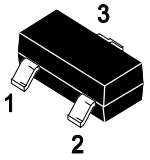
L2N7002LT1G
S-L2N7002LT1G

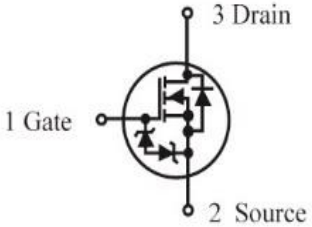
Small Signal MOSFET
115 mAmps, 60 Volts N–Channel SOT-23



SOT23(TO-236)

1. FEATURES

- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.
- ESD Protected:1000V



2. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
L2N7002LT1G	702	3000/Tape&Reel
L2N7002LT3G	702	10000/Tape&Reel

3. MAXIMUM RATINGS(Ta = 25ºC)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	60	V
Drain–Gate Voltage (RGS = 1.0 MΩ)	VDGR	60	V
Drain Current – Continuous TC = 25°C TC = 100°C – Pulsed (Note 1)	 ID IDM	 115 75 800	 mA
Gate–Source Voltage – Continuous – Non–repetitive (tp≤50μs)	 VGS VGSM	 ±20 ±40	 V V

4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation, FR−5 Board (Note 2) @ TA = 25ºC Derate above 25ºC	PD	225 1.8	mW mW/ºC
Thermal Resistance, Junction–to–Ambient(Note 2)	RΘJA	556	ºC/W
Junction and Storage temperature	TJ,Tstg	−55~+150	° C

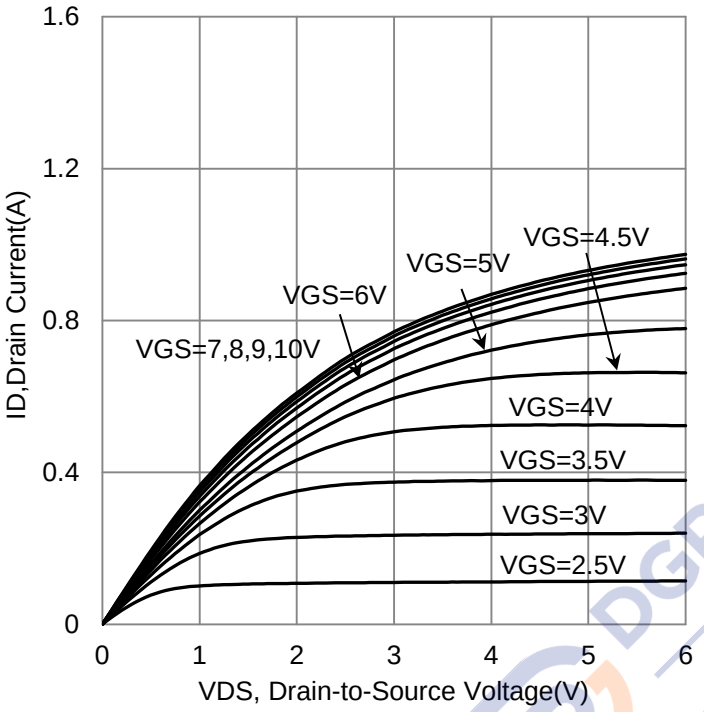
1. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.
2. FR–5 = 1.0×0.75×0.062 in.

