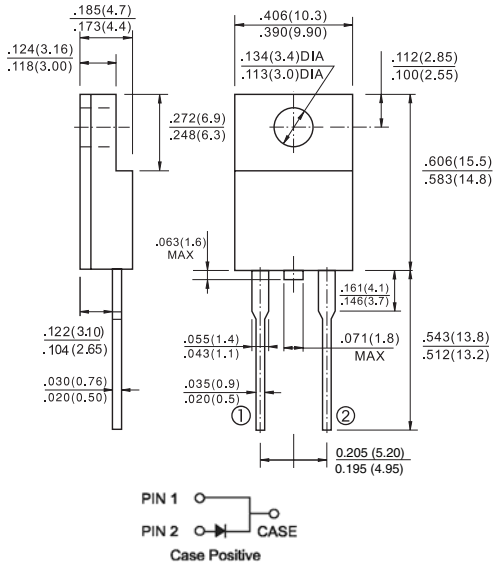
TAIWAN SEMICONDUCTOR

MBRF5100 - MBRF5200

Isolation 5.0 AMPS. Schottky Barrier Rectifiers

RoHS COMPLIANCE

ITO-220AC



Dimensions in inches and (millimeters)

Features

- ✧ Plastic material used carries Underwriters Laboratory Classifications 94V-0
- ✧ Metal silicon rectifier, 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: JEDEC ITO-220AC molded plastic body
- ✧ Terminals: Lead 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°Cambient 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 5100	MBRF 5150	MBRF 5200	Units
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	100	150	200	V
Maximum RMS Voltage	V_{RMS}	70	105	140	V
Maximum DC Blocking Voltage	V_{DC}	100	150	200	V
Maximum Average Forward Rectified Current	$I_{(AV)}$	5			A
Peak Repetitive Forward Current (Square Wave, 20KHz) at Tc=105°C	I_{FRM}	10			A
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	I_{FSM}	120			A
Peak Repetitive Reverse Surge Current (Note 1)	I_{RRM}	0.5			A
Maximum Instantaneous Forward Voltage at (Note 2) I_F=5A,Tc=25°C I_F=5A,Tc=125°C	V_F	0.90 0.80	1.02 0.92		V
Maximum Instantaneous Reverse Current @ Tc =25°C at Rated DC Blocking Voltage (Note 2) @ Tc=125°C	I_R	0.1 5.0			mA mA
Voltage Rate of Change (Rated V_R)	dV/dt	10,000			V/uS
Typical Junction capacitance	Cj	310			pF
Maximum Thermal Resistance, (Note 3)	$R_{\theta JC}$	3.0			°C /W
Operating Junction Temperature Range	T_J	-65 to +150			°C
Storage Temperature Range	T_{STG}	-65 to +175			°C

Notes: 1. 2.0us Pulse Width, f=1.0 KHz
2. Pulse Test: 300us Pulse Width, 1% Duty Cycle
3. Mounted on Heatsink Size of 2 in x 3 in x 0.25 in Al-Plate.

RATINGS AND CHARACTERISTIC CURVES (MBRF5100 THRU MBRF5200)

FIG.1- FORWARD CURRENT DERATING CURVE

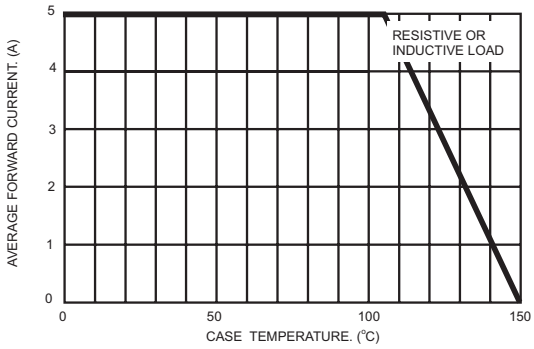


FIG.2- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

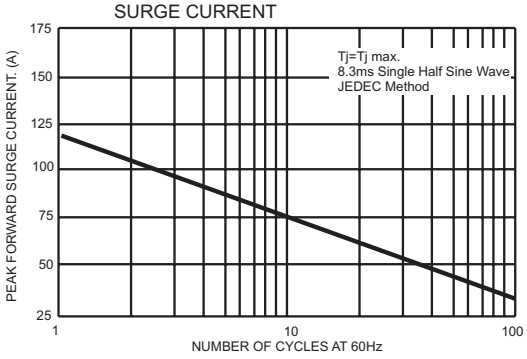


FIG.3- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

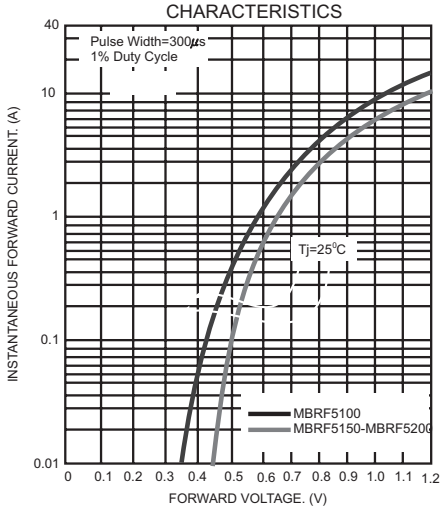


FIG.4- TYPICAL REVERSE CHARACTERISTICS

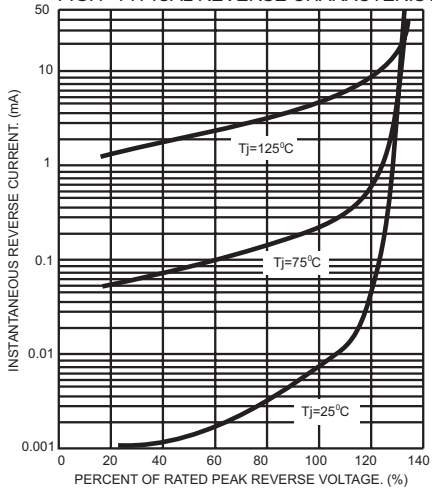


FIG.5- TYPICAL JUNCTION CAPACITANCE

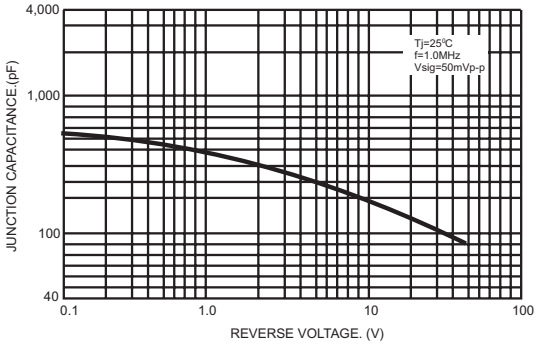


FIG.6- TYPICAL TRANSIENT THERMAL CHARACTERISTICS