

Features:

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

Switching

Benefits:

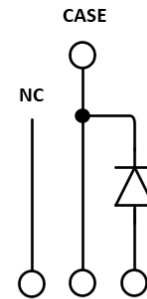
- Unipolar Rectifier
- Minimal switching loss
- Higher Efficiency
- Low cooling requirement

Symbol	Value	Unit
V_{RRM}	650	V
I_F ($T_C = 148^\circ\text{C}$)	20	A
Q_C	65	nC

Applications:

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

Outline

TO-247-3
Circuit

Maximum Ratings

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	58	A	$T_C = 25^\circ\text{C}$
		26.5		$T_C = 135^\circ\text{C}$
		20		$T_C = 148^\circ\text{C}$
I_{FRM}	Repetitive Peak	176	A	$T_C = 25^\circ\text{C}, T_P = 10\text{ms}, \text{Half Sine Wave}$
	Forward Surge Current	160		$T_C = 125^\circ\text{C}, T_P = 10\text{ms}, \text{Half Sine Wave}$
I_{FSM}	Non-Repetitive Peak	236	A	$T_C = 25^\circ\text{C}, T_P = 10\text{ms}, \text{Half Sine Wave}$
	Forward Surge Current	212		$T_C = 125^\circ\text{C}, T_P = 10\text{ms}, \text{Half Sine Wave}$
P_D	Power Dissipation	200	W	$T_C = 25^\circ\text{C}$
		67		$T_C = 125^\circ\text{C}$
$T_{J,max}$	Operating Junction Temperature	175	$^\circ\text{C}$	
T_{stg}	Storage Temperature Range	-55 to 175	$^\circ\text{C}$	

Thermal characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit
R_{thJC}	Thermal Resistance		0.75		$^{\circ}C/W$

Electrical Characteristics

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		1.45 1.75	1.7 2.0	V	$I_F = 20A, T_J = 25^{\circ}C$ $I_F = 20A, T_J = 175^{\circ}C$
I_R	Reverse Current		2 50	50 300	μA	$V_R = 650V, T_J = 25^{\circ}C$ $V_R = 650V, T_J = 175^{\circ}C$
Q_C	Total Capacitive Charge		65		nC	$I_F = 20A, dI/dt = 600A/\mu s$ $T_J = 25^{\circ}C, V_R = 400V$
C	Total Capacitance		796 157 138		pF	$V_R = 1V, T_J = 25^{\circ}C, f = 1\text{ MHz}$ $V_R = 200V, T_J = 25^{\circ}C, f = 1\text{ MHz}$ $V_R = 400V, T_J = 25^{\circ}C, f = 1\text{ MHz}$