5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

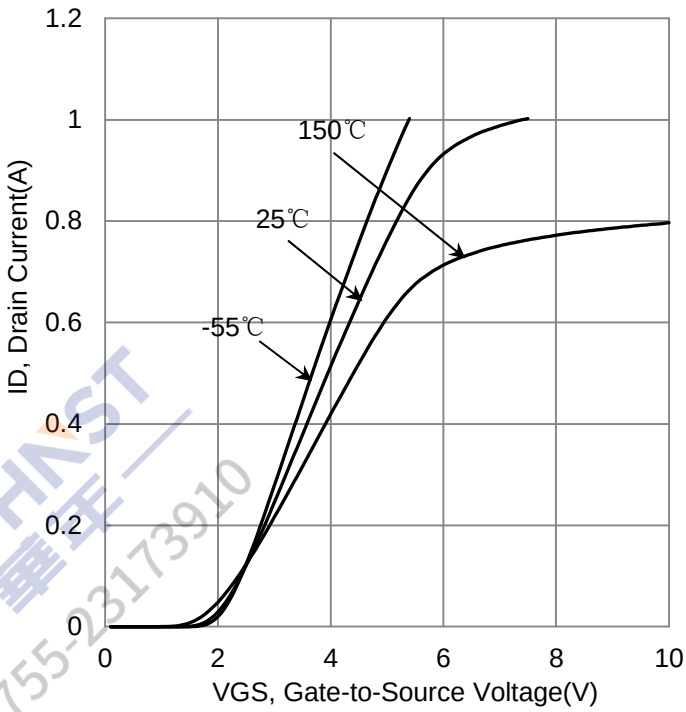
Characteristic		Symbol	Min.	Typ.	Max.	Unit
Static						
Drain–Source Breakdown Voltage (VGS = 0, ID = 10μA)		VBRDSS	60	-	-	V
Zero Gate Voltage Drain Current (VGS = 0, VDS = 60 V)	TJ = 25°C	IDSS	-	-	1.0	μA
	TJ = 125°C		-	-	500	
Gate–Body Leakage Current, Forward (VGS = 20 V)		IGSSF	-	-	1.0	μA
Gate–Body Leakage Current, Reverse (VGS = - 20 V)		IGSSR	-	-	-1.0	μA
Gate Threshold Voltage (VDS = VGS, ID = 250μA)		VGS(th)	1.0	1.6	2.0	V
On–State Drain Current (VDS ≥ 2.0 VDS(on), VGS = 10 V)		ID(on)	500	-	-	mA
Static Drain–Source On–State Voltage		VDS(on)				V
(VGS = 10 V, ID = 500 mA)			-	-	3.75	
(VGS = 5.0 V, ID = 50 mA)			-	-	0.375	
Static Drain–Source On–State Resistance		RDS(on)				Ohms
(VGS = 10 V, ID = 500 mA)	TC = 25°C		-	-	7.5	
	TC = 125°C		-	-	13.5	
(VGS = 5.0 V, ID = 50 mA)	TC = 25°C		-	-	7.5	
	TC = 125°C		-	-	13.5	
Forward Transconductance (VDS≥ 2.0 VDS(on), ID = 200 mA)		gfs	80	-	-	mmhos
Dynamic						
Input Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)		Ciss	-	17	50	pF
Output Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)		Coss	-	10	25	pF
Reverse Transfer Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)		Crss	-	2.5	5.0	pF
Turn-On Delay Time	(VDD = 25 V , ID =500 mA, RG = 25Ω,RL = 50 Ω,Vgen = 10 V)	td(on)	-	7	20	ns
Turn-Off Delay Time		td(off)	-	11	40	
Diode Forward On–Voltage (IS = 115 mA, VGS = 0 V)		VSD	-	-	1.5	V
Source Current Continuous (Body Diode)		IS	-	-	115	mA
Source Current Pulsed		ISM	-	-	800	mA

3.Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.

