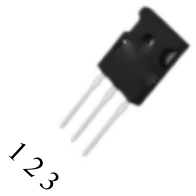
LGE3D20065D

Silicon Carbide Schottky Diode

V_{RRM}	=	650	V
$I_{F(Tc=150\ ℃)}$	=	20	A**
Q_c	=	72	nC**

Features

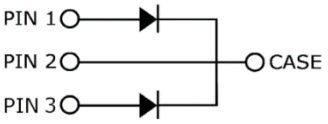
- 650 V Schottky Rectifier
- Zero Reverse Recovery Current
- High-Frequency Operation
- Temperature-Independent Switching
- Extremely Fast Switching



TO-247-3

Benefits

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



Applications

- Switch Mode Power Supplies
- Power Factor Correction
- Motor Drives

Part Number	Package	Marking
LGE3D20065D	TO-247-3	LGE3D20065D

Maximum Ratings

（Tc = 25℃ unless otherwise specified）

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	650	V		
V_{RSM}	Surge Peak Reverse Voltage	650	V		
V_{DC}	DC Blocking Voltage	650	V		
I_F	Continuous Forward Current (Per Leg / Devices)	31/62 15/30 10/20	A	Tc=25 ℃ Tc=135 ℃ Tc=150 ℃	Fig. 3
I_{FSM}	Non-Repetitive Peak Forward Surge Current	80*	A	Tc=25 ℃，tp=10 ms，Half Sine Pulse	
P_{tot}	Power Dissipation (Per Leg/ Device)	109* 48*	W	Tc=25 ℃ Tc=110 ℃	Fig. 4
T_J, T_{stg}	Operating Junction and Storage Temperature	-55 to +175	℃		

*Per Leg, **Per Device

Electrical Characteristics (Per Leg)

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.42 1.65	1.7 2.2	V	I_F = 10 A, T_J = 25 °C I_F = 10 A, T_J = 175 °C	Fig. 1
I_R	Reverse Current	2 10	50 200	μA	V_R = 650 V, T_J = 25 °C V_R = 650 V, T_J = 175 °C	Fig. 2
Q_c	Total Capacitive Charge	36		nC	V_R = 400 V, I_F = 10 A, T_J = 25 °C	Fig. 6
C	Total Capacitance	695 69 52		pF	V_R = 0 V, T_J = 25 °C, f = 1 MHz V_R = 200 V, T_J = 25 °C, f = 1 MHz V_R = 400 V, T_J = 25 °C, f = 1 MHz	Fig. 5
E_C	Capacitance Stored Energy	4.6		μJ	V_R = 400 V	Fig. 7

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

Thermal Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case		*1.4 **0.7		°C/W	Fig. 8

*Per Leg, **Per Device

Typical Performance (Per Leg)

