

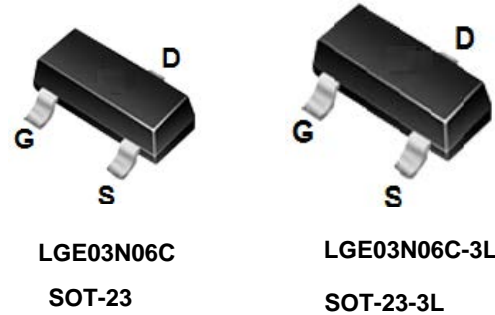


### Features

- Low On-Resistance.
- Low Threshold.
- Fast Switching Speed.
- Low Gate Drive.

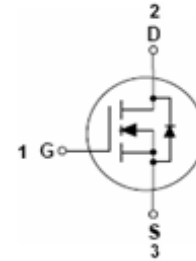
### Typical Applications

- Motor control.
- Disconnect switches.
- DC-DC Converters.
- Power Management functions.



### Mechanical Data

- Case: SOT-23, SOT-23-3L.
- Molding Compound, UL Flammability Classification Rating 94V-0.
- Terminals: Matte Tin Plated Leads, Solderable Per MIL-STD-202, Method 208.



### Maximum Ratings (@T<sub>A</sub>=25°C unless otherwise specified)

Parameter		Symbol	Values	Units
Drain-Source Voltage		V <sub>DSS</sub>	60	V
Gate -Source Voltage		V <sub>GSS</sub>	±20	V
Continuous Drain Current		I <sub>D</sub>	3	A
Pulsed Drain Current		I <sub>DM</sub>	14.5	A
Power Dissipation	SOT-23	P <sub>D</sub>	0.35	W
	SOT-23-3L			W

### Thermal Characteristics

Parameter		Symbol	Limits	Unit
Thermal Resistance Junction to Ambient Air	SOT-23	R <sub>θJA</sub>	357	°C/W
	SOT-23-3L			
Thermal Resistance Junction to Lead	SOT-23	R <sub>θJL</sub>	214	°C/W
	SOT-23-3L			
Thermal Resistance Junction to Case	SOT-23	R <sub>θJC</sub>	180	°C/W
	SOT-23-3L			
Operating Junction Temperature Range		T <sub>J</sub>	-55 to +150	°C
Storage Temperature Range		T <sub>STG</sub>	-55 to +150	°C


**Electrical Characteristics (@T<sub>A</sub>=25°C unless otherwise specified)**

Symbol	Parameter	Test conditions	MIN	TYP	MAX	UNIT
<b>OFF Characteristics</b>						
V <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	60	-	-	V
I <sub>DSS</sub>	Drain to Source Leakage Current	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V	-	-	1	μA
I <sub>GSS</sub>	Gate-body Leakage	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±100	nA
<b>ON Characteristics</b>						
R <sub>DS(ON)</sub>	Static Drain-Source On-resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =3A	-	75	105	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =3A	-	78	125	
V <sub>GS(TH)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.8	1	2	V
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> =15V, I <sub>D</sub> =3A	-	4.9	-	S
<b>Dynamic Characteristics</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> = 0V V <sub>DS</sub> = 40V f = 1.0MHz	-	530	-	pF
C <sub>oss</sub>	Output Capacitance					
C <sub>rss</sub>	Reverse Transfer Capacitance					
G <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =30V, I <sub>D</sub> =3A V <sub>GS</sub> =10V	-	15.5	-	nC
G <sub>gs</sub>	Gate-Source Charge					
G <sub>gd</sub>	Gate-Drain Charge					
<b>Switching Characteristics</b>						
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DD</sub> =30V, I <sub>D</sub> =3A V <sub>GS</sub> =10V, R <sub>G</sub> =6Ω	-	1.95	-	nS
t <sub>r</sub>	Turn-on Rise Time					
t <sub>d(off)</sub>	Turn-Off Delay Time					
t <sub>f</sub>	Turn-Off Fall Time					
<b>Source-Drain Diode Characteristics</b>						
V <sub>SD</sub>	Diode Forward Voltage	I <sub>S</sub> =2.8A, V <sub>GS</sub> =10V	-	1	2	V



### Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$ unless otherwise noted)

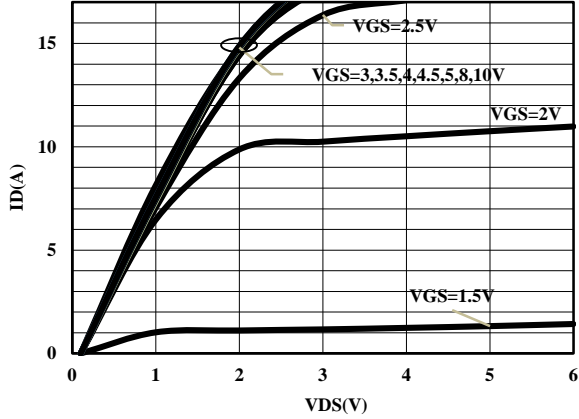


Fig.1- On-Region Characteristics

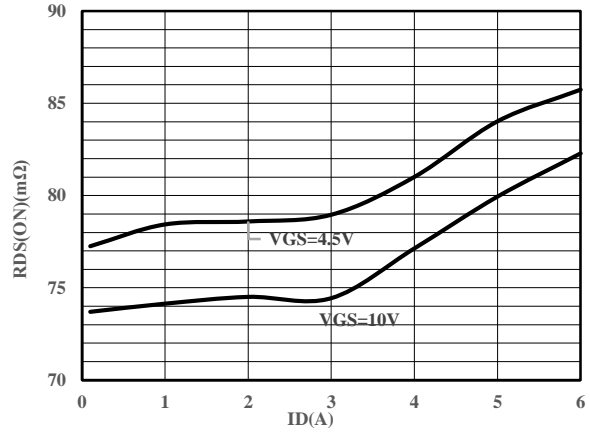


Fig.2-On-Resistance vs. Drain Current and Gate Voltage

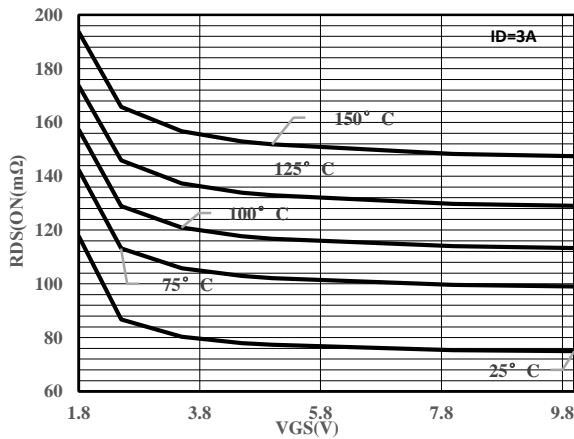


