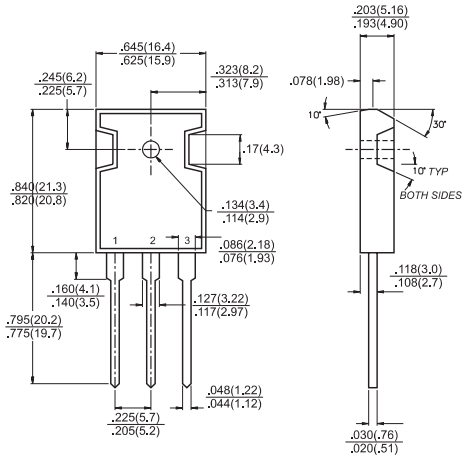
TAIWAN SEMICONDUCTOR

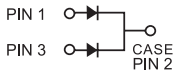
MBR4035PT - MBR40150PT

40.0 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 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,0.17"(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 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	MBR 4035 PT	MBR 4045 PT	MBR 4050 PT	MBR 4060 PT	MBR 4090 PT	MBR 40100 PT	MBR 40150 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 at Tc=125°C	$I_{(AV)}$	40							A
Peak Repetitive Forward Current (Rated V_R, Square Wave, 20KHz) at Tc=120°C	I_{FRM}	40							A
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	I_{FSM}	330							A
Peak Repetitive Reverse Surge Current (Note 1)	I_{RRM}	2.0		1.0					A
Maximum Instantaneous Forward Voltage at (Note 2) I_F=20A, Tc=25°C I_F=20A, Tc=125°C I_F=40A, Tc=25°C I_F=40A, Tc=125°C	V_F	0.75 0.65 0.80 0.75		0.77 0.67 – –		0.84 0.74 – –	0.95 0.92 1.02 0.98		V
Maximum Instantaneous Reverse Current @ Tc=25 °C at Rated DC Blocking Voltage Per Leg	I_R	1.0				0.5			mA
@ Tc=125 °C (Note 1)		30		20		10			mA
Voltage Rate of Change at (Rated V_R)	dV/dt	10,000		1,000					V/uS
Typical Thermal Resistance Per Leg (Note 3)	$R_{\theta JC}$	1.2							°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

Version: A06

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RATINGS AND CHARACTERISTIC CURVES (MBR4035PT THRU MBR40150PT)

FIG.1- FORWARD CURRENT DERATING CURVE

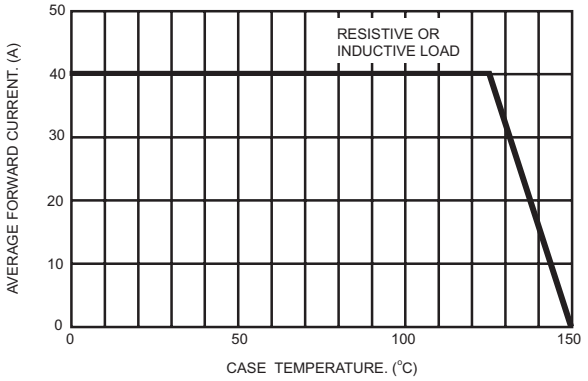


FIG.2- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT PER LEG

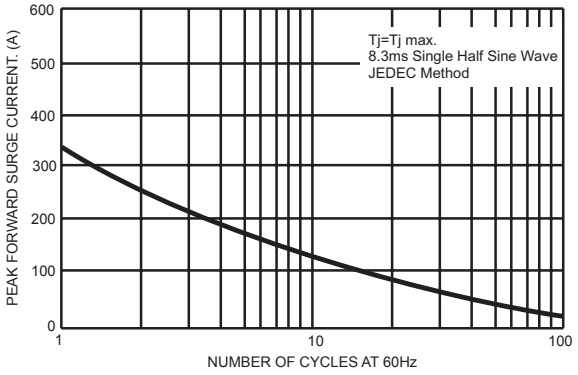


FIG.3- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER LEG

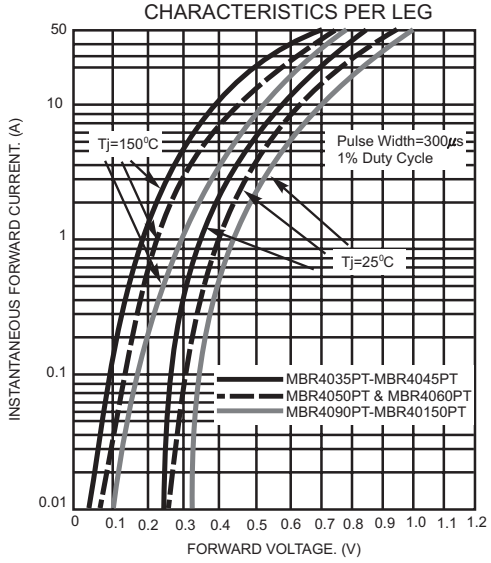


FIG.4- TYPICAL REVERSE CHARACTERISTICS PER LEG

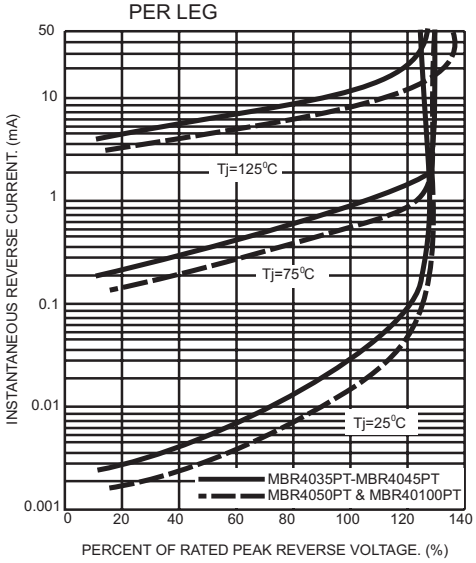


FIG.5- TYPICAL JUNCTION CAPACITANCE PER LEG

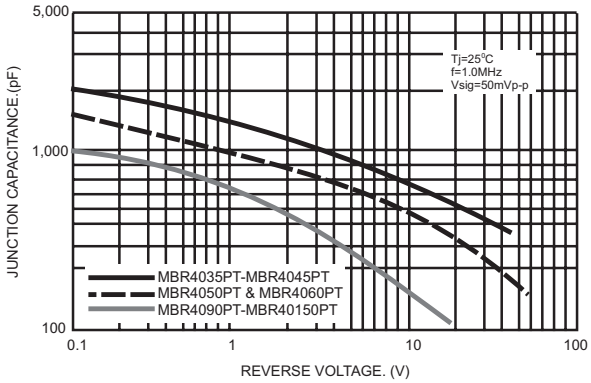
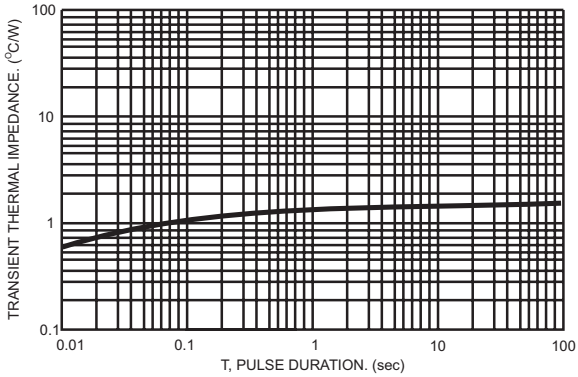


FIG.6- TYPICAL TRANSIENT THERMAL IMPEDANCE PER LEG



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