

## Features

- 1.2kV 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
- AC/DC converters

## Package



TO-263-2L



## Maximum Ratings ( $T_c=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
$V_{RRM}$	Repetitive Peak Reverse Voltage	1200	V		
$V_{RSM}$	Surge Peak Reverse Voltage	1300	V		
$V_R$	DC Peak Reverse Voltage	1200	V		
$I_F$	Continuous Forward Current	54.5 26 20	A	$T_c=25^\circ\text{C}$ $T_c=135^\circ\text{C}$ $T_c=150^\circ\text{C}$	Fig. 3
$I_{FRM}$	Repetitive Peak Forward Surge Current	91 61	A	$T_c=25^\circ\text{C}$ , $t_p=10$ ms, Half Sine Pulse $T_c=110^\circ\text{C}$ , $t_p=10$ ms, Half Sine Pulse	
$I_{FSM}$	Non-Repetitive Forward Surge Current	130 110	A	$T_c=25^\circ\text{C}$ , $t_p=10$ ms, Half Sine Pulse $T_c=110^\circ\text{C}$ , $t_p=10$ ms, Half Sine Pulse	Fig. 8
$I_{F,Max}$	Non-Repetitive Peak Forward Current	1150 950	A	$T_c=25^\circ\text{C}$ , $t_p=10$ $\mu\text{s}$ , Pulse $T_c=110^\circ\text{C}$ , $t_p=10$ $\mu\text{s}$ , Pulse	Fig. 8
$P_{tot}$	Power Dissipation	250 112.5	W	$T_c=25^\circ\text{C}$ $T_c=110^\circ\text{C}$	Fig. 4
dV/dt	Diode dV/dt ruggedness	200	V/ns	$V_R=0-960\text{V}$	
$\int i^2 dt$	$i^2t$ value	84.5 60.5	$\text{A}^2\text{s}$	$T_c=25^\circ\text{C}$ , $t_p=10$ ms $T_c=110^\circ\text{C}$ , $t_p=10$ ms	
$T_j$	Operating Junction Range	-55 to +175	$^\circ\text{C}$		
$T_{stg}$	Storage Temperature Range	-55 to +135	$^\circ\text{C}$		
	TO-220 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 2.0	1.6 2.8	V	$I_F = 20\text{ A } T_J = 25^\circ\text{C}$ $I_F = 20\text{ A } T_J = 175^\circ\text{C}$	Fig. 1
$I_R$	Reverse Current	35 65	160 350	$\mu\text{A}$	$V_R = 1200\text{ V } T_J = 25^\circ\text{C}$ $V_R = 1200\text{ V } T_J = 175^\circ\text{C}$	Fig. 2
$Q_C$	Total Capacitive Charge	99		nC	$V_R = 800\text{ V}, I_F = 20\text{ A}$ $di/dt = 200\text{ A}/\mu\text{s}$ $T_J = 25^\circ\text{C}$	Fig. 5
C	Total Capacitance	1500 93 67		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	28		$\mu\text{J}$	$V_R = 800\text{ V}$	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	0.6	$^\circ\text{C}/\text{W}$	Fig. 9