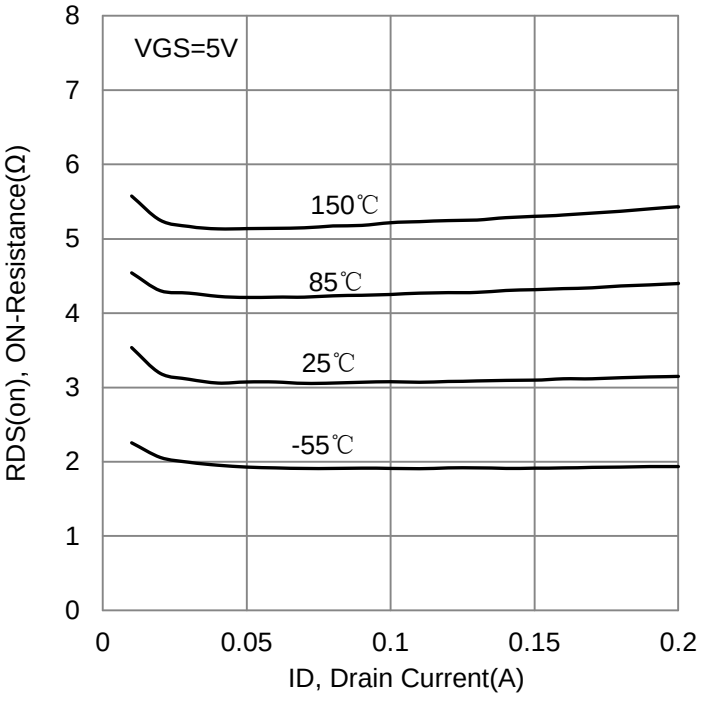
6. ELECTRICAL CHARACTERISTICS CURVES



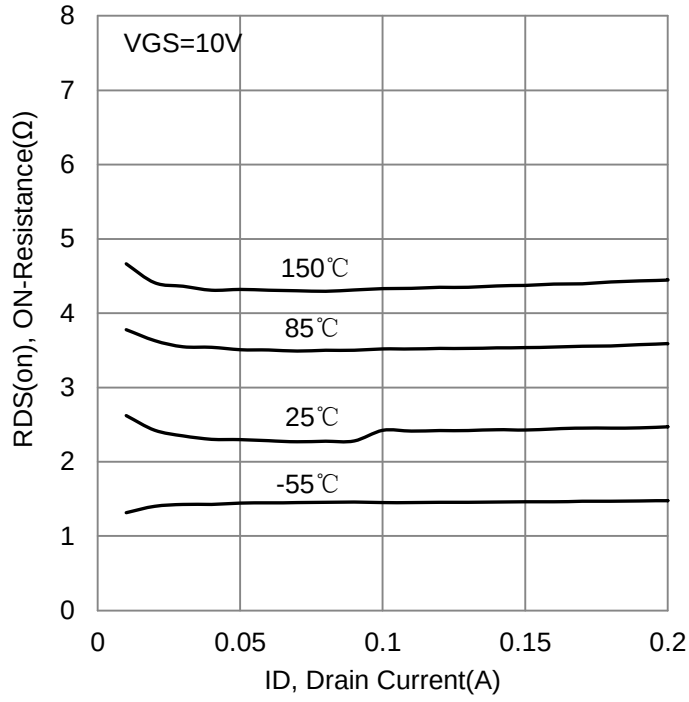
ON-Region Characteristics



Transfer Characteristcs

