Product Summary

V_{RRM}	=	1200 V
I_F (T_C=160 ℃)	=	2 A
Q_C	=	14 nC

Package



TO-252-2



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
- High Efficiency
- Reduction of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway

Applications

- Switching Mode Power Supply
- Boost Diodes in PFC
- DC/DC Converters
- AC/DC Converters
- Free Wheeling Diodes in Inverter

Part Number	Package	Marking
TK3D02120F	TO-252-2	NF3D02120F

Thermal Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case		2.6		℃/W	Fig.8

Maximum Ratings （Tc = 25 ℃ 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	10 4.6 2	A	T_C=25 ℃ T_C=135 ℃ T_C=160 ℃	Fig. 3
I_{FSM}	Non-Repetitive Forward Surge Current	24	A	T_C=25 ℃，t_p=10 ms，Half Sine Pulse	
P_{tot}	Power Dissipation	58 25	W	T_C=25 ℃ T_C=110 ℃	Fig. 4
T_J	Operating Junction Range	-55 to +175	℃		
T_{stg}	Storage Temperature Range	-55 to +175	℃		

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.4 1.9	1.65 2.4	V	I_F = 2 A， T_J = 25 ℃ I_F = 2 A， T_J = 175 ℃	Fig. 1
I_R	Reverse Current	1 10	50 100	μA	V_R = 1200 V， T_J = 25 ℃ V_R = 1200 V， T_J = 175 ℃	Fig. 2
Q_C	Total Capacitive Charge	14		nC	V_R = 800 V，I_F = 2 A， T_J = 25 ℃	Fig. 6
C	Total Capacitance	174 13 9		pF	V_R = 0 V， T_J = 25 ℃，f = 1 MHz V_R = 400 V，T_J = 25 ℃，f = 1 MHz V_R = 800 V，T_J = 25 ℃，f = 1 MHz	Fig. 5
E_C	Capacitance Stored Energy	3.5		μJ	V_R = 800 V	Fig. 7