**Typical Performance**

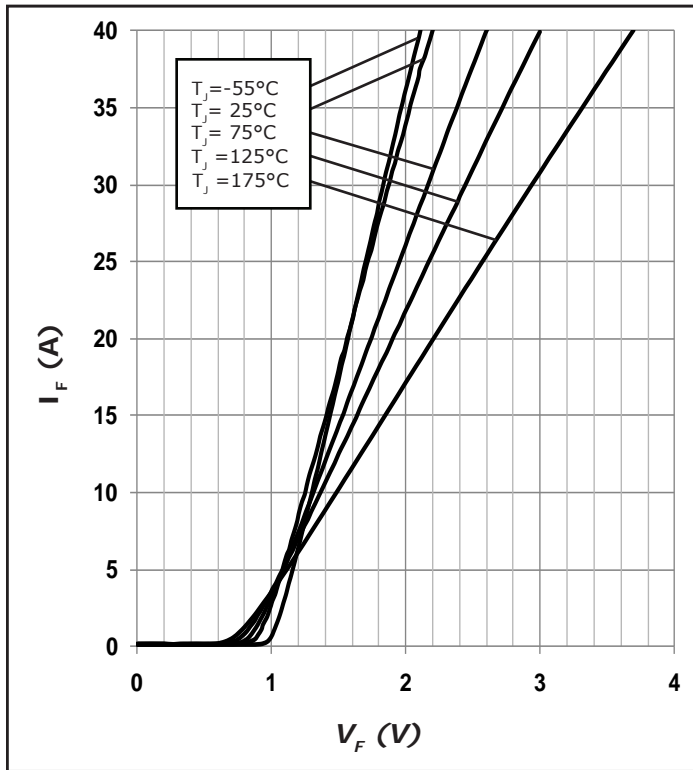


Figure 1. Forward Characteristics

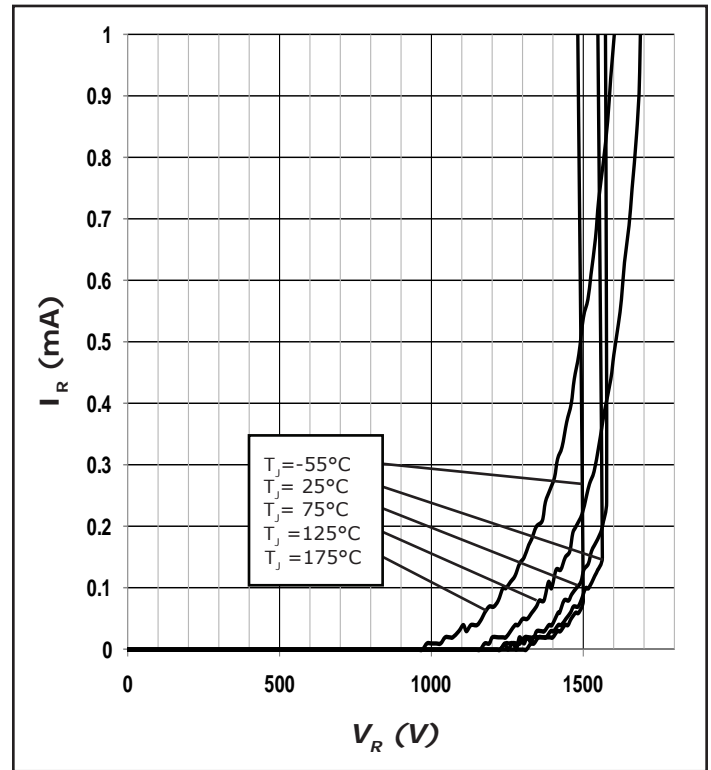


Figure 2. Reverse Characteristics

Typical Performance

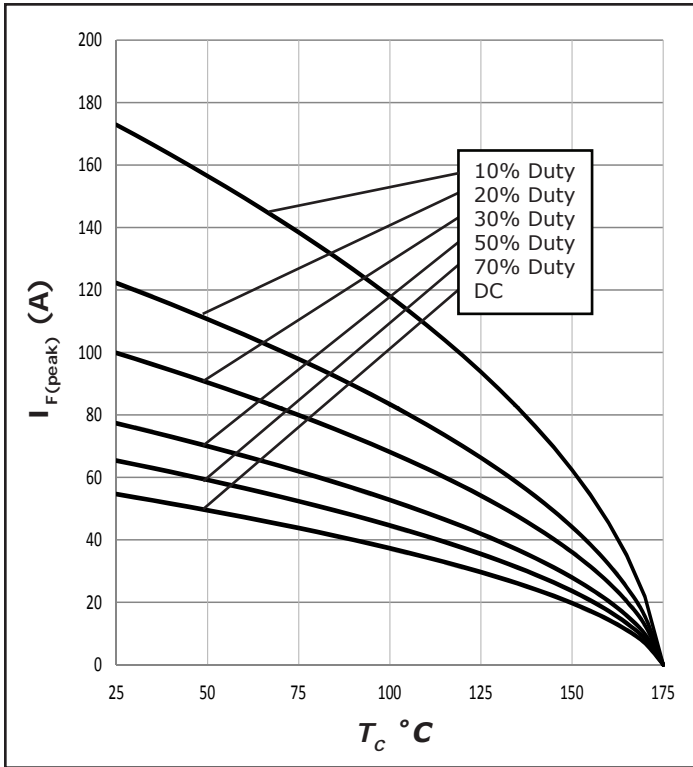


