



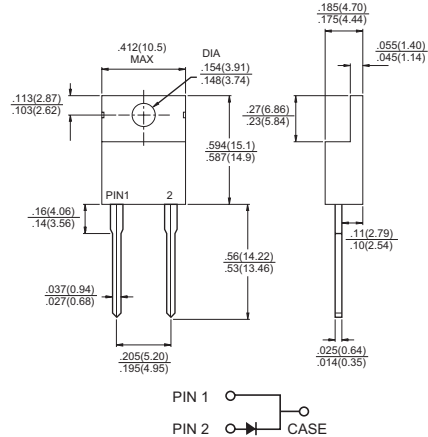
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# MBR735 - MBR7150

## TO-220AC

### 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 TO-220AC molded plastic body
- ✧ 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	MBR 735	MBR 745	MBR 750	MBR 760	MBR 790	MBR 7100	MBR 7150	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 Fig. 1	$I_{(AV)}$	7.5							A
Peak Repetitive Forward Current (Square Wave, 20KHz) at $T_c=105^\circ\text{C}$	$I_{FRM}$	15.0							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) $I_f=7.5\text{A}, T_c=25^\circ\text{C}$ $I_f=7.5\text{A}, T_c=125^\circ\text{C}$ $I_f=15\text{A}, T_c=25^\circ\text{C}$ $I_f=15\text{A}, T_c=125^\circ\text{C}$	$V_F$	— 0.57 0.84 0.72	—	0.75 0.65	—	0.92 0.82	—	0.95 0.92	V
Maximum Instantaneous Reverse Current @ $T_c=25^\circ\text{C}$ at Rated DC Blocking Voltage (Note 1) @ $T_c=125^\circ\text{C}$	$I_R$	0.1 15.0	—	0.1 10	—	0.1 5.0	—	—	mA mA
Voltage Rate of Change (Rated $V_R$ )	$dv/dt$	10,000							V/ $\mu\text{s}$
Typical Junction Capacitance	$C_j$	360		280		200		160	pF
Maximum Thermal Resistance, (Note 3) $R_{\theta JC}$ $R_{\theta JA}$		5.0 15.0							$^\circ\text{C}/\text{W}$
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,  $f=1.0\text{KHz}$
  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-Plated.



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FIG.1- FORWARD CURRENT DERATING CURVE

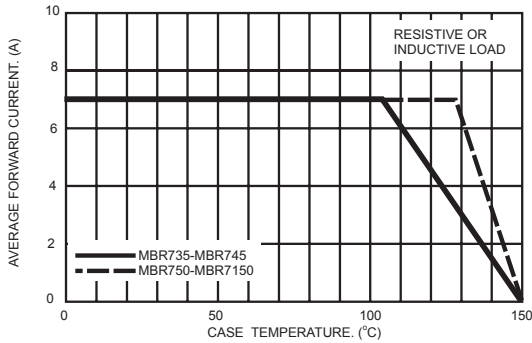


FIG.2- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

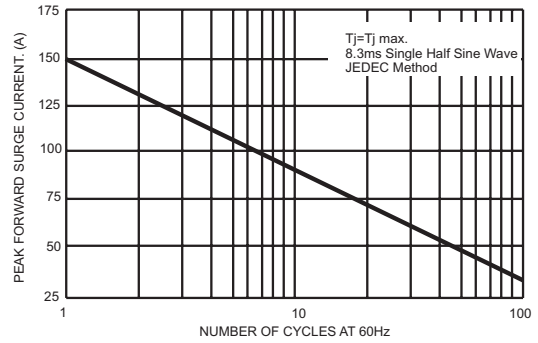


FIG.3- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

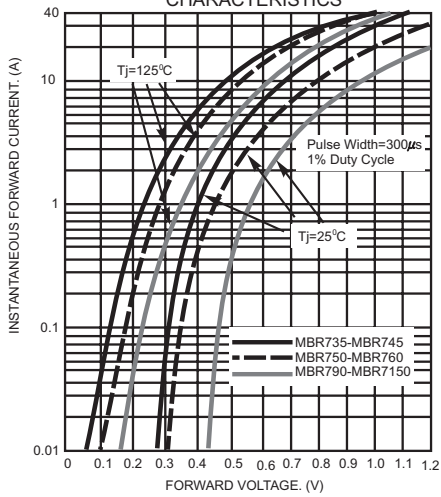


FIG.4- TYPICAL REVERSE CHARACTERISTICS

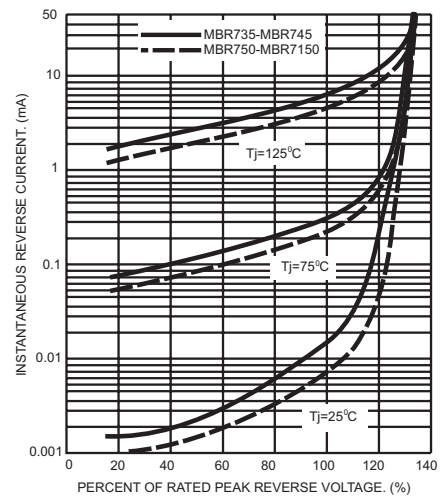


FIG.5- TYPICAL JUNCTION CAPACITANCE

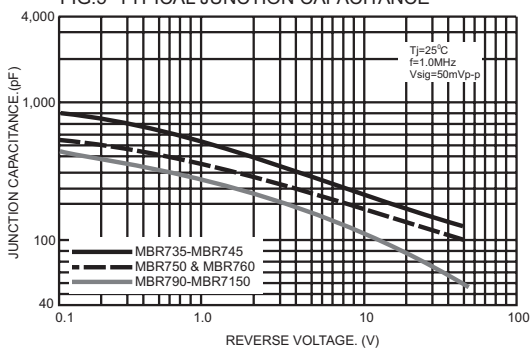


FIG.6- TYPICAL TRANSIENT THERMAL CHARACTERISTICS

