LGE3D10065AI

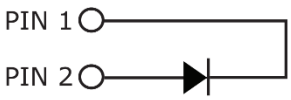
Silicon Carbide Schottky Diode

V_{RRM}	=	650 V
I_F (T_C=149℃)	=	10 A
Q_C	=	36 nC

Features

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

Isolated TO-220AC



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
LGE3D10065AI	Isolated TO-220AC	LGE3D10065AI

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_R	DC Peak Reverse Voltage	650	V		
I_F	Continuous Forward Current	29 12.7 10	A	T_c=25 ℃ T_c=135 ℃ T_c=149 ℃	Fig. 3
I_{FSM}	Non-Repetitive Forward Surge Current	80	A	T_c=25 ℃，t_p=10 ms，Half Sine Pulse	
P_{tot}	Power Dissipation	94 40	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 1.65	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		1.6		°C/W	Fig.8

Typical Performance

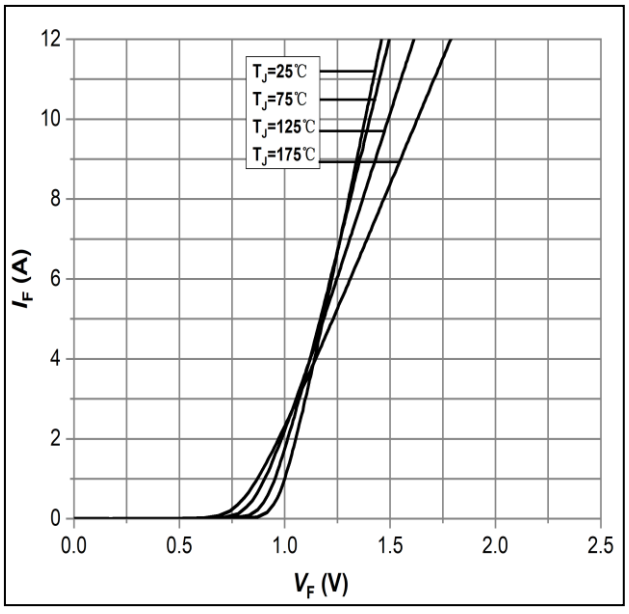


Figure 1: Forward Characteristics

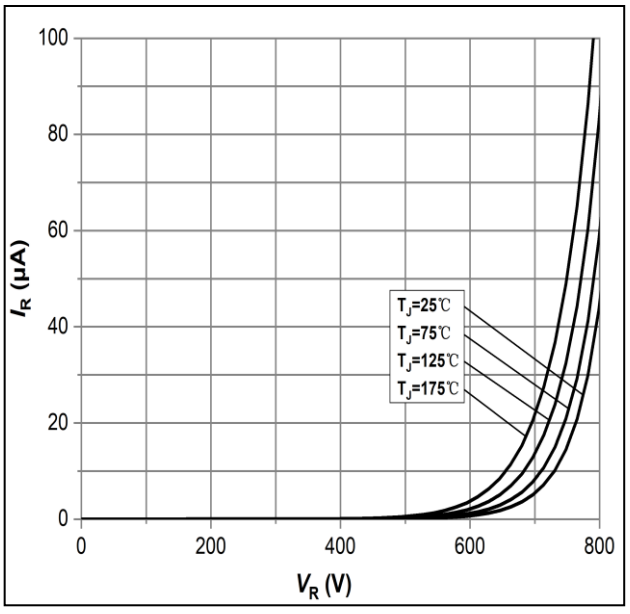


Figure 2: Reverse Characteristics

Typical Performance

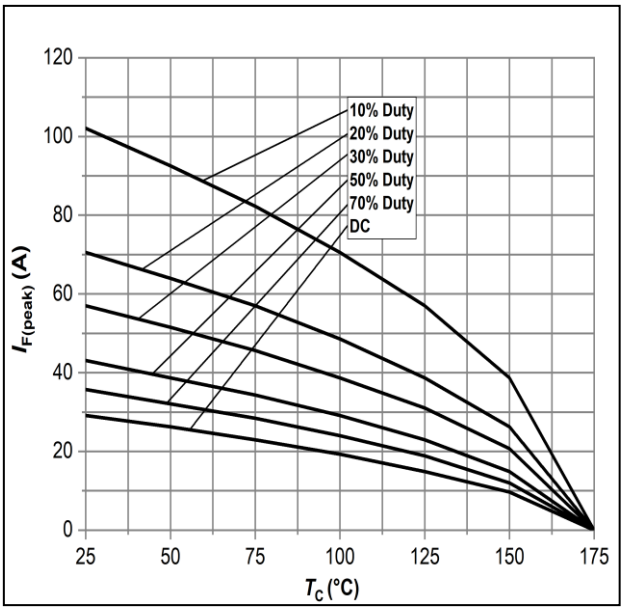


Figure 3: Current Derating

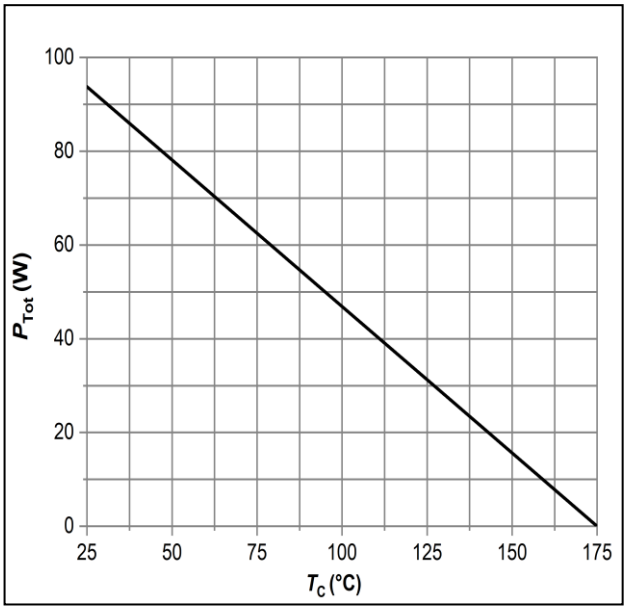


Figure 4: Power Derating

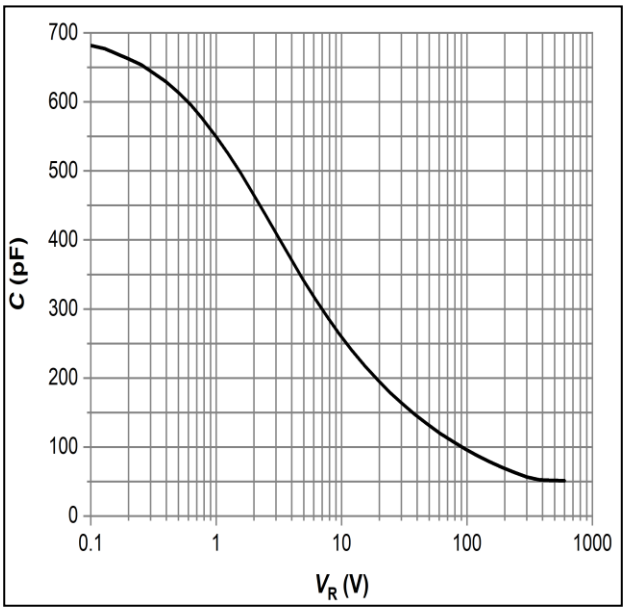


Figure 5: Capacitance vs. Reverse Voltage

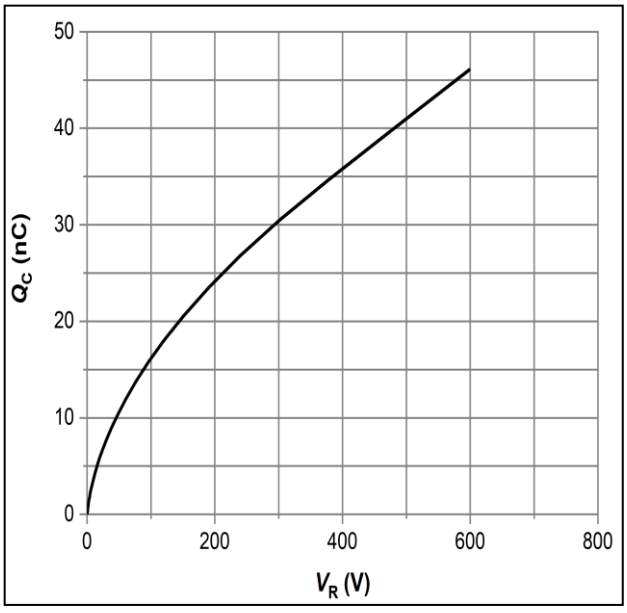


Figure 6: Total Capacitance Charge vs. Reverse Voltage

Typical Performance