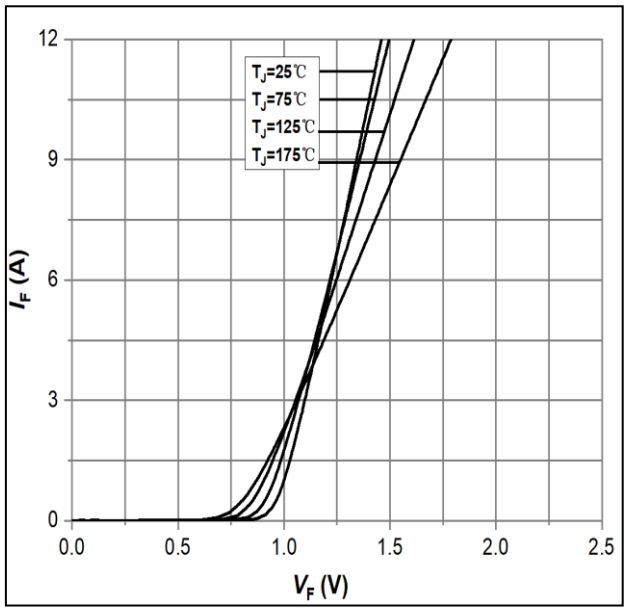


Figure 1: Forward Characteristics

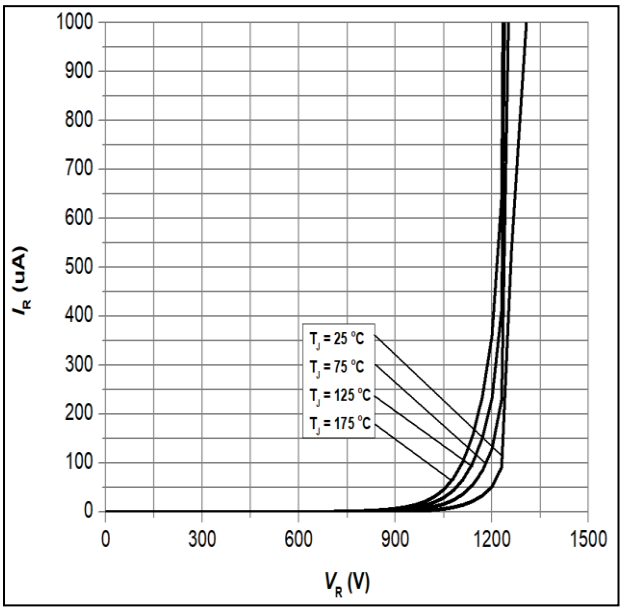


Figure 2: Reverse Characteristics

Typical Performance (Per Leg)

