

Features

- 1.7kV Schottky Rectifier
- Zero Reverse Recovery Current
- High-Frequency Operation
- Temperature-Independent Switching
- Extremely Fast Switching
- Positive Temperature Coefficient on V_F

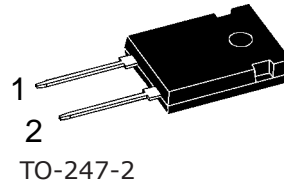
Benefits

- Replace Bipolar with Unipolar Rectifiers
- Essentially No Switching Losses
- Higher Efficiency
- Reduction of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway

Applications

- Switch Mode Power Supplies (SMPS)
- Boost diodes in PFC or DC/DC stages
- Free Wheeling Diodes in Inverter stages
- 1500V Solar Inverter

Package



Maximum Ratings (T_c=25°C unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
V _{RRM}	Repetitive Peak Reverse Voltage	2000	V		
V _R	DC Peak Reverse Voltage	1700	V		
I _F	Continuous Forward Current	70 33.6 25.6	A	T _c =25°C T _c =135°C T _c =150°C	Fig. 3
I _{FRM}	Repetitive Peak Forward Surge Current	99 57	A	T _c =25°C, t _p =10 ms, Half Sine Pulse T _c =110°C, t _p =10 ms, Half Sine Pulse	
I _{FSM}	Non-Repetitive Forward Surge Current	117 88	A	T _c =25°C, t _p =10 ms, Half Sine Pulse T _c =110°C, t _p =10 ms, Half Sine Pulse	
P _{tot}	Power Dissipation	384 167	W	T _c =25°C T _c =110°C	Fig. 4
T _J , T _{stg}	Operating Junction and Storage Temperature	-55 to +175	°C		
	TO-247 Mounting Torque	1 8.8	Nm lbf-in	M3 Screw 6-32 Screw	

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.5 2.5	1.8 3.0	V	$I_F = 25\text{ A } T_J = 25^\circ\text{C}$ $I_F = 25\text{ A } T_J = 175^\circ\text{C}$	Fig. 1
I_R	Reverse Current	20 120	200 300	μA	$V_R = 1700\text{ V } T_J = 25^\circ\text{C}$ $V_R = 1700\text{ V } T_J = 175^\circ\text{C}$	Fig. 2
Q_C	Total Capacitive Charge	255		nC	$V_R = 1700\text{ V}, I_F = 25\text{ A}$ $di/dt = 200\text{ A}/\mu\text{s}$ $T_J = 25^\circ\text{C}$	Fig. 5
C	Total Capacitance	1950 190 140		pF	$V_R = 0\text{ V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$ $V_R = 800\text{ V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$ $V_R = 1700\text{ V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$	Fig. 6
E_C	Capacitance Stored Energy	175		μJ	$V_R = 1700\text{ V}$	Fig. 7

Note: This is a majority carrier diode, so there is no reverse recovery charge.

Thermal Characteristics

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	0.39	$^\circ\text{C}/\text{W}$	Fig. 8

