

Features:

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

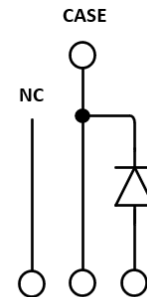
Switching

Benefits:

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

Symbol	Value	Unit
V_{RRM}	650	V
I_F ($T_C = 150^\circ\text{C}$)	15	A
Q_C	38	nC

Outline

TO-247-3
Circuit

Applications:

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

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	46	A	$T_C = 25^\circ\text{C}$
		21		$T_C = 135^\circ\text{C}$
		15		$T_C = 150^\circ\text{C}$
I_{FRM}	Repetitive Peak Forward Surge Current	88	A	$T_C = 25^\circ\text{C}$, $T_p = 10\text{ms}$, Half Sine Wave
		79		$T_C = 125^\circ\text{C}$, $T_p = 10\text{ms}$, Half Sine Wave
I_{FSM}	Non-Repetitive Peak Forward Surge Current	119	A	$T_C = 25^\circ\text{C}$, $T_p = 10\text{ms}$, Half Sine Wave
		107		$T_C = 125^\circ\text{C}$, $T_p = 10\text{ms}$, Half Sine Wave
P_D	Power Dissipation	163	W	$T_C = 25^\circ\text{C}$
		54		$T_C = 125^\circ\text{C}$
$T_{J,max}$	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		0.92		$^{\circ}\text{C/W}$

Electrical Characteristics

Symbol	Parameter	Value			Unit	Test Conditions
		Min.	Typ.	Max.		
V_{DC}	DC Blocking Voltage	650			V	$I_R = 100\mu\text{A}$, $T_J = 25^{\circ}\text{C}$
V_F	Forward Voltage		1.5 1.9	1.8 2.2	V	$I_F = 15\text{A}$, $T_J = 25^{\circ}\text{C}$ $I_F = 15\text{A}$, $T_J = 175^{\circ}\text{C}$
I_R	Reverse Current		5 10	100 250	μA	$V_R = 650\text{V}$, $T_J = 25^{\circ}\text{C}$ $V_R = 650\text{V}$, $T_J = 175^{\circ}\text{C}$
Q_C	Total Capacitive Charge		38		nC	$I_F = 15\text{A}$, $dI/dt = 350\text{A}/\mu\text{s}$ $T_J = 25^{\circ}\text{C}$, $V_R = 400\text{V}$
C	Total Capacitance		677 99 97		pF	$V_R = 1\text{V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{ MHz}$ $V_R = 200\text{V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{ MHz}$ $V_R = 400\text{V}$, $T_J = 25^{\circ}\text{C}$, $f = 1\text{ MHz}$

