



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

Features

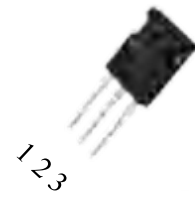
- 650 V Schottky Rectifier
- Zero Reverse Recovery Current
- High-Frequency Operation
- Temperature-Independent Switching
- Extremely Fast Switching

Benefits

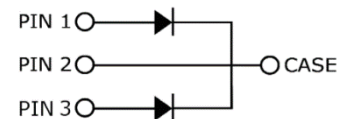
- Replace Bipolar with Unipolar Rectifiers
- Essentially No Switching Losses
- High Efficiency
- Reduction of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway

Applications

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



TO-247-3L



Part Number	Package	Marking
LGE3D20065D	TO-247-3L	LGE3D20065D

Maximum Ratings

($T_c = 25^{\circ}\text{C}$ 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	$T_c=25\text{ }^{\circ}\text{C}$ $T_c=135\text{ }^{\circ}\text{C}$ $T_c=150\text{ }^{\circ}\text{C}$	Fig. 3
I_{FSM}	Non-Repetitive Peak Forward Surge Current	80*	A	$T_c=25\text{ }^{\circ}\text{C}$, $t_p=10\text{ ms}$, Half Sine Pulse	
P_{tot}	Power Dissipation (Per Leg/ Device)	109* 48*	W	$T_c=25\text{ }^{\circ}\text{C}$ $T_c=110\text{ }^{\circ}\text{C}$	Fig. 4
T_J, T_{stg}	Operating Junction and Storage Temperature	-55 to +175	$^{\circ}\text{C}$		

*Per Leg, **Per Device



Electrical Characteristics (Per Leg)

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.42	1.7	V	$I_F = 10\text{ A}, T_J = 25\text{ }^\circ\text{C}$	Fig. 1
		1.65	2.2		$I_F = 10\text{ A}, T_J = 175\text{ }^\circ\text{C}$	
I_R	Reverse Current	2	50	μA	$V_R = 650\text{ V}, T_J = 25\text{ }^\circ\text{C}$	Fig. 2
		10	200		$V_R = 650\text{ V}, T_J = 175\text{ }^\circ\text{C}$	
Q_c	Total Capacitive Charge	36		nC	$V_R = 400\text{ V}, I_F = 10\text{ A}, T_J = 25\text{ }^\circ\text{C}$	Fig. 6
C	Total Capacitance	695		pF	$V_R = 0\text{ V}, T_J = 25\text{ }^\circ\text{C}, f = 1\text{ MHz}$	Fig. 5
		69			$V_R = 200\text{ V}, T_J = 25\text{ }^\circ\text{C}, f = 1\text{ MHz}$	
		52			$V_R = 400\text{ V}, T_J = 25\text{ }^\circ\text{C}, f = 1\text{ MHz}$	
E_c	Capacitance Stored Energy	4.6		μJ	$V_R = 400\text{ V}$	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		$^\circ\text{C/W}$	Fig. 8

*Per Leg, **Per Device

Typical Performance (Per Leg)