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

Typical Performance

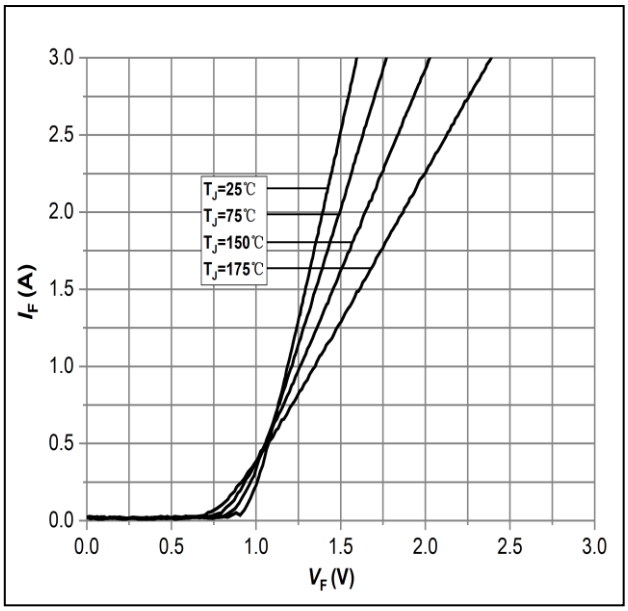


Figure 1: Forward Characteristics

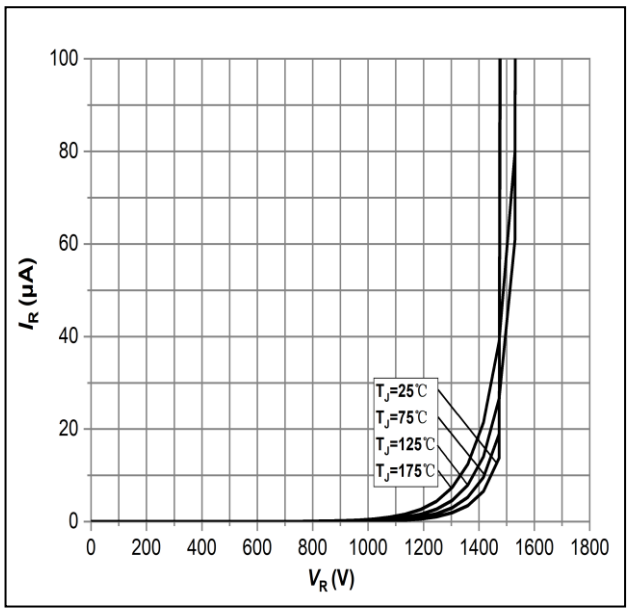


Figure 2: Reverse Characteristics

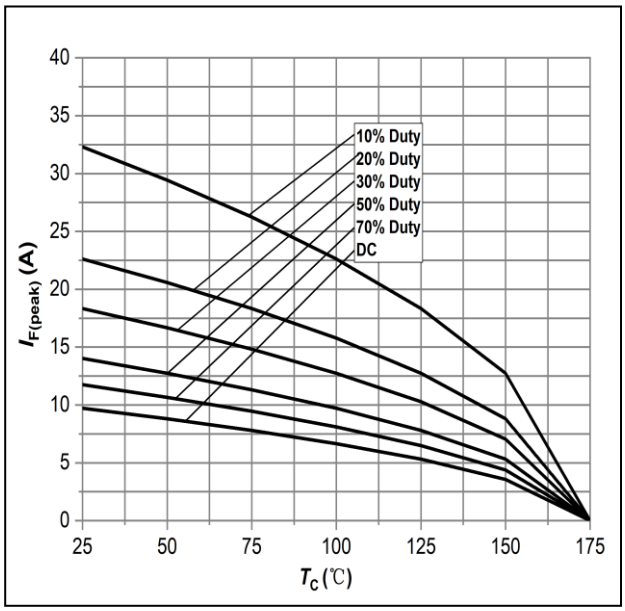


Figure 3: Current Derating

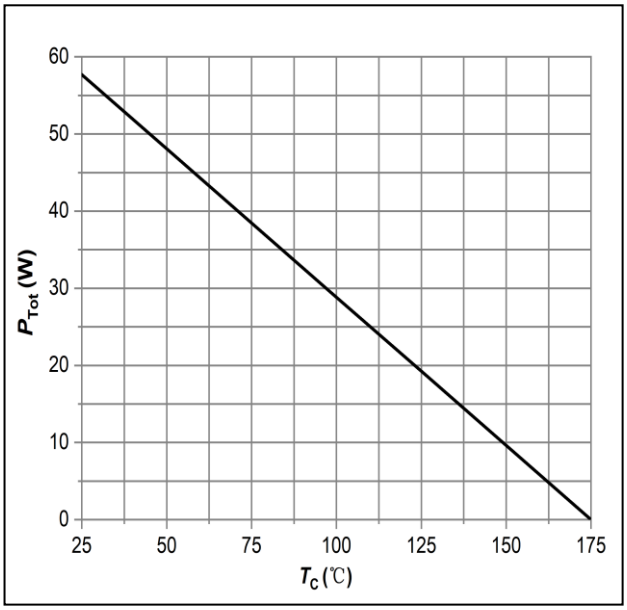


Figure 4: Power Derating

Typical Performance

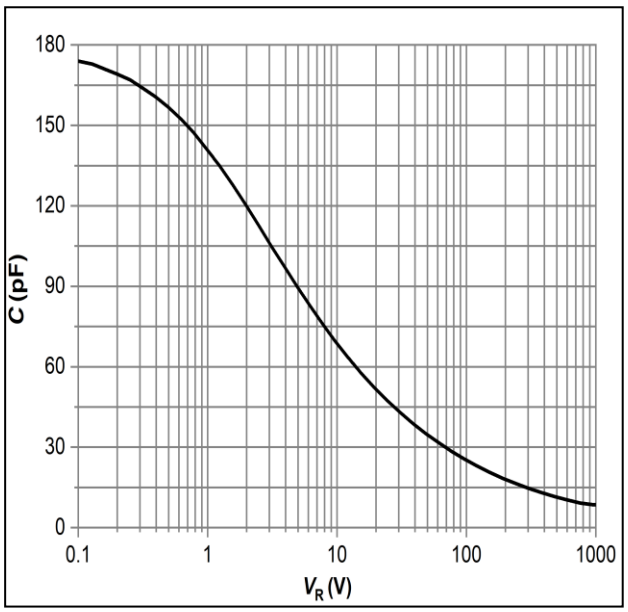


Figure 5: Capacitance vs. Reverse Voltage

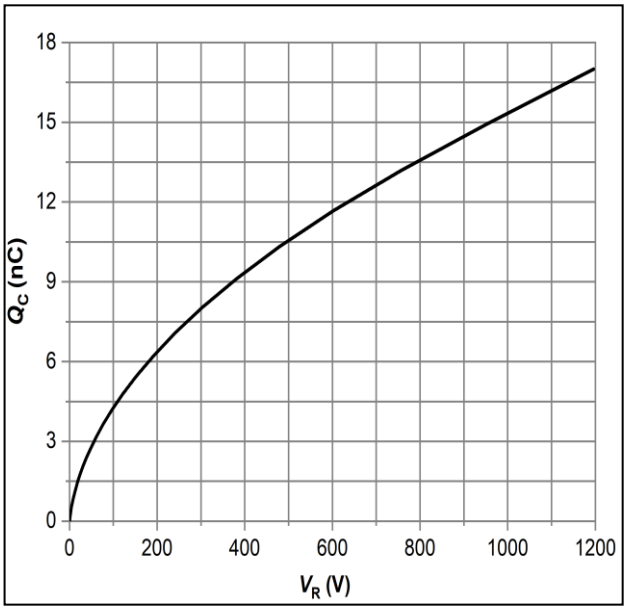


Figure 6: Total Capacitance Charge vs. Reverse Voltage