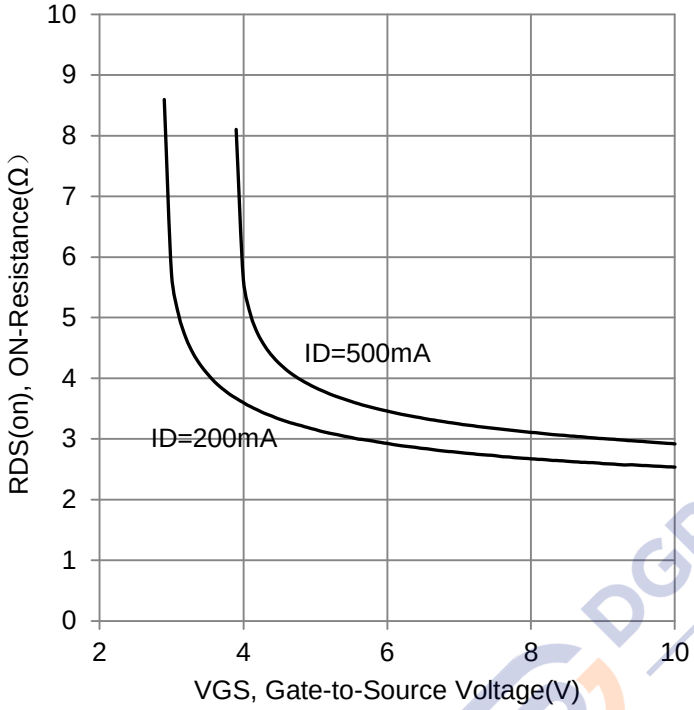


RDS(on) vs. ID

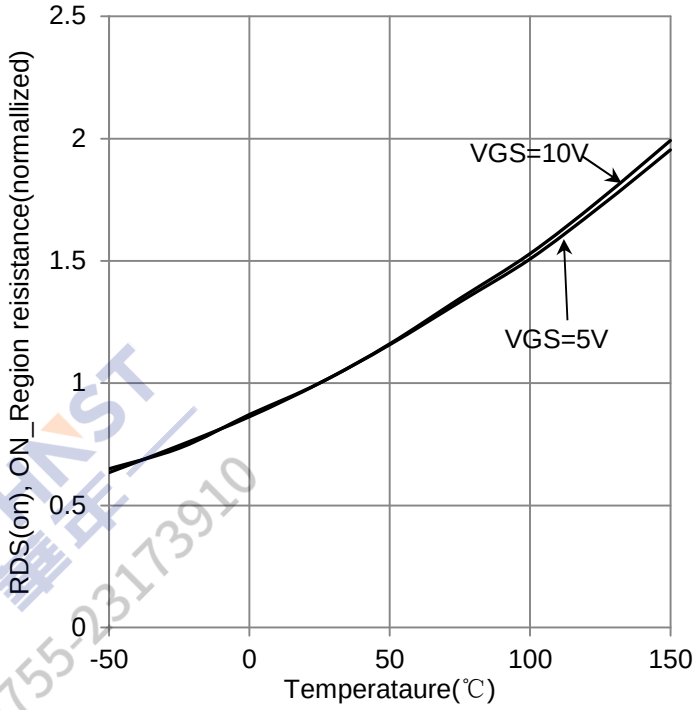


RDS(on) vs. ID

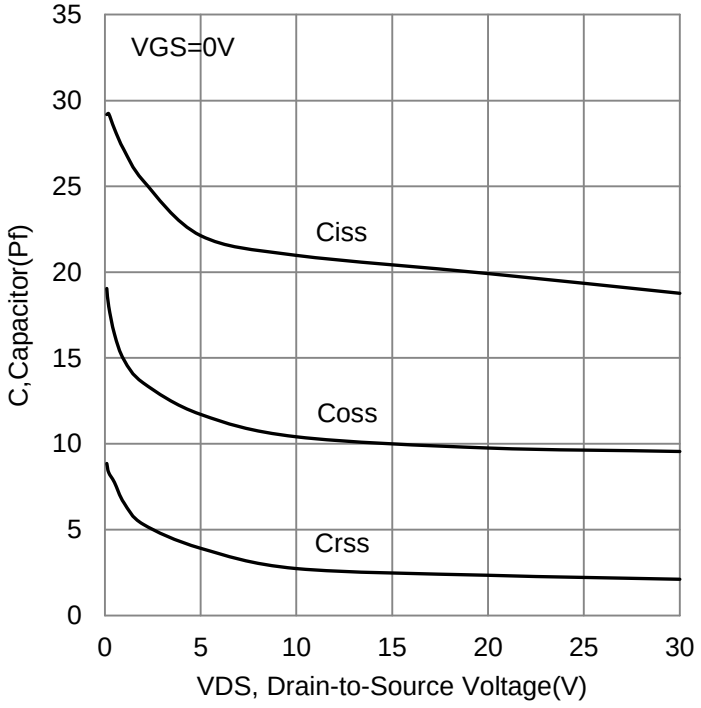
6. ELECTRICAL CHARACTERISTICS CURVES（Con.)