Fig.3-On-Resistance vs. Gate-Source Voltage

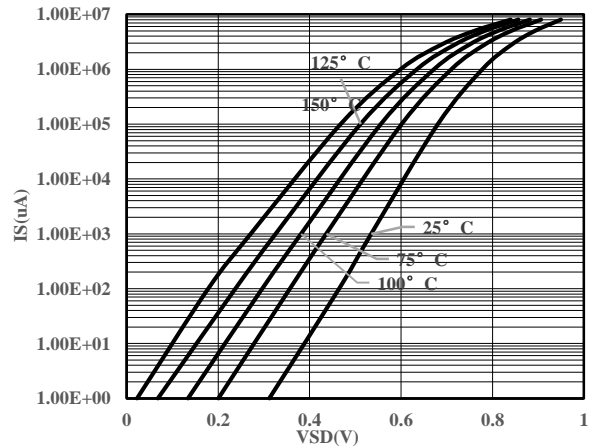


Fig.4- Body-Diode Characteristics

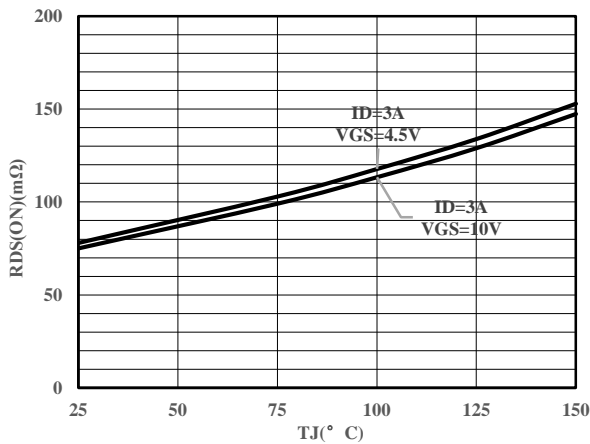


Fig.5-On-Resistance vs. Junction Temperature

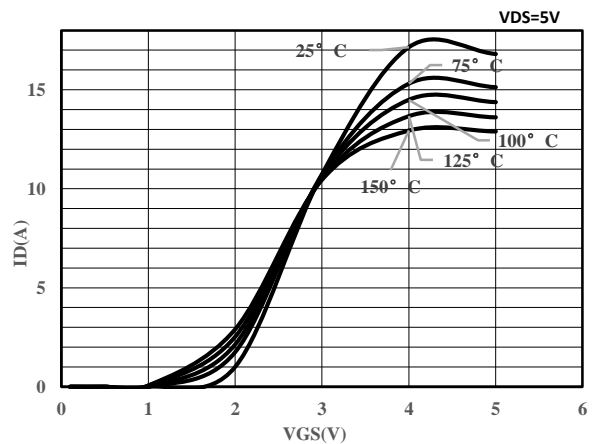
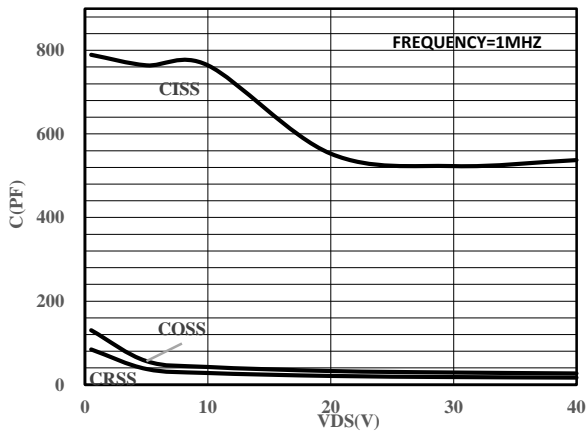
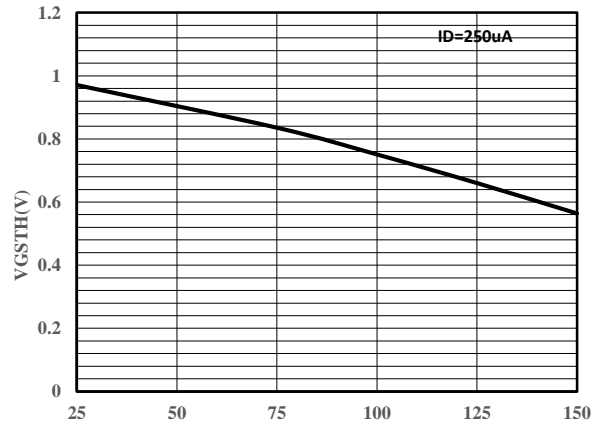


