LN02N650TZHG

650V N-Channel (D-S) MOSFET

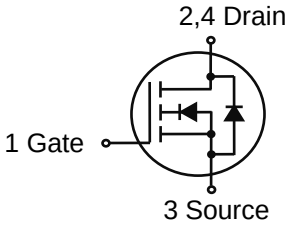
SOT223

1. FEATURES

- RDS(ON)≤4000mΩ@VGS=10V.
- Fast switching capability.
- Easy to use/drive.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

2. APPLICATIONS

- Fast Switching
- High Performance Charger/Adapter
- LED Lighting Power



3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LN02N650TZHG	GH	1000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25ºC)

Parameter		Symbol	Limits	Unit
Drain-Source Voltage		VDS	650	V
Gate-Source Voltage		VGS	± 30	
Continuous Drain Current (Note 1)	TC = 25℃	ID	1	A
Pulsed Drain Current (Note 2)	TC = 25℃	IDM	2	
Avalanche Current		IAS	1.6	A
Avalanche Energy(VDD=50V,L=10mH,VGS=10V)		EAS	12.8	mJ
Power Dissipation (Note 1)	TA = 25℃	PD	2	W
	TC = 25℃		12.5	
Operating Junction and Storage Temperature Range		TJ , Tstg	-55~+150	℃

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Thermal Resistance,Junction–to–Ambient(Note 1)	RθJA	60	℃/W
Thermal Resistance,Junction-to-Case	RθJC	10	℃/W

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

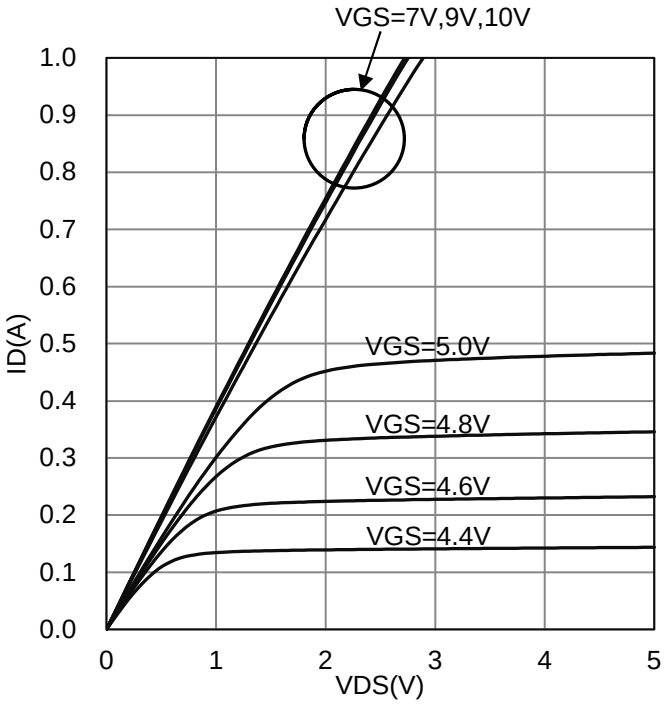
2.Pulse width limited by maximum junction temperature

