LGE3D10120H

Silicon Carbide Schottky Diode

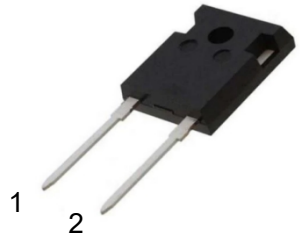
V_R	1200V
I_F	10A
Q_C	68nC

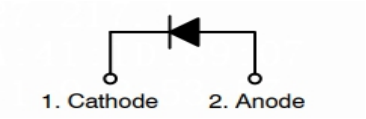
Features

- Low Forward Voltage Drop
- High-Speed Switching
- Positive Temperature Coefficient on VF
- High Operating Junction Temperature Capability

Applications

- Power Factor Correction
- Sever Mode Power Supplies
- Uninterruptible Power Supply





1 Absolute Maximum Ratings (T_j = 25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Value	Unit	Note
V_{RRM}	Repetitive Peak Reverse Voltage	T_c=25℃	1200	V	
I_F	Continuous Forward Current	T_c=25℃	34	A	Fig.4
		T_c=125℃	19		
		T_c=162℃	10		
I_{FRM}	Repetitive Peak Forward Surge Current	T_c=25℃, tp=10ms, Half Sine Wave (After test: V_F≥0.5V@I_F=1mA; V_R≥960V@I_R=1mA; I_R≤5mA@V_R=1200V)	92	A	
		T_c=125℃, tp=10ms, Half Sine Wave (After test: V_F≥0.5V@I_F=1mA; V_R≥960V@I_R=1mA; I_R≤5mA@V_R=1200V)	72		
I_{FSM}	Non-repetitive Peak Forward Surge Current	T_c=25℃, tp=10ms, Half Sine Wave (After test: V_F≥0.5V@I_F=1mA; V_R≥960V@I_R=1mA; I_R≤5mA@V_R=1200V)	111	A	Fig.10
		T_c=125℃, tp=10ms, Half Sine Wave (After test: V_F≥0.5V@I_F=1mA; V_R≥960V@I_R=1mA; I_R≤5mA@V_R=1200V)	98		
P_{tot}	Power Dissipation	T_c=25℃	192	W	Fig.5
		T_c=125℃	64	W	
T_{stg}	Storage Temperature		--55 to 175	℃	

2 Electrical Characteristics (T_j=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Value			Unit	Note
			Min	Typ	Max		
V_F	Forward Voltage	I_F=10A, T_j=25℃	-	1.28	1.5	V	Fig.1
		I_F=10A, T_j=125℃	-	1.49	-	V	
		I_F=10A, T_j=175℃	-	1.68	-	V	
I_R	Reverse Current	V_R=1200V, T_j=25℃	-	0.6	100	μA	Fig.2
		V_R=1200V, T_j=125℃	-	2.8	-	μA	
		V_R=1200V, T_j=175℃	-	10	-	μA	
Q_c	Total Capacitive Charge	V_R=800V, T_j=25℃	-	68	-	nC	Fig.7
C	Total Capacitance	f=1 MHz, V_R=0V, Tj=25℃	-	932	-	pF	Fig.6
		f=1 MHz, V_R=400V, Tj=25℃	-	61	-	pF	
		f=1 MHz, V_R=800V, Tj=25℃	-	49	-	pF	
E_C	Capacitance Stored Energy	V_R=800V, T_j=25℃	-	19	-	μJ	Fig.8

3 Thermal Characteristics

Symbol	Parameter	Conditions	Value	Unit	Note
$R_{th(j-c)}$	Thermal Resistance from Junction to Case		0.78	℃/W	Fig.9

