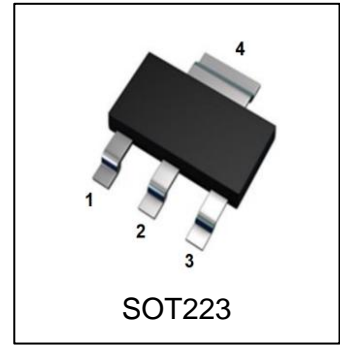


# LP03N060TZHG

## P-Channel 60-V (D-S) MOSFET

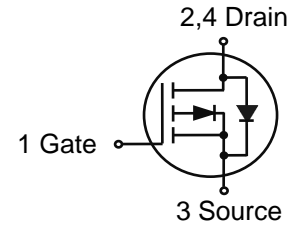
### 1. FEATURES

- Low RDS(on) trench technology
- Low thermal impedance
- Fast switching speed
- We declare that the material of product compliance with RoHS requirements and Halogen Free.



### 2. APPLICATIONS

- Power Routing
- DC/DC Conversion
- Motor Drives



### 3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LP03N060TZHG	GQ	1000/Tape&Reel

### 4. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	VDS	-60	V
Gate-Source Voltage	VGS	±20	
Continuous Drain Current (Note1)	ID	-2.8	A
Pulsed Drain Current (Note2)	IDM	-12	
Avalanche Current (L = 0.1mH)	IAS	8	A
Avalanche Energy (L = 0.1mH)	EAS	3.2	mJ
Power Dissipation (Note1)	PD	1.7	W
Operating Junction and Storage Temperature Range	TJ , Tstg	-55~+150	°C

### 5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Thermal Resistance,Junction-to-Ambient(Note 1)	RθJA	70	°C/W
Thermal Resistance,Junction-to-Case (Note 3)	RθJA	160	°C/W
Thermal Resistance,Junction-to-Case (Note 3)	RθJC	20	°C/W

1."1.5 x 1.5" FR4 board using 1 sq in pad, 2 oz Cu.