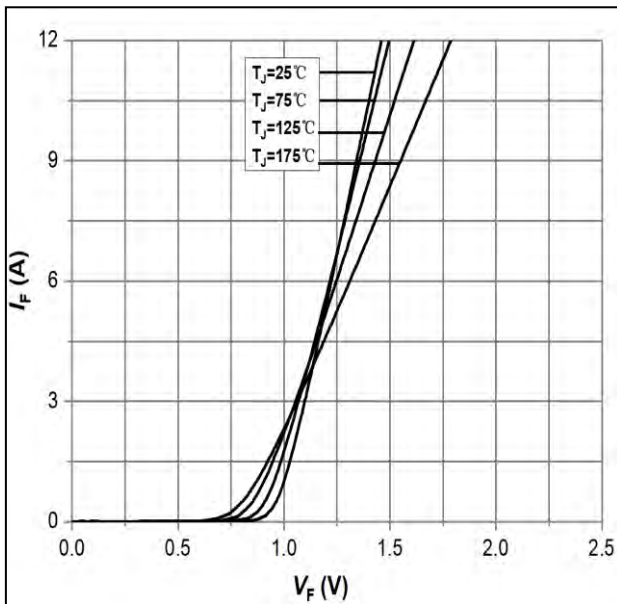


Figure 1: Forward Characteristics

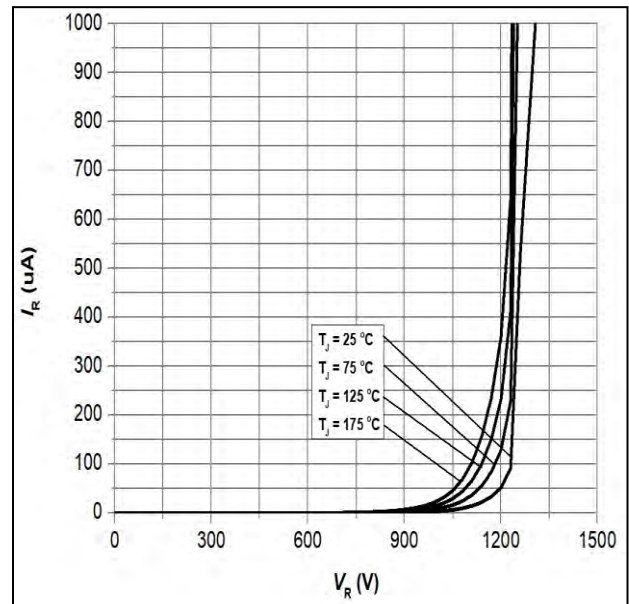


Figure 2: Reverse Characteristics



Typical Performance (Per Leg)

