

Features:

- 650V Schottky Diode
- Zero Reverse Recovery Current
- High Frequency Operation
- Positive Temperature Coefficient
- Temperature independent

Switching

Benefits:

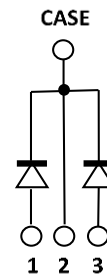
- Unipolar Rectifier
- Minimal switching loss
- Higher Efficiency
- Low cooling requirement

Symbol	Value	Unit
V_{RRM}	650	V
I_F ($T_c = 157^\circ\text{C}$)	20	A
$*Q_C$	36	nC

Applications:

- Switch Mode Power Supply
- Booster diodes in PFC, DC/DC
- AC/DC converters

Outline

TO-247-3
Circuit

Maximum Ratings (*Per Leg)

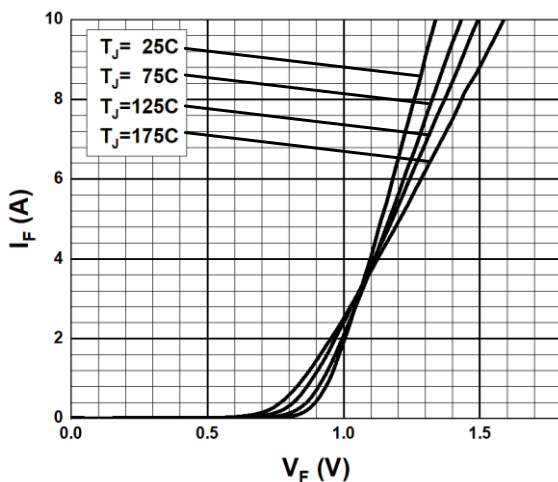
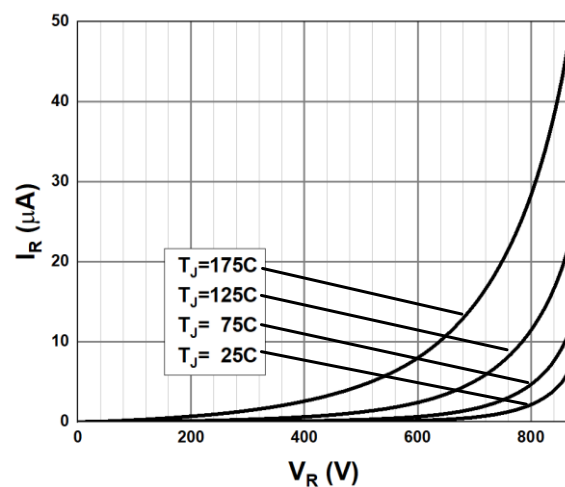
Symbol	Parameter	Value	Unit	Test Conditions
V_R	DC Peak Reverse Voltage	650	V	$T_J = 25^\circ\text{C}$
V_{RRM}	Repetitive Peak Reverse	650	V	$T_J = 25^\circ\text{C}$
V_{RSM}	Surge Peak Reverse Voltage	650	V	$T_J = 25^\circ\text{C}$
I_F	Continuous Forward Current	*36/72 *29/58 *10/20	A	$T_C = 25^\circ\text{C}$ $T_C = 75^\circ\text{C}$ $T_C = 157^\circ\text{C}$
I_{FRM}	Repetitive Peak Forward Surge Current	*89 *80	A	$T_C = 25^\circ\text{C}, T_p = 10\text{ms}, \text{Half Sine Wave}$ $T_c = 125^\circ\text{C}, T_p = 10\text{ms}, \text{Half Sine Wave}$
I_{FSM}	Non-Repetitive Peak Forward Surge Current	*119 *107	A	$T_C = 25^\circ\text{C}, T_p = 10\text{ms}, \text{Half Sine Wave}$ $T_c = 125^\circ\text{C}, T_p = 10\text{ms}, \text{Half Sine Wave}$
P_D	Power Dissipation	*136 / 272 *45.4 / 90.9	W	$T_C = 25^\circ\text{C}$ $T_c = 125^\circ\text{C}$
$T_{J,max}$	Operating Junction Temperature	175	$^\circ\text{C}$	
T_{stg}	Storage Temperature Range	-55 to 175	$^\circ\text{C}$	

Thermal characteristics (*Per leg)

Symbol	Parameter	Min.	Typ.	Max.	Unit
R_{thJC}	Thermal resistance		*1.1/ 0.55		°C/W

Electrical Characteristics (Per leg)