2.Pulse width limited by maximum junction temperature

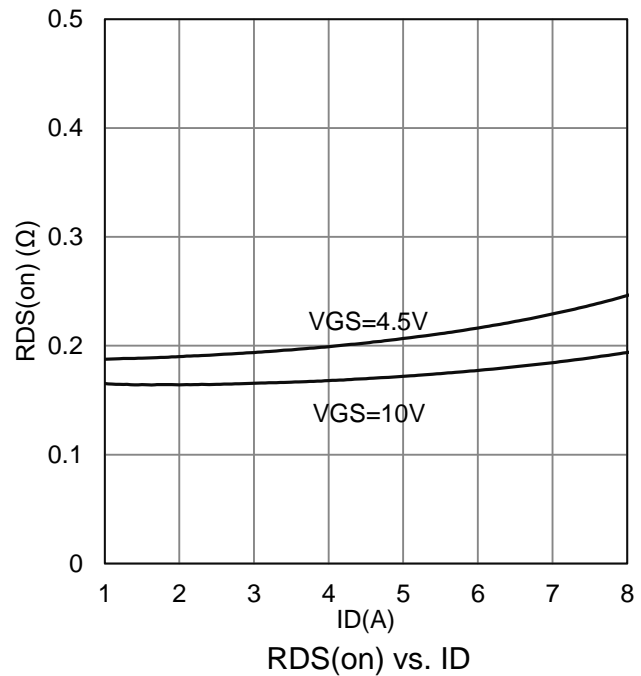
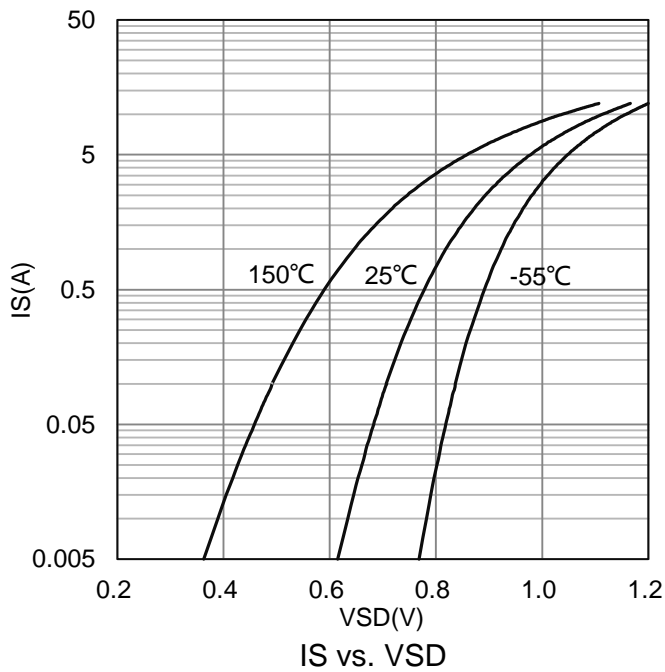
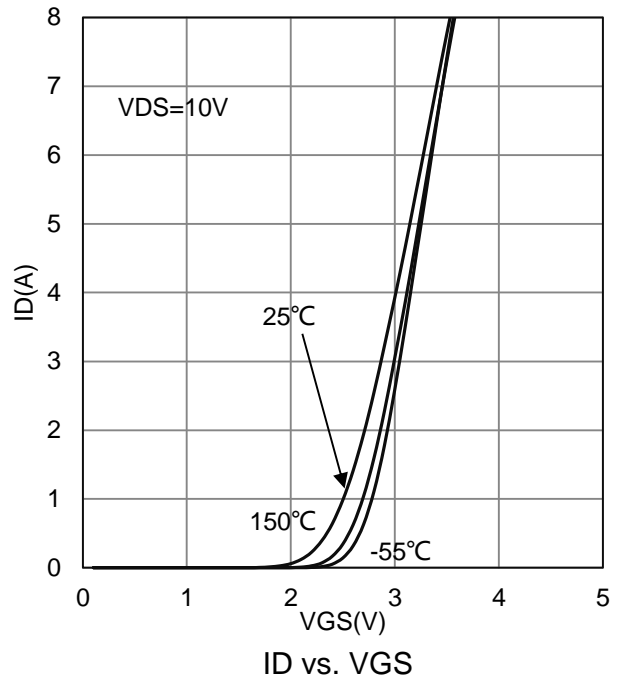
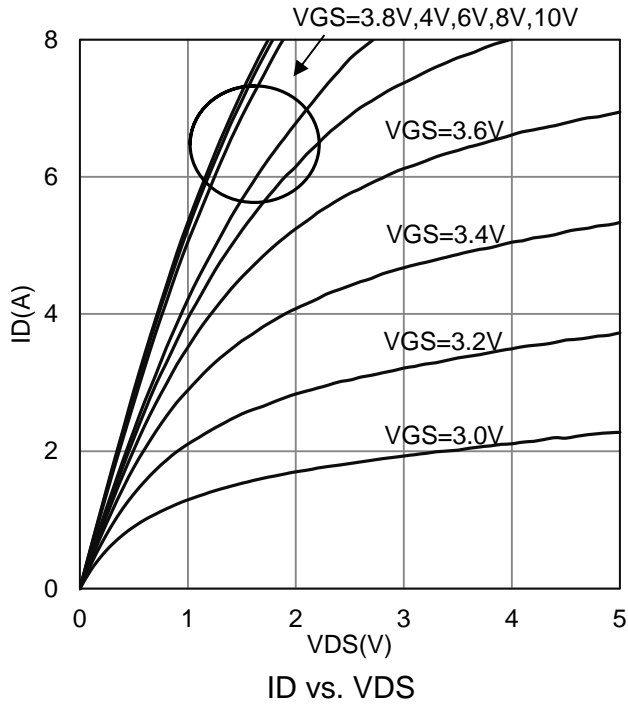
3.Surface-mounted on FR4 board using the minimum recommended pad size.