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

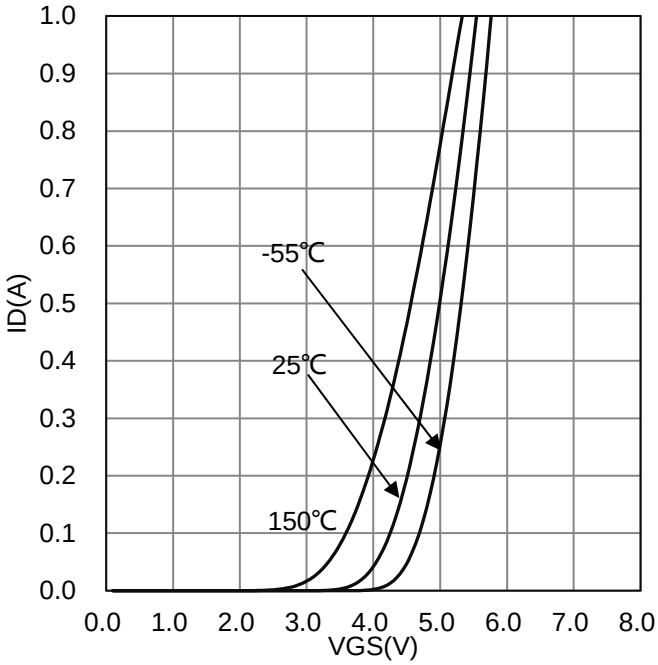
Characteristic		Symbol	Min.	Typ.	Max.	Unit
Static						
Drain–Source Breakdown Voltage (VGS = 0V, ID = 250 μA)		VBRDSS	650	-	-	V
Gate-Source Threshold Voltage (VDS = VGS , ID = 250 μA)		VGS(th)	2	-	4	V
Gate-Body Leakage Current (VDS = 0 V, VGS = ± 30 V)		IGSS	-	-	± 100	nA
Zero Gate Voltage Drain Current (VDS = 650 V, VGS = 0 V)		IDSS	-	-	1	uA
Drain-Source On-Resistance(Note 3) (VGS = 10 V, ID = 0.5 A)		RDS(ON)	-	-	4000	mΩ
Diode Forward Voltage (IS = 1 A, VGS = 0 V)		VSD	-	-	1	V
Dynamic						
Total Gate Charge	(VDD = 300 V, ID 1 A, VGS = 10 V)	Qg	-	5.2	-	nC
Gate-Source Charge		Qgs	-	0.7	-	
Gate-Drain Charge		Qgd	-	2.3	-	
Input Capacitance	(VGS = 0 V, VDS = 300 V, f= 1MHz)	Ciss	-	105	-	pF
Output Capacitance		Coss	-	4.5	-	
Reverse Transfer Capacitance		Crss	-	1.3	-	
Turn-On Delay Time	(VDD = 300 V, ID = 1 A, VGS = 10 V,RG = 10 Ω)	td(on)	-	4.5	-	ns
Rise Time		tr	-	4.5	-	
Turn-Off Delay Time		td(off)	-	13	-	
Fall Time		tf	-	12	-	

3.Pulse test: PW ⩽ 300us duty cycle ⩽ 2%.

