

## Features

- 1.2kV Schottky Rectifier
- Zero Reverse Recovery Current
- High-Frequency Operation
- Temperature-Independent Switching
- Extremely Fast Switching

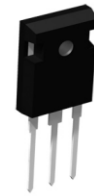
## Benefits

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

## Applications

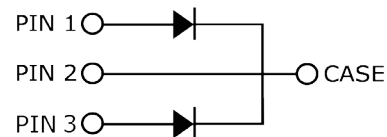
- Switch Mode Power Supplies (SMPS)
- Boost diodes in PFC or DC/DC stages
- Free Wheeling Diodes in Inverter stages
- AC/DC converters

## Package



(1) (2) (3)

TO-247-3



## Maximum Ratings (T<sub>C</sub>=25°C unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
V <sub>RRM</sub>	Repetitive Peak Reverse Voltage	1200	V		
V <sub>RSM</sub>	Surge Peak Reverse Voltage	1300	V		
V <sub>R</sub>	DC Peak Reverse Voltage	1200	V		
I <sub>F</sub>	Continuous Forward Current (Per Leg/Device)	44/88 21.5/43 15/30	A	T <sub>C</sub> =25°C T <sub>C</sub> =135°C T <sub>C</sub> =152°C	Fig. 3
I <sub>FRM</sub>	Repetitive Peak Forward Surge Current	68* 44*	A	T <sub>C</sub> =25°C, t <sub>p</sub> =10 ms, Half Sine Pulse T <sub>C</sub> =110°C, t <sub>p</sub> =10 ms, Half Sine Pulse	
I <sub>FSM</sub>	Non-Repetitive Forward Surge Current	100* 85*	A	T <sub>C</sub> =25°C, t <sub>p</sub> =10 ms, Half Sine Pulse T <sub>C</sub> =110°C, t <sub>p</sub> =10 ms, Half Sine Pulse	Fig. 8
I <sub>F,Max</sub>	Non-Repetitive Peak Forward Current	900* 750*	A	T <sub>C</sub> =25°C, t <sub>p</sub> =10 μs, Pulse T <sub>C</sub> =110°C, t <sub>p</sub> =10 μs, Pulse	Fig. 8
P <sub>tot</sub>	Power Dissipation (Per Leg/Device)	220/440 95/190	W	T <sub>C</sub> =25°C T <sub>C</sub> =110°C	Fig. 4
dV/dt	Diode dV/dt ruggedness	200	V/ns	V <sub>R</sub> =0-960V	
∫i <sup>2</sup> dt	i <sup>2</sup> t value	50* 36*	A <sup>2</sup> s	T <sub>C</sub> =25°C, t <sub>p</sub> =10 ms T <sub>C</sub> =110°C, t <sub>p</sub> =10 ms	
T <sub>J</sub>	Operating Junction Range	-55 to +175	°C		
T <sub>stg</sub>	Storage Temperature Range	-55 to +135	°C		
	TO-247 Mounting Torque	1 8.8	Nm lbf-in	M3 Screw 6-32 Screw	

\* Per Leg, \*\* Per Device

**Electrical Characteristics (Per Leg)**

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
$V_F$	Forward Voltage	1.5 2.0	1.6 2.8	V	$I_F = 15\text{ A } T_J = 25^\circ\text{C}$ $I_F = 15\text{ A } T_J = 175^\circ\text{C}$	Fig. 1
$I_R$	Reverse Current	35 120	160 260	$\mu\text{A}$	$V_R = 1200\text{ V } T_J = 25^\circ\text{C}$ $V_R = 1200\text{ V } T_J = 175^\circ\text{C}$	Fig. 2
$Q_C$	Total Capacitive Charge	77.5		nC	$V_R = 800\text{ V}, I_F = 15\text{ A}$ $di/dt = 200\text{ A}/\mu\text{s}$ $T_J = 25^\circ\text{C}$	Fig. 5
C	Total Capacitance	1200 70 50		pF	$V_R = 0\text{ V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$ $V_R = 400\text{ V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$ $V_R = 800\text{ V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$	Fig. 6
$E_C$	Capacitance Stored Energy	22.1		$\mu\text{J}$	$V_R = 800\text{ V}$	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	0.34** 0.68*	$^\circ\text{C}/\text{W}$	Fig. 9