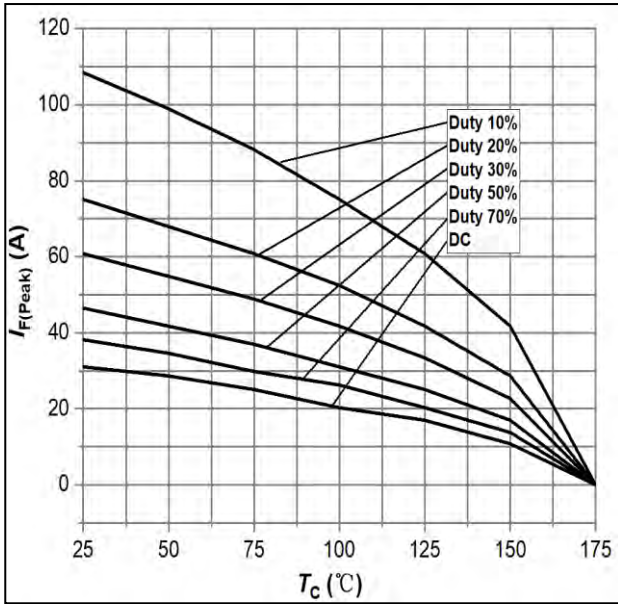


Figure 3: Current Derating

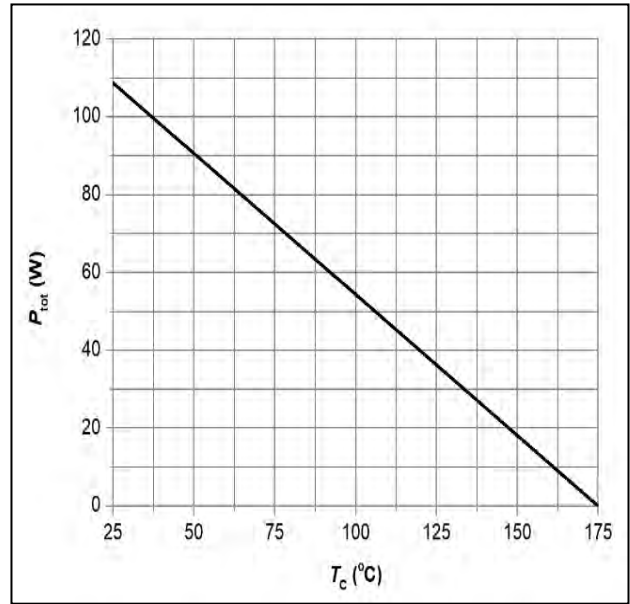


Figure 4: Power Derating

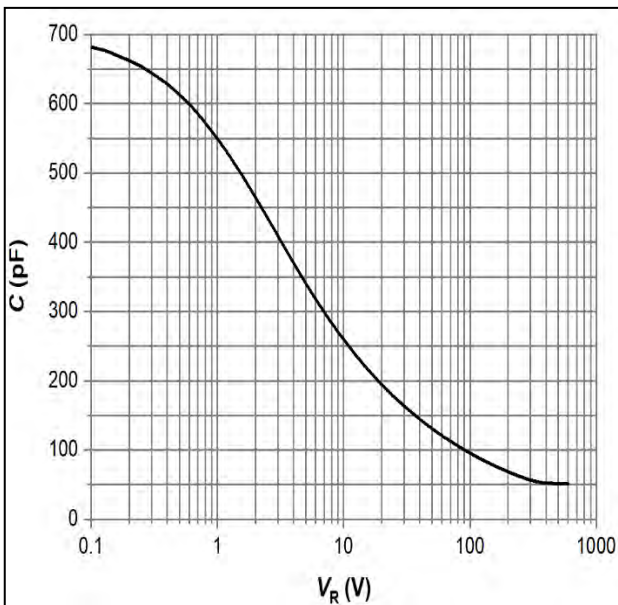


Figure 5: Capacitance vs. Reverse Voltage

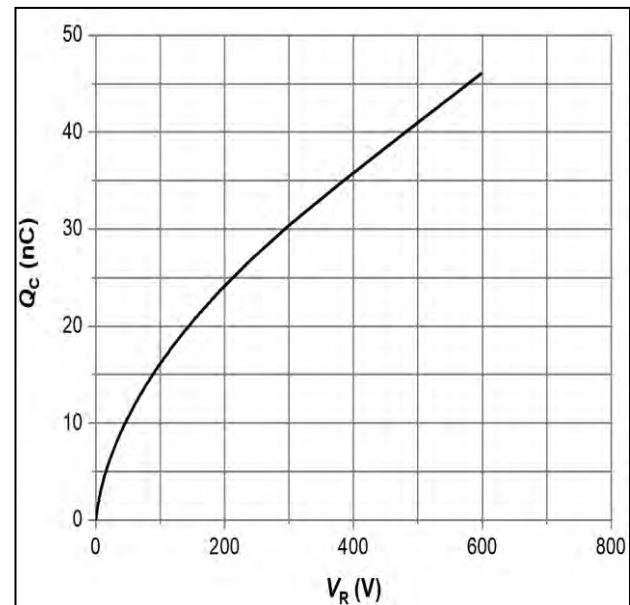


Figure 6: Total Capacitance Charge vs. Reverse Voltage



LGE3D20065D

Silicon Carbide Schottky Diode



Typical Performance (Per Leg)