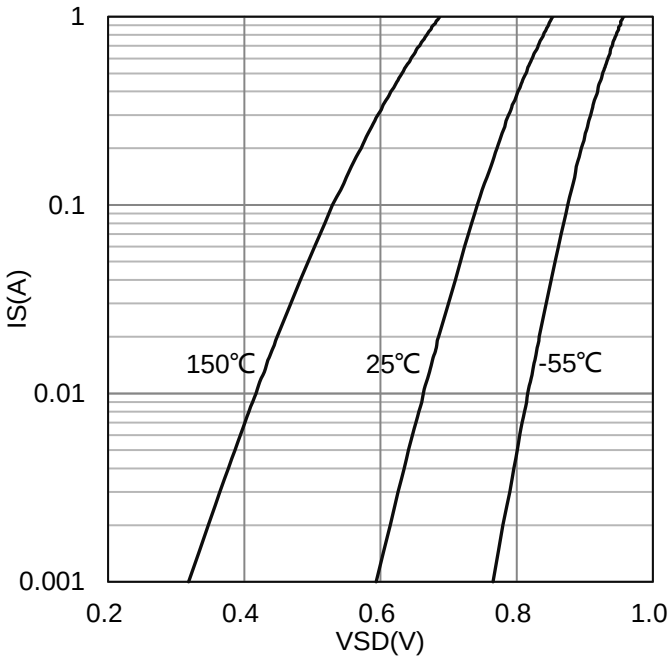
7. ELECTRICAL CHARACTERISTICS CURVES



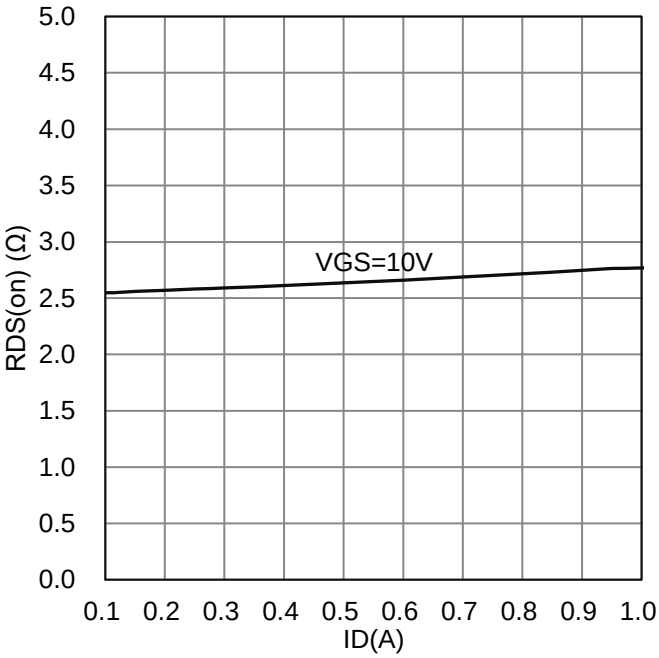
ID vs. VDS



ID vs. VGS

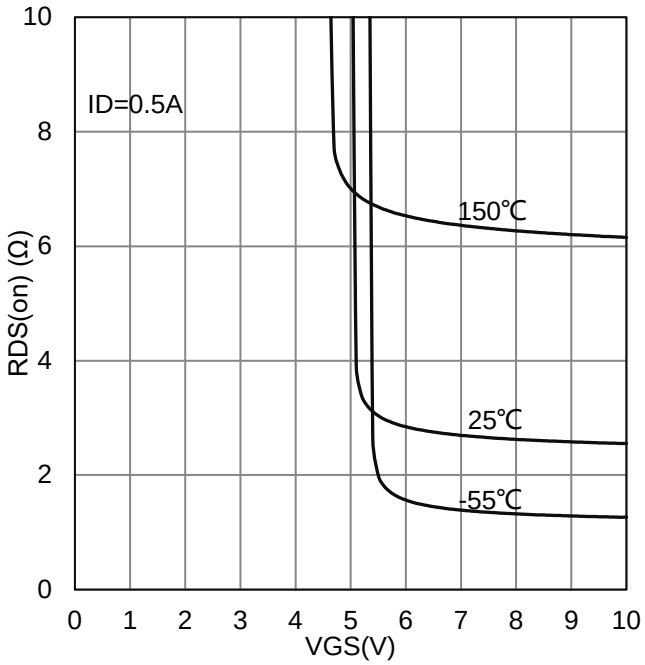