Typical Performance

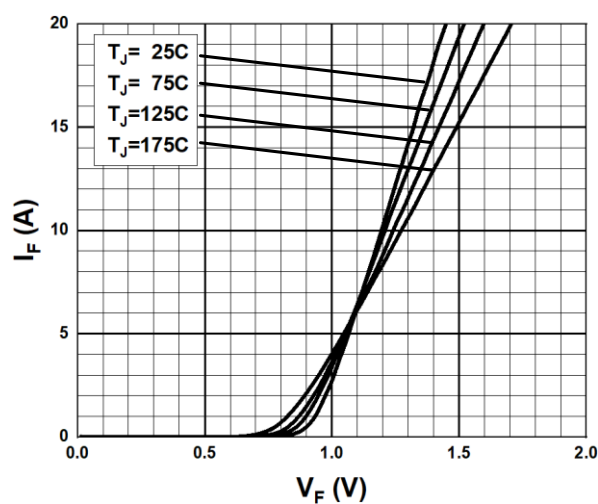


Fig. 1 Forward Characteristics

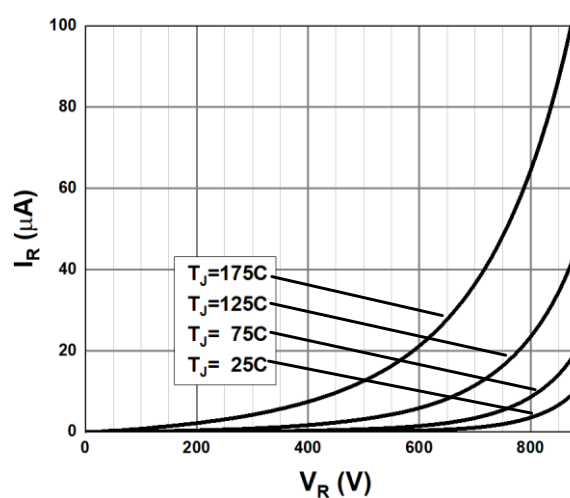


Fig. 2 Reverse Characteristics

Typical Performance

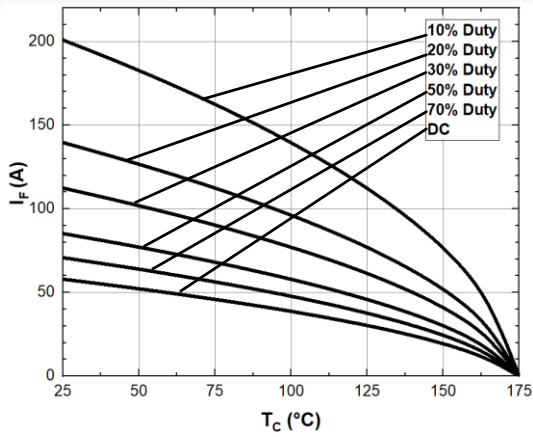


Fig. 3 Current Derating

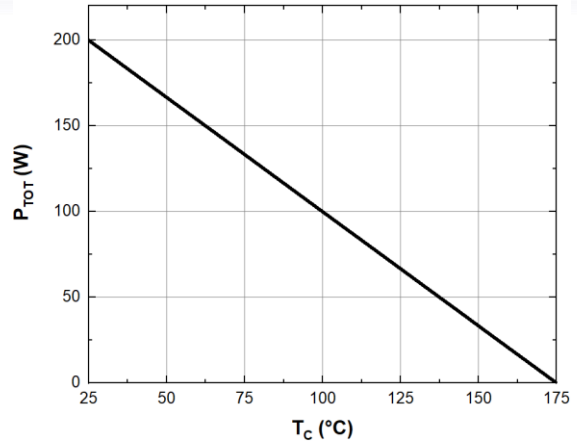


Fig. 4 Power Derating

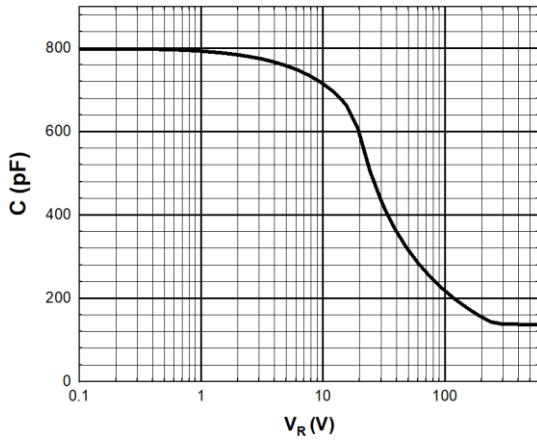