\*\* Per Device, \* Per Leg

**Typical Performance (Per Leg)**

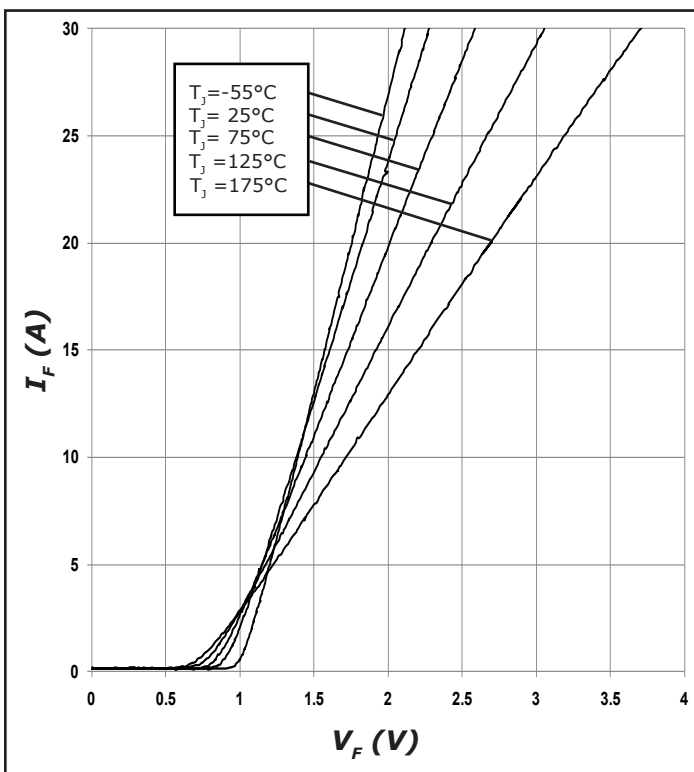


Figure 1. Forward Characteristics

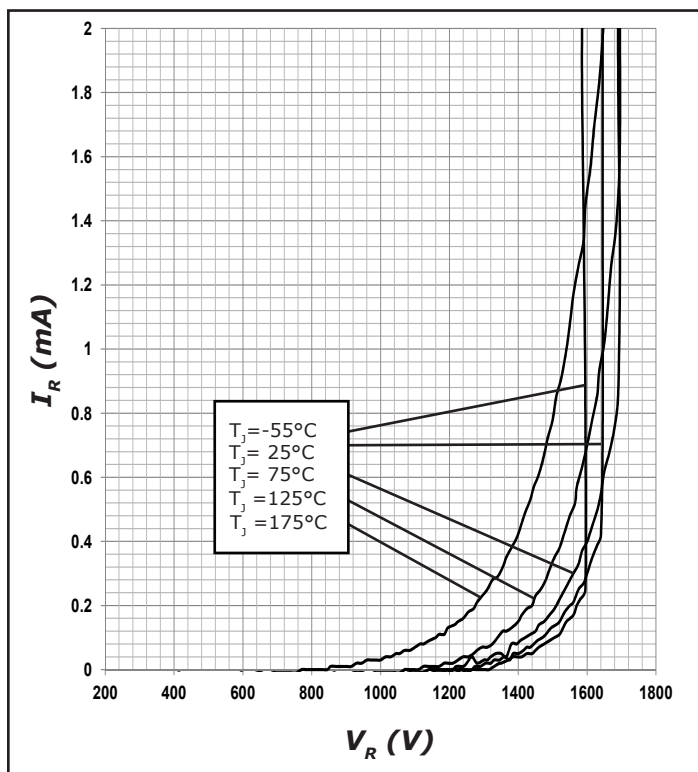


Figure 2. Reverse Characteristics

Typical Performance (Per Leg)