IS vs. VSD

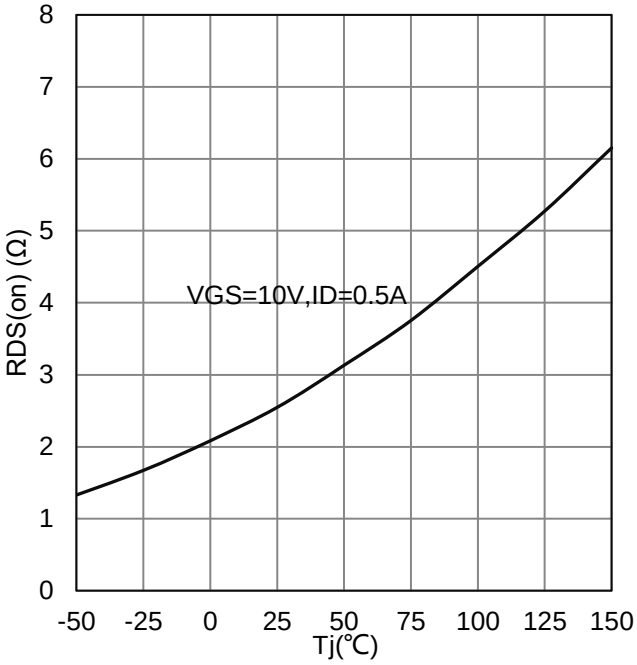


RDS(on) vs. ID

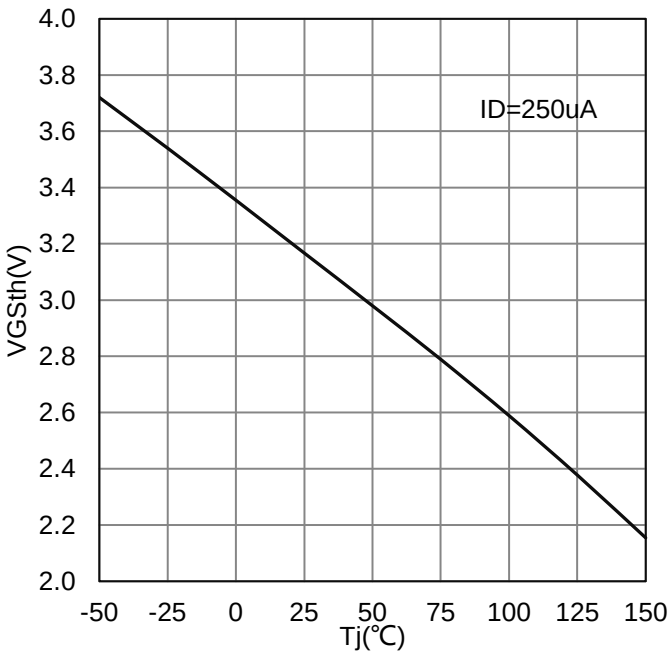
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