Figure 3. Current Derating

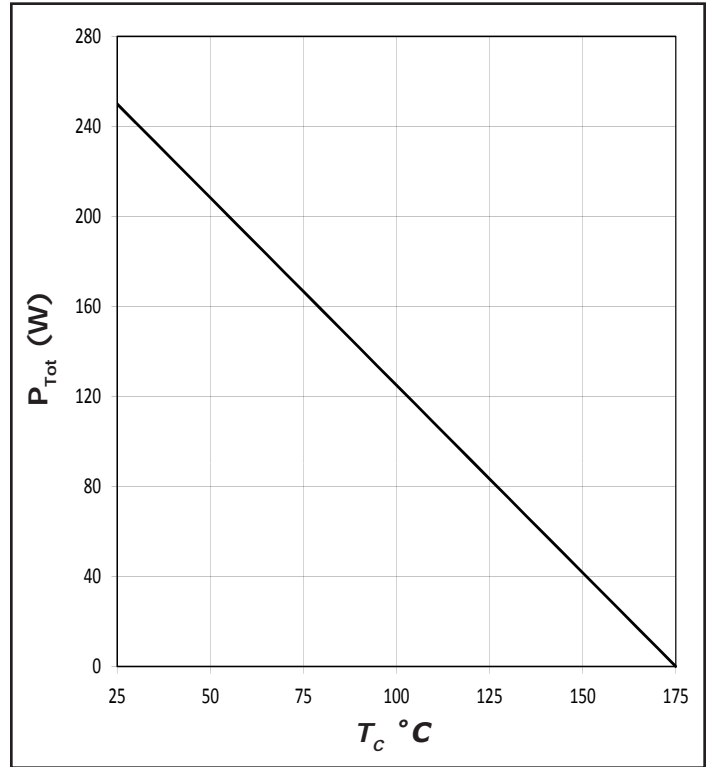


Figure 4. Power Derating

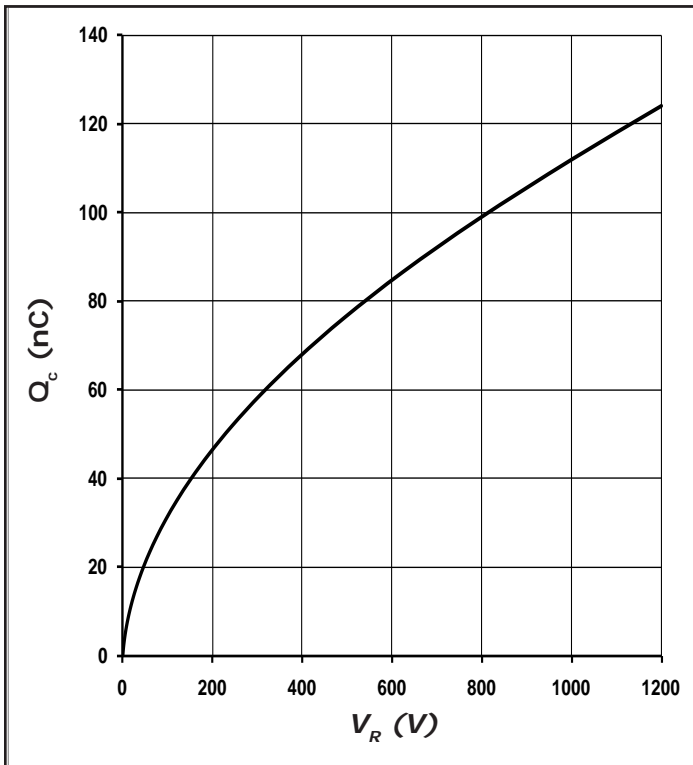


Figure 5. Recovery Charge vs. Reverse Voltage

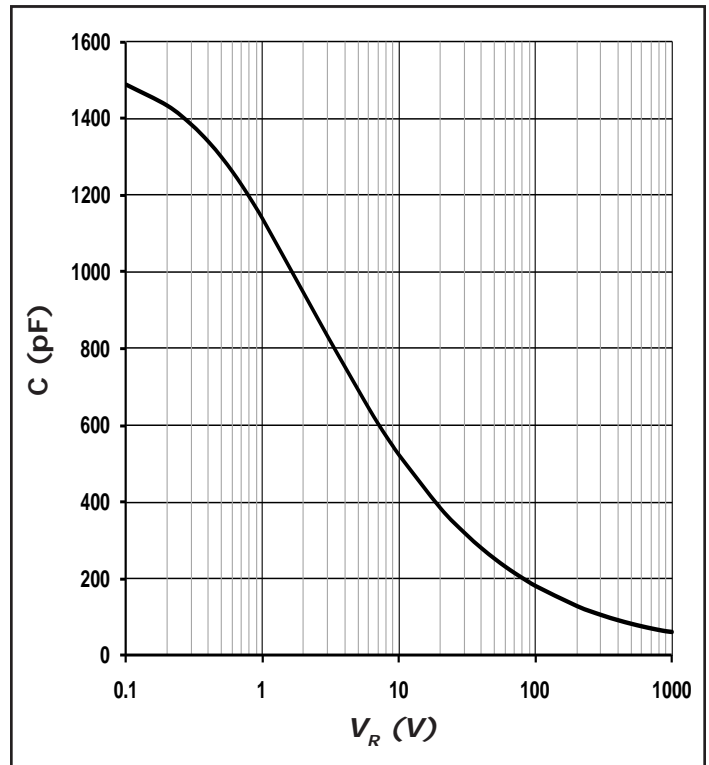


Figure 6. Capacitance vs. Reverse Voltage

