

# N2306EL

## N-Channel 30V(D-S) MOSFET

### 1. FEATURES

- VDS= 30V
- RDS(ON) ≤ 65mΩ@ VGS =10V
- RDS(ON) ≤ 75mΩ@ VGS =4.5V
- RDS(ON) ≤ 105mΩ@ VGS=2.5V
- RDS(ON) ≤ 400mΩ@ VGS=1.7V
- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- ESD Protected

### 2. APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- Load Switch

### 3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
N2306EL	2E	3000/Tape&Reel

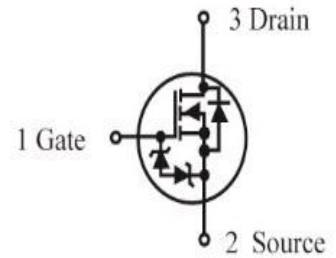
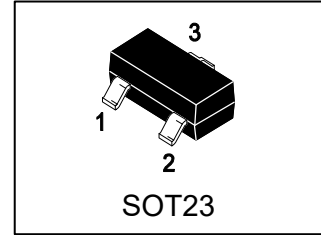
### 4. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	30	V
Gate–to–Source Voltage – Continuous	VGS	±12	V
Drain Current	ID	3.4	A

### 5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Maximum Power Dissipation	PD	1.4	W
Thermal Resistance, Junction–to–Ambient(Note 2)	RθJA	140	°C/W
Junction and Storage temperature	TJ, Tstg	-55~+150	°C

