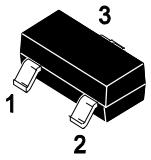
LN2330ELT1G

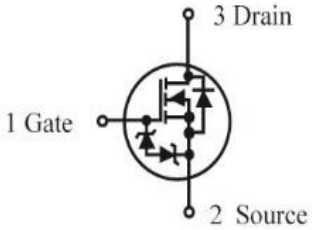
N-Channel 20V Enhancement Mode MOSFET



SOT23(TO-236)

1. FEATURES

- Low Gate Threshold Voltage
- Fast Switching Speed
- Gate-Source ESD Protected
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.



2.APPLICATIONS

- Battery Management Application
- Power Management Functions
- DC-DC Converters

3. ORDERING INFORMATION

Device	Marking	Shipping
LN2330ELT1G	N9E	3000/Tape&Reel
LN2330ELT3G	N9E	10000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25ºC unless otherwise stated)

Parameter	Symbol	Limits	Unit
Drain−to−Source Voltage	VDSS	20	V
Gate−to−Source Voltage	VGS	± 10	V
Continuous Drain Current	ID	6.5	A
Avalanche Current(L=0.1mH)	IAS	14	A
Avalanche energy(L=0.1mH)	EAS	9.8	mJ

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Maximum Power Dissipation	PD	0.9	W
Thermal Resistance, Junction–to–Ambient(Note 1)	RΘJA	140	ºC/W
Junction and Storage temperature	TJ,Tstg	−55~+150	° C

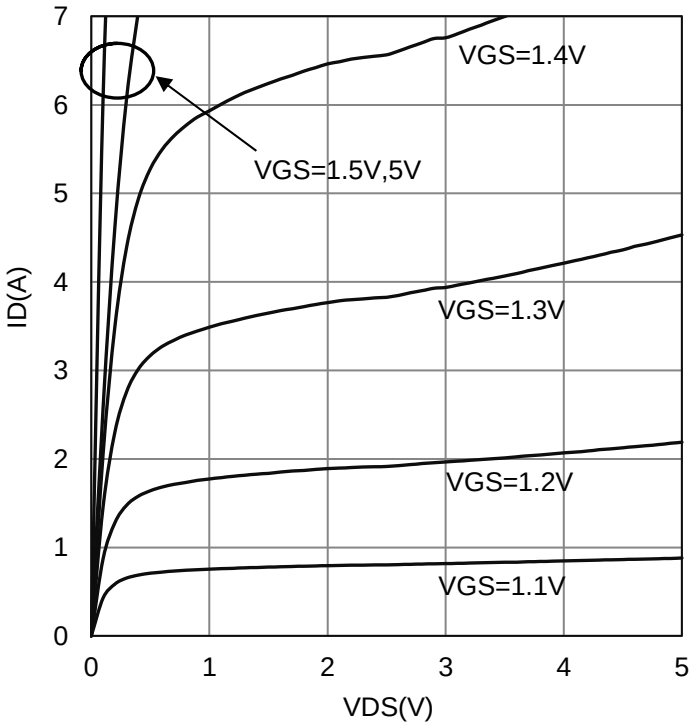
1. 1-in² 2oz Cu PCB board.

