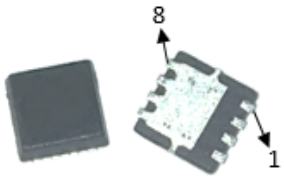
LGE5D06065F

Silicon Carbide Schottky Diode

Features

- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- Low power loss,high efficiency
- High Frequency Operation
- Extremely Fast Switching
- Temperature-independent Switching
- Positive Temperature Coefficient on V_F
- Operating Junction Temperature 175℃

$V_{RRM:}$	=	650V
IF(TC=142℃)=		6.0A
QC	=	13.2nC



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Benefits

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

Applications

- SwitcH Mode Power Supplies(SMPS)
- Power Factor Correction
- Motor Drive,PV Inverter,Wind Power Station

Mechanical Data

- Moisture Sensitivity: MSL Level 1,per J-STD-020
- Terminals:Matte Tin Finish.

  Solderable per MIL-STD-202 Method 208
- Case Material：Molded Plastic;

  Molding compound meet UL Flammability ClassificationRating 94V-0
- Case:JEDEC PDFN3*3

Part Number	Package	Marking
LGE5D06065F	PDFN3*3	LGE5D06065F

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Maximum Ratings

Ratings at 25℃ ambient tepmerature unless otherwise specified.

Symbol	Paramter	Value	Unit	Test Conditions	Note
V_{RRM}	Maximum repetitive peak reverse voltage	650	V	T_C=25℃	
V_{RSM}	Surge Peak Reverse Voltage	650	V	T_C=25℃	
V_R	Maximum DC blocking voltage	650	V	T_C=25℃	
I_F	Forward Current	14.5 6.7 6.0	A	T_C=25℃ T_C=135℃ T_C=142℃	Figure 3
I_{FSM}	Non-Repetitive Forward Surge current	38 32	A	T_C=25℃,tp=10ms,Half Sine Pulse T_C=110℃,tp=10ms,Half Sine Pulse	Figure 9
$I_{F,MAX}$	Non-Repetitive Forward Surge Current	266 241	A	T_C=25℃,tp-10 μ s,Square Wave Pulse T_C=110℃,tp-10μs,Square Wave Pulse	Figure 9
P_{tot}	Power Dissipation	52 22	W	T_C=25℃ T_C=110℃	Figure 4
Tc	Maximum Case Temperature	142	℃		
T_J,T_{STG}	Junction temperature and Storage Temperature	-55~175	℃		
I_{FRM}	Repetitive Peak Forward Surge Current	32 27	A	T_C=25℃,tp=10ms,Half Sine Pulse T_C=110℃,tp=10ms,Half Sine Pulse	Figure 9
$R_{\theta JC}$	Thermal Resistance(Junction to Case)	2.9	℃/W		Figure 8

Electrical Characteristics(T_J=25℃, unless otherwise specified)

Symbol	Paramter	Value			Unit	Test Conditions	Note
		Min.	Typ.	Max.			
V_F	Forward Voltage		1.4 1.7	1.7 2.2	V	I_F=6A,T_J=25℃ I_F=6A,T_J=175℃	Figure 1
I_R	Reverse Voltage		1 6	20 160	μ A	V_R=650V,T_J=25℃ V_R=650V,T_J=175℃	Figure 2
Q_C	Total Capacitive Charge		13.2		nC	V_R=400V,I_F=6A, di/dt=500A/ μ s,TJ=25℃	Figure 5
C	Total Capacitance		255 25 21		pF	V_R=0V,T_J=25℃,f=1MHz V_R=200V,T_J=25℃,f=1MHz V_R=400V,T_J=25℃,f=1MHz	Figure 6
E_C	Capacitance Stored Energy		2.0		μ J	V_R=400V	Figure 7

