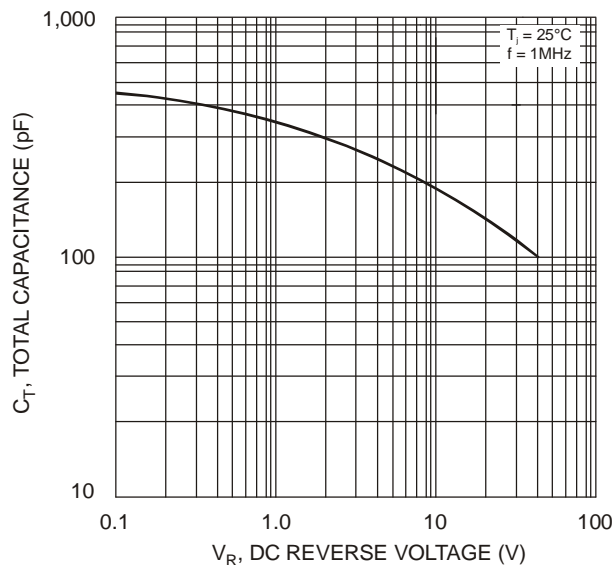


Fig. 4 Typical Total Capacitance

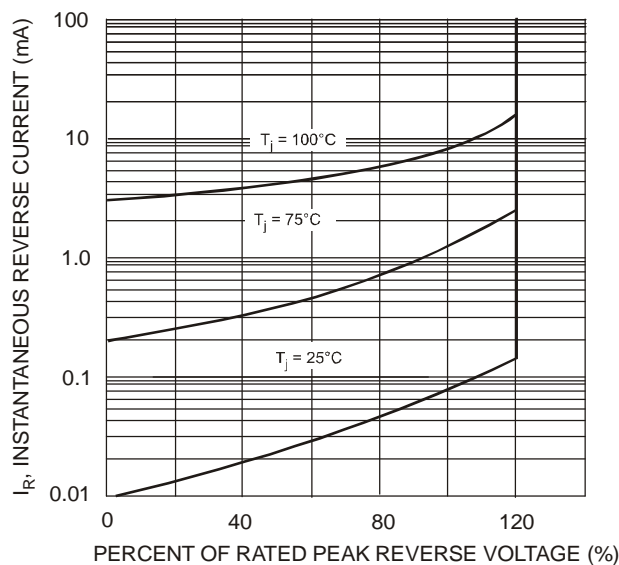
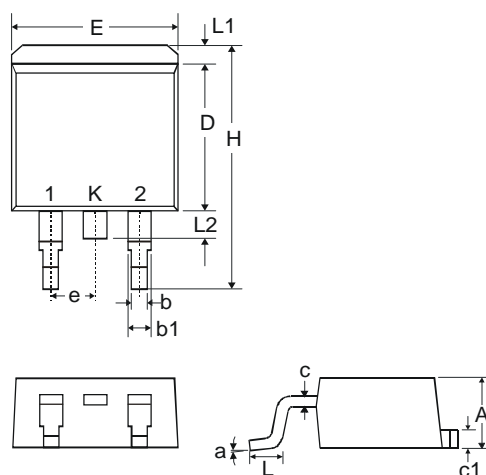


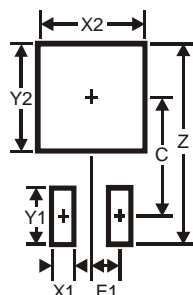
Fig. 5 Typical Reverse Characteristics, per element

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

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