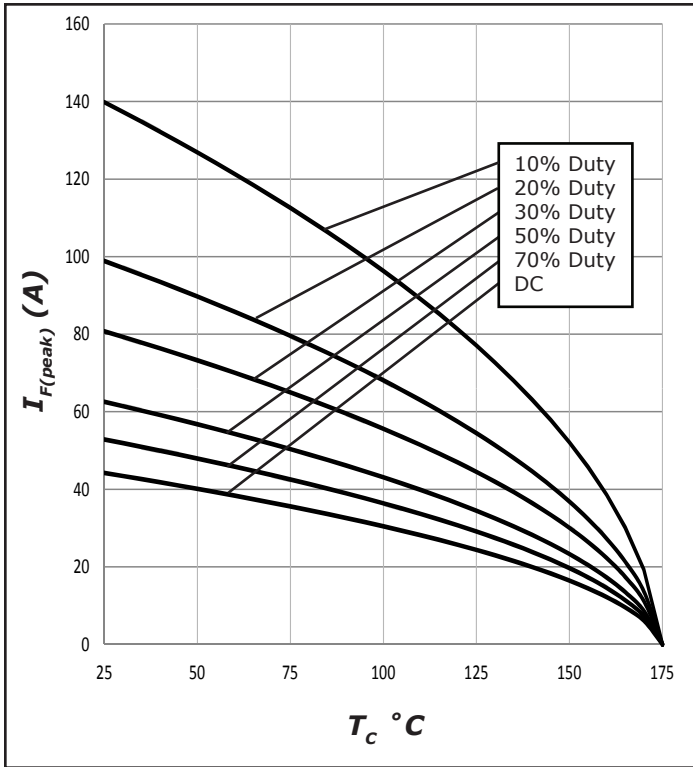


Figure 3. Current Derating

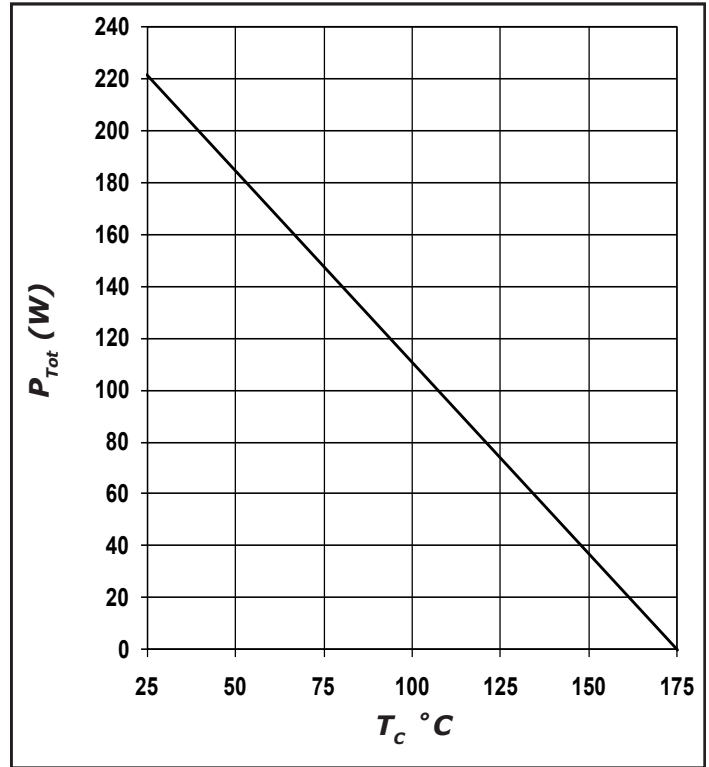


Figure 4. Power Derating

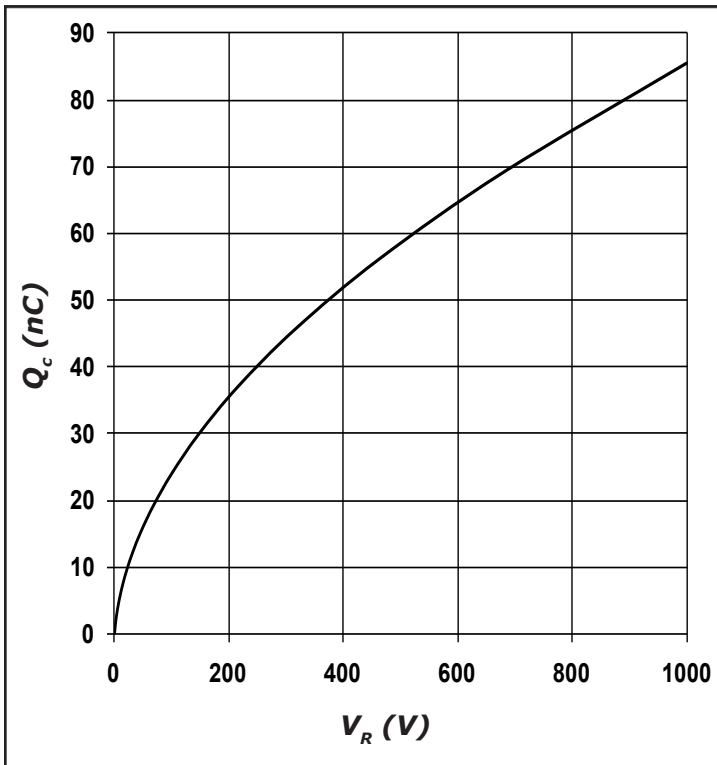


