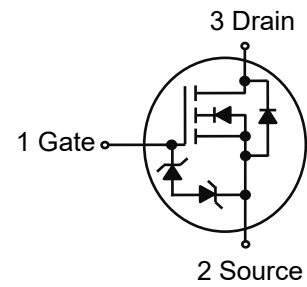
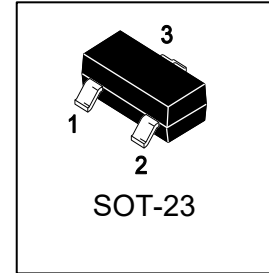


NA2306EL

S-NA2306EL

30V N-Channel Enhancement-Mode MOSFET



1. FEATURES

- Gate to Source ESD Protected
- 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

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

3. DEVICE MARKING AND ORDERING INFORMATION

| Device | Marking | Shipping |
|----------|---------|----------------|
| NA2306EL | 6ED | 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 | | | |
| – Continuous TA = 25°C | ID | 4 | A |
| – Continuous TA = 70°C | | 3 | |
| – Pulsed(Note 1) | IDM | 16 | |
| Junction and Storage temperature | TJ,Tstg | -55~+150 | °C |

5. THERMAL CHARACTERISTICS

| Parameter | Symbol | Limits | Unit |
|--|--------|--------|------|
| Maximum Power Dissipation | PD | 0.9 | W |
| Thermal Resistance, Junction-to-Ambient(Note 2) | RθJA | 140 | °C/W |
| Junction-to-Case | RθJC | 105 | |