6. ELECTRICAL CHARACTERISTICS

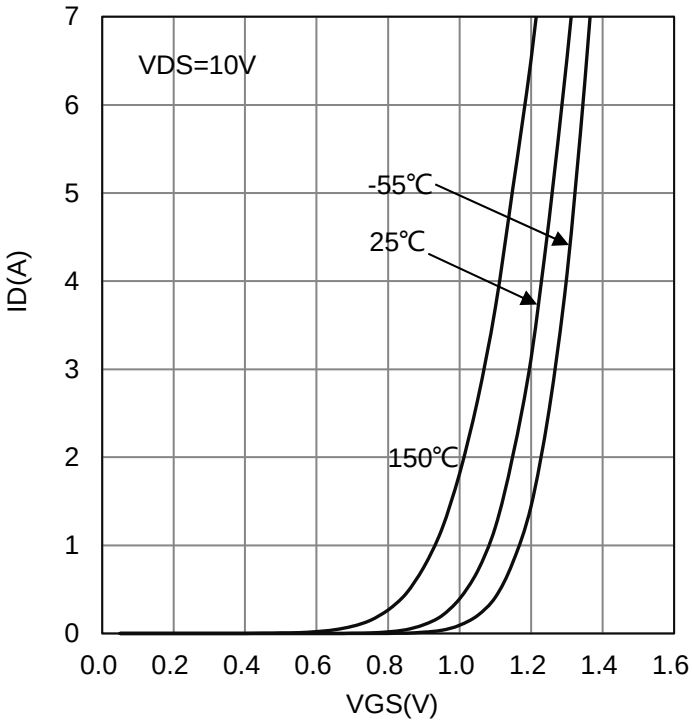
Characteristic		Symbol	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage (VGS =0V, ID =250μA)		V(BR)DSS	20	-	-	V
Gate Threshold Voltage (VDS =VGS , ID =250μA)		VGS(th)	0.45	0.7	1	V
Gate Leakage Current (VDS =0V, VGS =± 10V)		IGSS	-	-	±10	μA
Zero Gate Voltage Drain Current (VDS =20V, VGS =0V)		IDSS	-	-	1	μA
Drain-Source On-Resistance(Note 2) (VGS =4.5V, ID = 6A) (VGS =2.5V, ID = 5A)		RDS(ON)	- -	- -	30 36	mΩ
Diode Forward Voltage (ISD = 0.5 A, VGS = 0 V)		VSD	-	0.7	1.3	V
Dynamic(Note 2)						
Total Gate Charge	(VDS =10V, VGS =4.5V, ID =6.5A)	Qg	-	10.5	-	nC
Gate-Source Charge		Qgs	-	1.7	-	
Gate-Drain Charge		Qgd	-	3	-	
Input Capacitance	(VDS =10V, VGS =0V,f=1MHz)	Ciss	-	754	-	pF
Output Capacitance		Coss	-	123	-	
Reverse Transfer Capacitance		Crss	-	114	-	
Turn-On Delay Time	(VDS =10V, RL = 1.5Ω，VGS =5V, RGEN =3.1Ω)	td(on)	-	5	-	ns
Turn-On Rise Time		tr	-	3.9	-	
Turn-Off Delay Time		td(off)	-	22	-	
Turn-Off Fall Time		tf	-	9	-	
Gate-Resistance (VGS = 0 V, VDS=0V,f=1MHz)		Rg	-	0.8	-	Ω