### 6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

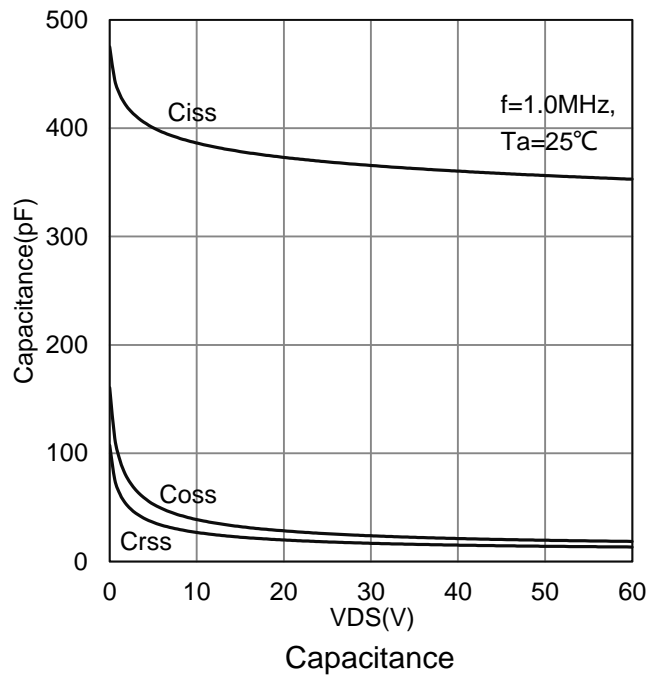
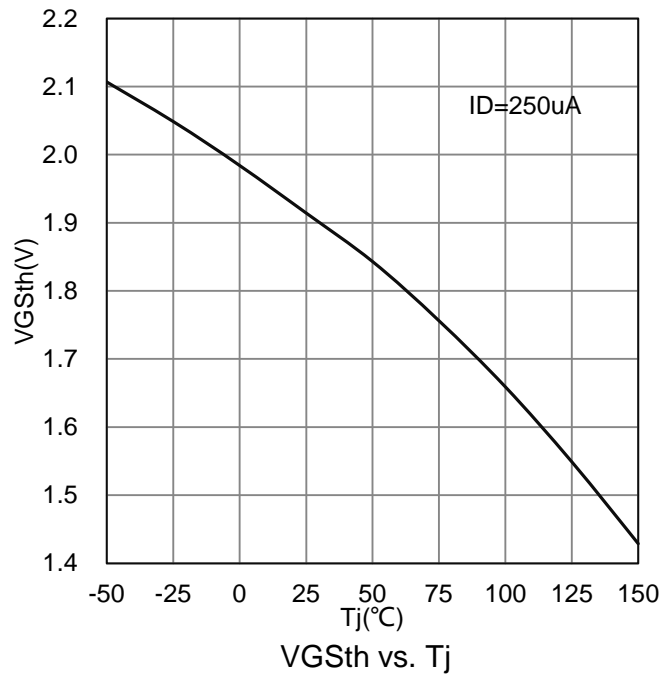
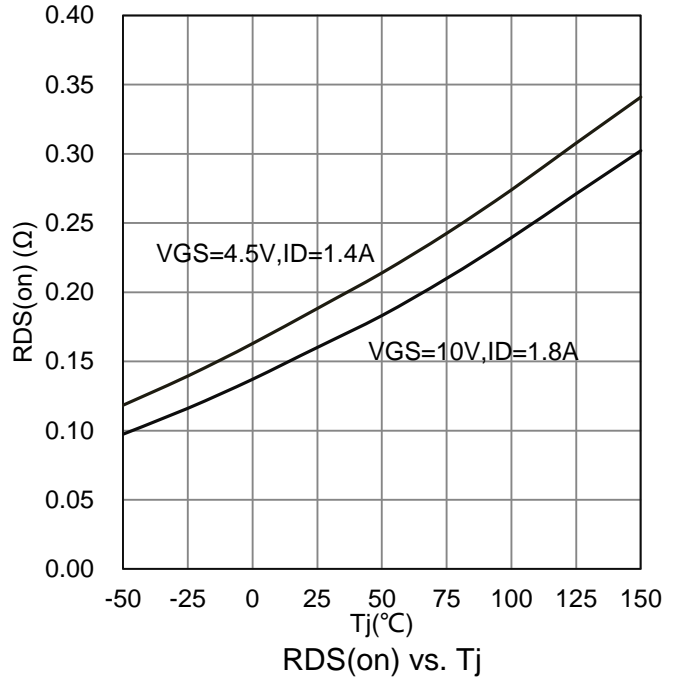
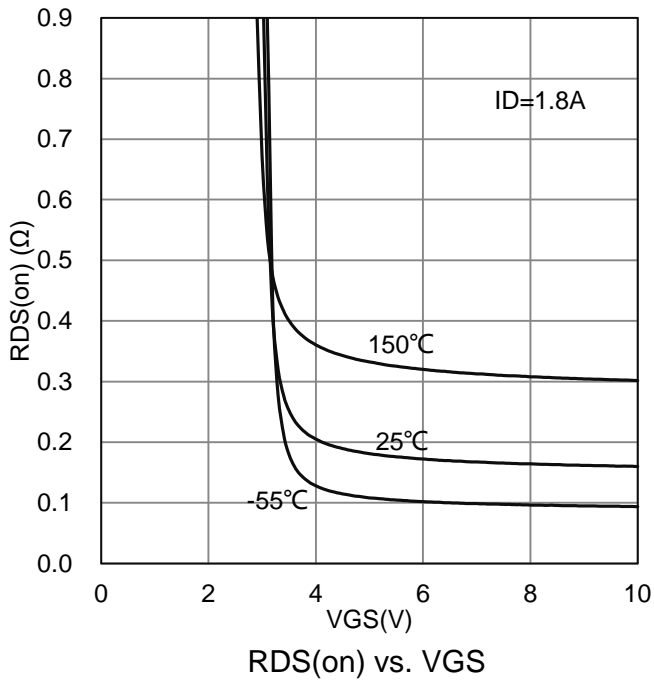
Characteristic	Symbol	Min.	Typ.	Max.	Unit	
<b>Static</b>						
Drain–Source Breakdown Voltage (VGS = 0, ID = -250μA)	VBRDSS	-60	-	-	V	
Gate Threshold Voltage (VDS =VGS , ID =-250μA)	VGS(th)	-1	-	-3	V	
Gate Leakage Current (VDS =0V, VGS =±20V)	IGSS	-	-	±100	nA	
Zero Gate Voltage Drain Current (VDS = -60 V, VGS = 0 V)	IDSS	-	-	-10	μA	
Drain-Source On-Resistance(Note 4) (VGS = -10 V, ID = -1.8 A) (VGS = -4.5 V, ID = -1.4 A)	RDS(ON)	-	170 200	215 260	mΩ	
Diode Forward Voltage (IS = -1.2 A, VGS = 0 V)	VSD	-	-	-1.2	V	
<b>Dynamic</b>						
Total Gate Charge	(VDS = -48 V, VGS = -4.5 V, ID = -1 A)	Qg	-	3.6	-	nC
Gate-Source Charge		Qgs	-	1.2	-	
Gate-Drain Charge		Qgd	-	1.7	-	
Turn-On Delay Time	(VDS = -30 V, RL = 30 Ω, ID = -1 A, VGEN = -10 V, RGEN = 3.1 Ω)	td(on)	-	3.2	-	ns
Rise Time		tr	-	23.6	-	
Turn-Off Delay Time		td(off)	-	14.5	-	
Fall Time		tf	-	17.2	-	
Input Capacitance	(VDS = -30 V, VGS = 0 V, f = 1 MHz)	Ciss	-	366	-	pF
Output Capacitance		Coss	-	24	-	
Reverse Transfer Capacitance		Crss	-	17	-	
Gate Resistance (VDS = 0 V, VGS = 0 V, f = 1 MHz)	Rg	-	5	-	Ω	