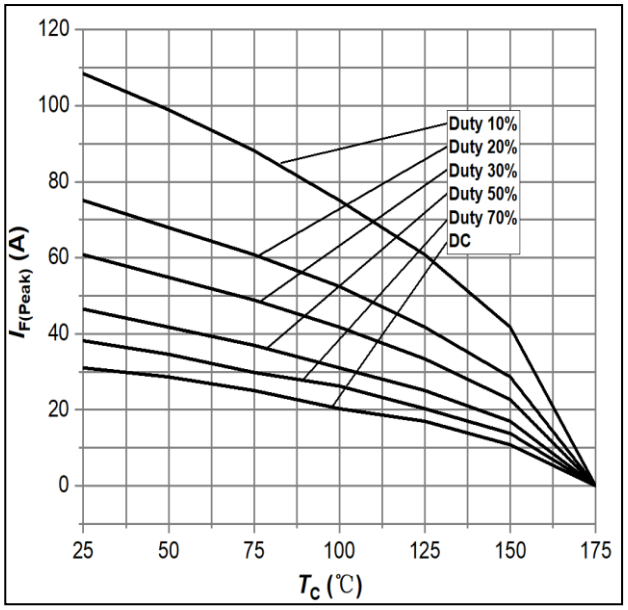


Figure 3: Current Derating

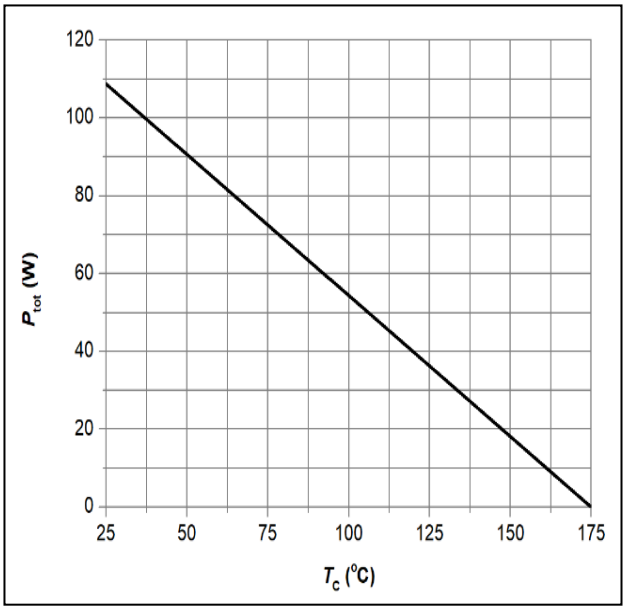


Figure 4: Power Derating

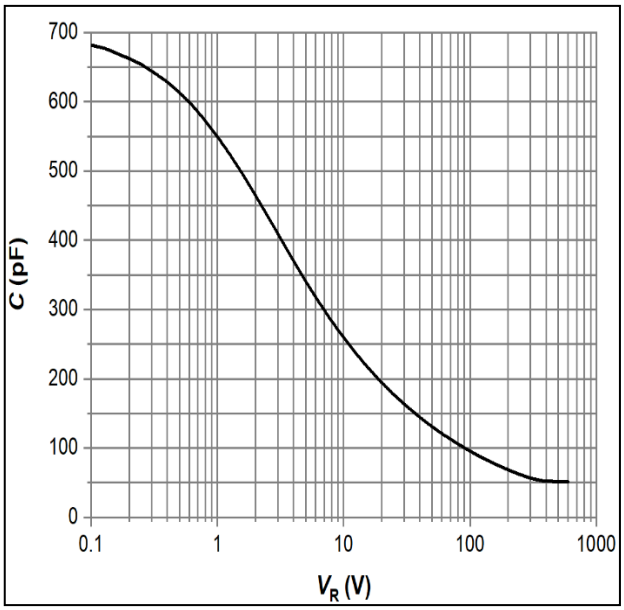


Figure 5: Capacitance vs. Reverse Voltage

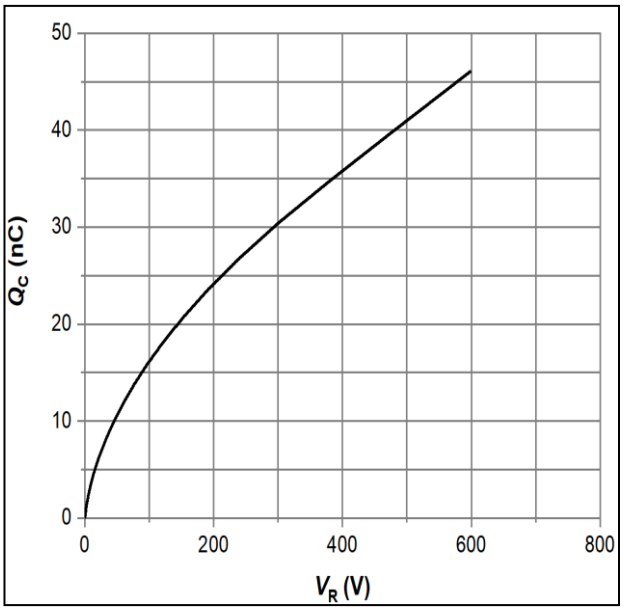


Figure 6: Total Capacitance Charge vs. Reverse Voltage

Typical Performance (Per Leg)