Typical Performance

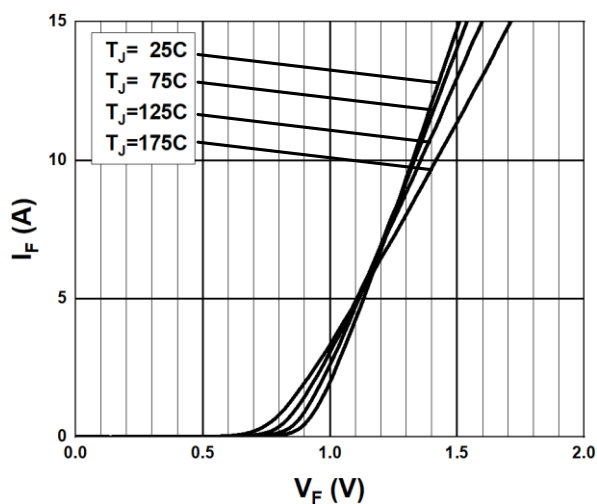


Fig. 1 Forward Characteristics

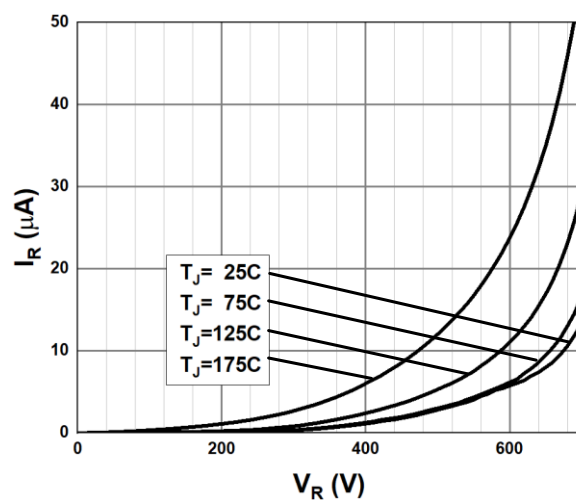


Fig. 2 Reverse Characteristics

Typical Performance

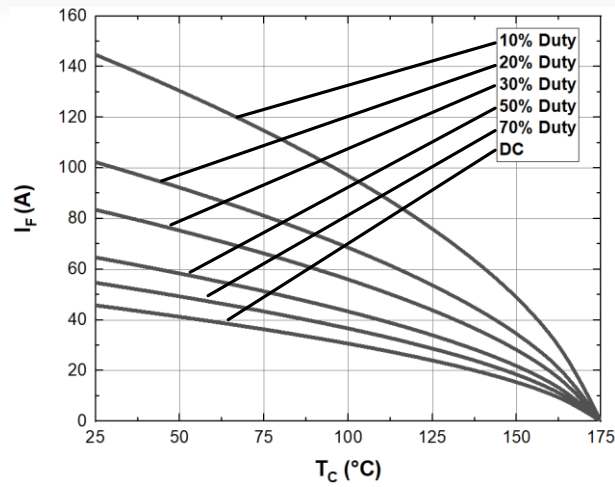


Fig. 3 Current Derating

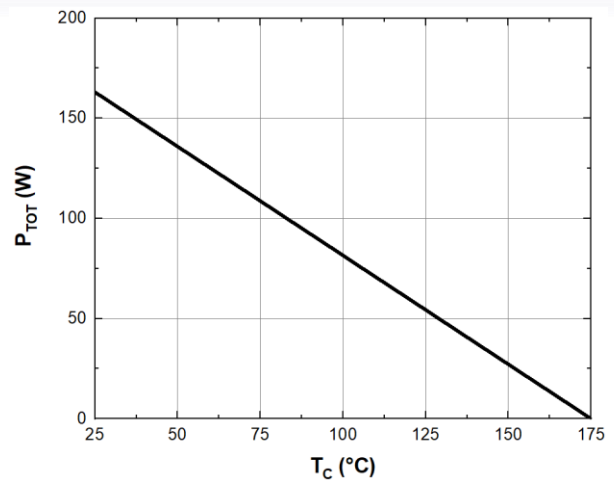


Fig. 4 Power Derating

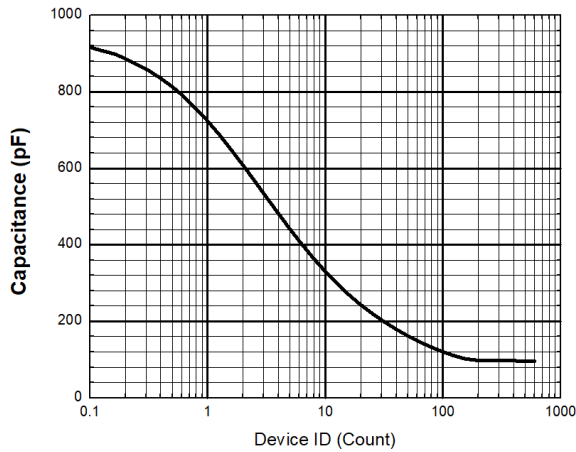