1. Repetitive Rating: Pulse width limited by the Maximum junction temperature.
2. 1-in² 2oz Cu PCB board.

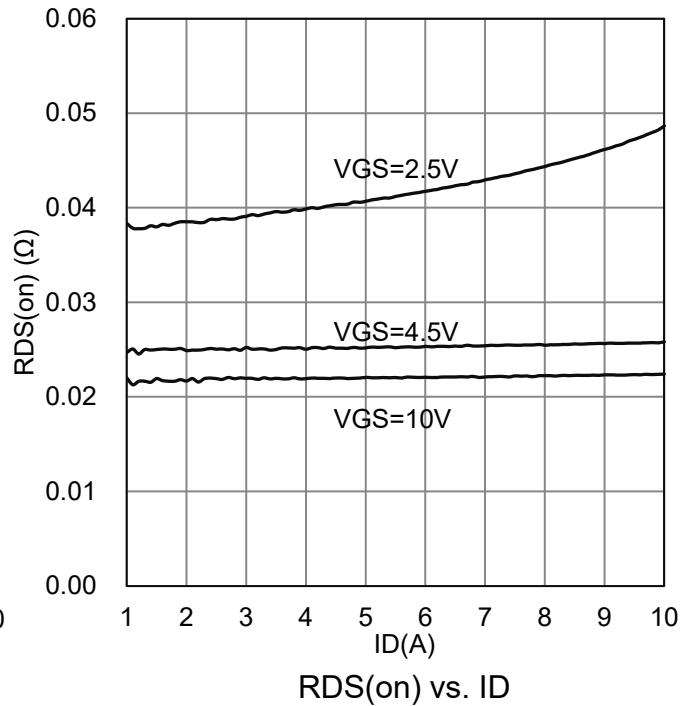
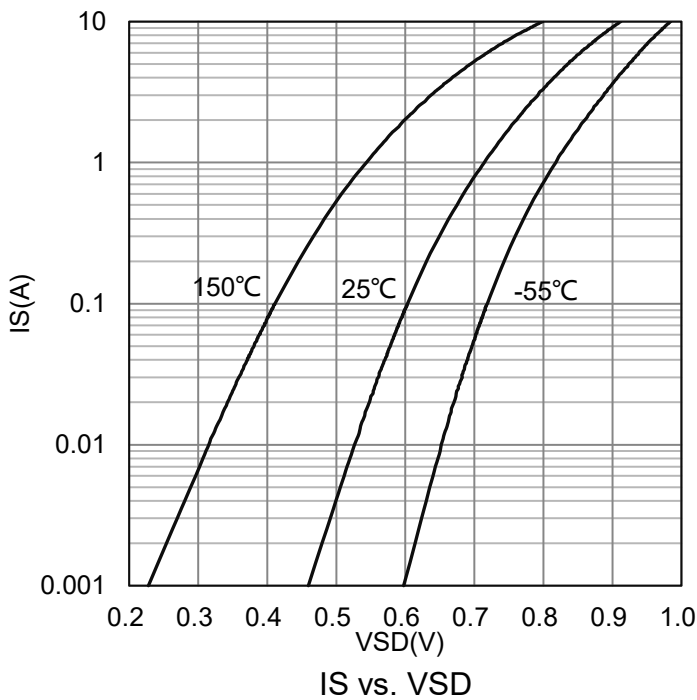
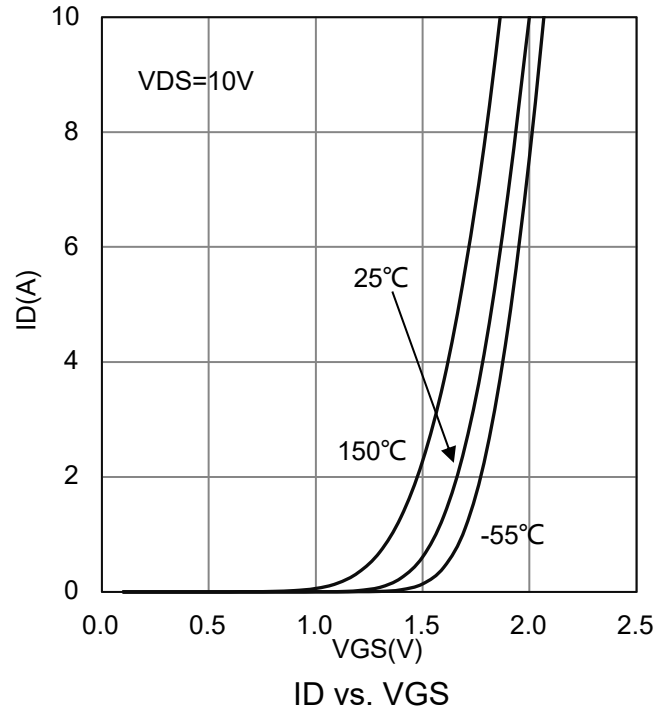
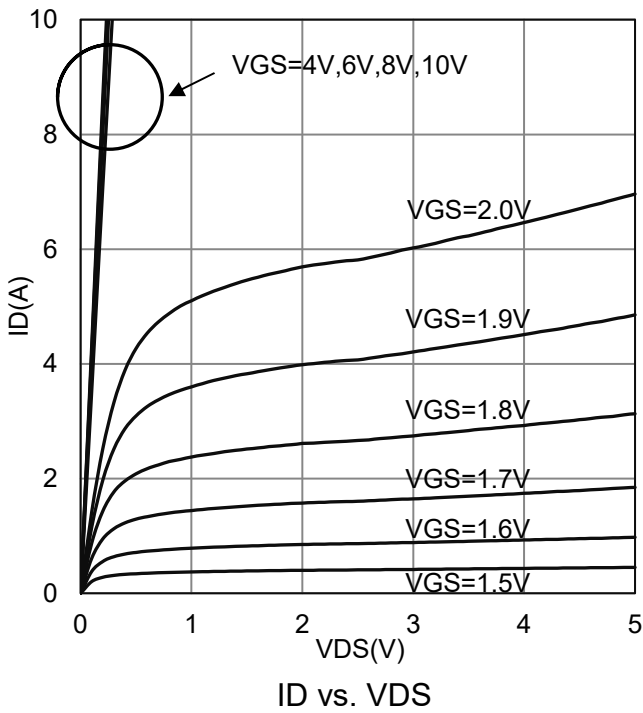