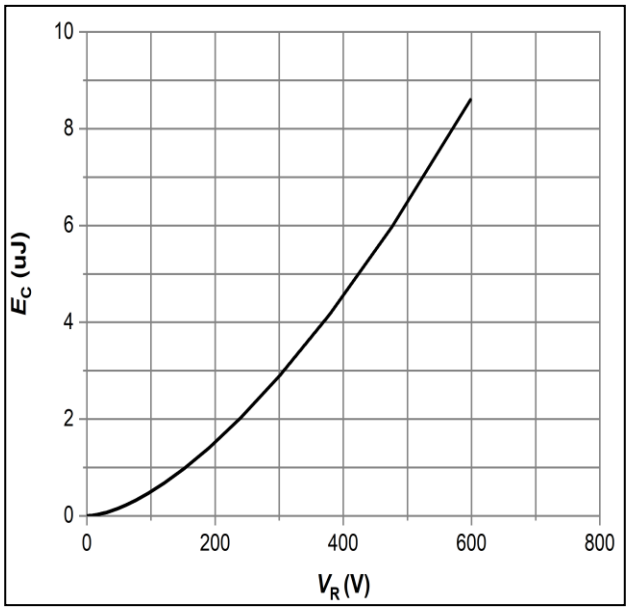


Figure 7:Typical Capacitance Stored Energy

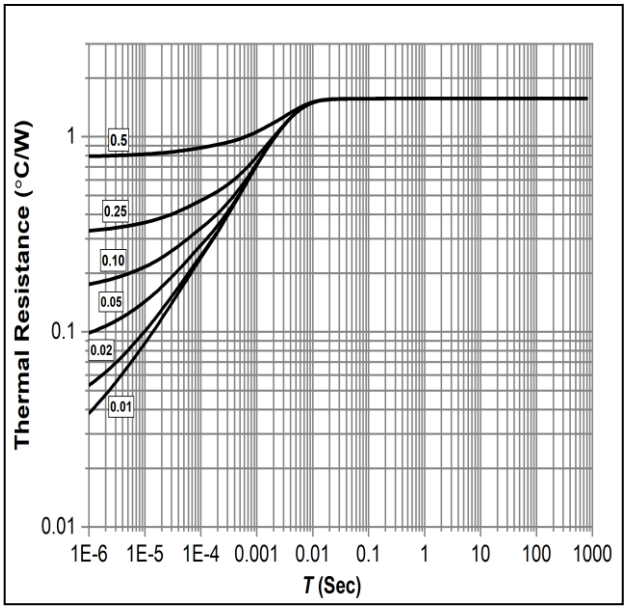


Figure 8: Transient Thermal Impedance

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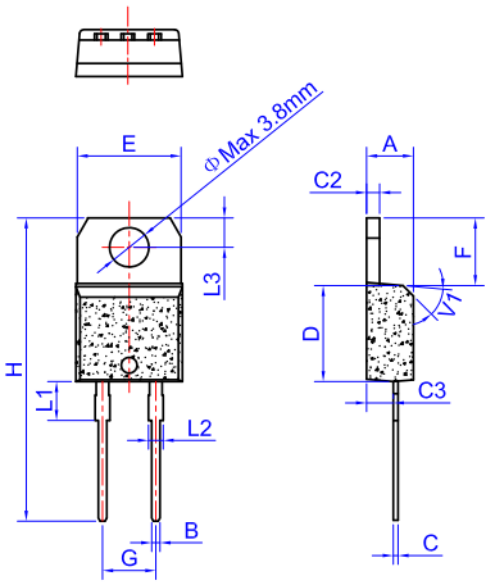
Silicon Carbide Schottky Diode

Package Dimensions

Package：Isolated TO-220AC



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.55		6.95	0.258		0.274
G		5.08			0.2	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

Packge	Packing	Box Size L×W×H(mm)	Quatity(pcs/box)	Carton Size L×W×H(mm)	Quatity(pcs/carton)
TO-220AC	50pcs/Tube	558×148×38	1000	565×225×175	5000