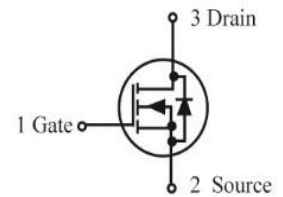
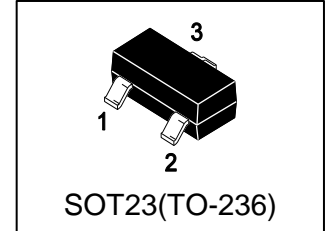


# S-LN2312LT1G

## 20V N-Channel Enhancement-Mode MOSFET

### 1. FEATURES

- VDS= 20V
- RDS(ON), VGS@4.5V, IDS@5A ≤ 41mΩ
- RDS(ON), VGS@2.5V, IDS@4.5A ≤ 52mΩ
- 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.



### 2. APPLICATIONS

- High density cell design for ultra low on-resistance
- Advanced trench process technology

### 3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
S-LN2312LT1G	N12	3000/Tape&Reel
S-LN2312LT3G	N12	10000/Tape&Reel

### 4. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	20	V
Gate–to–Source Voltage – Continuous	VGS	±8	V
Drain Current			
– Continuous TA = 25°C	ID	4.9	A
– Pulsed(Note 1)	IDM	15	

### 5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Maximum Power Dissipation	PD	1.25	W
Thermal Resistance, Junction–to–Ambient(Note 2)	RθJA	120	°C/W
Junction–to–Case	RθJC	90	
Junction and Storage temperature	TJ,Tstg	–55~+175	°C