Figure 5. Recovery Charge vs. Reverse Voltage

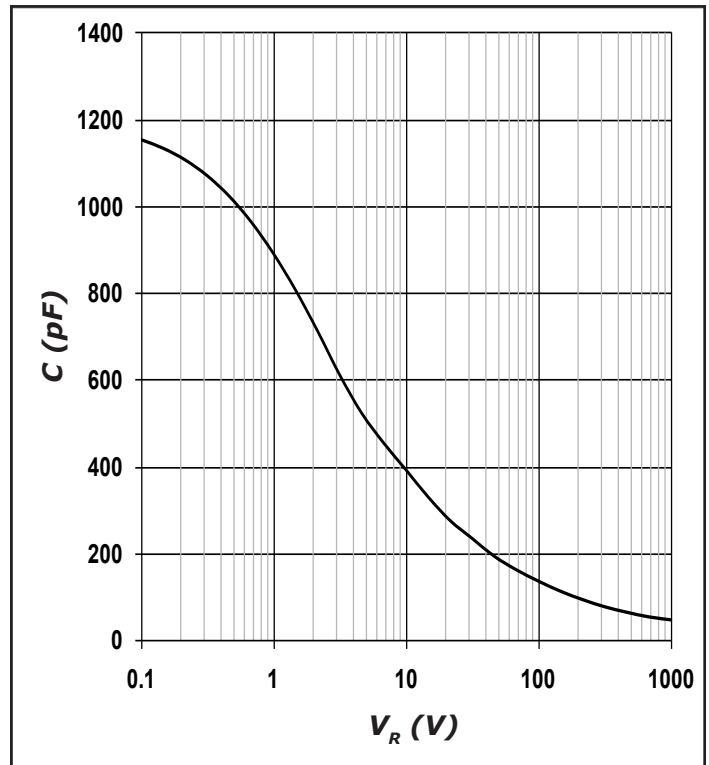


Figure 6. Capacitance vs. Reverse Voltage

Typical Performance

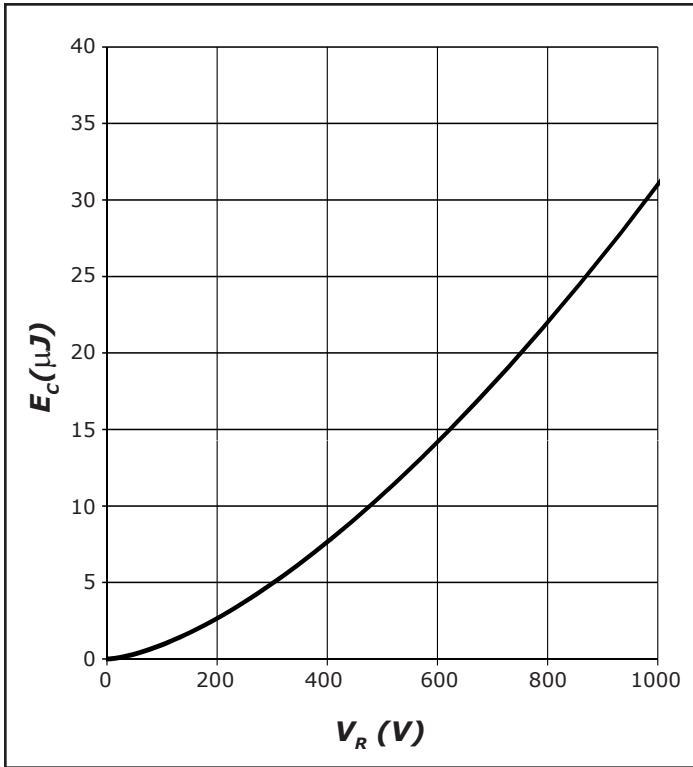