Typical Performance

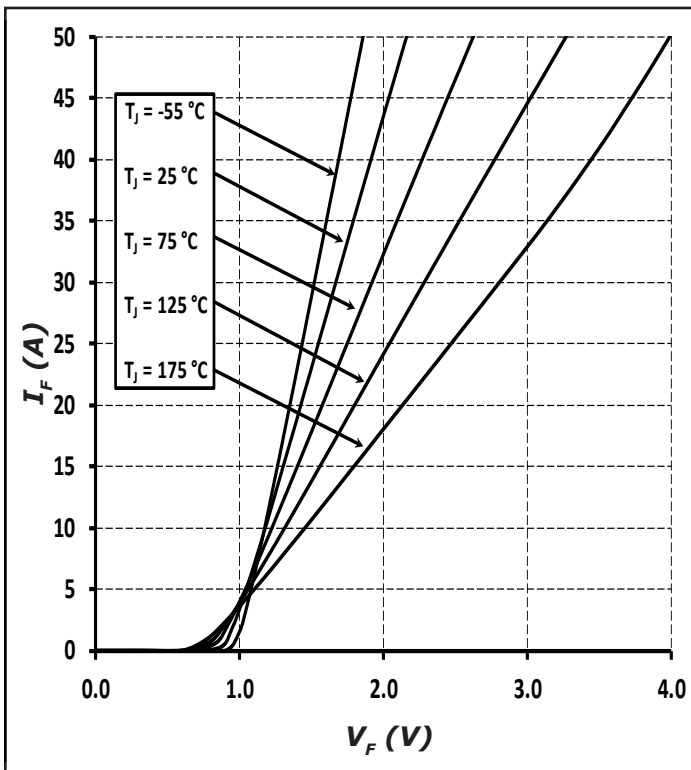


Figure 1. Forward Characteristics

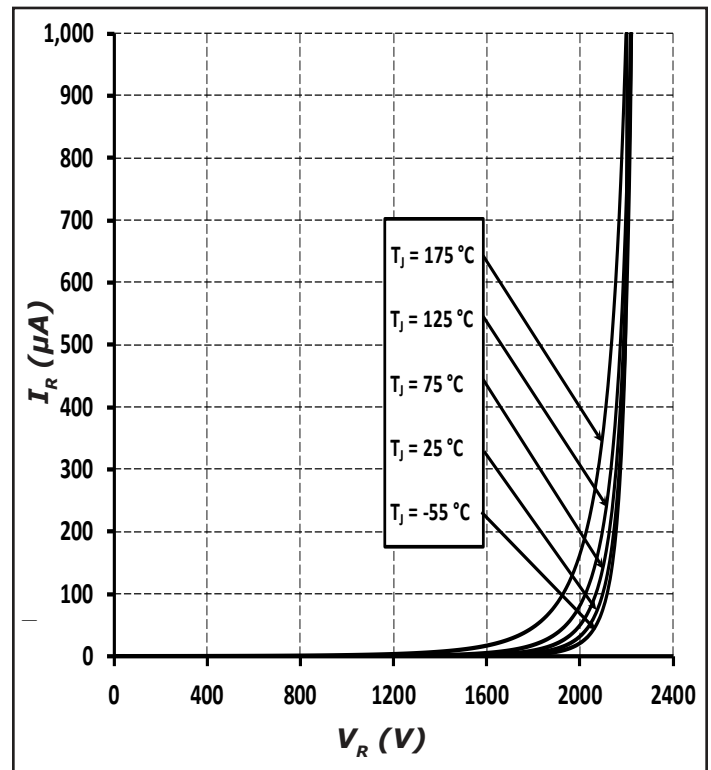


Figure 2. Reverse Characteristics

Typical Performance

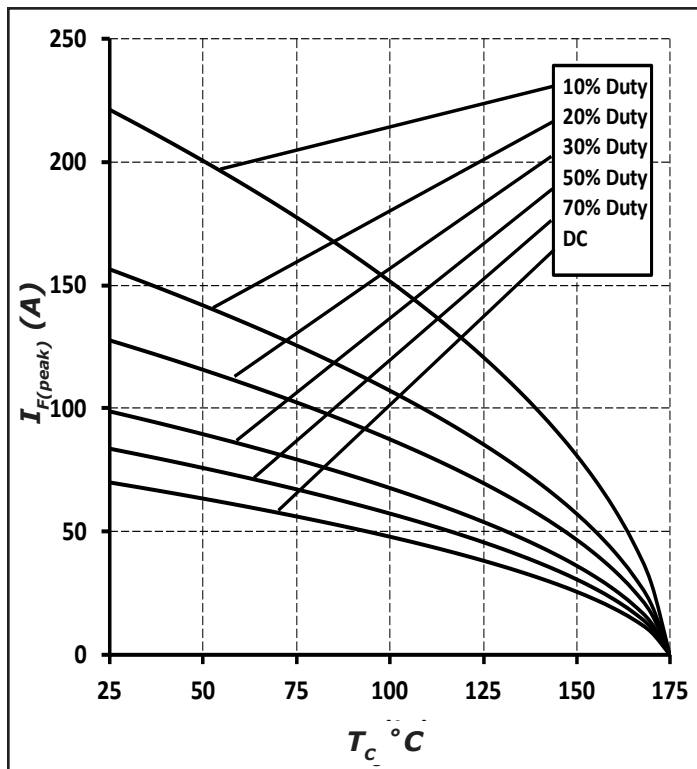


Figure 3. Current Derating

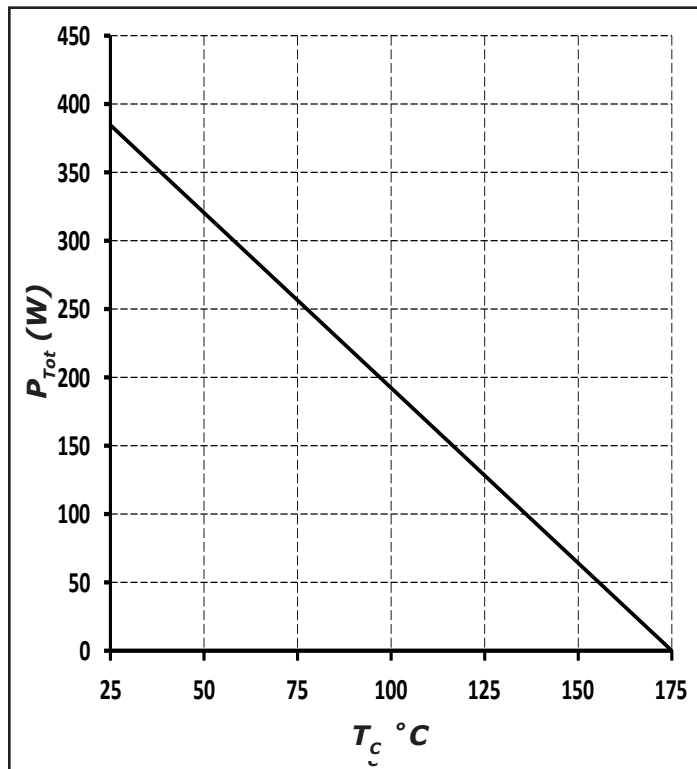


Figure 4. Power Derating

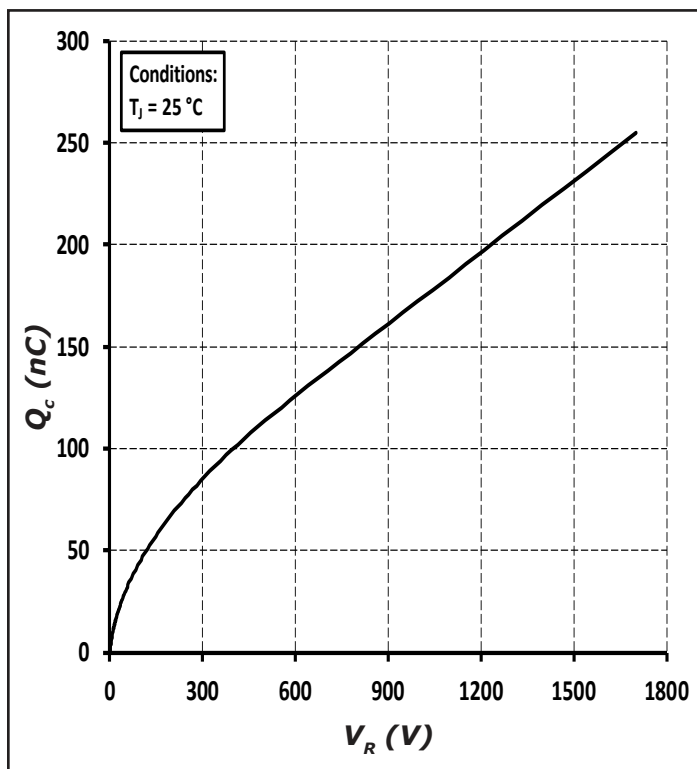