Typical Performance

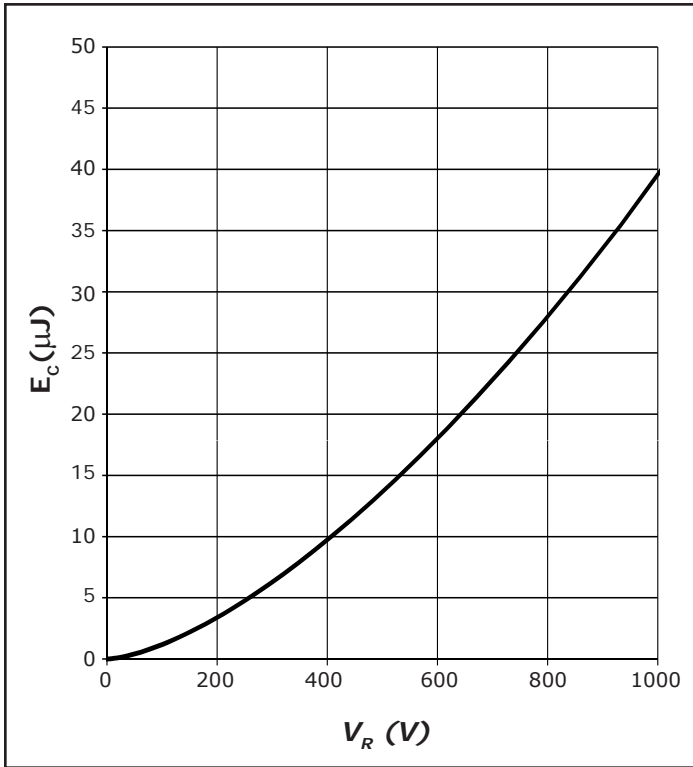


Figure 7. Typical Capacitance Stored Energy

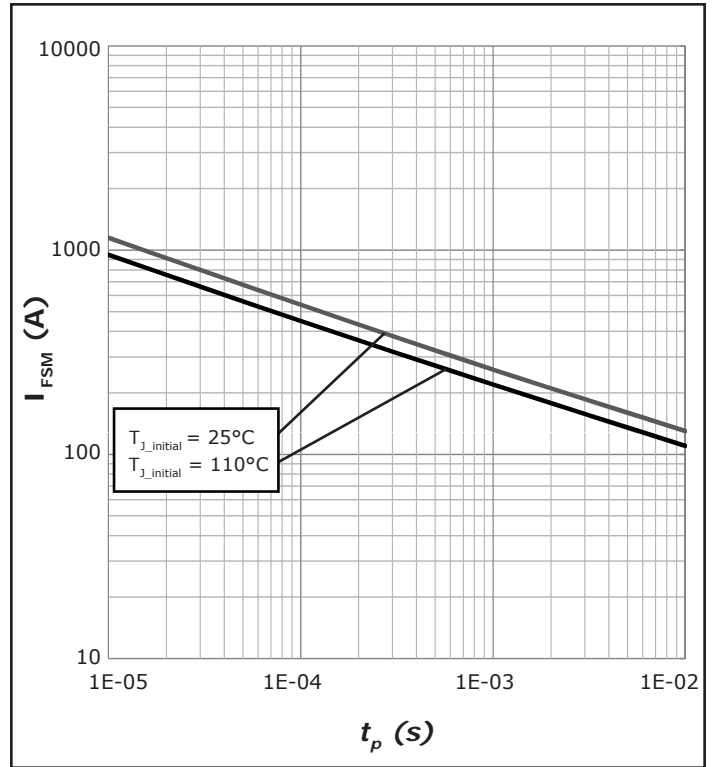


Figure 8. Non-Repetitive Peak Forward Surge Current versus Pulse Duration (sinusoidal waveform)