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

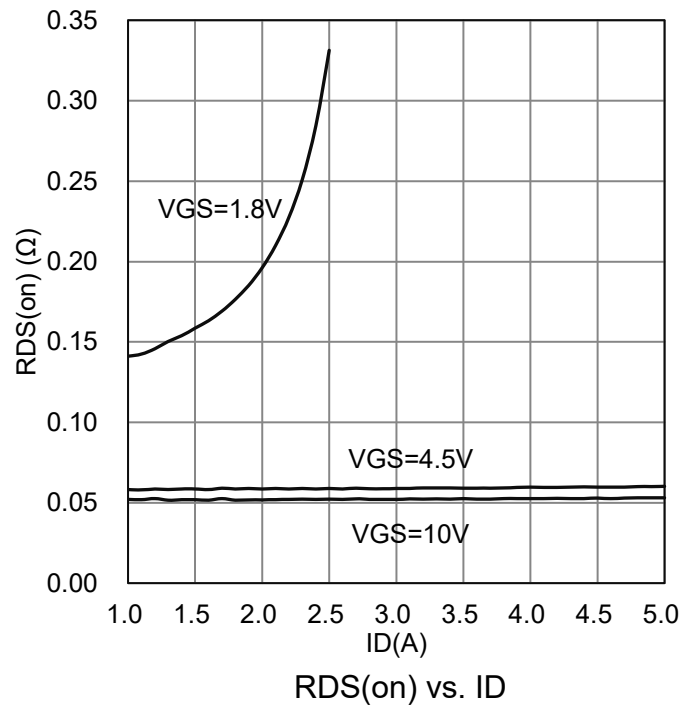
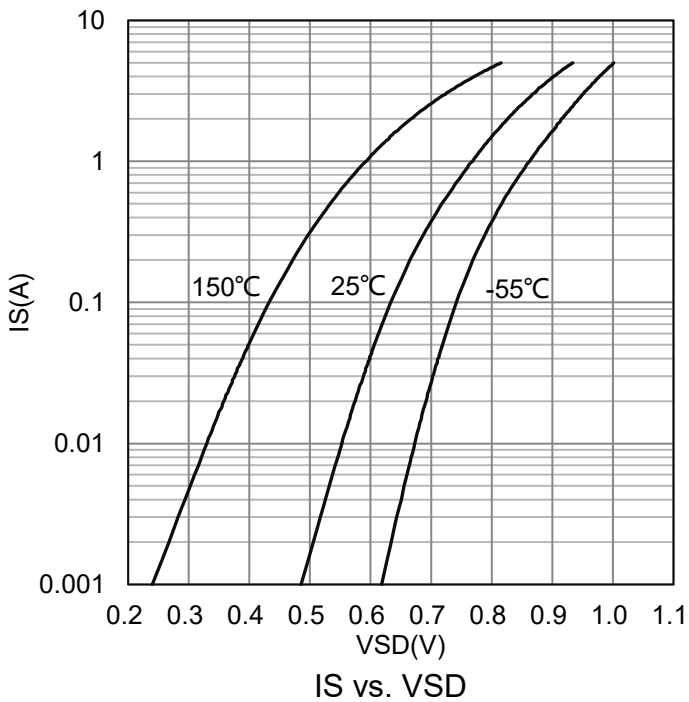
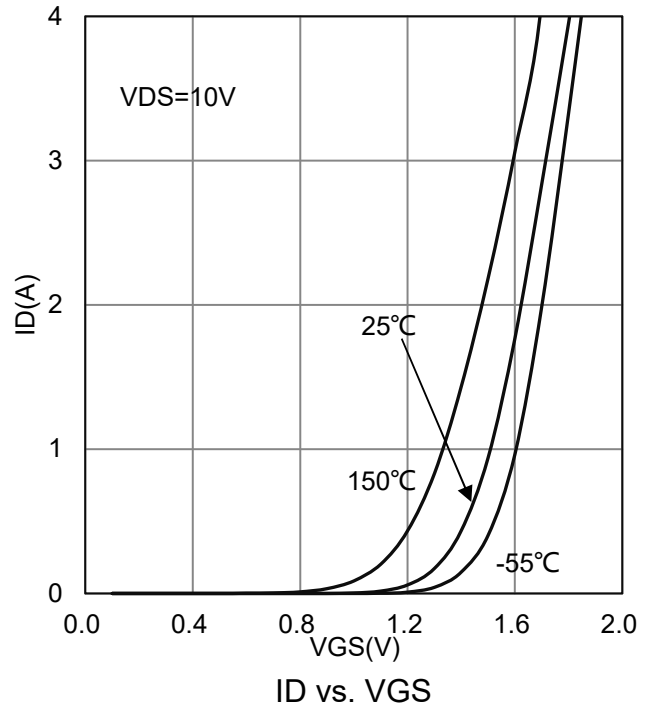
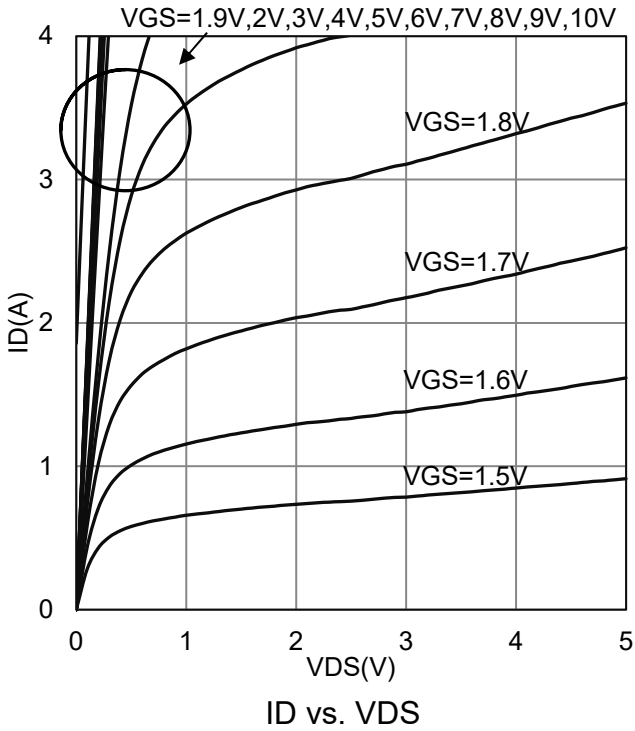