4 Electrical Characteristic Curves

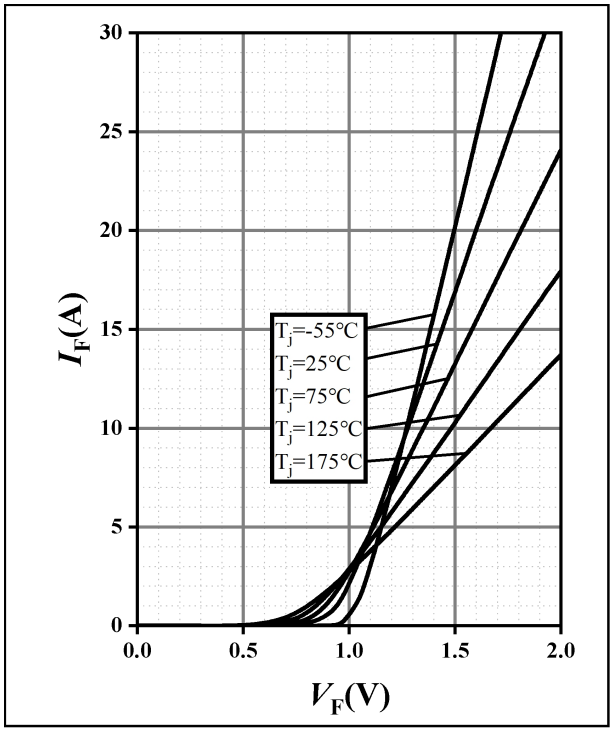


Fig.1 Forward Characteristics

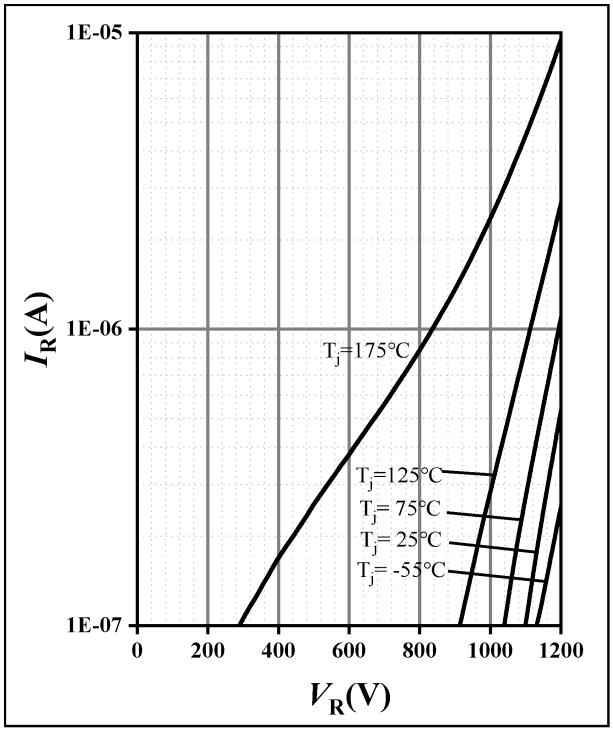


Fig.2 Reverse Characteristics

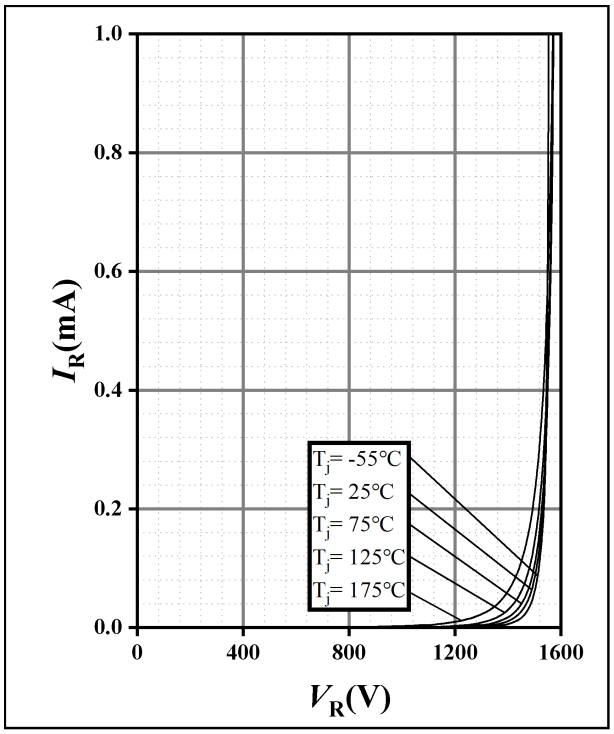


Fig.3 Reverse Characteristics

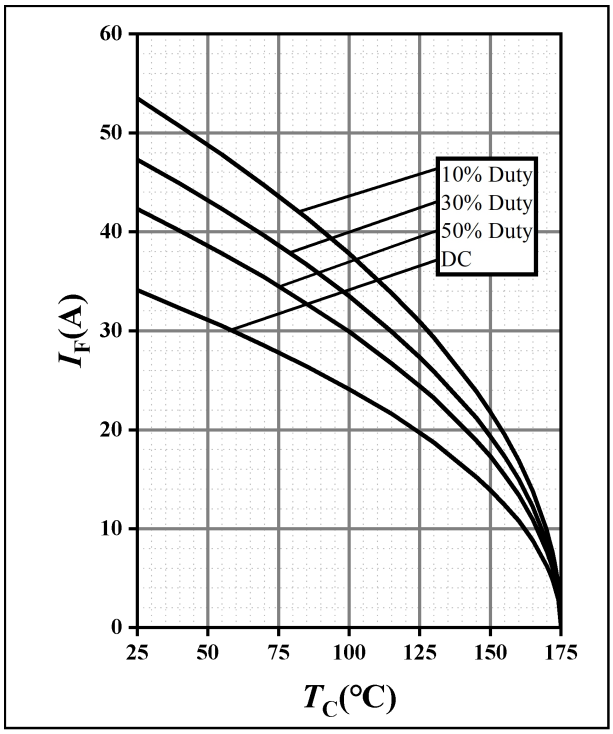


Fig.4 Peak Forward Current Derating

4 Electrical Characteristic Curves

