



# MBRF2035CT THRU MBRF20100CT

## Isolation 20.0 AMPS. Schottky Barrier Rectifiers



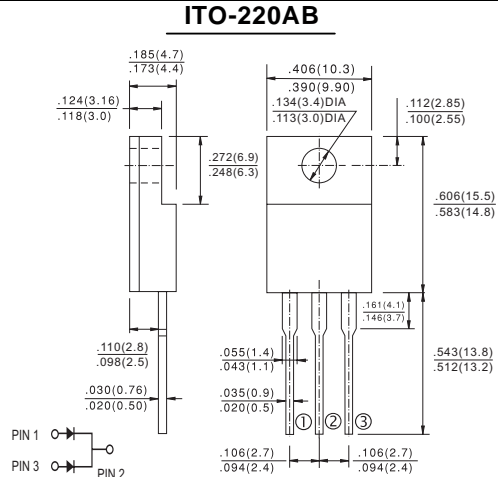
Voltage Range  
35 to 100 Volts  
Current  
20.0 Amperes

### Features

- ✦ Plastic material used carries Underwriters Laboratory Classifications 94V-0
- ✦ Metal silicon junction, majority carrier conduction
- ✦ Low power loss, high efficiency
- ✦ High current capability, low forward voltage drop
- ✦ High surge capability
- ✦ For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- ✦ Guardring for overvoltage protection
- ✦ High temperature soldering guaranteed:  
260°C/10 seconds, 0.25"(6.35mm) from case

### Mechanical Data

- ✦ Cases: ITO-220AB molded plastic
- ✦ Terminals: Leads solderable per MIL-STD-750, Method 2026
- ✦ Polarity: As marked
- ✦ Mounting position: Any
- ✦ Mounting torque: 5 in. - lbs. max
- ✦ Weight: 0.08 ounce, 2.24 grams



Dimensions in inches and (millimeters)

### Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60 Hz, resistive or inductive load.

For capacitive load, derate current by 20%

Type Number	Symbol	MBRF 2035CT	MBRF 2045CT	MBRF 2050CT	MBRF 2060CT	MBRF 20100CT	Units
Maximum Recurrent Peak Reverse Voltage	$V_{RRM}$	35	45	50	60	100	V
Maximum RMS Voltage	$V_{RMS}$	24	31	35	42	70	V
Maximum DC Blocking Voltage	$V_{DC}$	35	45	50	60	100	V
Maximum Average Forward Rectified Current at $T_C=135^\circ\text{C}$ Total device Per Leg	$I_{(AV)}$	20 10					A
Peak Repetitive Forward Current Per leg (Rated $V_R$ , Square Wave, 20KHz) at $T_C=135^\circ\text{C}$	$I_{FRM}$	20.0					A
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	$I_{FSM}$	150					A
Peak Repetitive Reverse Surge Current (Note 1)	$I_{RRM}$	1.0		0.5			A
Maximum Instantaneous Forward Voltage at (Note 2) $I_F=10\text{A}, T_C=25^\circ\text{C}$ $I_F=10\text{A}, T_C=125^\circ\text{C}$ $I_F=20\text{A}, T_C=25^\circ\text{C}$ $I_F=20\text{A}, T_C=125^\circ\text{C}$	$V_F$	- 0.57 0.84 0.72	0.80 0.70 0.95 0.85		0.85 0.75 0.95 0.85		V
Maximum Instantaneous Reverse Current @ $T_C=25^\circ\text{C}$ at Rated DC Blocking Voltage @ $T_C=125^\circ\text{C}$	$I_R$	0.1 15.0		0.15 150.0			mA mA
Voltage Rate of Change, (Rated $V_R$ )	$dV/dt$	10,000					V/ $\mu\text{S}$
Typical Thermal Resistance Per Leg (Note 3)	$R_{\theta JC}$	1.5			3.5		$^\circ\text{C}/\text{W}$
Typical Junction Capacitance	$C_j$	400		310			pF
RMS Isolation Voltage (MBRF Type Only) from Terminals to Heatsink with $t=1.0$ Second, $RH \leq 30\%$	$V_{ISO}$	4500 (Note 4) 3500 (Note 5) 1500 (Note 6)					V
Operating Junction Temperature Range	$T_J$	-65 to +150					$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-65 to +175					$^\circ\text{C}$

- Notes: 1. 2.0us Pulse Width,  $f=1.0$  KHz  
 2. Pulse Test: 300us Pulse Width, 1% Duty Cycle  
 3. Thermal Resistance from Junction to Case Per Leg, with Heatsink Size (4"x6"x0.25") Al-Plate  
 4. Clip mounting (on case), where lead does not overlap heatsink with 0.110" offset.  
 5. Clip Mounting (on case), where leads do overlap heatsink.  
 6. Screw Mounting with 4-40 screw, where washer diameter is  $\leq 4.9$  mm (0.19")