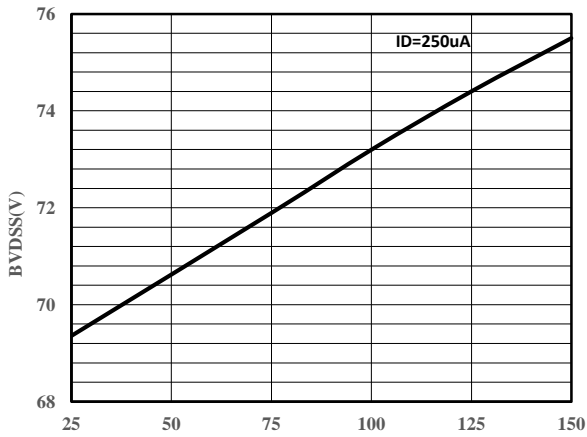
Fig.6-Transfer Characteristics



**Fig.7-Capacitance Characteristics**



**Fig.8- Gate Voltage vs. Junction Temperature**

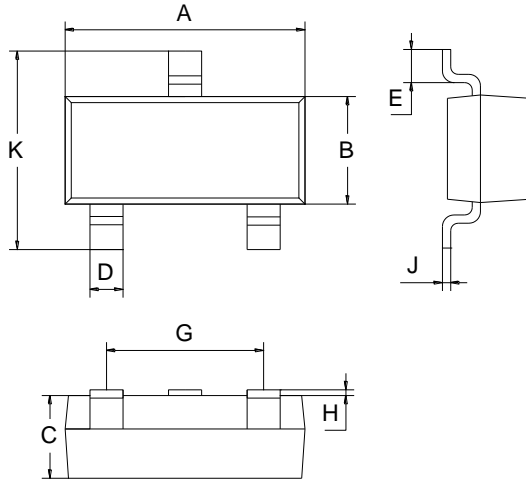


**Fig.9- Drain-Source vs. Junction Temperature**



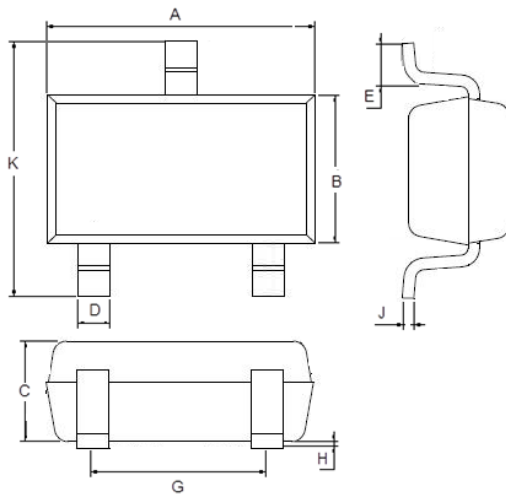
### Package Outline Dimensions(unit: mm)

#### SOT-23



SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60

#### SOT-23-3L

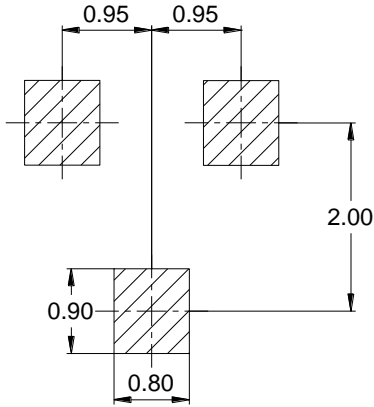


SOT-23-3L		
Dim	Min	Max
A	2.80	3.00
B	1.50	1.70
C	1.00	1.20
D	0.35	0.45
E	0.35	0.55
G	1.80	2.00
H	0.02	0.10
J	0.10	0.20
K	2.60	3.00

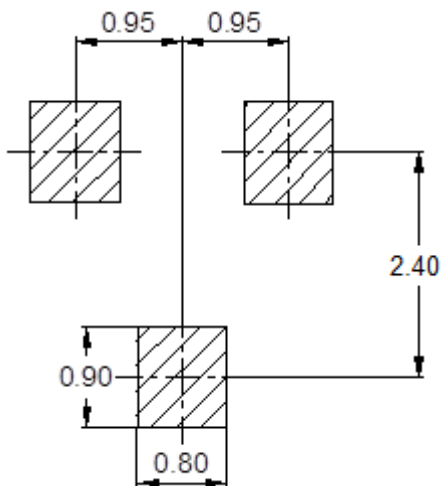


### Mounting Pad Layout (unit:mm)

#### SOT-23



#### SOT-23-3L



### Ordering Information

Part Number	Package	Shipping	Marking Code
LGE03N06C	SOT-23	3000pcs / Tape & Reel	03N06
LGE03N06C-3L	SOT-23-3L	3000pcs / Tape & Reel	03N06