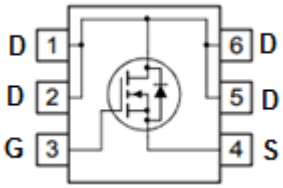
LGE12K0N20-6L

N-Channel Enhancement Mode MOSFET

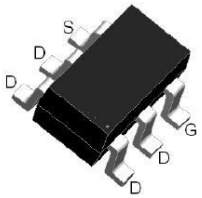
Features

- Low gate charge
- Simple drive requirement



Applications

- Power switching application
- Hard switching and high frequency circuits
- Uninterruptible power supply



SOT-23-6L

Mechanical Data

- Case: SOT-23-6L
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
LGE12K0N20-6L	SOT-23-6L	3000 pcs / Tape & Reel	12K0N20

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	200	V
Gate-to-Source Voltage	V_{GSS}	±20	V
Continuous Drain Current	I_D	0.9	A
Pulsed Drain Current *1	I_{DM}	3.6	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T_A = 25°C)	P_D	1.25	W
Thermal Resistance Junction-to-Air*3	$R_{\theta JA}$	100	°C/W
Operating Junction Temperature Range	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Electrical Characteristics (@ T_A = 25℃ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
V_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	200	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 160V, V_{GS} = 0V	-	-	1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS} = ±20V, V_{DS} = 0V	-	-	±100	nA
On Characteristics *2						
$R_{DS(ON)}$	Static Drain-Source On-resistance	V_{GS} = 10V, I_D = 0.5A	-	-	1.2	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	2	-	4	V
Dynamic Characteristics						
C_{ISS}	Input Capacitance	V_{GS} = 0V V_{DS} = 100V f = 1.0MHz	-	135	-	pF
C_{OSS}	Output Capacitance		-	13	-	
C_{RSS}	Reverse Transfer Capacitance		-	5	-	
Switching Characteristics						
$t_{d(ON)}$	Turn-on Delay Time	V_{DD} = 100V, V_{GS} = 10V R_G = 1Ω, I_D = 1A	-	4.4	-	ns
t_r	Turn-on Rise Time		-	6.6	-	
$t_{d(OFF)}$	Turn-Off Delay Time		-	10	-	
t_f	Turn-Off Fall Time		-	9.2	-	
Q_G	Total Gate-Charge	V_{DD} = 100V V_{GS} = 10V I_D = 0.5A	-	4.2	-	nC
Q_{GS}	Gate to Source Charge		-	1.1	-	
Q_{GD}	Gate to Drain (Miller) Charge		-	0.7	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage *2	I_{SD} = 1A, V_{GS} = 0V	-	-	1.2	V

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%
3. Surface Mounted on 1" x 1" FR4 Board

Ratings and Characteristics Curves (@ T_A = 25°C unless otherwise specified)