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

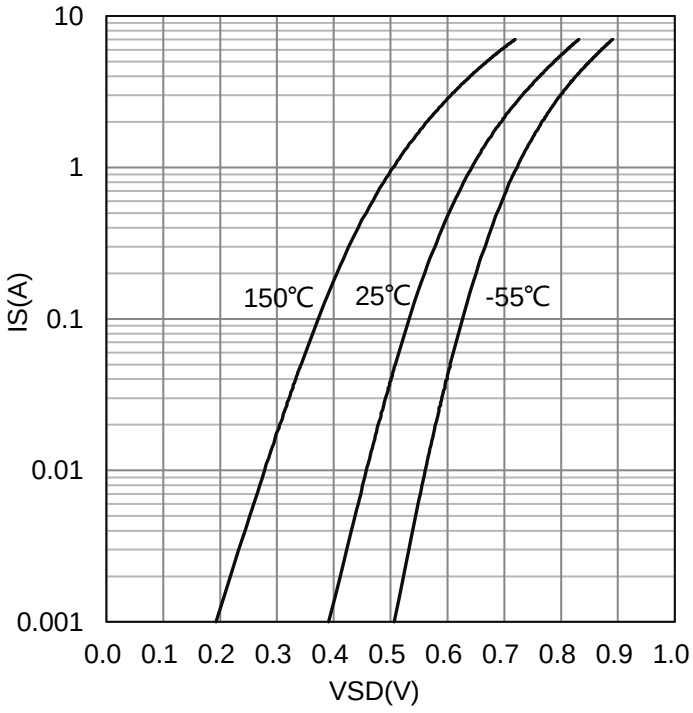
7. ELECTRICAL CHARACTERISTICS CURVES



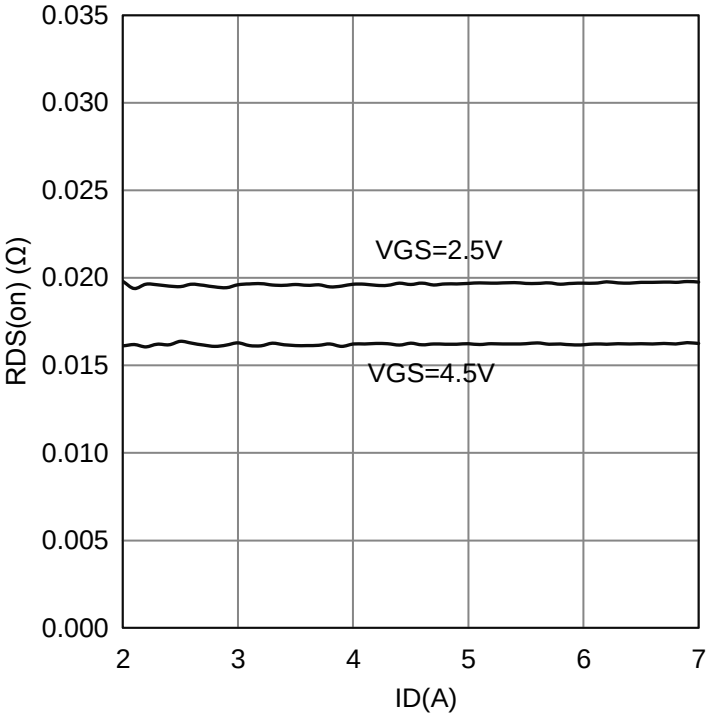
ID vs. VDS



ID vs. VGS

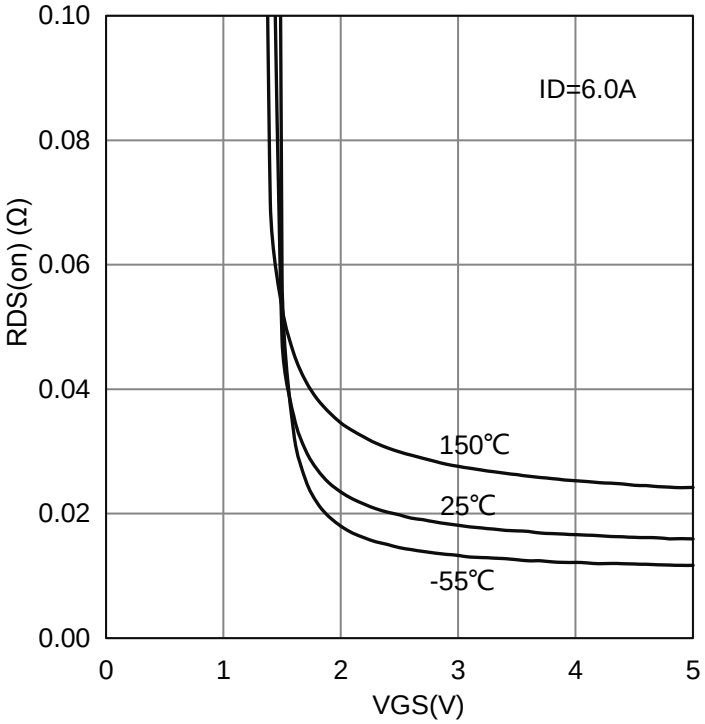


IS vs. VSD

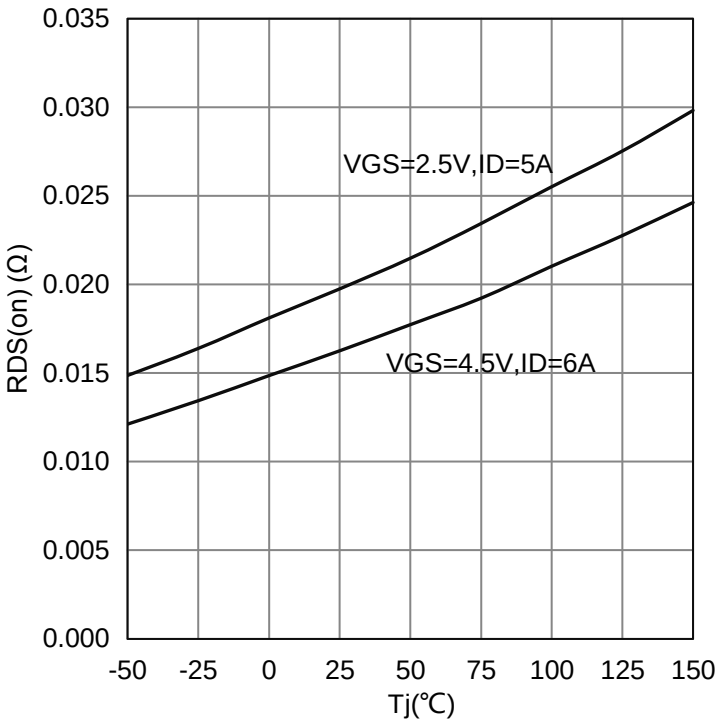


RDS(on) vs. ID

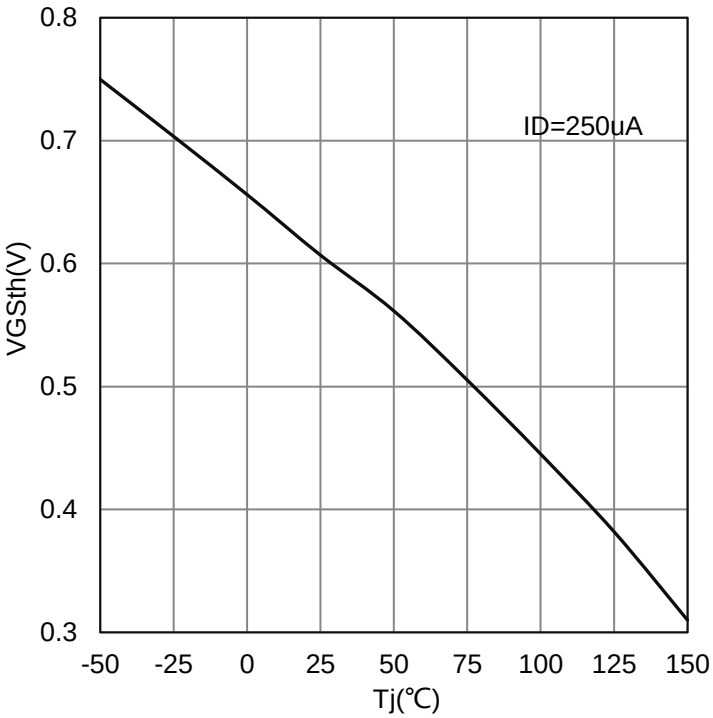
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