Typical Performance

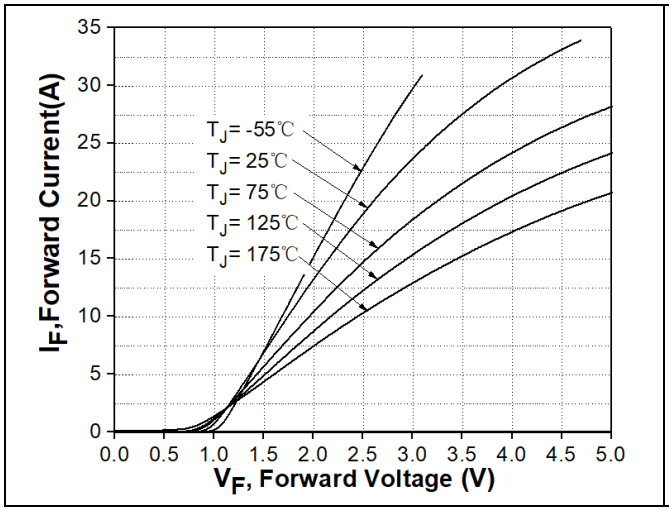

Figure 1. Forward Characteristics

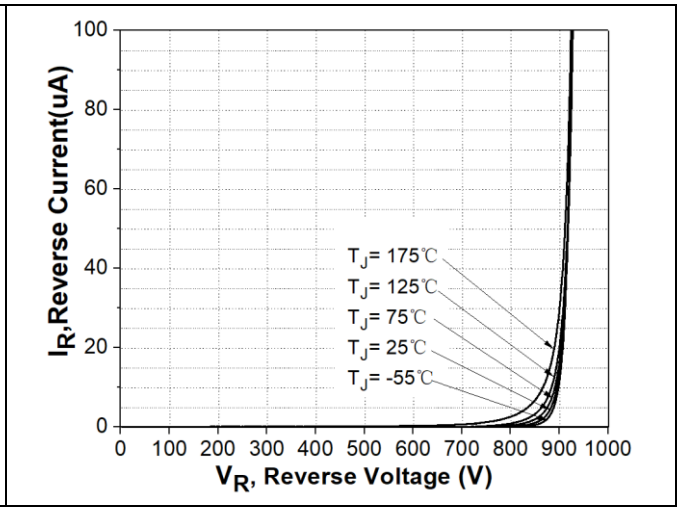

Figure 2. Reverse Characteristics

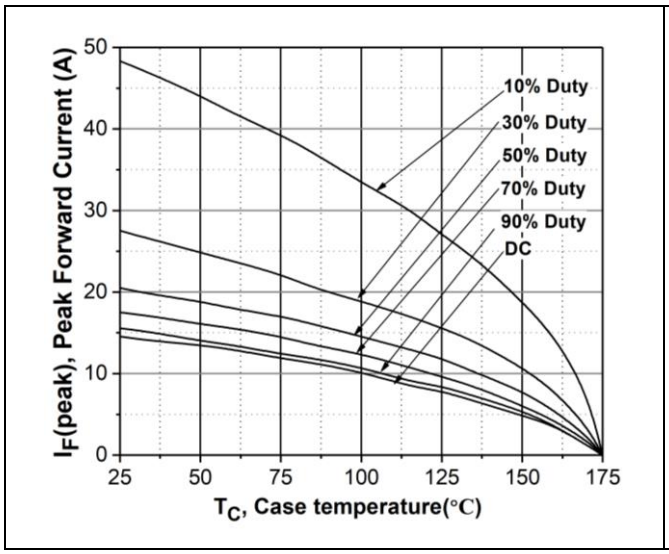

Figure 3. Current Derating

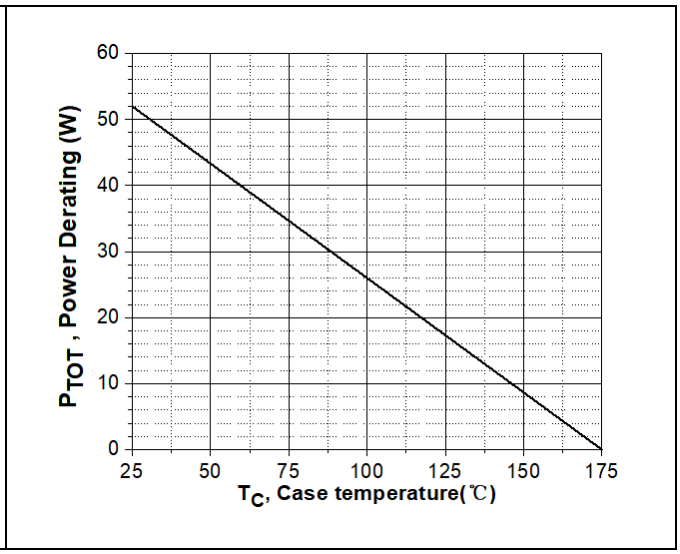

Figure 4. Power Derating

Typical Performance