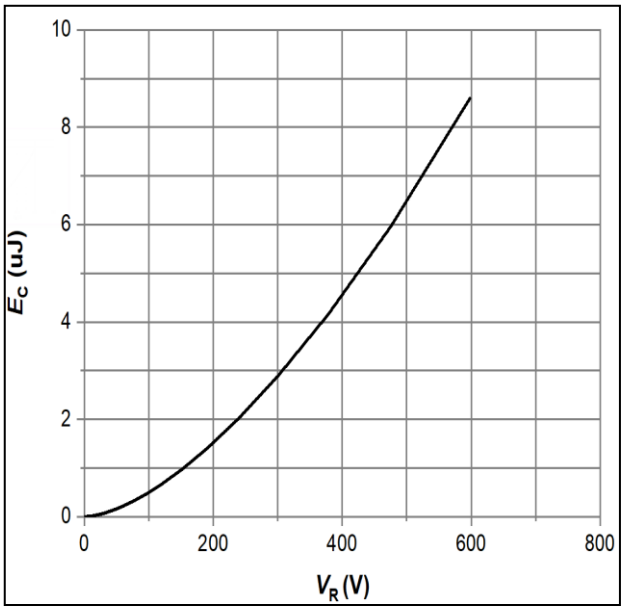


Figure 7: Capacitance Stored Energy

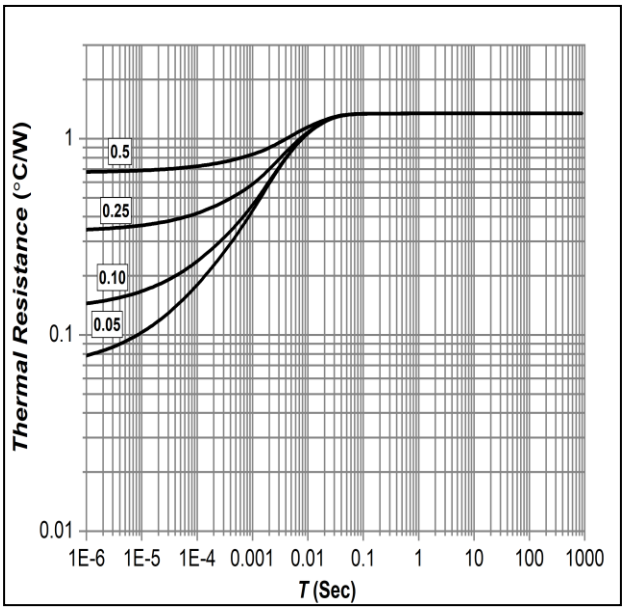


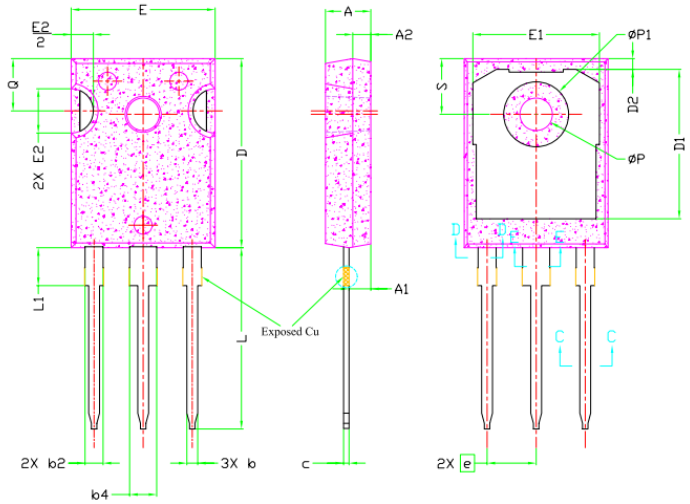
Figure 8: Transient Thermal Impedance

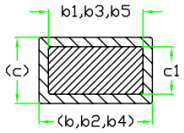
LGE3D20065D

Silicon Carbide Schottky Diode

Package Dimensions

Package：TO-247-3





Section C–C,D–D,E–E

SYMBOL	DIMENSIONS			NOTES
	MIN.	NOM.	MAX.	
A	4.83	5.02	5.21	
A1	2.29	2.41	2.55	
A2	1.50	2.00	2.49	
b	1.12	1.20	1.33	
b1	1.12	1.20	1.28	
b2	1.91	2.00	2.39	6
b3	1.91	2.00	2.34	
b4	2.87	3.00	3.22	6, 8
b5	2.87	3.00	3.18	
c	0.55	0.60	0.69	6
c1	0.55	0.60	0.65	
D	20.80	20.95	21.10	4
D1	16.25	16.55	17.65	5
D2	0.51	1.19	1.35	
E	15.75	15.94	16.13	4
E1	13.46	14.02	14.16	5
E2	4.32	4.91	5.49	3
e		5.44BSC		
L	19.81	20.07	20.32	
L1	4.10	4.19	4.40	6
ØP	3.56	3.61	3.65	7
ØP1		7.19REF.		
Q	5.39	5.79	6.20	
S	6.04	6.17	6.30	

Packge	Packing	Box Size L×W×H(mm)	Quatity(pcs/box)	Carton Size L×W×H(mm)	Quatity(pcs/carton)
TO-247	30pcs/Tube	570×155×50	450	580×340×125	1800