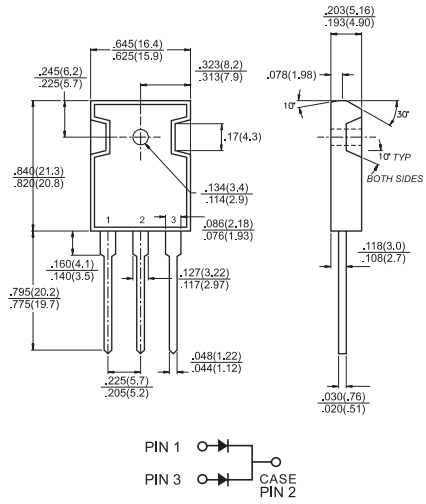
TAIWAN SEMICONDUCTOR

MBR3035PT - MBR30150PT

30.0 AMPS. Schottky Barrier Rectifiers

TO-3P/TO-247AD

RoHS COMPLIANCE



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,0.17"(4.3mm)from case

Mechanical Data

- ✧ Cases: JEDEC TO-3P/TO-247AD molded plastic body
- ✧ Terminals: Pure tin plated, lead free. solderable per MIL-STD-750, Method 2026
- ✧ Polarity: As marked
- ✧ Mounting position: Any
- ✧ Mounting torque: 10 in. - lbs. max
- ✧ Weight: 0.2 ounce, 5.6 grams

Maximum Ratings and Electrical Characteristics

Rating at °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	MBR 3035 PT	MBR 3045 PT	MBR 3050 PT	MBR 3060 PT	MBR 3090 PT	MBR 30100 PT	MBR 30150 PT	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 (SEE F1G. 1)	$I_{(AV)}$	30							A
Peak Repetitive Forward Current (Rated V_R, Square Wave, 20KHz) at Tc=105°C	I_{FRM}	30							A
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	I_{FSM}	200							A
Peak Repetitive Reverse Surge Current (Note 2)	I_{RRM}	2.0		1.0					A
Maximum Instantaneous Forward Voltage at (Note 1) I_F=15A, Tc=25°C I_F=15A, Tc=125°C I_F=30A, Tc=25°C I_F=30A, Tc=125°C	V_F	— 0.60 0.82 0.72		0.75 0.65 — —		0.85 0.75 — —		0.95 0.92 1.02 0.98	V
Maximum Instantaneous Reverse Current @ Tc=25 °C at Rated DC Blocking Voltage Per Leg(Note 2) @ Tc=125 °C	I_R	1.0 20		15		0.5 10			mA mA
Voltage Rate of Change at (Rated V_R)	dV/dt	10,000		1,000					V/uS
Maximum Thermal Resistance Per Leg(Note 3)	$R_{\theta JC}$	1.4							°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. Thermal Resistance from Junction to case Per Leg

RATINGS AND CHARACTERISTIC CURVES (MBR3035PT THRU MBR30150PT)

FIG.1- FORWARD CURRENT DERATING CURVE

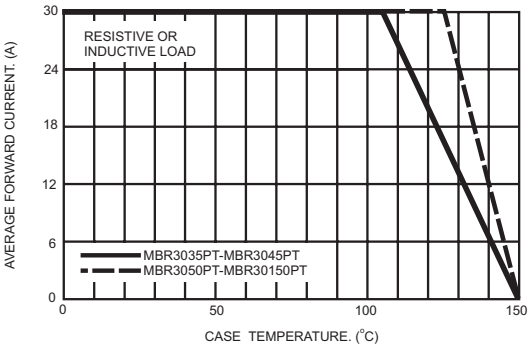


FIG.2- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT PER LEG

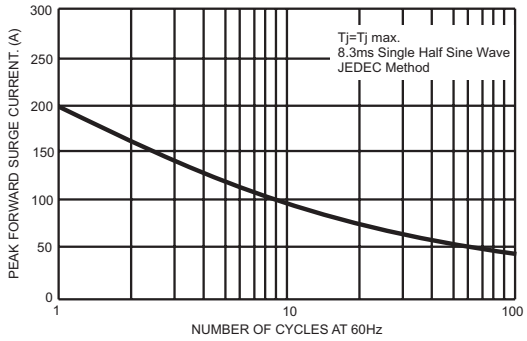


FIG.3- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER LEG

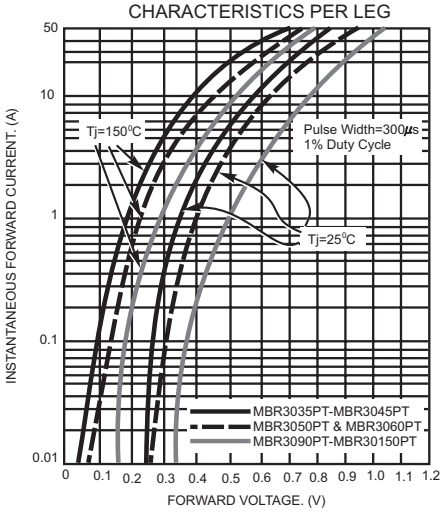


FIG.4- TYPICAL REVERSE CHARACTERISTICS PER LEG

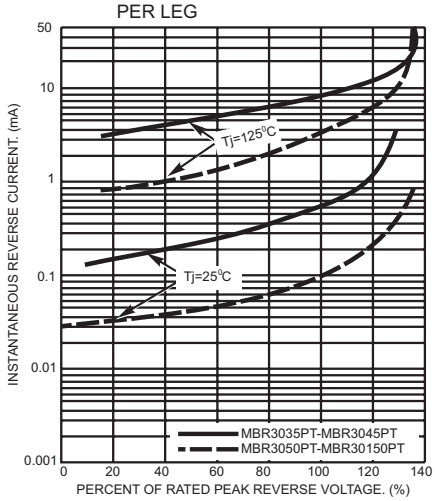


FIG.5- TYPICAL JUNCTION CAPACITANCE PER LEG

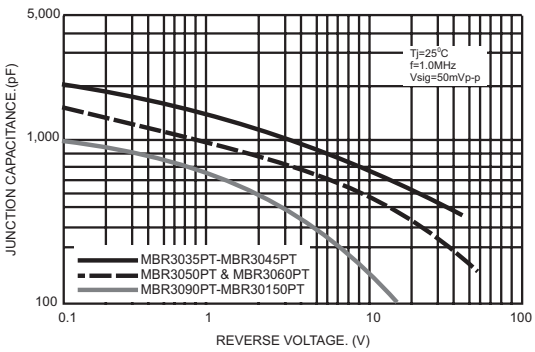


FIG.6- TYPICAL TRANSIENT THERMAL IMPEDANCE PER LEG