6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

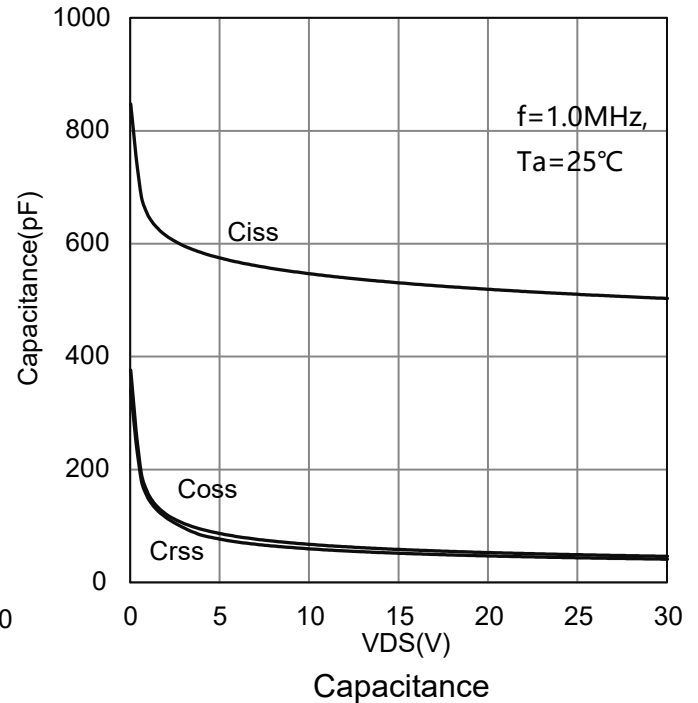
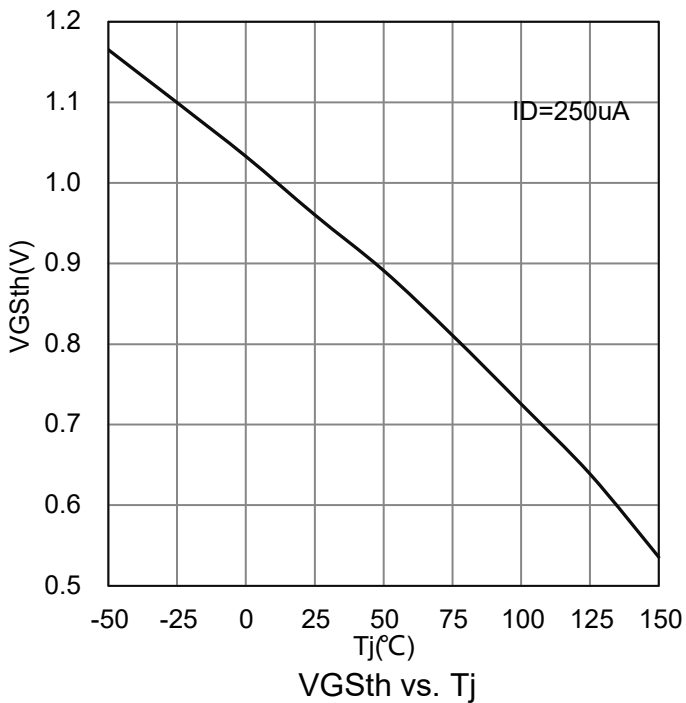
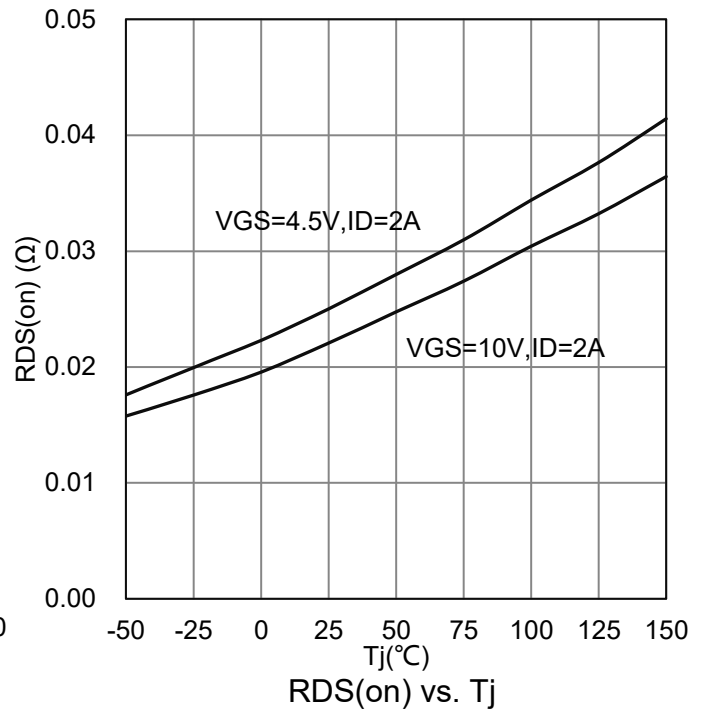
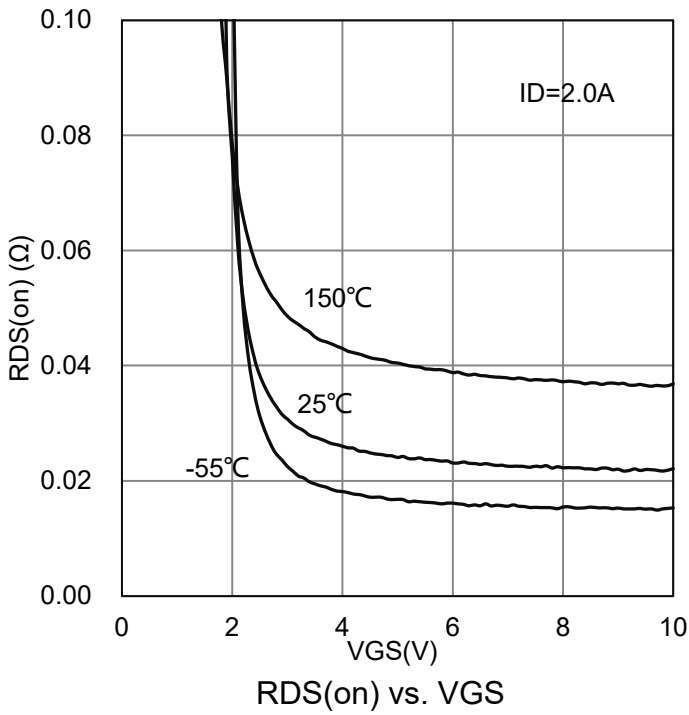
| Characteristic | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---------|------|----------------|------|
| STATIC | | | | | |
| Drain-Source Breakdown Voltage (VGS = 0, ID = 250μA) | V(BR)DSS | 30 | - | - | V |
| Gate Threshold Voltage (VDS = VGS, ID = 250μA) | VGS(th) | 0.7 | - | 1.4 | V |
| Gate-to-Source Leakage Current (VDS = 0V, VGS = ±10V) | IGSS | - | - | ±10 | μA |
| Drain-to-Source Leakage Current (VDS = 30V, VGS = 0V) | IDSS | - | - | 1 | μA |
| Static Drain-Source On-State Resistance (VGS = 10V, ID = 2A) (VGS = 4.5V, ID = 2A) (VGS = 2.5V, ID = 2A) | RDS(on) | - | - | 43 50 67 | mΩ |
| Diode Forward Voltage (IS = 1.0A, VGS = 0V) | VSD | - | - | 1.2 | V |