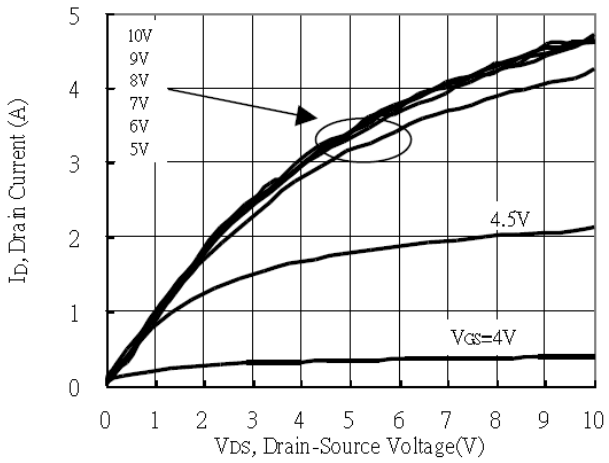


Fig 1 Typical Output Characteristics

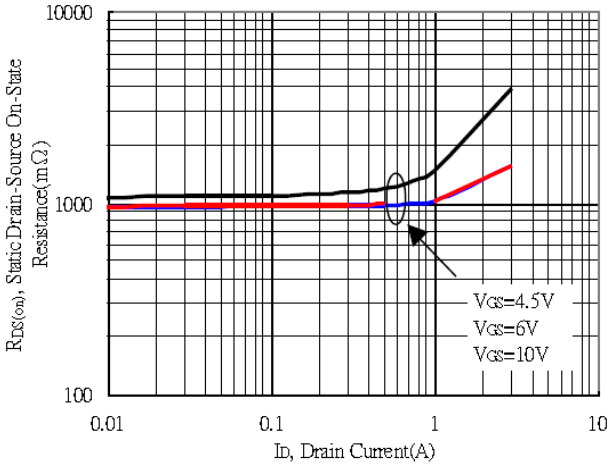


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

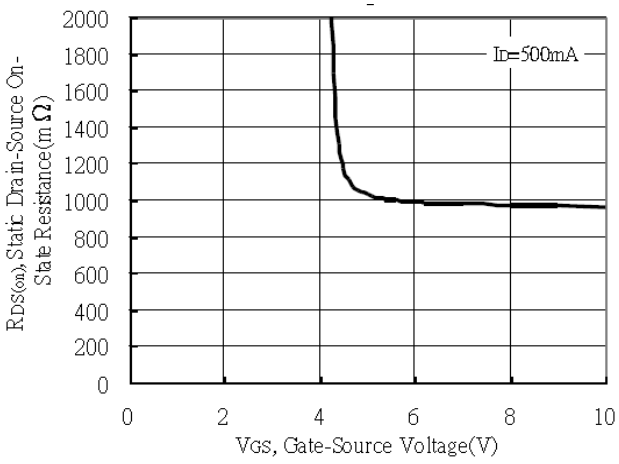


Fig 3 On-Resista nce vs. Gate-Source Voltage

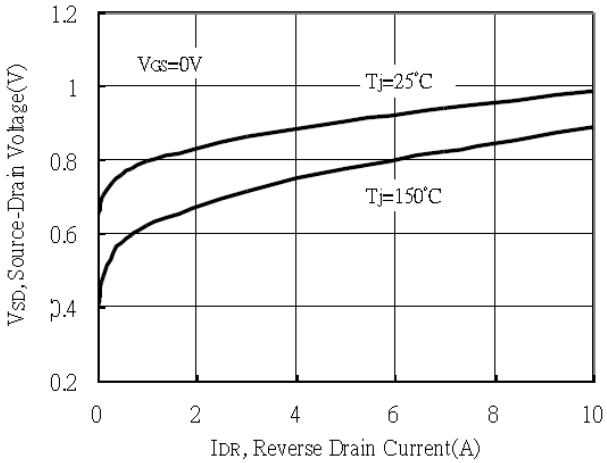


Fig 4 Body-Diode Characteristics

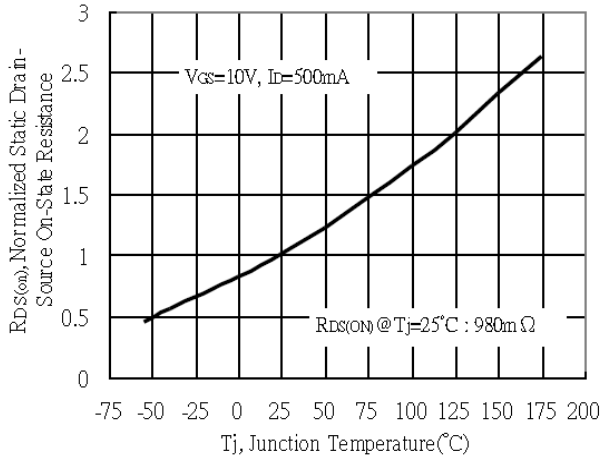


Fig 5 On-Resistance vs. Junc tion Temperature

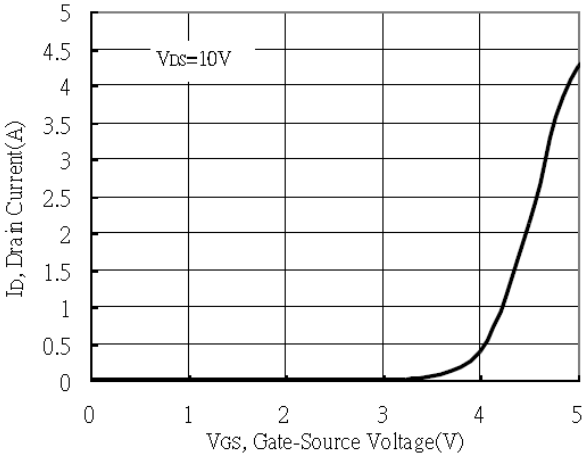


Fig 6 Transfer Characteristics

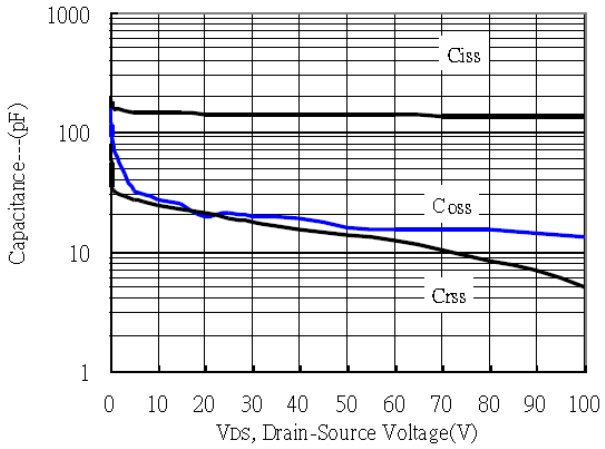


Fig 7 Capacitance Characteristics

