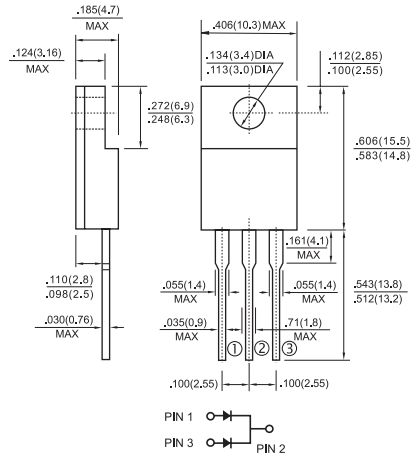
TAIWAN SEMICONDUCTOR

RoHS COMPLIANCE

MBRF2035CT - MBRF20150CT

Isolated 20.0 AMPS. Schottky Barrier Rectifiers

ITO-220AB



Dimensions in inches and (millimeters)

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: Pure tin plated, lead free. 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

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 2035 CT	MBRF 2045 CT	MBRF 2050 CT	MBRF 2060 CT	MBRF 2090 CT	MBRF 20100 CT	MBRF 20150 CT	Units
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	35	45	50	60	90	100	150	V
Maximum RMS Voltage	V_{RMS}	24	31	35	42	63	70	105	V
Maximum DC Blocking Voltage	V_{DC}	35	45	50	60	90	100	150	V
Maximum Average Forward Rectified Current at T_C=135°C Total device Per Leg	$I_{(AV)}$	20 10							A
Peak Repetitive Forward Current Per leg (Rated V_R, Square Wave, 20KHz) at Tc=135°C	I_{FRM}	20							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=10A, Tc=25°C I_F=10A, Tc=125°C I_F=20A, Tc=25°C I_F=20A, Tc=125°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		0.95 0.85 1.05 0.95	V
Maximum Instantaneous Reverse Current @ Tc=25 °C at Rated DC Blocking Voltage @ Tc=125 °C	I_R	0.1 15		0.1 10		5.0			mA
Voltage Rate of Change, (Rated V_R)	dV/dt	10,000							V/uS
Typical Junction Capacitance	Cj	400		310					**pF**
RMS Isolation Voltage (MBRF Type Only) from Terminals to Heatsink with t=1.0 Second, RH ≦30%	V_{ISO}	4500 (Note 4) 3500 (Note 5) 1500 (Note 6)							**V**
Typical Thermal Resistance Per Leg (Note 3)	$R_{\theta JC}$	1.5				3.5			°C/W
Operating Junction Temperature Range	T_J	-65 to +150							°C
Storage Temperature Range	TSTG	-65 to +175							°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 ≦4.9 mm (0.19")

RATINGS AND CHARACTERISTIC CURVES (MBRF2035CT THRU MBRF20150CT)

FIG.1- FORWARD CURRENT DERATING CURVE

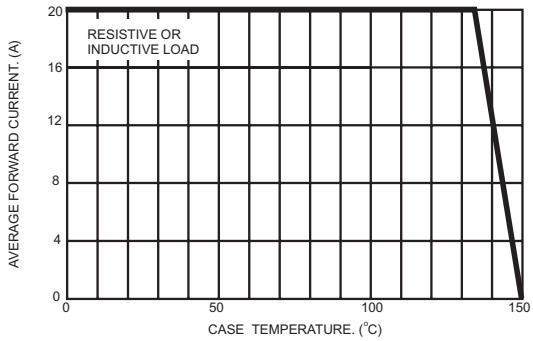


FIG.2- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT PER LEG

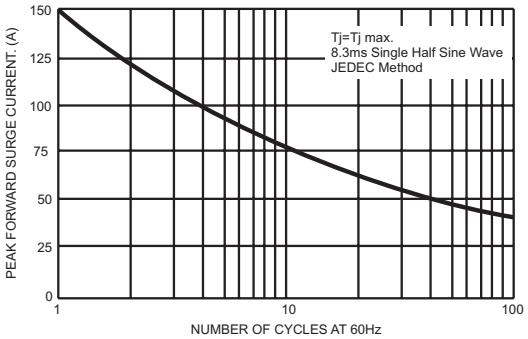


FIG.3- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER LEG

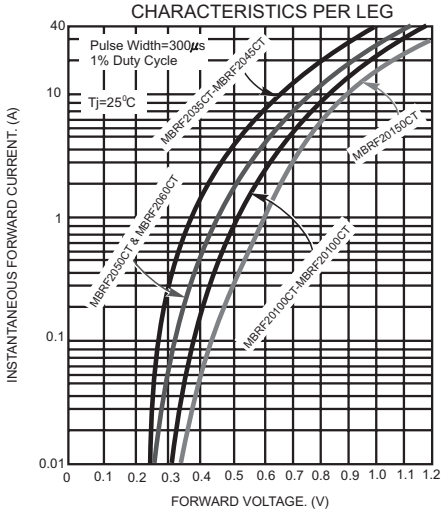


FIG.4- TYPICAL REVERSE CHARACTERISTICS PER LEG

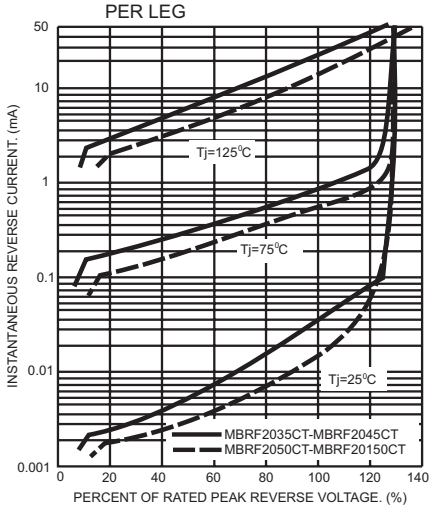


FIG.5- TYPICAL JUNCTION CAPACITANCE PER LEG

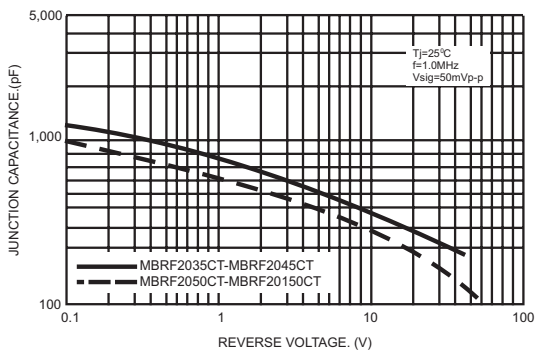


FIG.6- TYPICAL TRANSIENT THERMAL IMPEDANCE PER LEG