Figure 5. Recovery Charge vs. Reverse Voltage

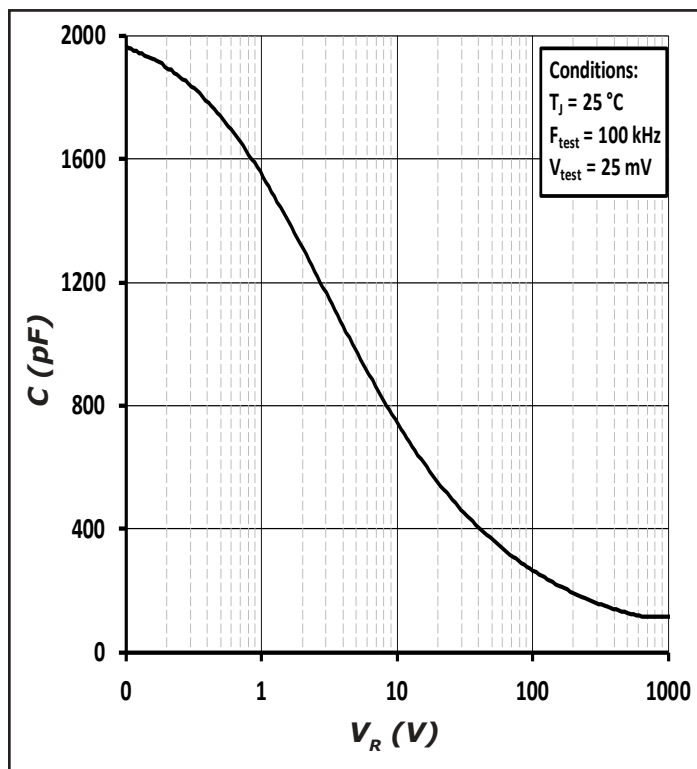


Figure 6. Capacitance vs. Reverse Voltage

Typical Performance

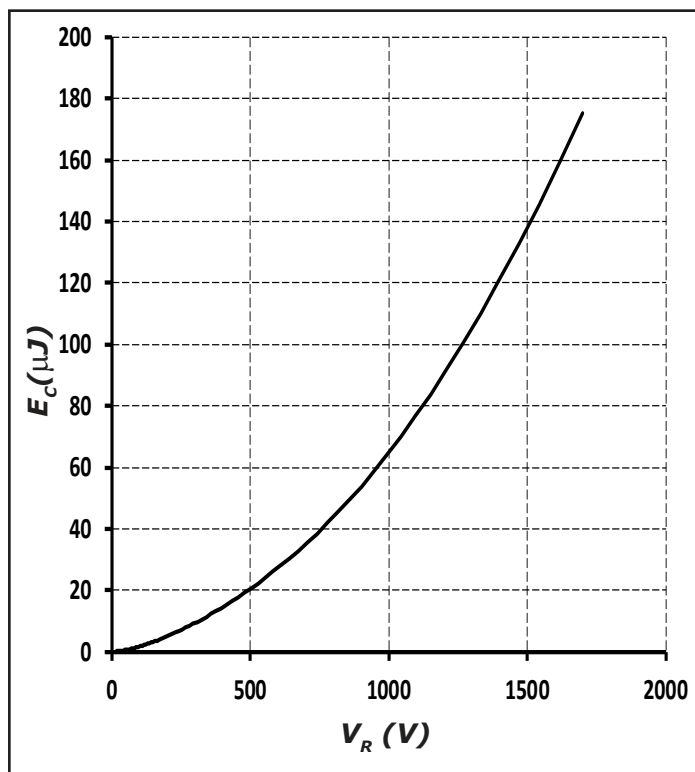


Figure 7. Typical Capacitance Stored Energy

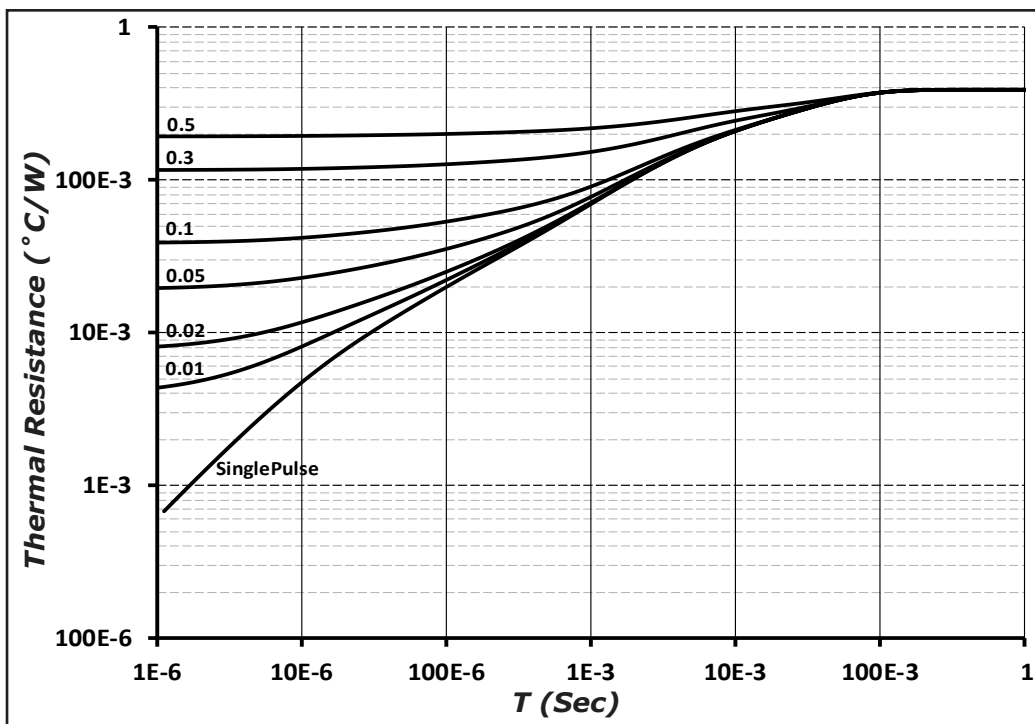
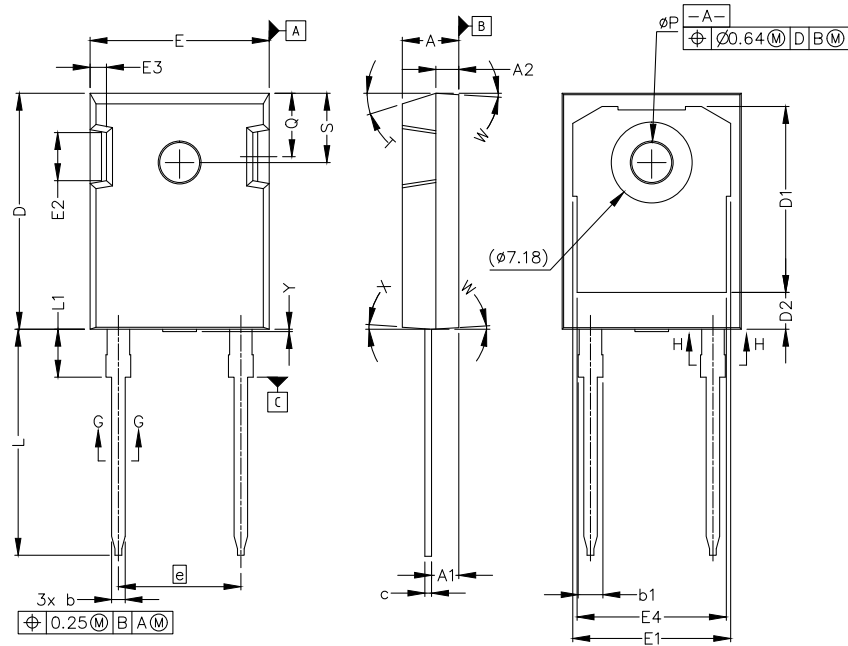


Figure 8. Transient Thermal Impedance