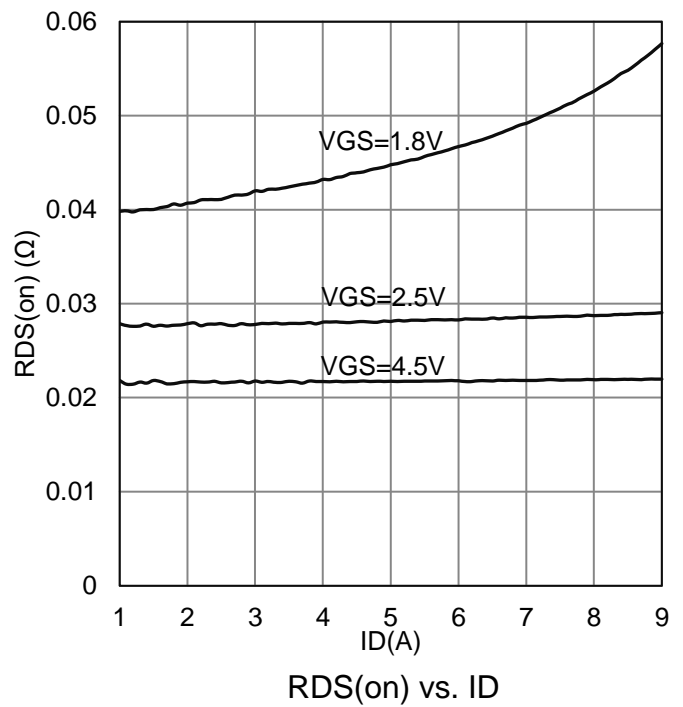
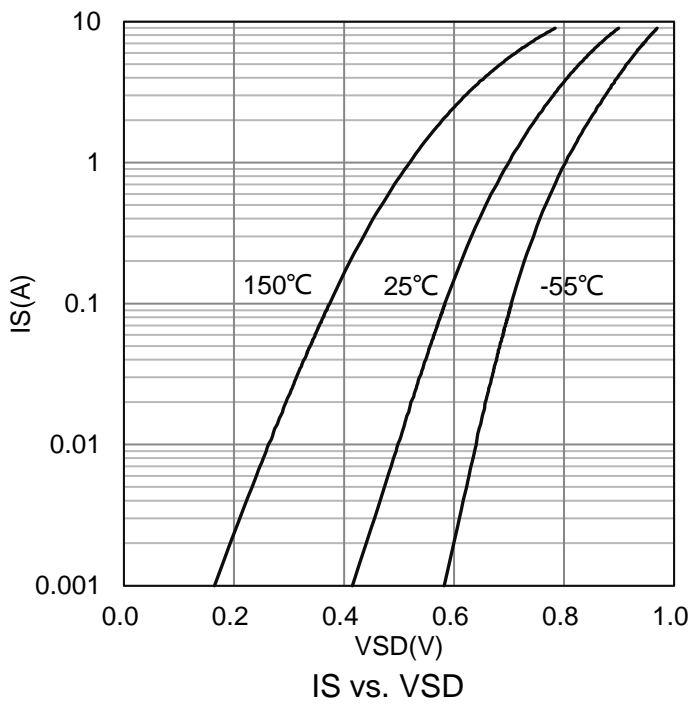
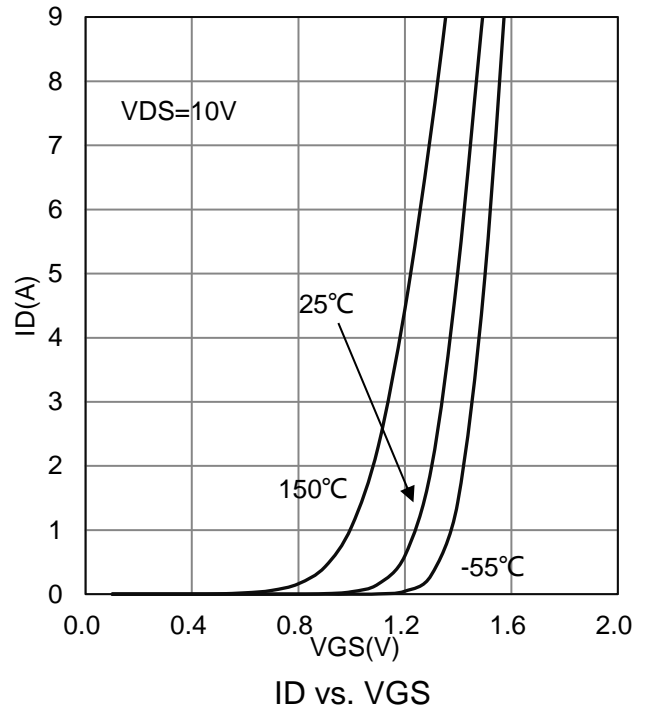
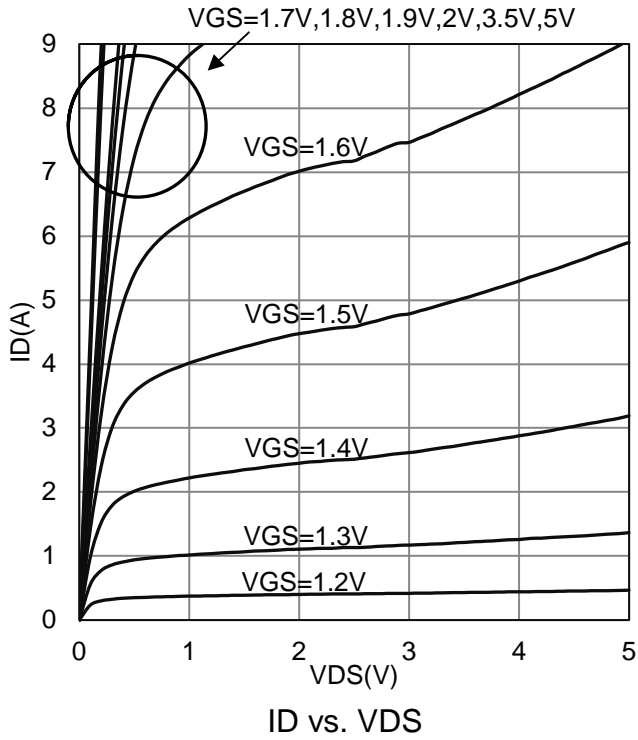
1. Repetitive Rating: Pulse width limited by the Maximum junction temperature.
2. 1-in<sup>2</sup> 2oz Cu PCB board.