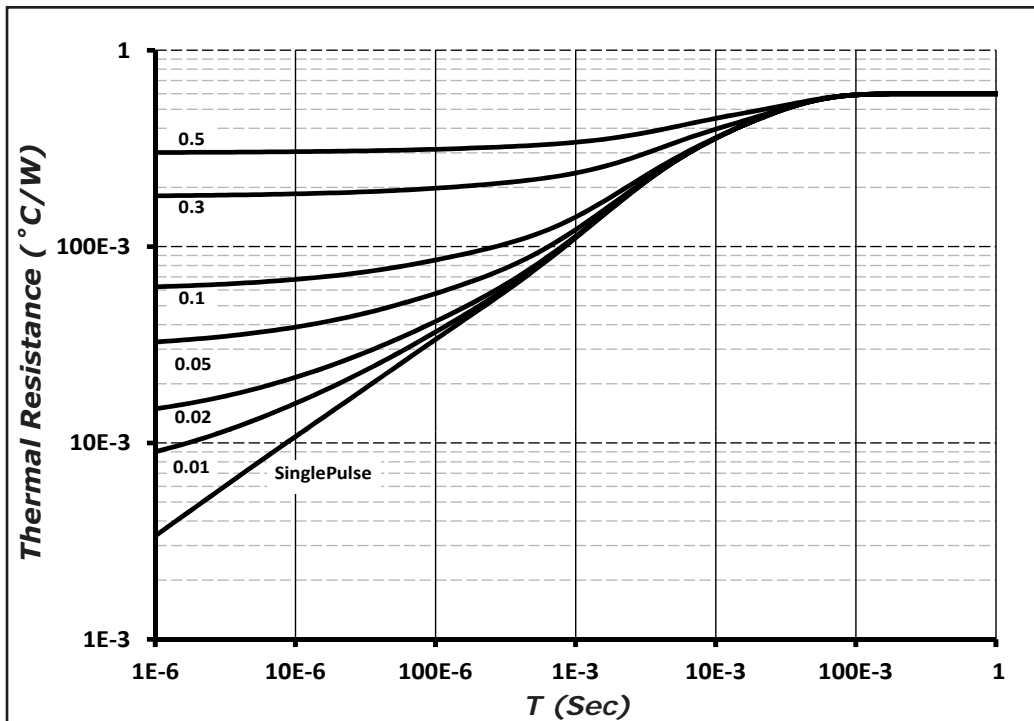
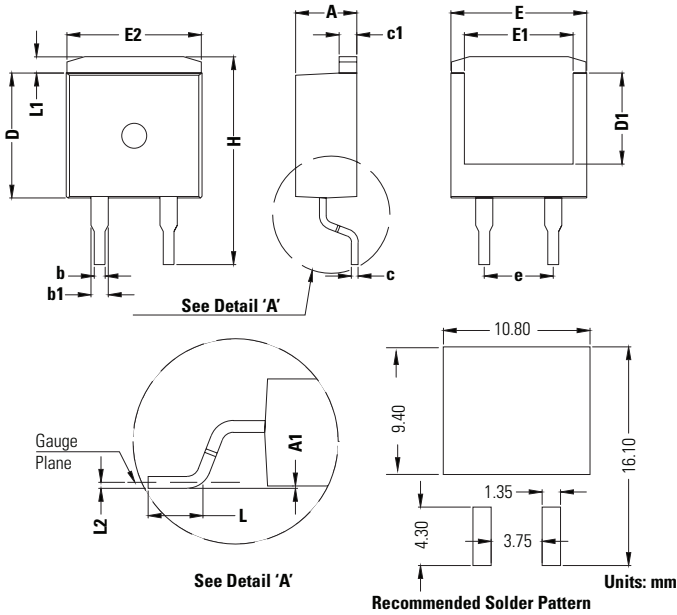


Figure 9. Transient Thermal Impedance

Package Dimensions

Dimensions-Package TO-263-2L



Symbol	Millimeters		
	Min	Nom	Max
A	4.30	4.50	4.70
A1	0.00	-	0.25
b	0.70	0.80	0.90
b1	1.17	1.27	1.37
c	0.46	0.50	0.60
c1	1.25	1.30	1.40
D	9.00	9.20	9.40
D1	6.50	6.70	6.90
E	9.80	10.00	10.20
E1	7.80	8.00	8.20
E2	9.70	9.90	10.10
e	5.08 BSC		
H	15.00	15.30	15.60
L	2.00	2.30	2.60
L1	1.00	1.20	1.40
L2	0.254 BSC		