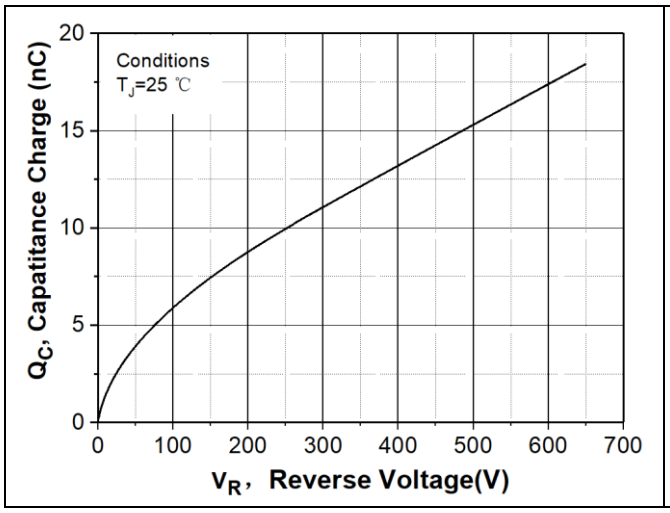

Figure 5. Capacitance Charge Vs. Reverse Voltage

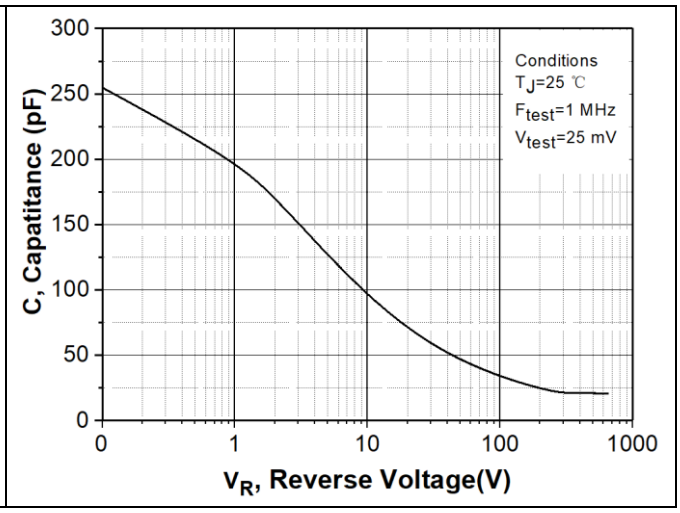

Figure 6. Capacitance Vs. Reverse Voltage

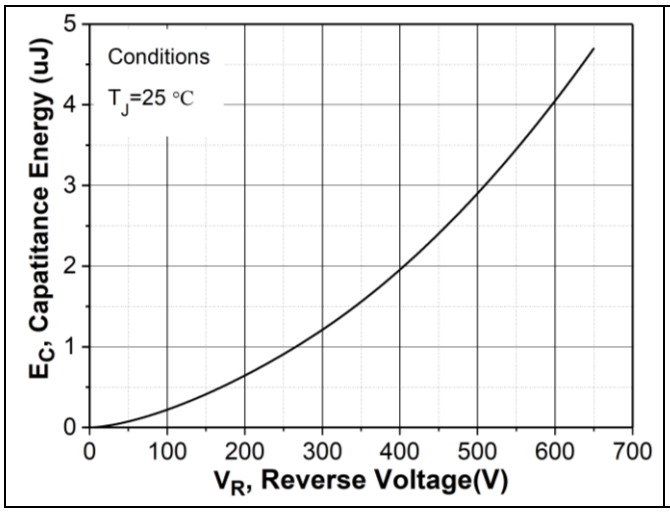

Figure 7. Capacitance Stored Energy

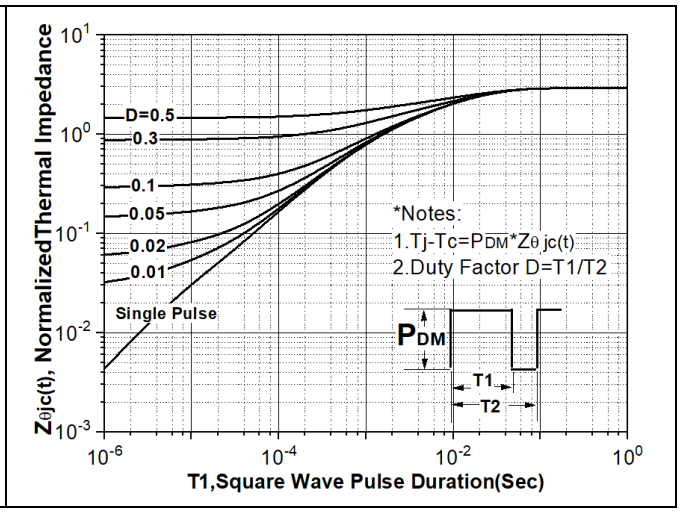

Figure 8. Transient Thermal Response Curve(Junction-to-Case)