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

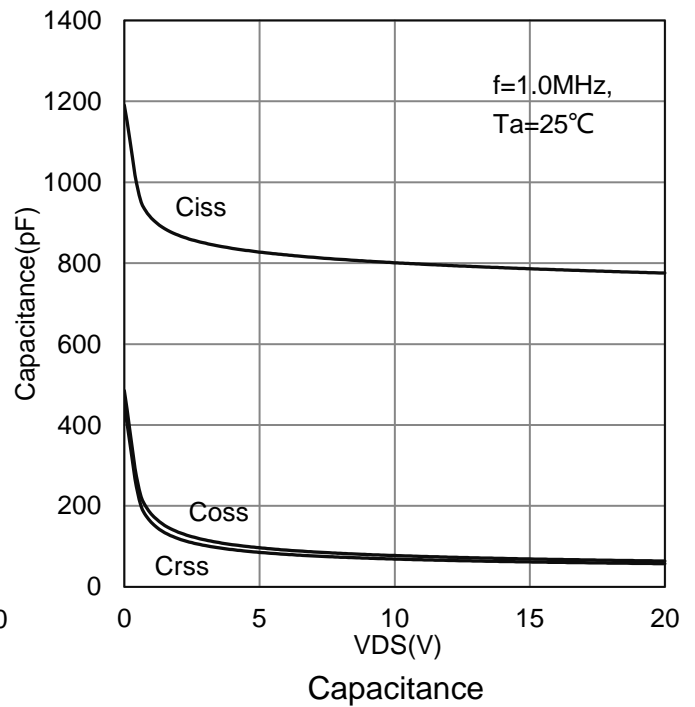
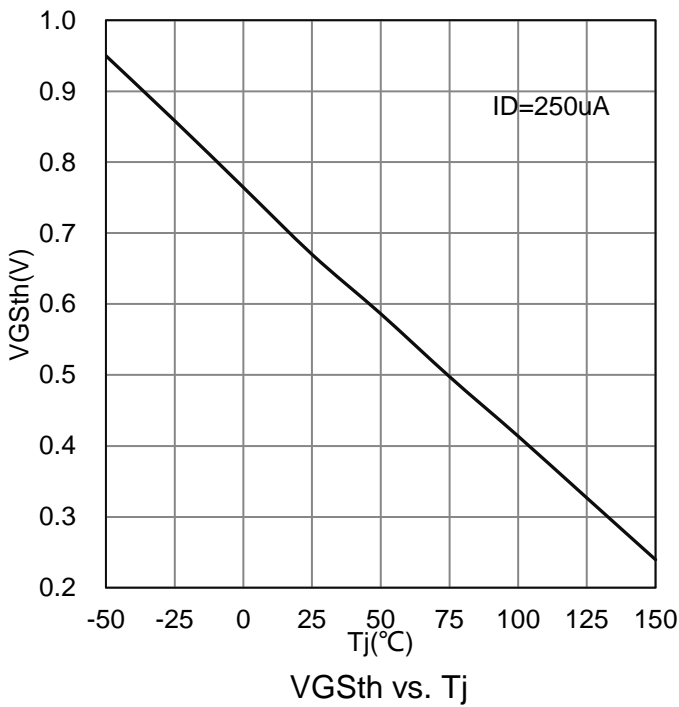
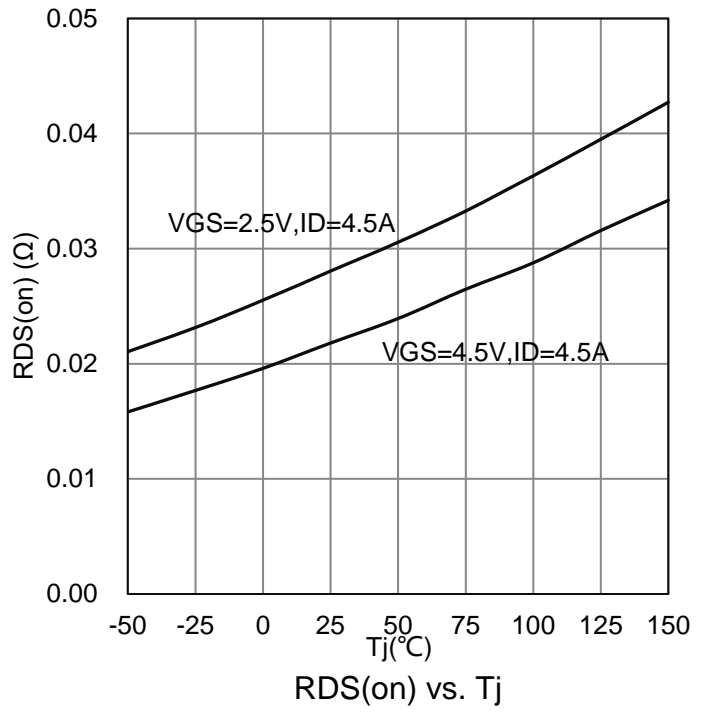
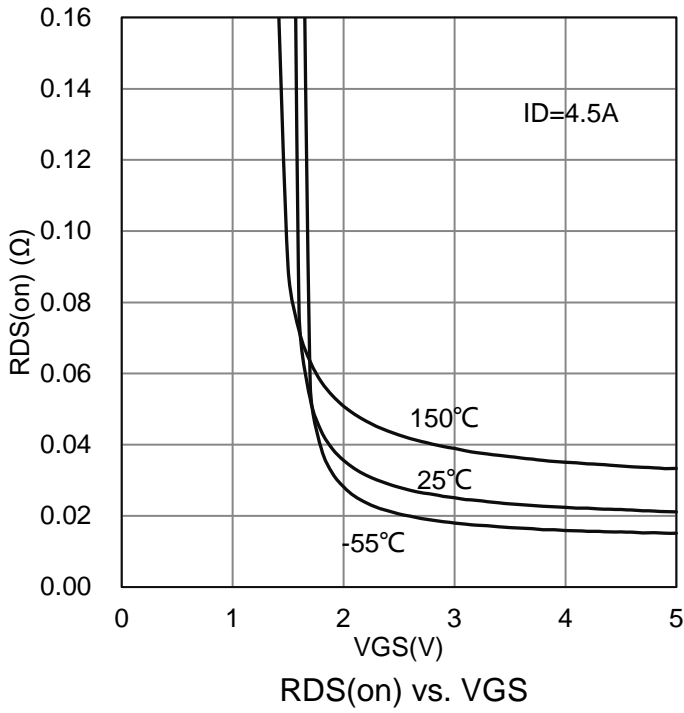
Characteristic	Symbol	Min.	Typ.	Max.	Unit
<b>Static</b>					
Drain–Source Breakdown Voltage (VGS = 0, ID = 250μA)	V(BR)DSS	20	-	-	V
Gate Threshold Voltage (VDS = VGS, ID = 250μA)	VGS(th)	0.4	0.6	1.0	V
Zero Gate Voltage Drain Current (VDS=20V, VGS=0V)	IDSS	-	-	1	μA
Gate–Body Leakage Current, Forward (VDS = 0 V, VGS = 8 V)	IGSSF	-	-	100	nA
Gate–Body Leakage Current, Reverse (VDS = 0 V, VGS = -8 V)	IGSSR	-	-	-100	nA
Static Drain–Source On–State Resistance (VGS = 1.8 V, ID = 4 A) (VGS = 2.5 V, ID = 4.5 A) (VGS = 4.5 V, ID = 4.5 A)	RDS(on)	-	31 24 21	71 52 41	mΩ
Diode Forward Voltage (VGS = 0 V, ISD = 1.7 A)	VSD	-	-	1.2	V
<b>Dynamic</b>					
Total Gate Charge	(VDS = 10 V, VGS = 10 V, ID = 4 A)	Qg	-	18.4	-
Gate to Source Charge		Qgs	-	1	-
Gate to Drain Charge		Qgd	-	2.4	-
Input capacitance	(VDS =10V, VGS =0V, f=1MHz)	Ciss	-	801	-
Output Capacitance		Coss	-	78	-
Reverse Transfer Capacitance		Crss	-	69	-
Turn-On Delay Time	(VDD =10V, ID =1A, VGEN=4.5V, RG = 6Ω)	td(on)	-	7.8	-
Rise Time		tr	-	13	-
Turn-Off Delay Time		td(off)	-	40.7	-
Fall Time		tf	-	15.3	-