Symbol	Parameter	Value			Unit	Test Conditions
		Min.	Typ.	Max.		
V_{DC}	DC Blocking Voltage	650			V	$I_R = 100\mu A, T_J = 25^\circ C$
V_F	Forward Voltage		1.35 1.6	1.6 1.9	V	$I_F = 10A, T_J = 25^\circ C$ $I_F = 10A, T_J = 175^\circ C$
I_R	Reverse Current		2 15	50 160	μA	$V_R = 650V, T_J = 25^\circ C$ $V_R = 650V, T_J = 175^\circ C$
Q_C	Total Capacitive Charge		36		nC	$I_F = 10A, dI/dt = 300A/\mu s$ $T_J = 25^\circ C, V_R = 400V$
C	Total Capacitance		646 86 82		pF	$V_R = 1V, T_J = 25^\circ C, f = 1 MHz$ $V_R = 200V, T_J = 25^\circ C, f = 1 MHz$ $V_R = 400V, T_J = 25^\circ C, f = 1 MHz$

Typical Performance (Per Leg)

Fig. 1 Forward Characteristics

Fig. 2 Reverse Characteristics

Typical Performance (Per Leg)

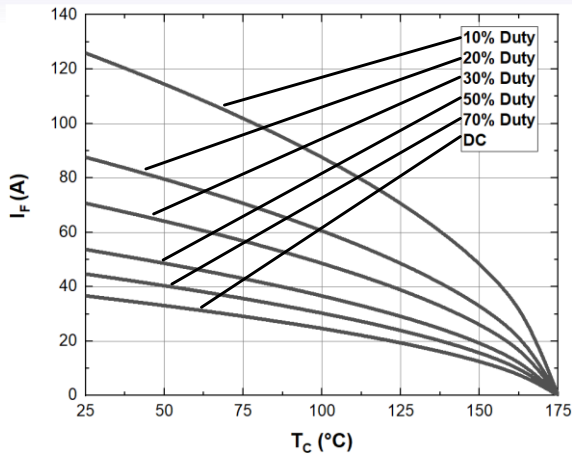


Fig. 3 Current Derating

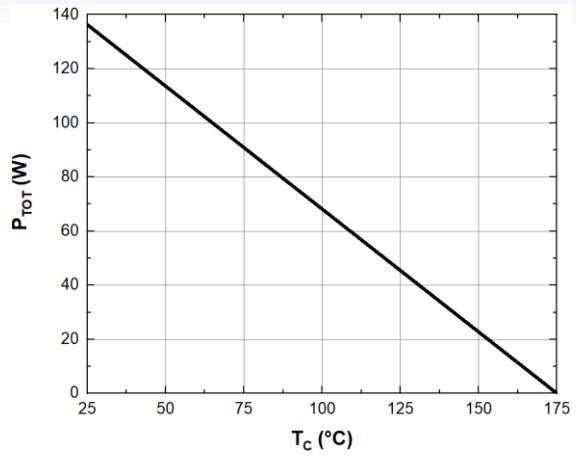


Fig. 4 Power Derating

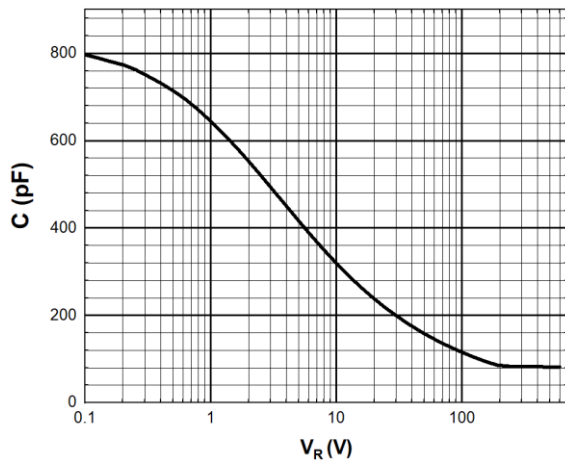


Fig. 5 Capacitance vs. Reverse Voltage

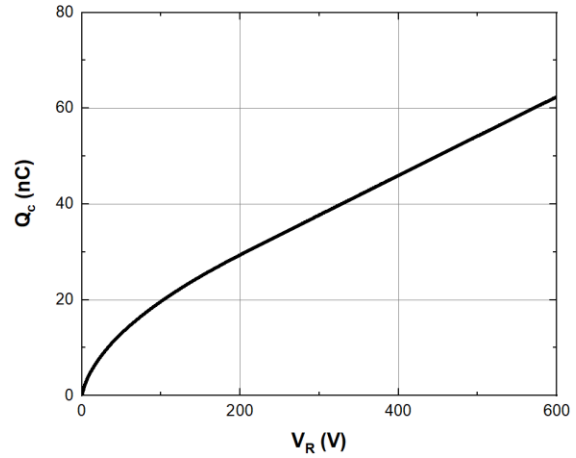


Fig. 6 Recovery Charge vs. Reverse Voltage

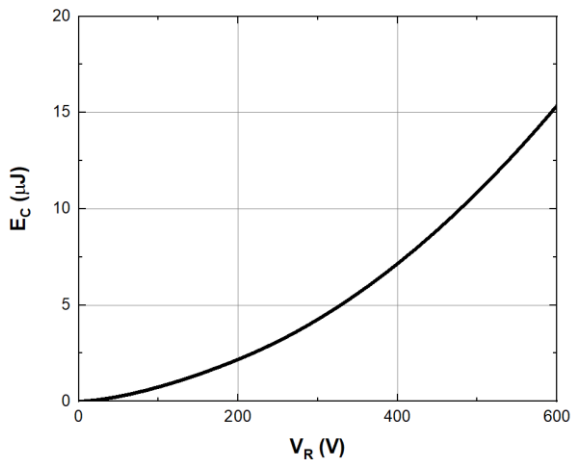
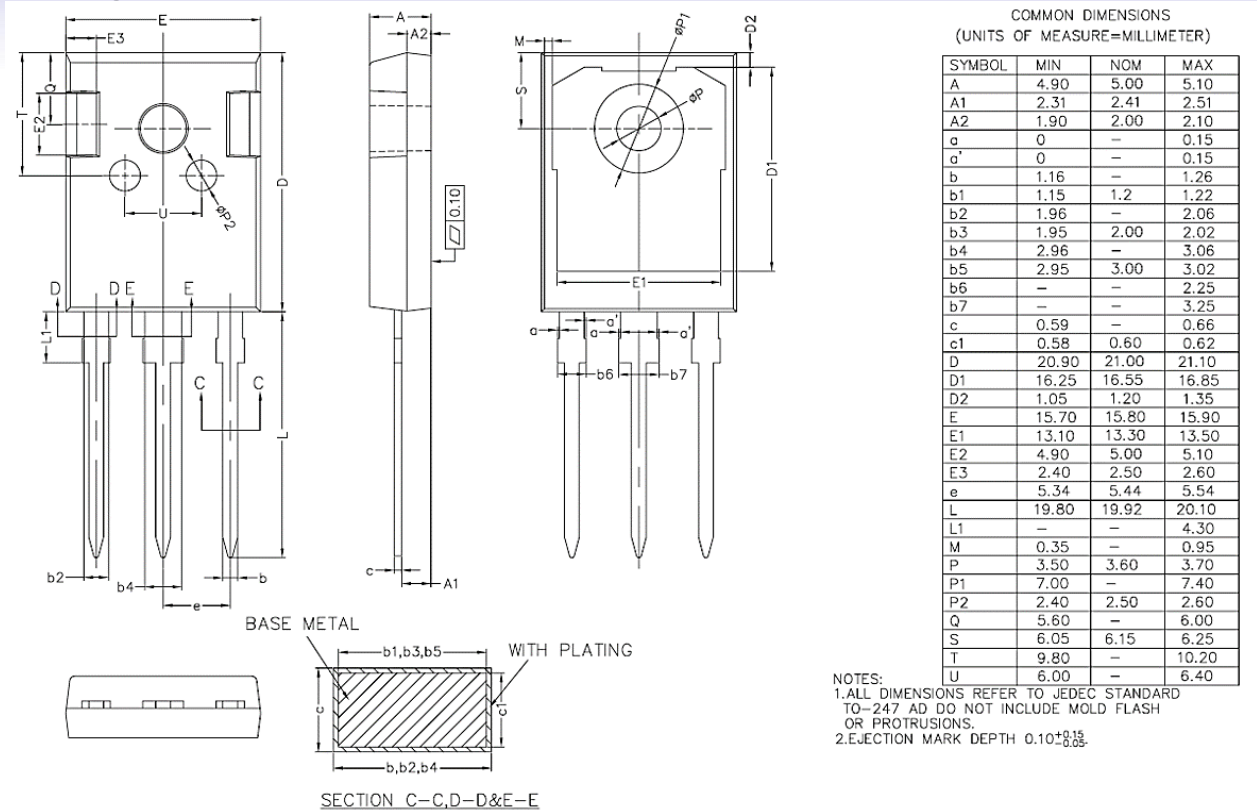


Fig. 7 Capacitance stored Energy

Package TO-247-3 (Unit: mm)



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