4. Pulse test: PW ≤ 300us duty cycle ≤ 2%.

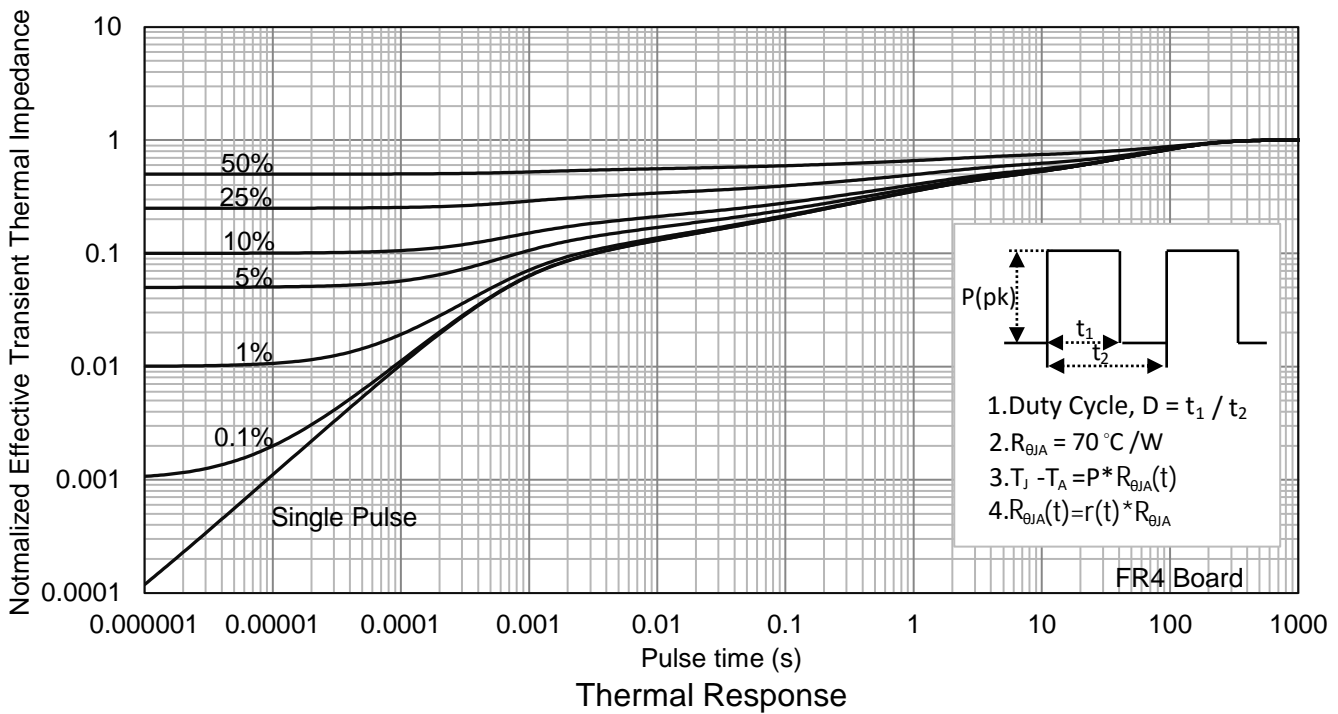
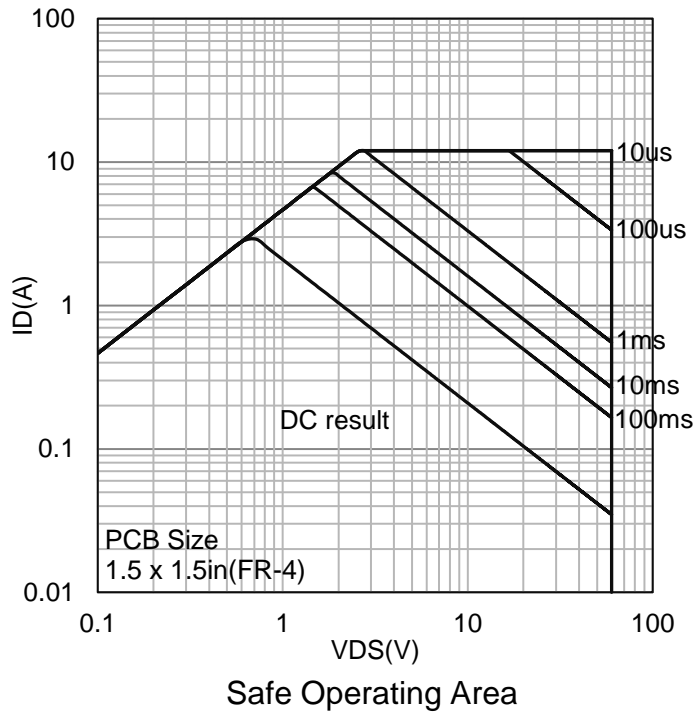
### 7. ELECTRICAL CHARACTERISTICS CURVES



