15A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

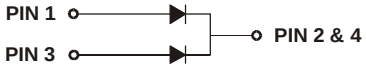
Features and Benefits

- 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: D^2PAK
- 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



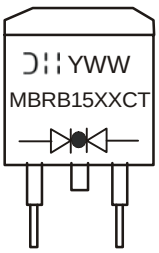
Polarity

Ordering Information (Note 2)

Device	Packaging	Shipping
MBRB1530CT-T	D^2PAK	800/Tape & Reel, 13-inch
MBRB1535CT-T	D^2PAK	800/Tape & Reel, 13-inch
MBRB1540CT-T	D^2PAK	800/Tape & Reel, 13-inch
MBRB1545CT-T	D^2PAK	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°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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	30	35	40	45	V
RMS Reverse Voltage	$V_{R(RMS)}$	21	24.5	28	31.5	V
Average Rectified Output Current @ T_C = 105°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	°C/W
Operating and Storage Temperature Range (Note 3)	T_J, T_{STG}	-65 to +175	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

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

Notes:
3. The heat generated must be less than the thermal conductivity from Junction-to-Ambient: $dP_D/dT_J < 1/R_{\theta JA}$
4. 300µs pulse width, 2% duty cycle.
5. Reverse recovery test conditions: IF = 0.5A, IR = 1.0A, Irr = 0.25A (see figure 1).
6. Measured at 1.0 MHz and applied reverse voltage of 4.0V DC.