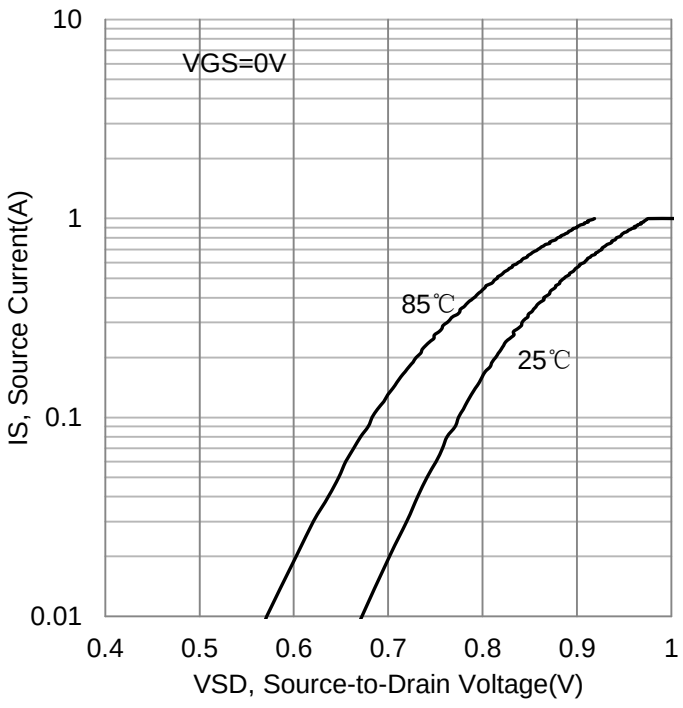
RDS(on) vs. VGS



RDS(on) vs. Temperature

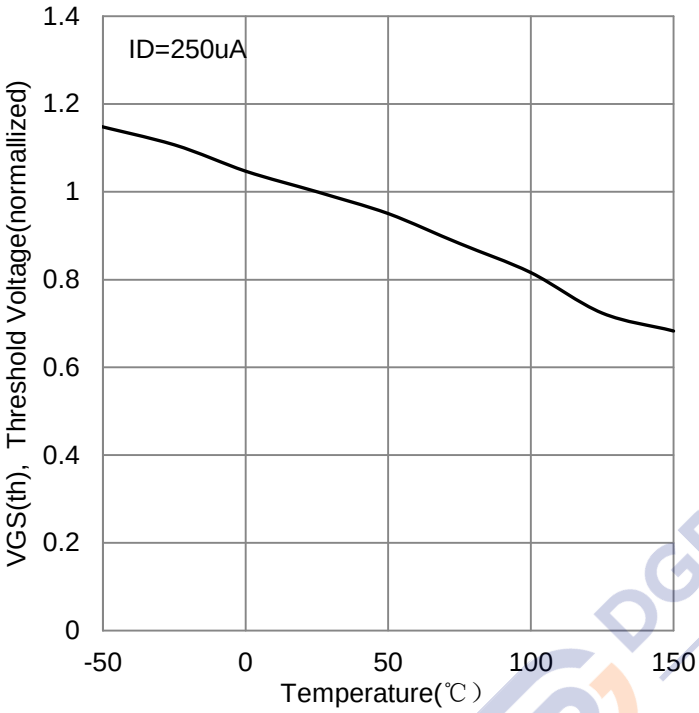


Capacitor vs.VDS

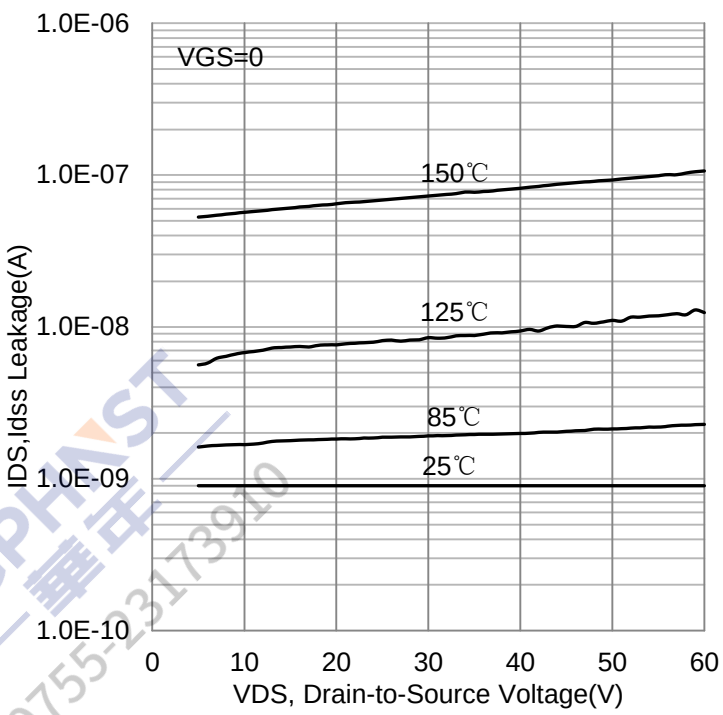


IS vs.VSD

6. ELECTRICAL CHARACTERISTICS CURVES（Con.)

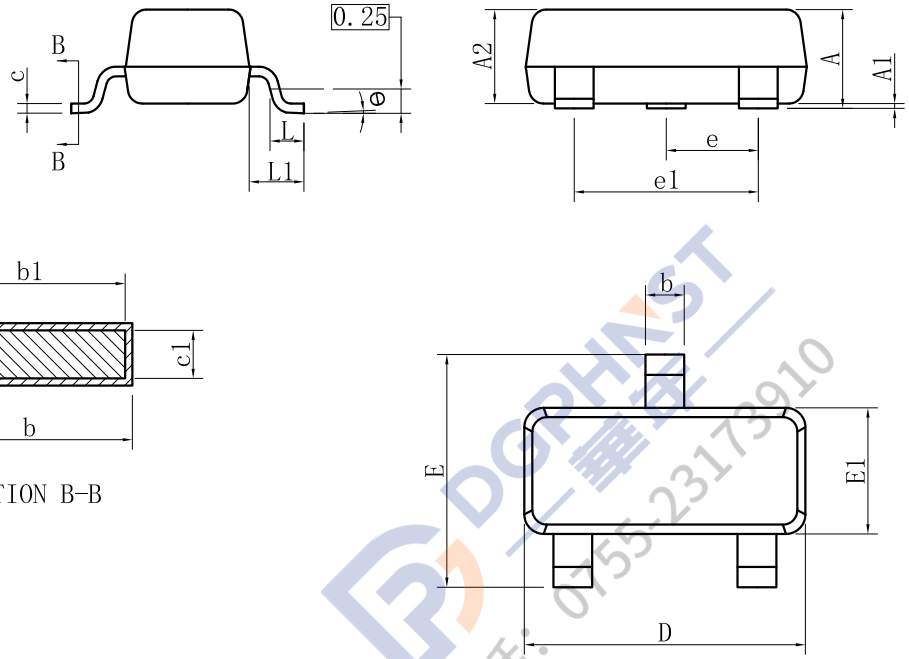


VGS(th) vs. Temperature



IDS vs. VDS

7.OUTLINE AND DIMENSIONS



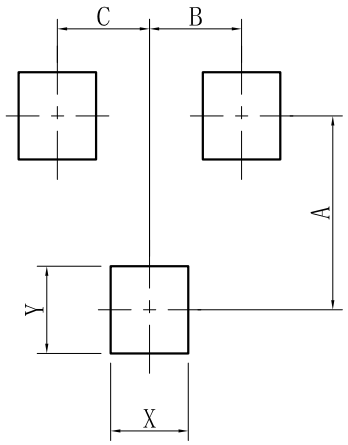
SECTION B-B

SOT23			
DIM	MIN	NOR	MAX
A	0.89	-	1.12
A1	0.01	-	0.10
A2	0.88	0.95	1.02
b	0.30	-	0.50
b1	0.30	0.40	0.45
c	0.08	-	0.20
c1	0.08	0.10	0.16
D	2.80	2.90	3.04
E	2.10	-	2.64
E1	1.20	1.30	1.40
e	0.95BSC		
e1	1.90BSC		
L	0.40	0.46	0.60
L1	0.54REF		
θ	0°	-	8°
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

8.SOLDERING FOOTPRINT



SOT-23	
DIM	(mm)
X	0.80
Y	0.90
A	2.00
B	0.95
C	0.95

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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