



V_{RRM}	=	650 V
I_F ($T_C=148^\circ\text{C}$)	=	40 A
Q_c	=	42 nC

Features

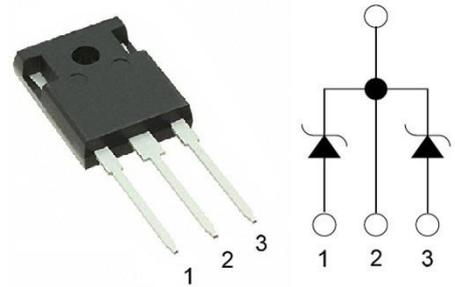
- Zero Forward/Reverse Recovery Current
- High Blocking Voltage
- High Frequency Operation
- Positive Temperature Coefficient on V_F
- Temperature Independent Switching Behavior
- 100% avalanche tested

Applications

- Servo Drives
- Solar Inverters
- Onboard EV chargers
- AC/DC converters
- DC/DC converters
- Uninterruptable power supplies

Benefits

- Higher System Efficiency
- Parallel Device Convenience without thermal runaway
- Higher Temperature Application
- No Switching loss
- Hard Switching & Higher Reliability
- Environmental Protection



TO-247-3

Part Number	Package	Marking
LGE3D40065D	TO-247-3	LGE3D40065D

Maximum Ratings ($T_C=25^\circ\text{C}$ unless otherwise specified)

Parameter		Test conditions	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}		650	V
	V_{RSM}		650	V
	V_R		650	V
Continuous Forward Current (per leg / per device)	I_F	$T_C=25^\circ\text{C}$	55/110	A
		$T_C=135^\circ\text{C}$	25/50	
		$T_C=148^\circ\text{C}$	20/40	
Non repetitive Forward Surge Current *	I_{FSM}	$T_C = 25^\circ\text{C}$, $t_p=10$ ms, Half Sine Pulse	125	A
		$T_C = 110^\circ\text{C}$, $t_p=10$ ms, Half Sine Pulse	115	
Repetitive peak Forward Surge Current *	I_{FRM}	$T_C = 25^\circ\text{C}$, $t_p=10$ ms, Freq = 0.1Hz, 100 cycles, Half Sine Pulse	115	A
		$T_C = 110^\circ\text{C}$, $t_p=10$ ms, Freq = 0.1Hz, 100 cycles, Half Sine Pulse	105	
Total power dissipation*	P_D	$T_C=25^\circ\text{C}$	246	W
Junction Temperature	T_J		-55 to 175	$^\circ\text{C}$
	T_{STG}		-55 to 175	$^\circ\text{C}$

Note : * Per leg ** Per device



Electrical Characteristics

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
DC Blocking Voltage *	V_{DC}	$T_J = 25^{\circ}C$	650			V
Forward Voltage *	V_F	$I_F = 20A, T_J = 25^{\circ}C$		1.45	1.75	V
		$I_F = 20A, T_J = 125^{\circ}C$		1.63		
		$I_F = 20A, T_J = 175^{\circ}C$		1.79		
Reverse Current *	I_R	$V_R = 650V, T_J = 25^{\circ}C$		1.2	70	μA
		$V_R = 650V, T_J = 125^{\circ}C$		6		
		$V_R = 650V, T_J = 175^{\circ}C$		18		
Total Capacitive Charge *	Q_C	$V_R = 400V, T_J = 25^{\circ}C$		42		nC
Total Capacitance *	C	$V_R = 1V, T_J = 25^{\circ}C,$ Freq = 1MHz		701		pF
		$V_R = 200V, T_J = 25^{\circ}C,$ Freq = 1MHz		81		
		$V_R = 400V, T_J = 25^{\circ}C,$ Freq = 1MHz		64		

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

Thermal Characteristics

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Thermal Resistance	$R_{th(j-c)}$	junction-case		0.61* 0.3**		$^{\circ}C/W$

Typical Electrical Curves (Per Leg)