3.Pulse test; pulse width ≤ 300μs, duty cycle ≤ 2%.

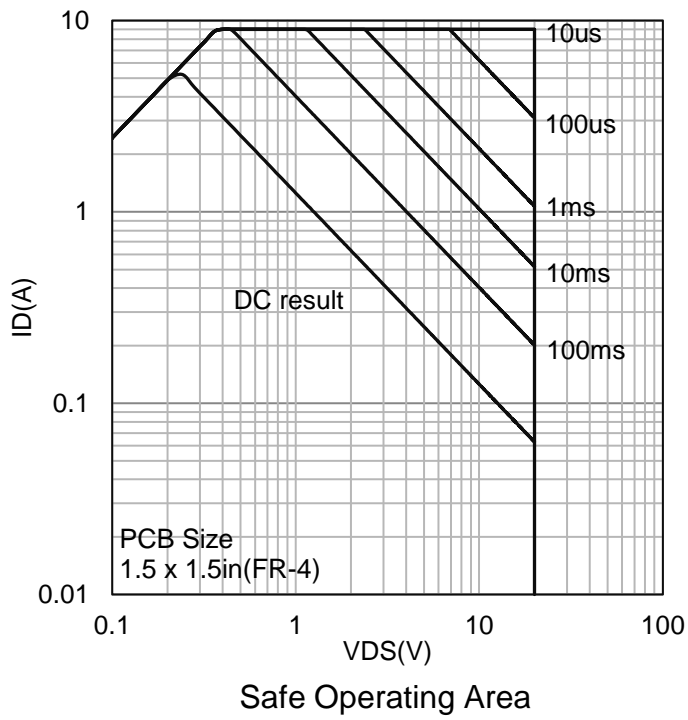
### 7. ELECTRICAL CHARACTERISTICS CURVES



**7. ELECTRICAL CHARACTERISTICS CURVES(Con.)**



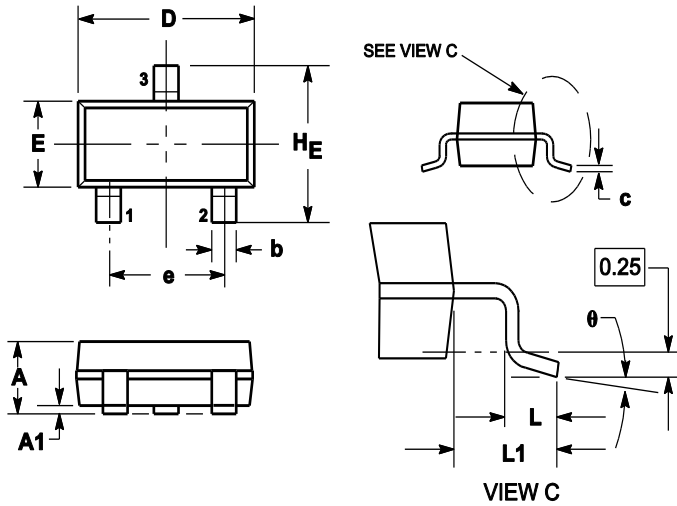
### 7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



### 8. OUTLINE AND DIMENSIONS

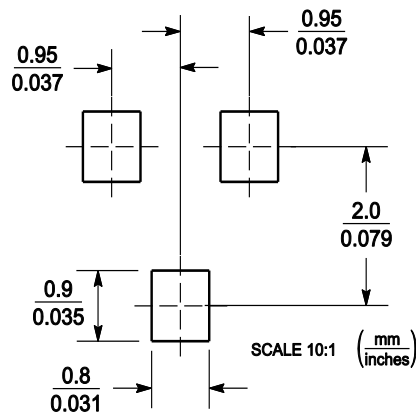
Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1	1.11	0.035	0.04	0.044
A1	0.01	0.06	0.1	0.001	0.002	0.004
b	0.37	0.44	0.5	0.015	0.018	0.02
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.9	3.04	0.11	0.114	0.12
E	1.20	1.3	1.4	0.047	0.051	0.055
e	1.78	1.9	2.04	0.07	0.075	0.081
L	0.10	0.2	0.3	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
HE	2.10	2.4	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

### 9. SOLDERING FOOTPRINT



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