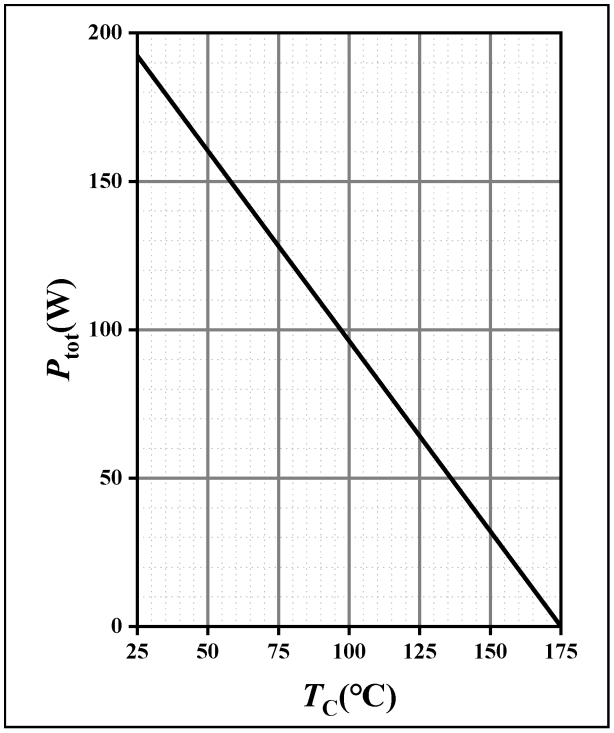


Fig.5 Power Dissipation

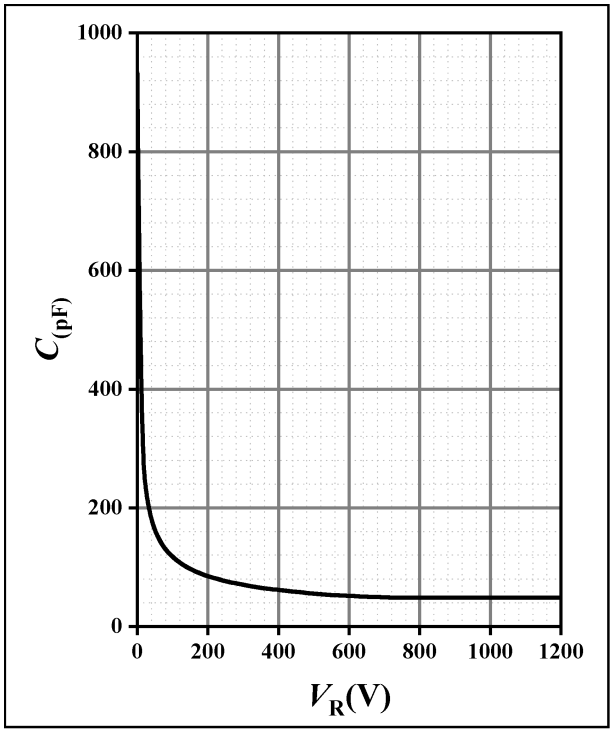


Fig.6 Capacitance vs. Reverse Voltage

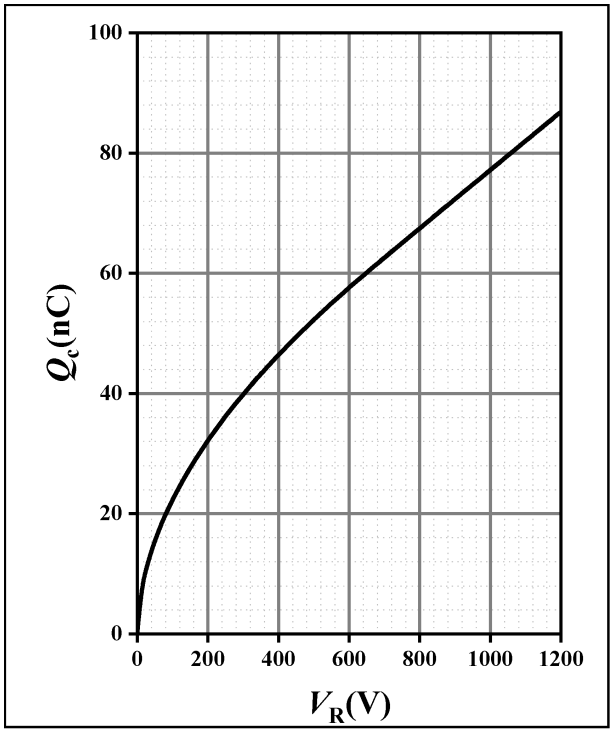


Fig.7 Capacitance Charge vs. Reverse Voltage

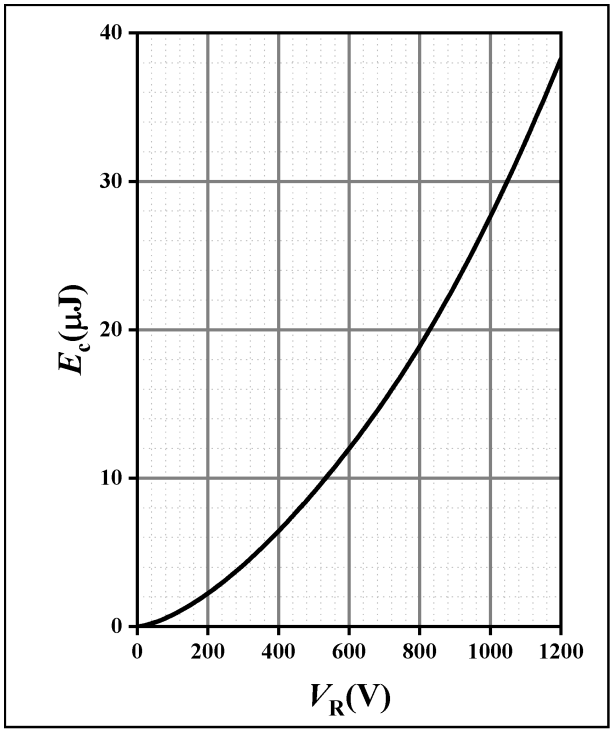


Fig.8 Capacitance Stored Energy vs. Reverse Voltage

4 Electrical Characteristic Curves