Figure 7. Typical Capacitance Stored Energy, per leg

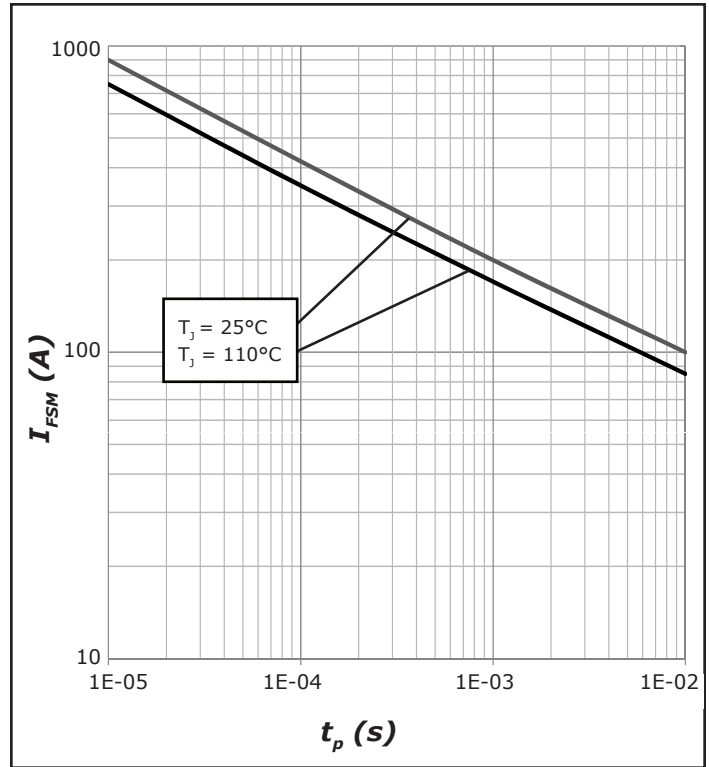


Figure 8. Non-Repetitive Peak Forward Surge Current versus Pulse Duration (sinusoidal waveform), per leg