| DYNAMIC | | | | | |
| Total Gate Charge | (VGS = 4.5 V, ID=2A, VDS= 15 V) | Qg | - | 6 | nC |
| Gate-Source Charge | | Qgs | - | 0.8 | |
| Gate-Drain Charge | | Qgd | - | 2.2 | |
| Input capacitance | (VGS = 0 V, f = 1.0MHz, VDS= 15 V) | Ciss | - | 531 | pF |
| Output Capacitance | | Coss | - | 58 | |
| Reverse Transfer Capacitance | | Crss | - | 52 | |
| Turn-On Delay Time | (VDD=15V, RL=15Ω, ID=1A, VGEN=10V, RG =3Ω) | td(on) | - | 4.3 | ns |
| Turn-On Rise Time | | tr | - | 7.4 | |
| Turn-Off Delay Time | | td(off) | - | 24.8 | |
| Turn-Off Fall Time | | tf | - | 4 | |
| Gate Resistance (VDS=0V, VGS=0V, f=1.0MHz) | Rg | - | 1.5 | - | Ω |

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



7. ELECTRICAL CHARACTERISTICS CURVES


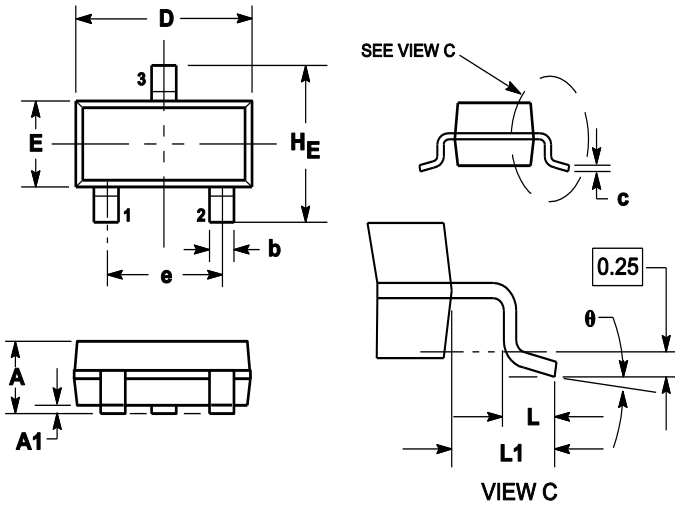
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



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