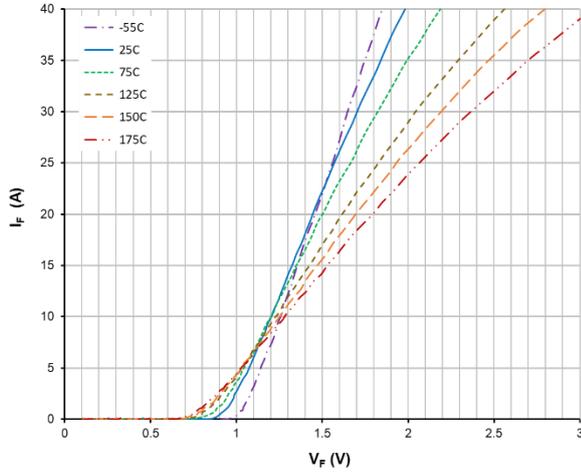


Figure 1. Forward Characteristics

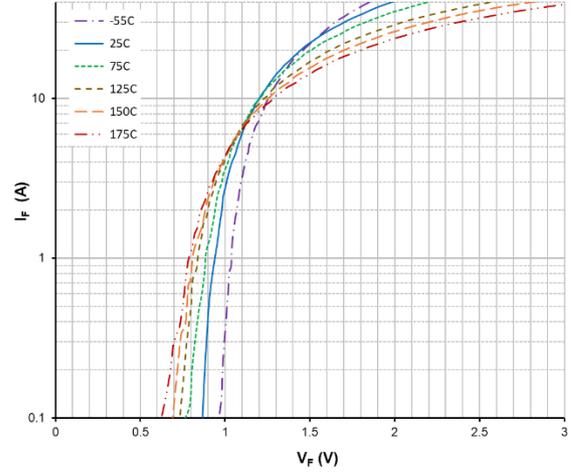


Figure 2. Forward Characteristics

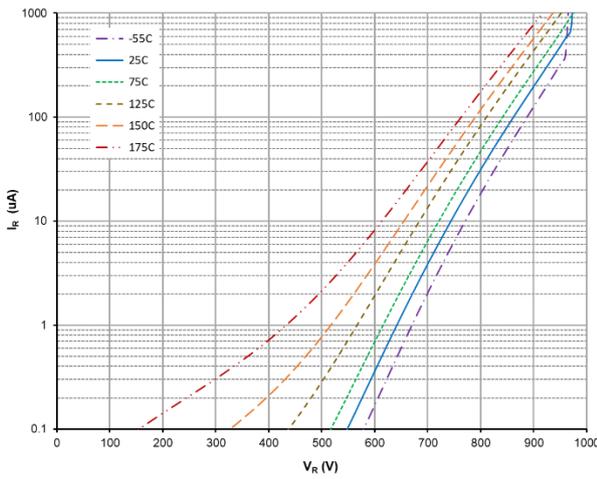


Figure 3. Reverse Characteristics

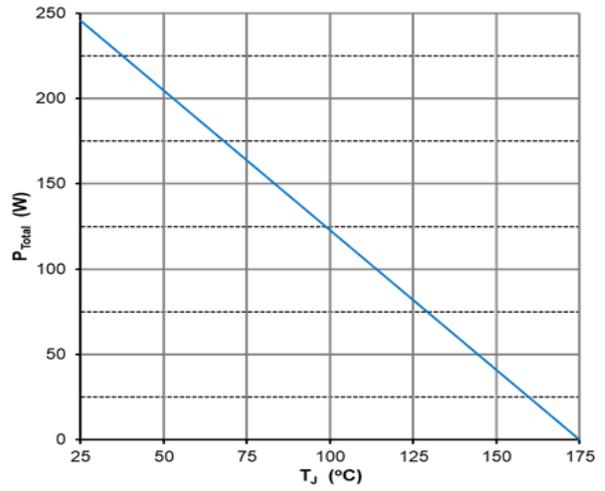


Figure 4. Power Derating

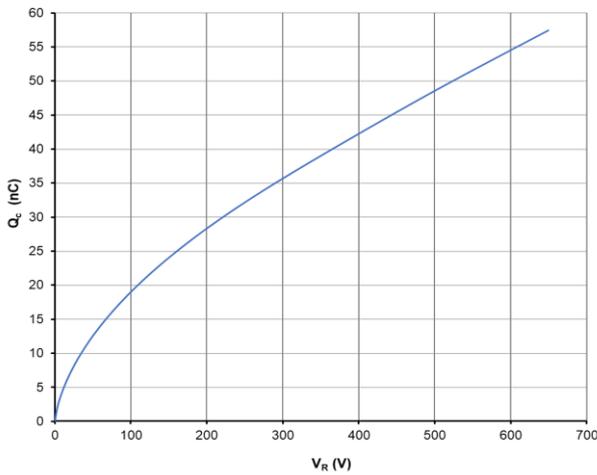


Figure 5. Capacitive charge vs. Reverse Voltage

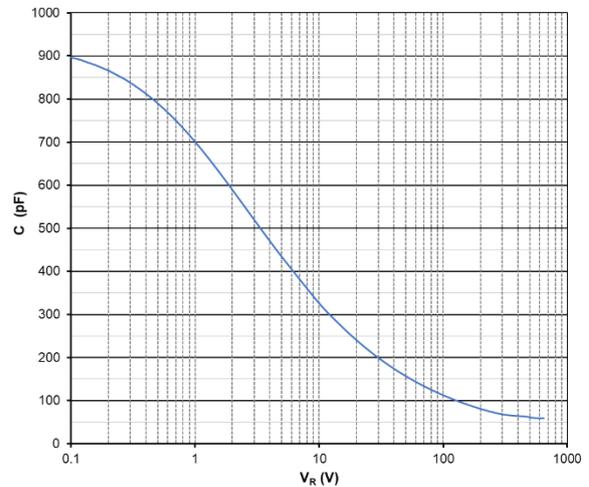
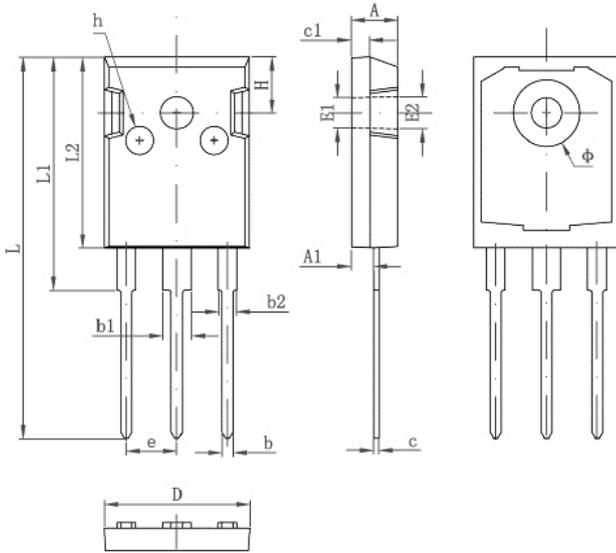


Figure 6. Capacitance vs. Reverse Voltage



Package Dimensions

(TO-247-3 Package)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.850	5.150	0.191	0.200
A1	2.200	2.600	0.087	0.102
b	1.000	1.400	0.039	0.055
b1	2.800	3.200	0.110	0.126
b2	1.800	2.200	0.071	0.087
c	0.500	0.700	0.020	0.028
c1	1.900	2.100	0.075	0.083
D	15.450	15.750	0.608	0.620
E1	3.500 REF		0.138 REF	
E2	3.600 REF		0.142 REF	
L	40.900	41.300	1.610	1.626
L1	24.800	25.100	0.976	0.988
L2	20.300	20.600	0.799	0.811
Φ	7.100	7.300	0.280	0.287
e	5.450 TYP		0.215 TYP	
H	5.980 REF		0.235 REF	
h	0.000	0.300	0.000	0.012

Package	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