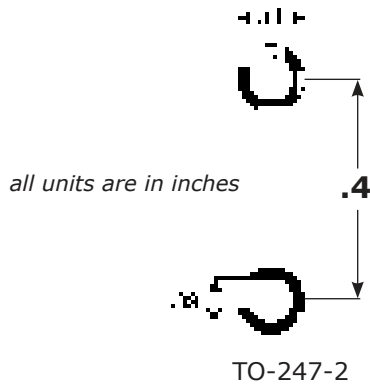
Package Dimensions

Package TO-247-2



POS	Inches		Millimeters	
	Min	Max	Min	Max
A	0.190	0.205	4.70	5.31
A1	0.087	0.102	2.21	2.59
A2	0.059	0.098	1.50	2.49
b	0.039	0.055	0.99	1.40
b1	0.065	0.095	1.65	2.41
c	0.015	0.035	0.38	0.89
D	0.819	0.845	20.80	21.46
D1	0.640	0.683	16.25	17.35
D2	0.112	0.124	2.86	3.16
E	0.620	0.640	15.49	16.26
E1	0.516	0.557	13.10	14.15
E2	0.135	0.201	3.43	5.10
E3	0.039	0.075	1.00	1.90
E4	0.487	0.529	12.38	13.43
e	0.428 BSC		10.88 BSC	
L	0.78	0.80	19.81	20.32
L1	-	0.177	-	4.50
ØP	0.138	0.144	3.51	3.66
Q	0.212	0.244	5.38	6.20
S	0.238	0.248	6.04	6.3
T	17.5° REF.			
W	3.5° REF.			
X	4° REF.			
Y	0	0.5	0	0.02

Recommended Solder Pad Layout



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