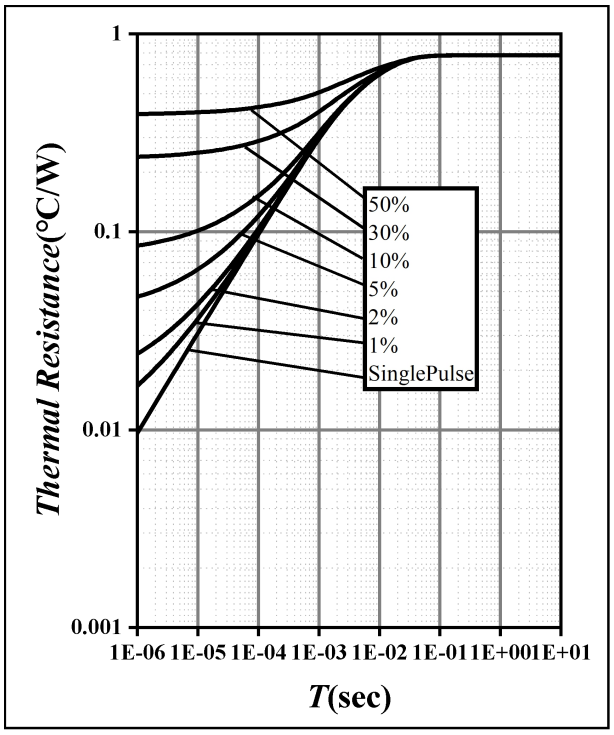


Fig.9 Transient Thermal Impedance

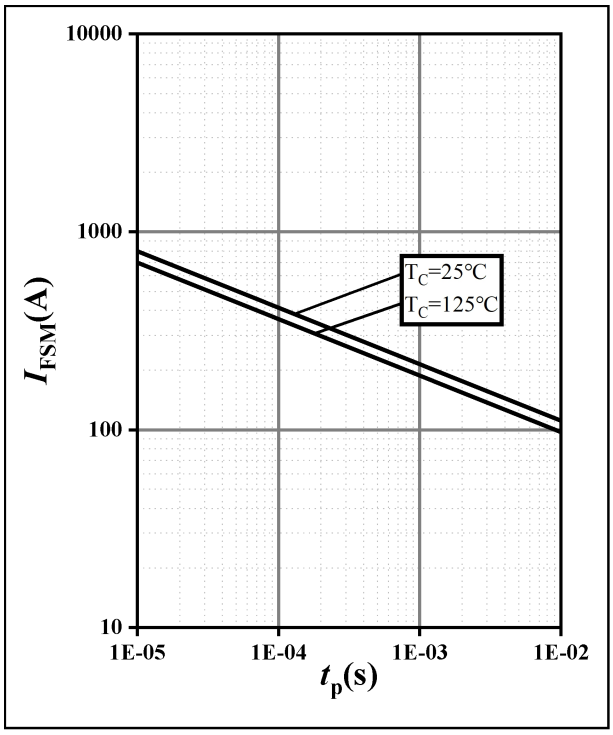
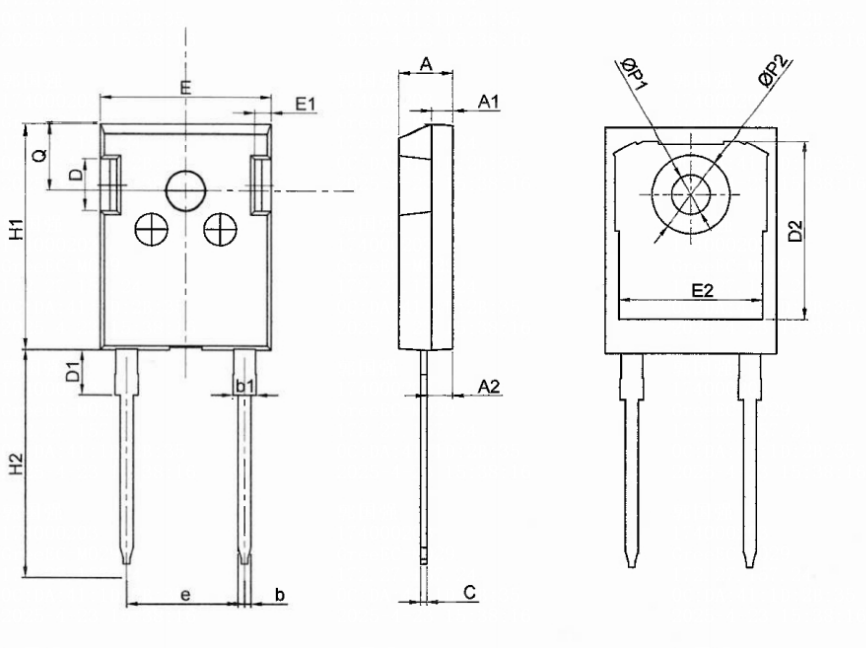


Fig.10 Non-Repetitive Peak Forward Surge Current vs. Pulse Duration

LGE3D10120H

Silicon Carbide Schottky Diode

5 Package Outline



SYMBOL	mm		
	MIN	NOM	MAX
A	4.80	5.00	5.20
A1	1.85	2.00	2.15
A2	2.20	2.40	2.60
b	1.10	1.20	1.30
b1	2.04	2.14	2.24
C	0.50	0.60	0.70
D	4.51	4.71	4.91
D1	-	-	4.35
D2	16.25	16.55	16.85
E	15.50	15.80	16.10
E1	1.33	1.53	1.73
E2	13.00	13.30	13.60
e	10.87 BSC		
H1	20.70	20.90	21.10
H2	19.62	19.92	20.22
ØP1	-	-	3.80
ØP2	-	-	7.30
Q	6.15 BSC		

Part Number	Package	Packing	Marking
LGE3D10120H	TO-247-2	30pcs / Tube	LGE3D12120H