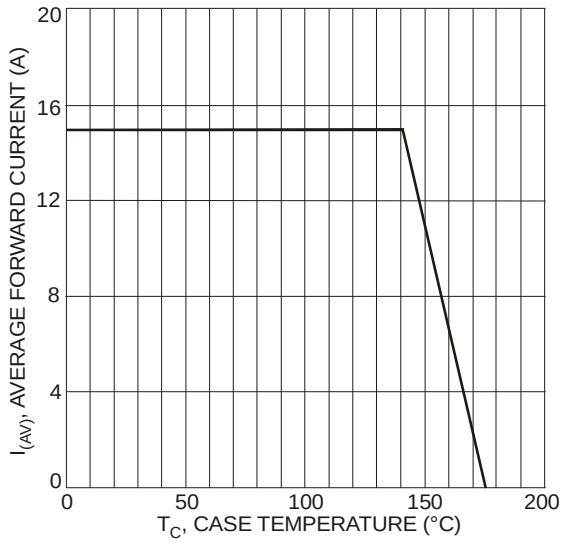


Fig. 1 Forward Current Derating Curve

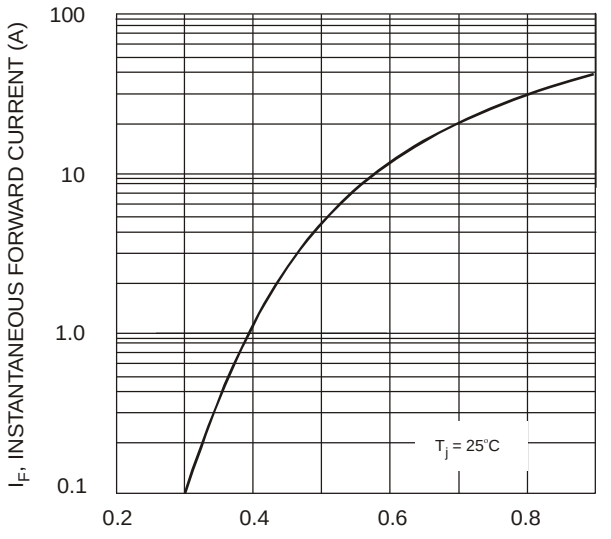


Fig. 2 Typical Forward Characteristics, per Element

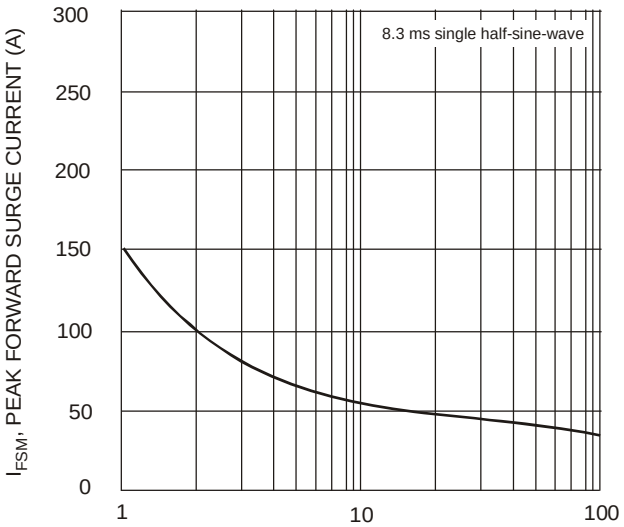


Fig. 3 Max Non-Repetitive Surge Current

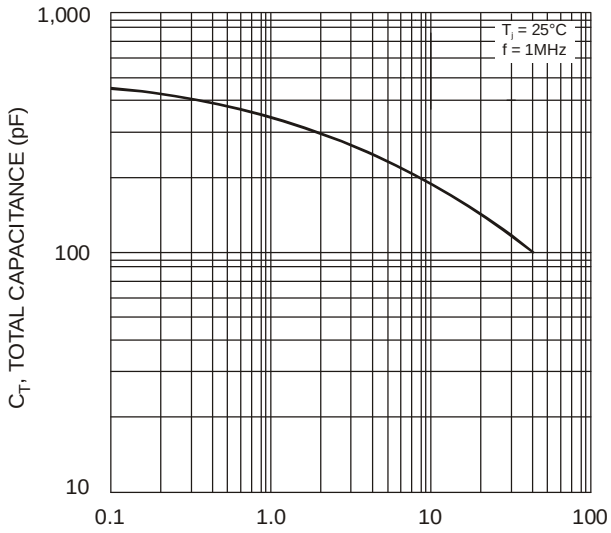


Fig. 4 Typical Total Capacitance

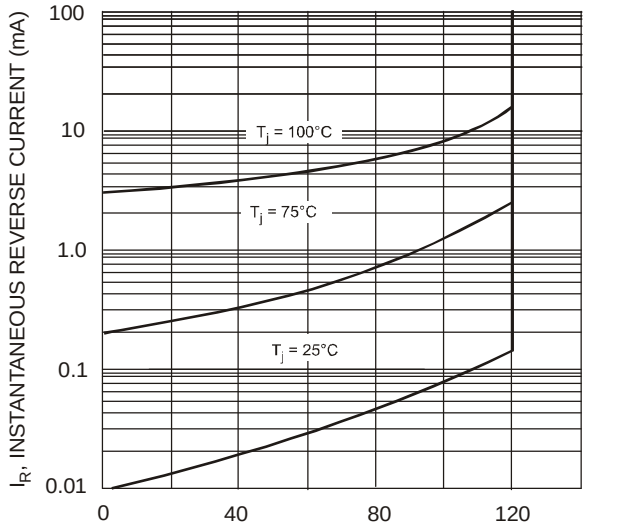
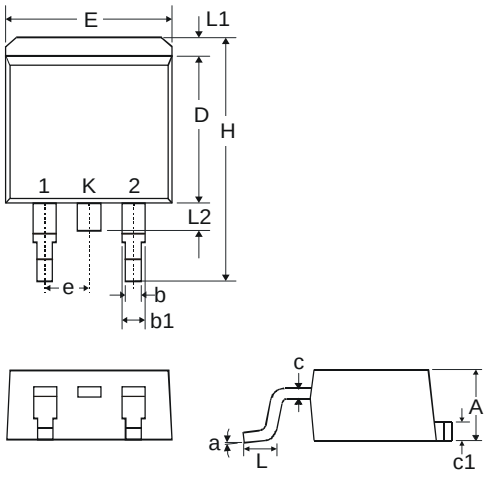


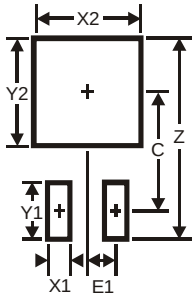
Fig. 5 Typical Reverse Characteristics, per element

Package Outline Dimensions



D²PAK		
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