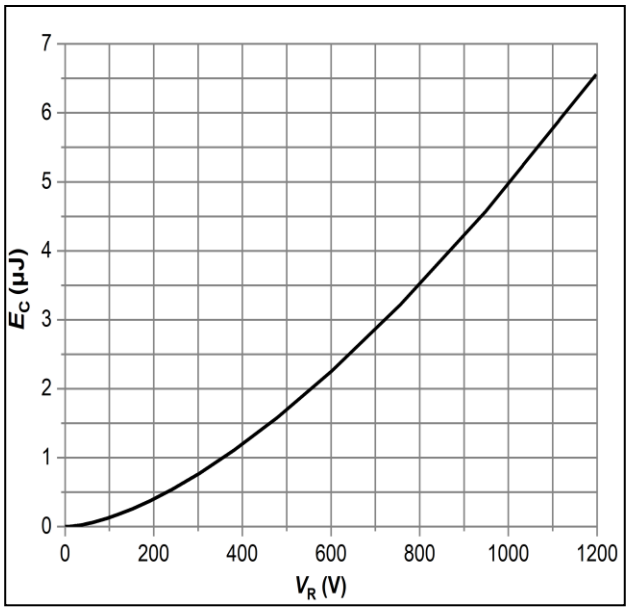


Figure 7:Typical Capacitance Stored Energy

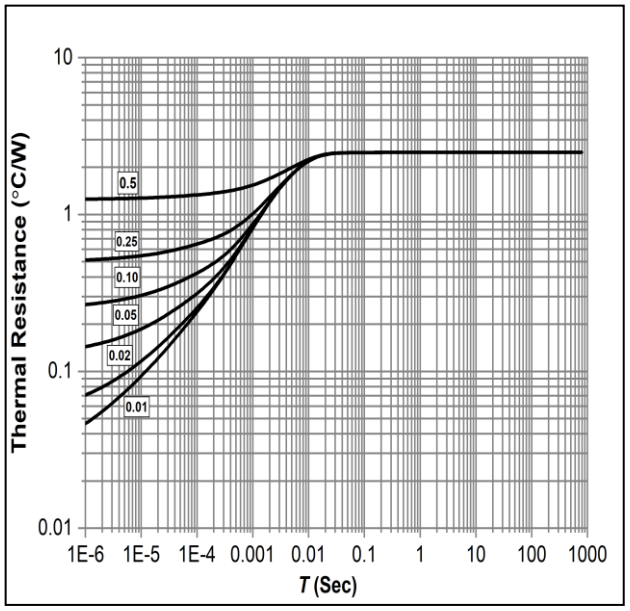
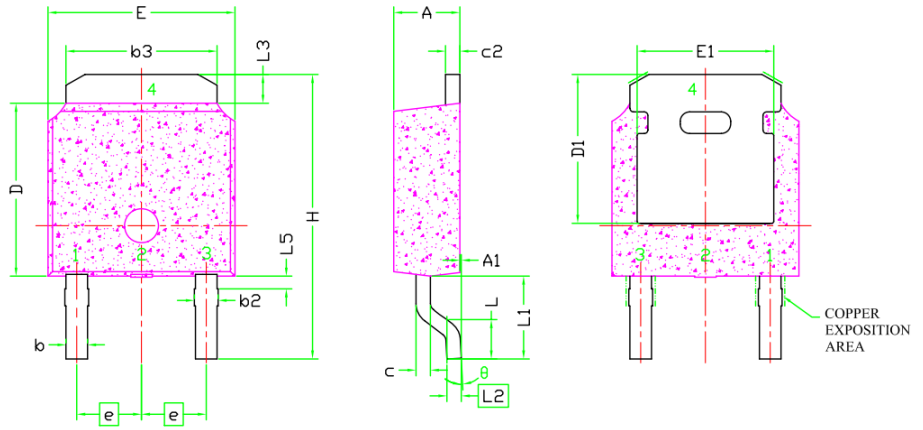


Figure 8: Transient Thermal Impedance

Package Dimensions



SYMBOL	DIMENSIONAL REQMTS		
	MIN	NOM	MAX
E	6.40	6.60	6.731
L	1.40	1.52	1.77
L1	2.743 REF		
L2	0.508 BSC		
L3	0.89	--	1.27
L5	--	--	--
D	6.00	6.10	6.223
H	9.40	10.00	10.40
b	0.64	0.76	0.88
b2	0.77	0.84	1.14
b3	5.21	5.34	5.46
e	2.286 BSC		
A	2.20	2.30	2.38
A1	0	--	0.127
c	0.46	0.50	0.60
c2	0.46	0.50	0.58
D1	5.21	--	--
E1	4.40	--	--
θ	0°	--	10°