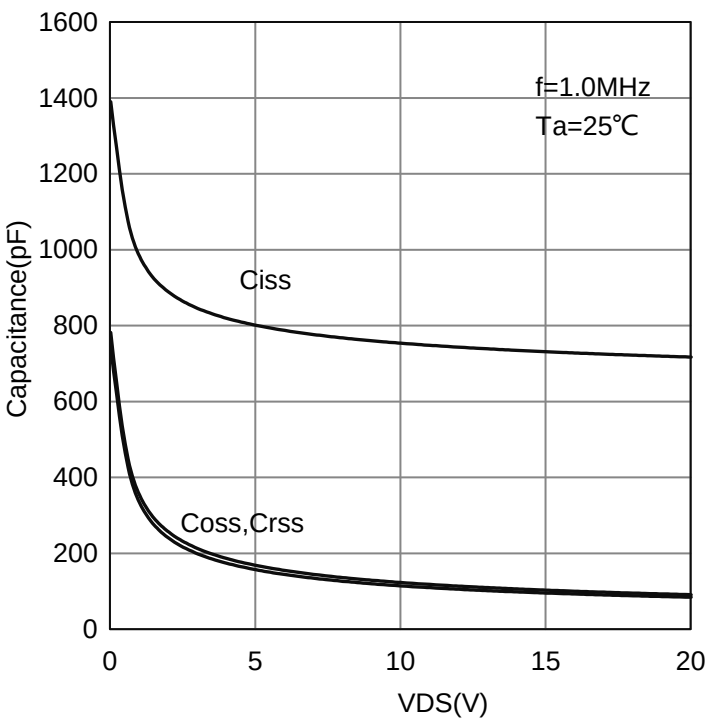
RDS(on) vs. VGS



RDS(on) vs. Tj

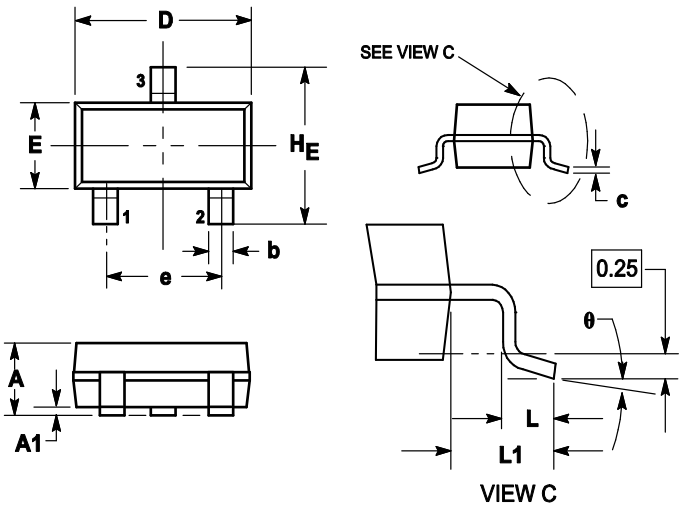


VGSth vs. Tj



Capacitance

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.

	MILLIMETERS			INCHES		
DIM	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
H_E	2.10	2.4	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

9.SOLDERING FOOTPRINT