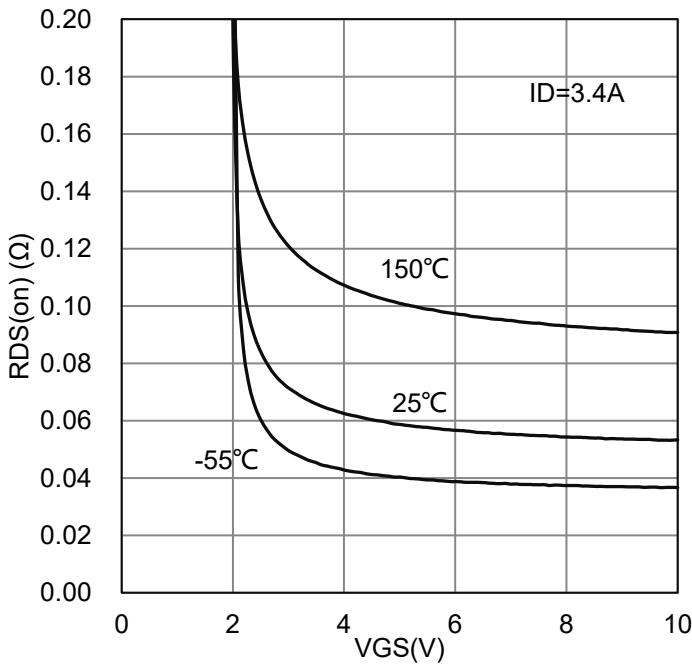
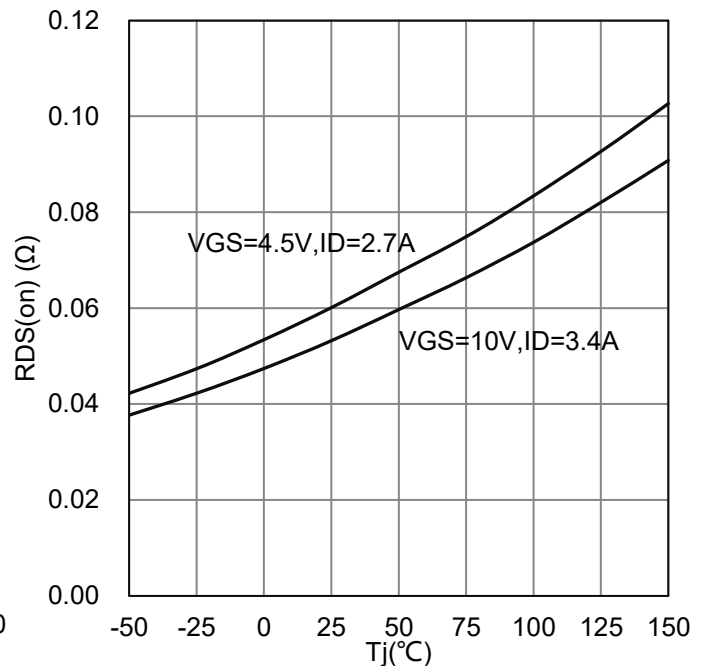
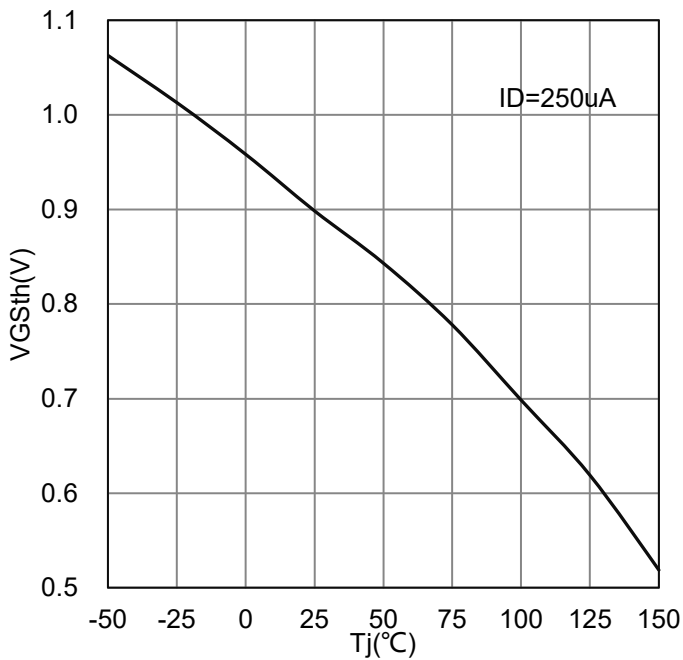
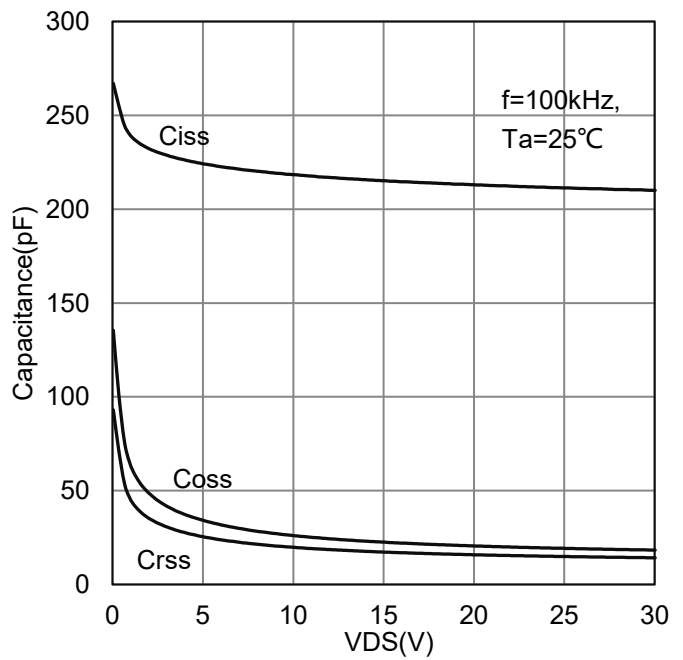
**6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)**