Fig. 5 Capacitance vs. Reverse Voltage

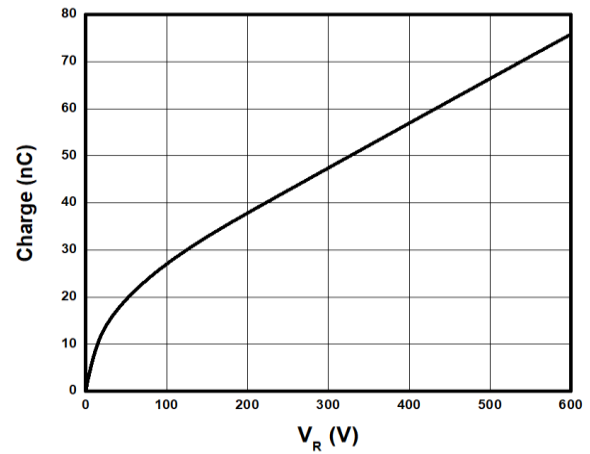


Fig. 6 Recovery Charge vs. Reverse Voltage

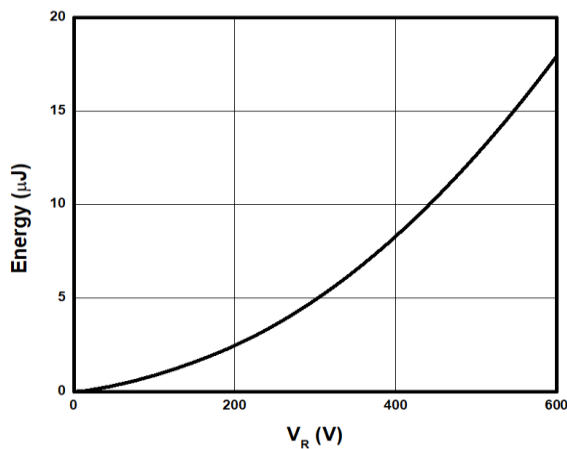


Fig. 7 Capacitance stored Energy

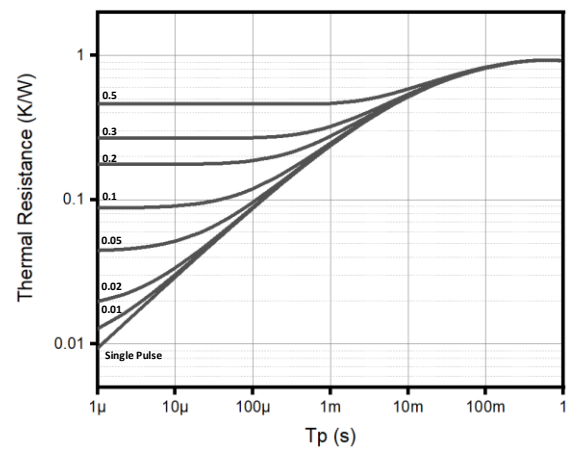
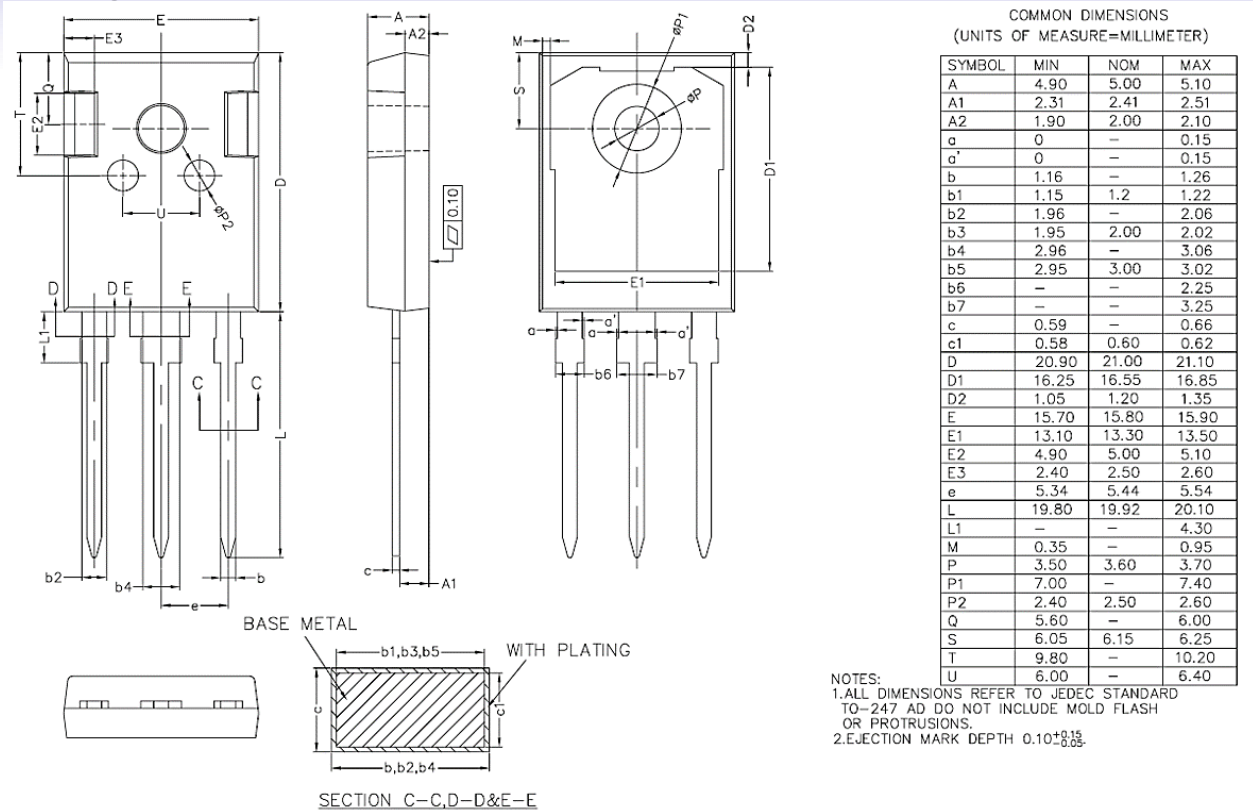


Fig. 8 Transient Thermal impedance

Package TO-247-3 (Unit: mm)


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