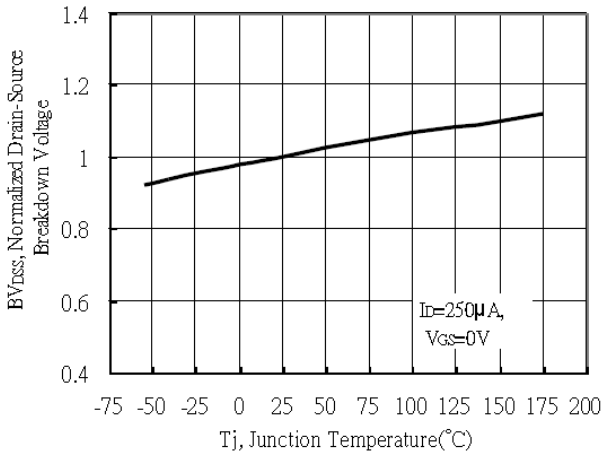


Fig 8 Drain-Source vs. Junction Temperature

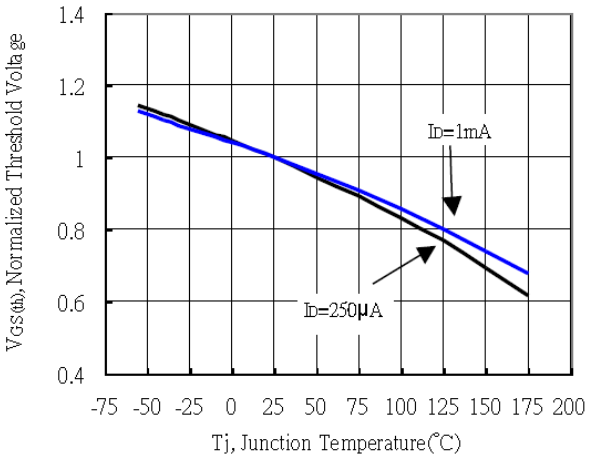


Figure 9 Gate Voltage vs. Junction Temperature

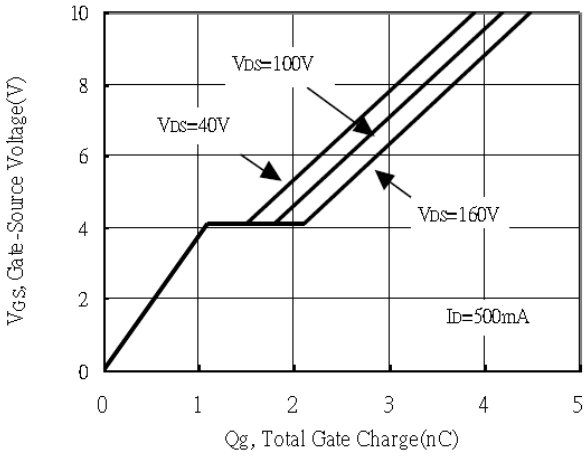


Figure 10 Gate-Charge Characteristics

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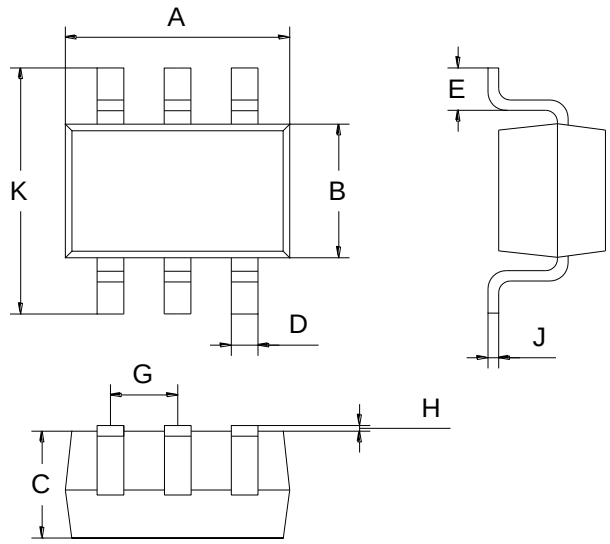
Package Outline Dimensions (Unit: mm)



SOT-23-6L		
Dimension	**Min.**	**Max.**
A	2.80	3.00
B	1.50	1.70
C	1.00	1.20
D	0.35	0.45
E	0.35	0.55
G	0.90	1.00
H	0.02	0.10
J	0.10	0.20
K	2.60	3.00

Mounting Pad Layout (Unit: mm)

SOT-23-6L