Characteristic	Symbol	Min.	Typ.	Max.	Unit	
<b>STATIC</b>						
Drain–Source Breakdown Voltage (VGS = 0, ID = 250μA)	V(BR)DSS	30	-	-	V	
Zero Gate Voltage Drain Current (VDS=30V, VGS=0V)	IDSS	-	-	1	μA	
Gate–Body Leakage Current, Forward (VDS = 0 V, VGS = 10 V)	IGSSF	-	-	10	μA	
Gate–Body Leakage Current, Reverse (VDS = 0 V, VGS = -10 V)	IGSSR	-	-	-10	μA	
Gate Threshold Voltage (VDS = VGS, ID = 250μA)	VGS(th)	0.6	-	1.4	V	
Static Drain–Source On–State Resistance (VGS = 10 V, ID =3.4 A) (VGS = 4.5 V, ID =2.7 A) (VGS = 2.5 V, ID = 1 A) (VGS = 1.7 V, ID = 0.5 A)	RDS(on)	-	48 54 75 180	65 75 105 400	mΩ	
<b>DYNAMIC</b>						
Input Capacitance (VGS = 0 V, f = 1.0MHz, VDS= 15 V)	Ciss	-	247	-	pF	
Output Capacitance (VGS = 0 V, f = 1.0MHz, VDS= 15 V)	Coss	-	33	-	pF	
Reverse Transfer Capacitance (VGS = 0 V, f = 1.0MHz, VDS= 15 V)	Crss	-	5	-	pF	
Total Gate Charge	(VGS = 4.5 V, ID=2.1A, VDS= 15 V)	Qg	-	4.7	-	nC
Gate-Source Charge		Qgs	-	1.9	-	
Gate-Drain Charge		Qgd	-	1.6	-	
Turn-On Delay Time	(VDD = 15V, RL = 15Ω ID = 1A, VGEN = 10V, RG = 6Ω)	td(on)	-	97.2	-	ns
Rise Time		tr	-	128	-	
Turn-Off Delay Time		td(off)	-	2600	-	
Fall Time		tf	-	677	-	
Forward Voltage (VGS = 0 V, ISD = 3.4 A)	VSD	-	-	1.2	V	