## RATINGS AND CHARACTERISTIC CURVES (MBRF2035CT THRU MBRF20100CT)

FIG.1- FORWARD CURRENT DERATING CURVE

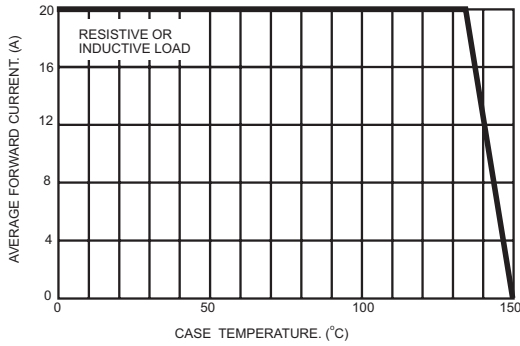


FIG.2- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT PER LEG

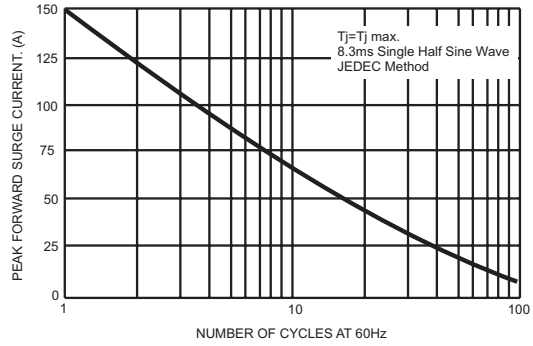


FIG.3- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER LEG

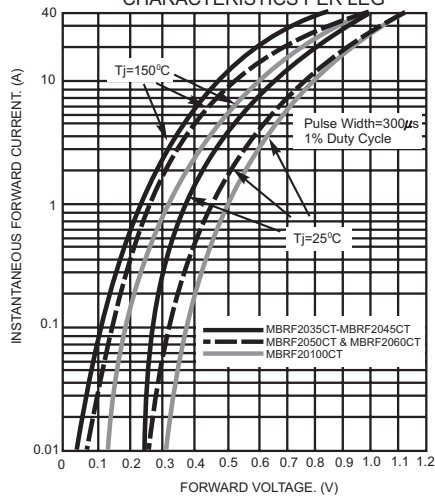


FIG.4- TYPICAL REVERSE CHARACTERISTICS PER LEG

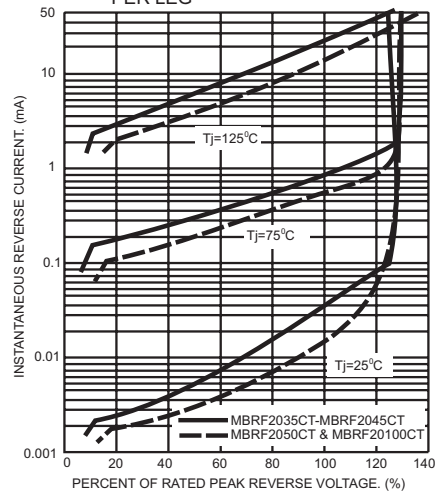


FIG.5- TYPICAL JUNCTION CAPACITANCE PER LEG

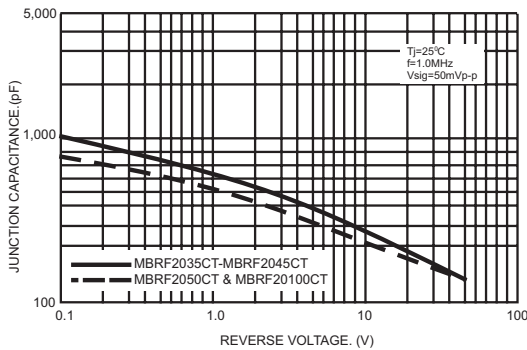
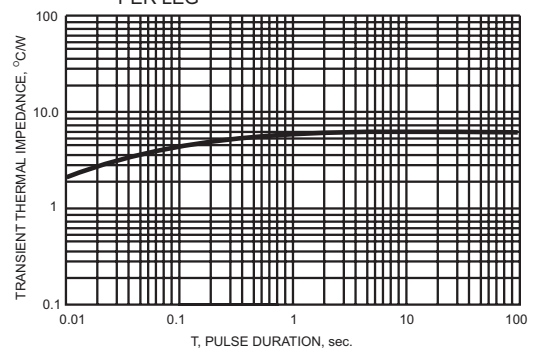


FIG.6- TYPICAL TRANSIENT THERMAL IMPEDANCE PER LEG



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