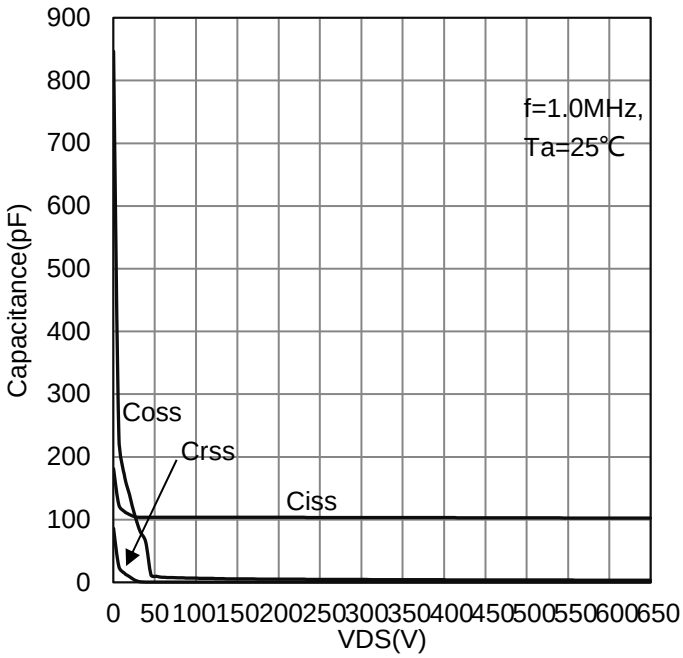
RDS(on) vs. VGS



RDS(on) vs. Tj

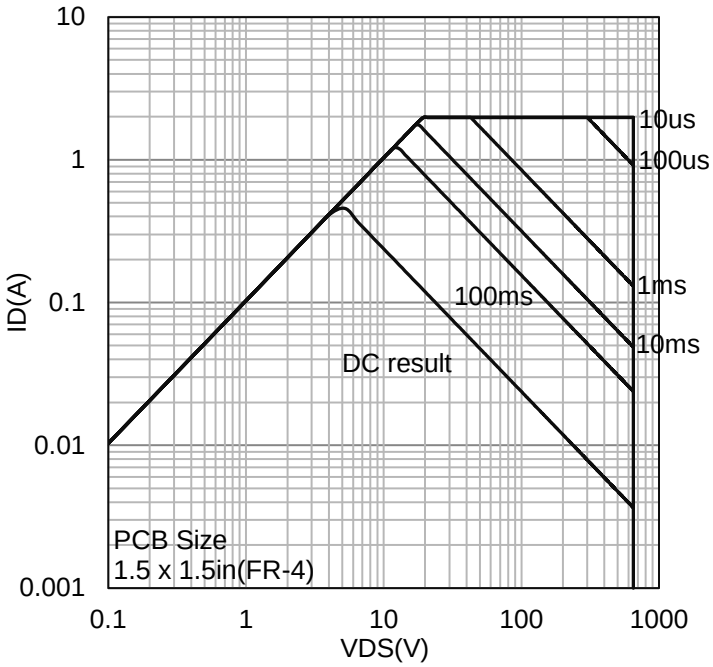


VGSth vs. Tj



Capacitance

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



Safe Operating Area

8.OUTLINE AND DIMENSIONS

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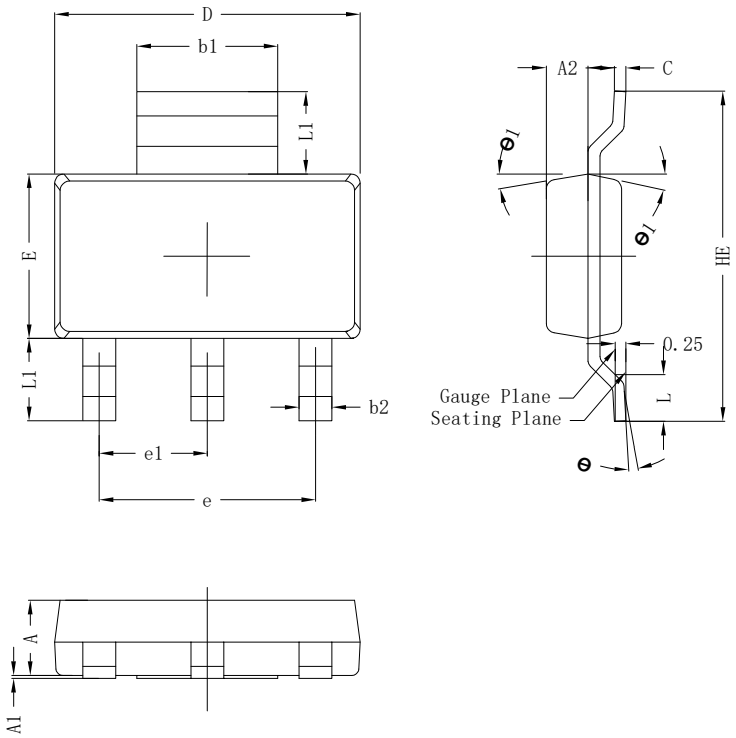
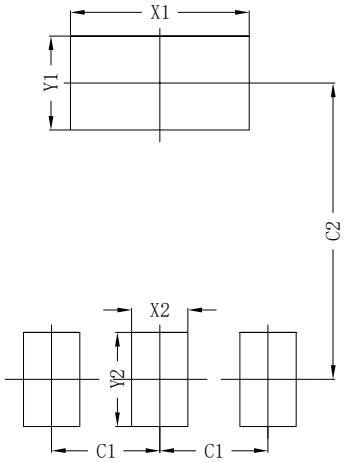


SOT223			
DIM	MIN	NOR	MAX
A	1.50	1.60	1.70
A1	0.00	0.05	0.10
A2	0.80	0.90	1.00
b1	2.90	3.02	3.10
b2	0.60	0.72	0.80
c	0.20	0.27	0.35
D	6.30	6.50	6.70
E	3.30	3.50	3.70
e	4.60BSC		
e1	2.30BSC		
HE	6.80	7.00	7.20
L	0.80	1.00	1.20
L1	1.75(REF)		
θ	0°~8°		
θ 1	8°	10°	12°
All Dimensions in mm			

GENERAL NOTES

1. Top package surface finish Ra0.4±0.2um
2. Bottom package surface finish Ra0.7±0.2um
3. Side package surface finish Ra0.4±0.2um
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

DISCLAIMER

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.

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