7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

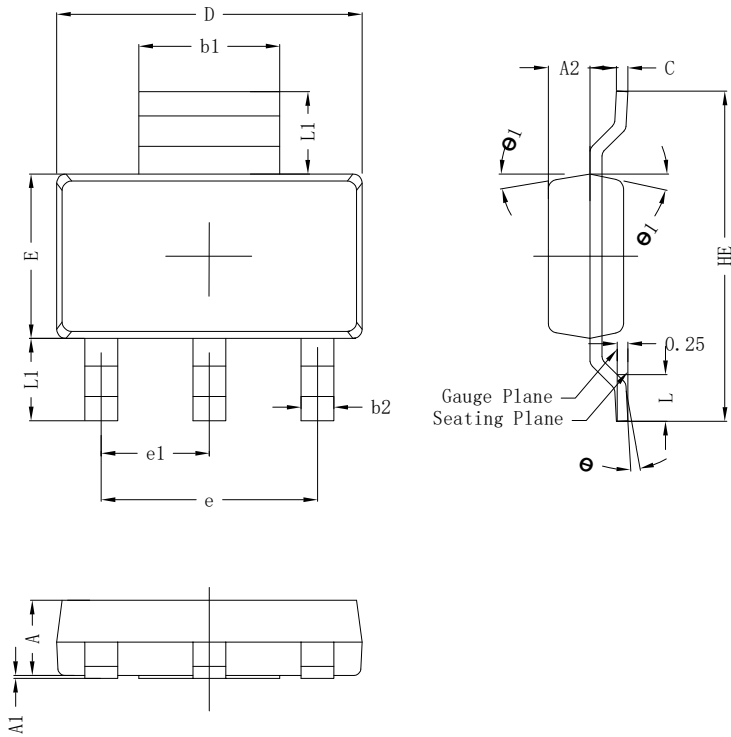


7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



### 8. OUTLINE AND DIMENSIONS

SOT223

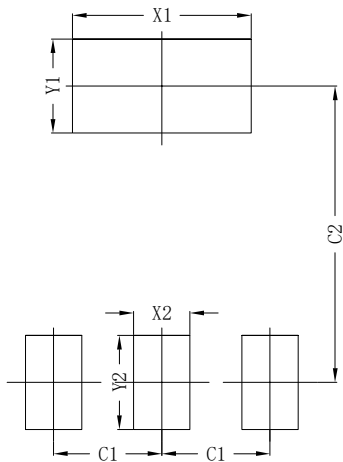


SOT223			
DIM	MIN	NOR	MAX
A	1.50	1.60	1.70
A1	0.00	0.05	0.10
A2	0.80	0.90	1.00
b1	2.90	3.02	3.10
b2	0.60	0.72	0.80
c	0.20	0.27	0.35
D	6.30	6.50	6.70
E	3.30	3.50	3.70
e	4.60BSC		
e1	2.30BSC		
HE	6.80	7.00	7.20
L	0.80	1.00	1.20
L1	1.75(REF)		
$\theta$	0°~8°		
$\theta_1$	8°	10°	12°
All Dimensions in mm			

#### GENERAL NOTES

1. Top package surface finish  $Ra0.4 \pm 0.2\mu m$
2. Bottom package surface finish  $Ra0.7 \pm 0.2\mu m$
3. Side package surface finish  $Ra0.4 \pm 0.2\mu m$
4. Protrusion or Gate Burrs shall not exceed 0.10mm per side.

### 9. SOLDERING FOOTPRINT



SOT223	
DIM	(mm)
X1	3.80
Y1	2.00
X2	1.20
Y2	2.00
C1	2.30
C2	6.30

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