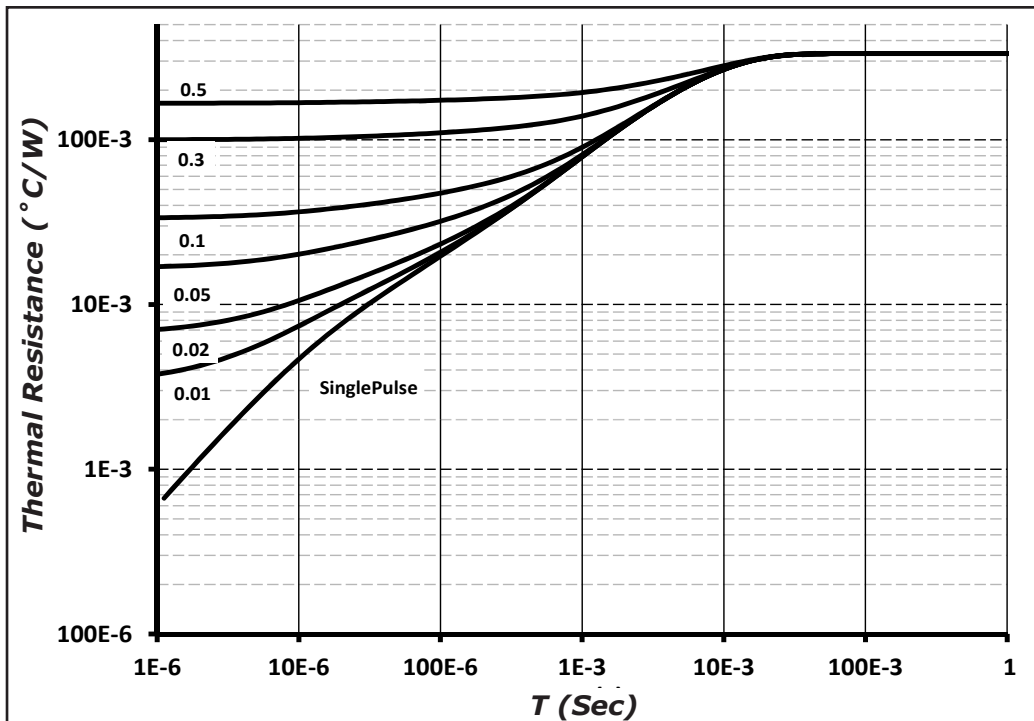
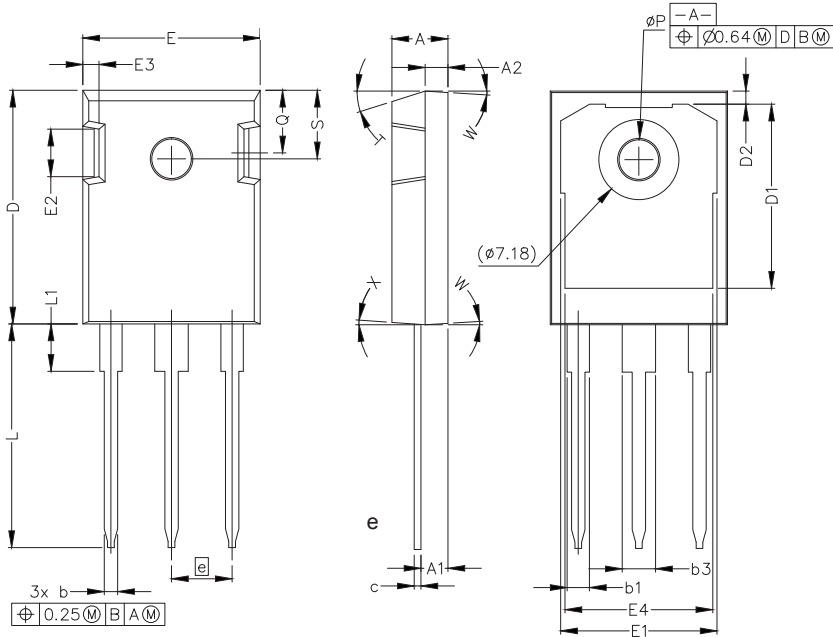


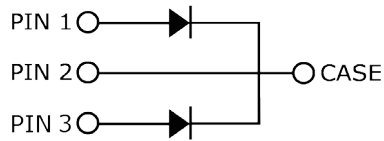
Figure 9. Device Transient Thermal Impedance

**Package Dimensions**

Package TO-247-3



POS	Inches		Millimeters	
	Min	Max	Min	Max
A	.190	.205	4.83	5.21
A1	.090	.100	2.29	2.54
A2	.075	.085	1.91	2.16
b	.042	.052	1.07	1.33
b1	.075	.095	1.91	2.41
b3	.113	.133	2.87	3.38
c	.022	.027	0.55	0.68
D	.819	.831	20.80	21.10
D1	.640	.695	16.25	17.65
D2	.037	.049	0.95	1.25
E	.620	.635	15.75	16.13
E1	.516	.557	13.10	14.15
E2	.145	.201	3.68	5.10
E3	.039	.075	1.00	1.90
E4	.487	.529	12.38	13.43
e	.214 BSC		5.44 BSC	
L	.780	.800	19.81	20.32
L1	.161	.173	4.10	4.40
N	3			
ØP	.138	.144	3.51	3.65
Q	.216	.236	5.49	6.00
S	.238	.248	6.04	6.30
T	17.5° REF			
W	3.5° REF			
X	4° REF			



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