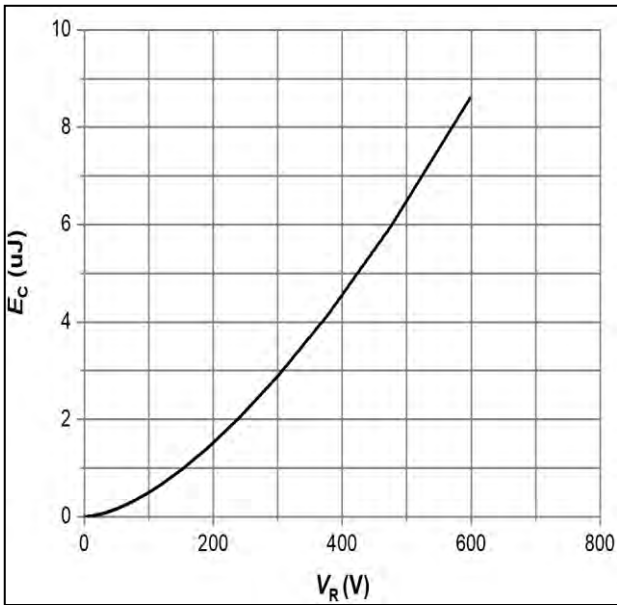


Figure 7: Capacitance Stored Energy

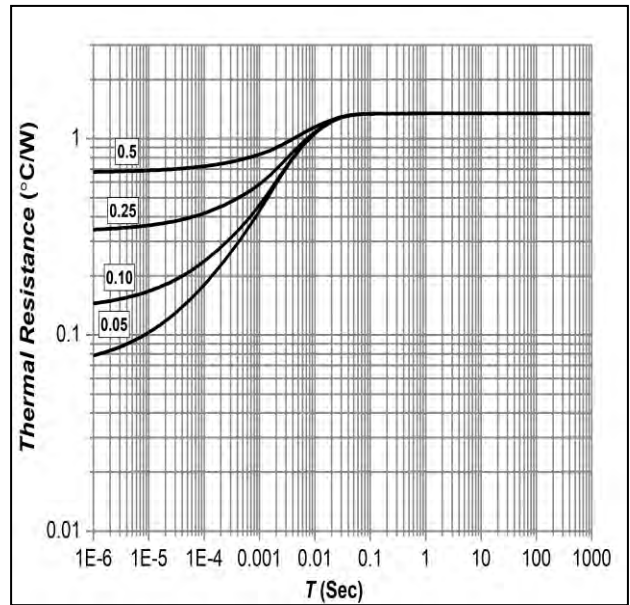


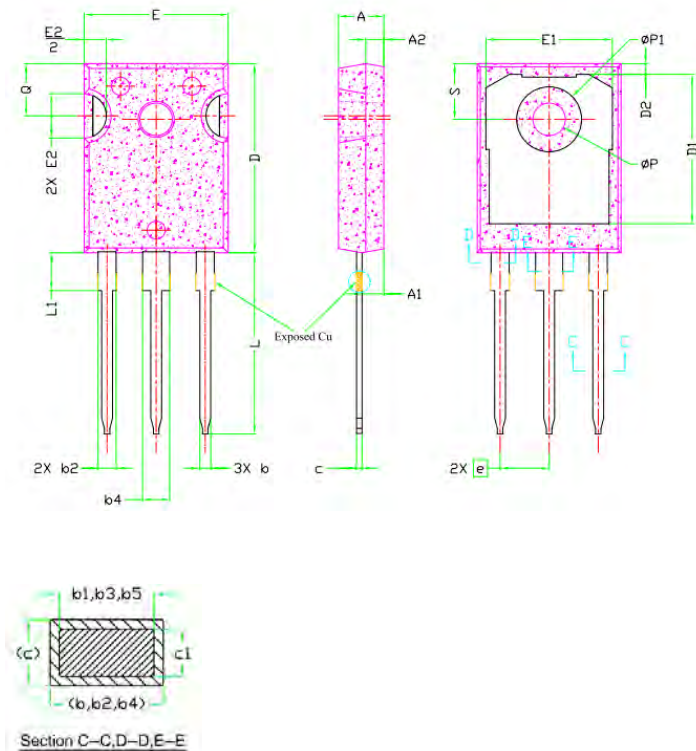
Figure 8: Transient Thermal Impedance

Package Dimensions

Package: TO-247-3L

LGE3D20065D

Silicon Carbide Schottky Diode



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
∅P	3.56	3.61	3.65	7
∅P1	7.19REF.			
Q	5.39	5.79	6.20	
S	6.04	6.17	6.30	

Package	Packing	Box Size LxWxH(mm)	Quantity(pcs/box)	Carton Size LxWxH(mm)	Quantity(pcs/carton)
TO-247-3L	30pcs/Tube	570x155x50	450	580x340x125	1800