Fig. 5 Capacitance vs. Reverse Voltage

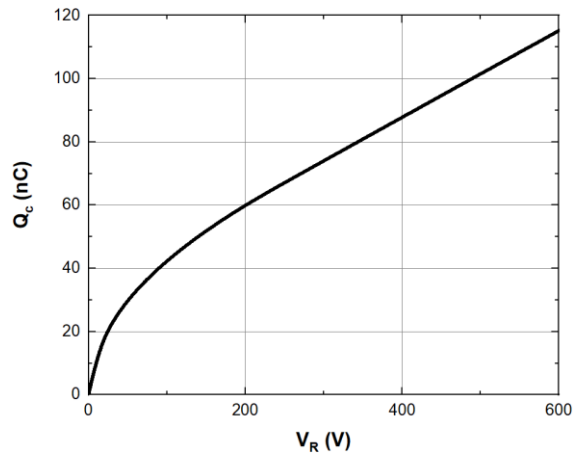


Fig. 6 Recovery Charge vs. Reverse Voltage

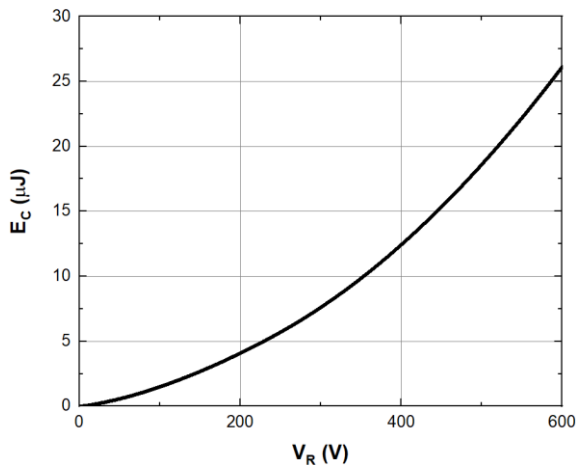


Fig. 7 Capacitance stored Energy

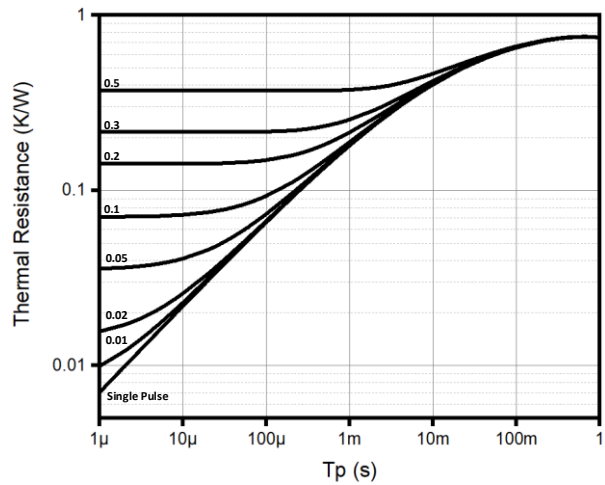
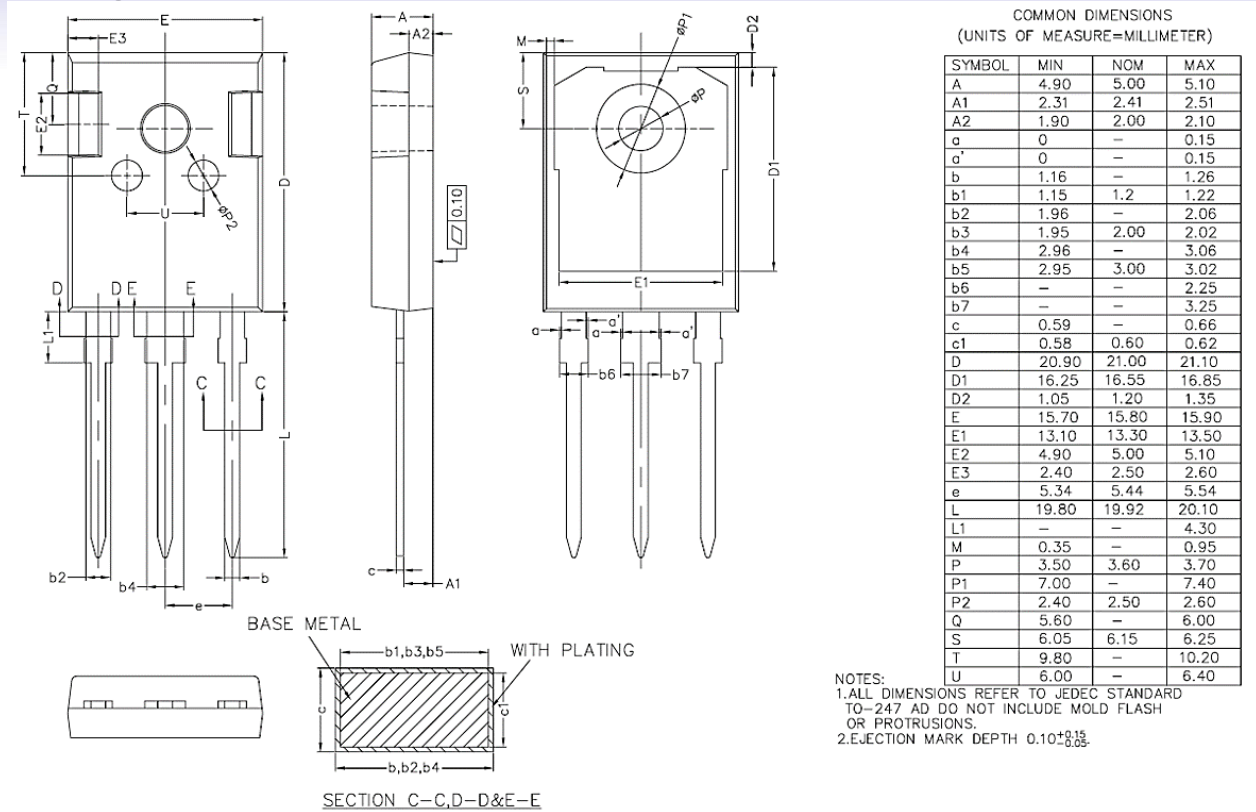


Fig. 8 Thermal Impedance

Package TO-247-3 (Unit: mm)



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