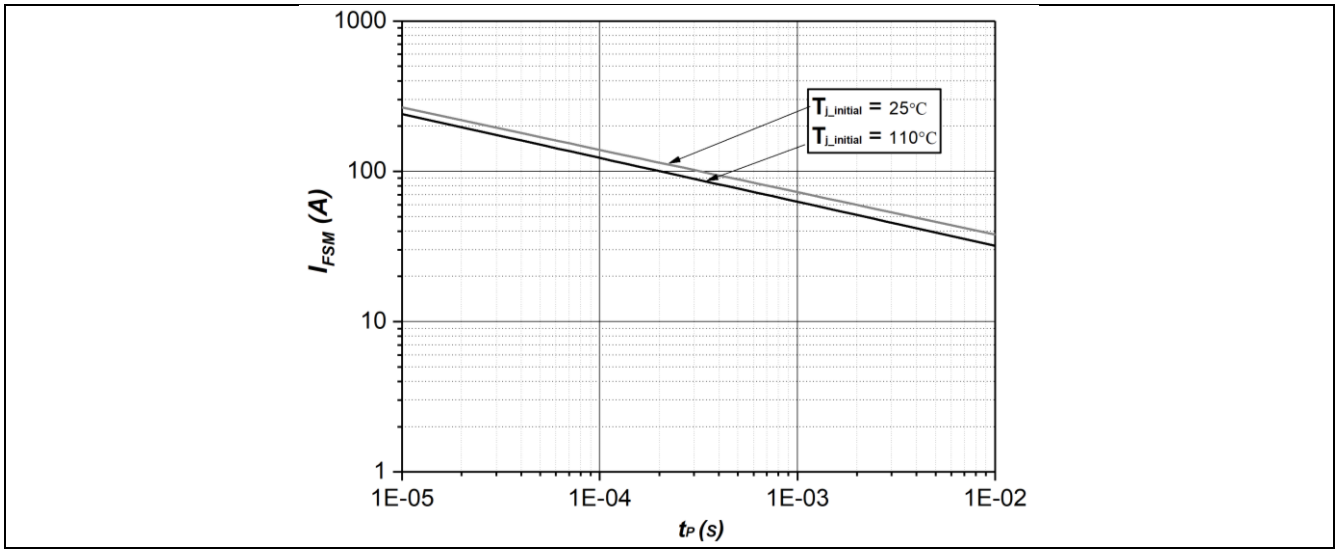

Figure 9. Non-repetitive peak forward surge current versus pulse duration (sinusoidal waveform)

Package Dimensions

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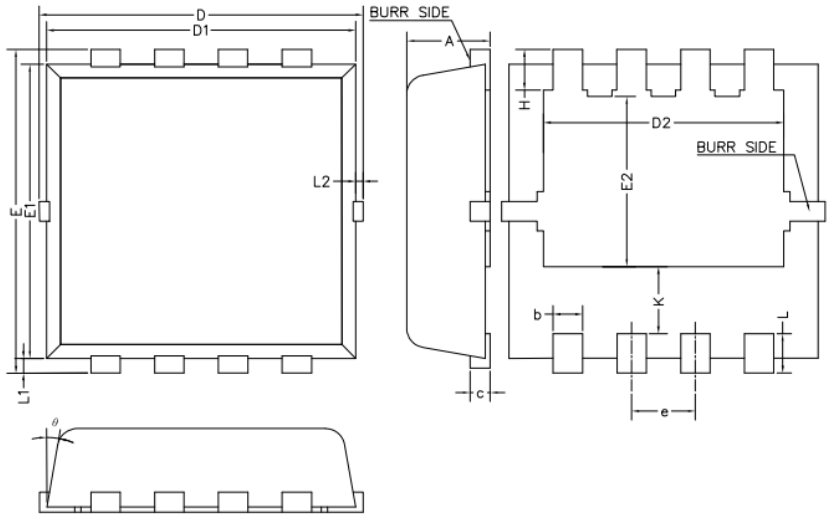
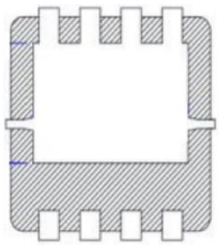


Dim	Millimeters		
	MIN	MAX	MAX
A	0.70	0.80	0.90
b	0.25	0.30	0.35
c	0.14	0.15	0.20
D	3.10	3.30	3.50
D1	3.05	3.15	3.25
D2	2.35	2.45	2.55
e	0.55	0.65	0.75
E	3.10	3.30	3.50
E1	2.90	3.00	3.10
E2	1.64	1.74	1.84
H	0.32	0.42	0.52
K	0.59	0.69	0.79
L	0.25	0.40	0.55
L1	0.10	0.15	0.20
L2	—	—	0.15
θ	8°	12°	12°

Recommended Solder Pad Layout



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