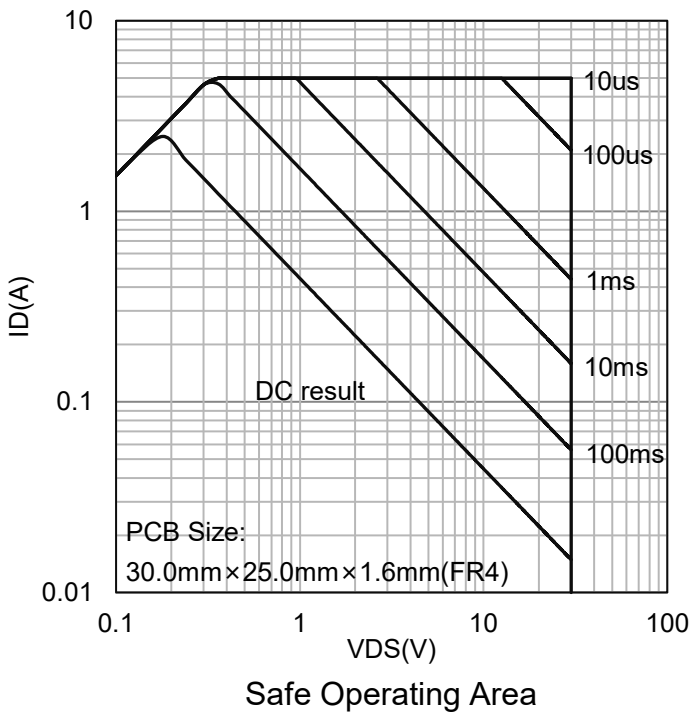
3.Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.



**7. ELECTRICAL CHARACTERISTICS CURVES**


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

 **$R_{DS(on)}$  vs.  $V_{GS}$** 

 **$R_{DS(on)}$  vs.  $T_j$** 

 **$V_{GS(th)}$  vs.  $T_j$** 

**Capacitance**

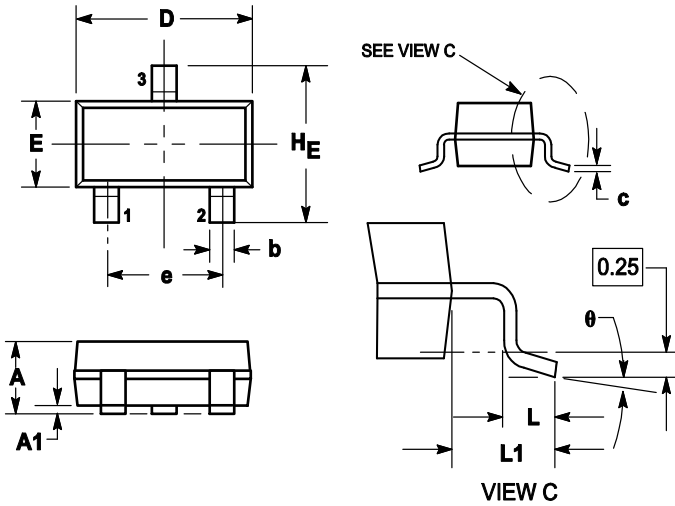

**7. ELECTRICAL CHARACTERISTICS CURVES(Con.)**



### 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

