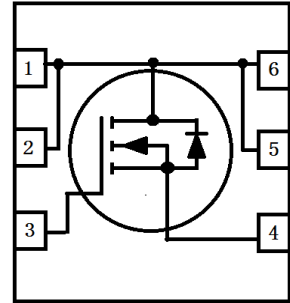
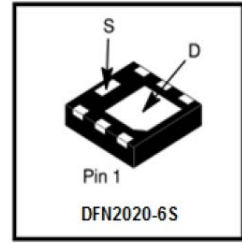


N3430D

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



1. FEATURES

- Low RDS(on) trench technology.
- Low thermal impedance.
- Fast switching speed.
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.

2. APPLICATION

- Power Routing
- DC/DC Conversion
- Motor Drives

3. ORDERING INFORMATION

| Device | Marking | Shipping |
|--------|---------|----------------|
| N3430D | N3S | 4000/Tape&Reel |

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

| Parameter | | Symbol | Limits | Unit |
|--|-------------------|--------|-----------|------|
| Drain-to-Source Voltage | | VDSS | 30 | V |
| Gate-to-Source Voltage | | VGS | ±20 | V |
| Continuous Drain Current | TC =25°C | ID | 12 | A |
| | TC =70°C | | 9 | |
| | TA =25°C (Note 1) | | 7.2 | |
| | TA =70°C (Note 1) | | 5 | |
| Pulsed Drain Current (Note 2) | | IDM | 29 | |
| Continuous Source Current (Diode Conduction)(Note 1) | | IS | 2.7 | A |
| Power Dissipation | TC =25°C | PD | 6.9 | W |
| | TC =70°C | | 4.2 | |
| | TA =25°C (Note 1) | | 2.2 | |
| | TA =70°C (Note 1) | | 1.4 | |
| Operating Junction Temperature | | TJ | -55 ~+175 | °C |
| Storage Temperature Range | | Tstg | -55 ~+175 | |

1.Surface Mounted on 1" x 1" FR4 Board.

2.Pulse width limited by maximum junction temperature.

5. THERMAL CHARACTERISTICS

| Parameter | | Symbol | Limits | Unit |
|-------------------------------------|--------------|--------|--------|------|
| Maximum Junction-to-Ambient(Note 1) | t ≤10s | RθJA | 40 | °C/W |
| | Steady State | | 90 | |
| Maximum Junction-to-Case | Steady State | RθJC | 13 | |



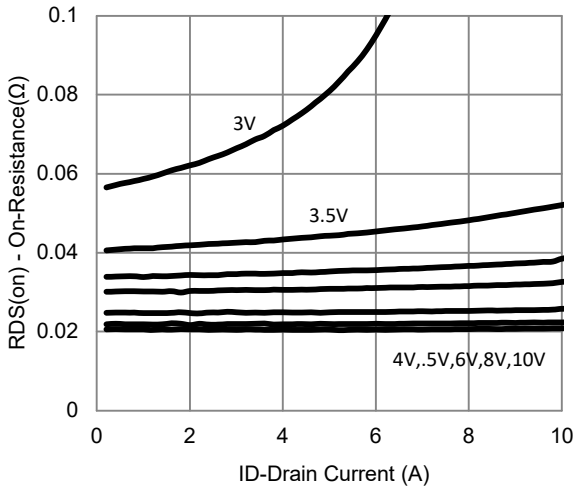
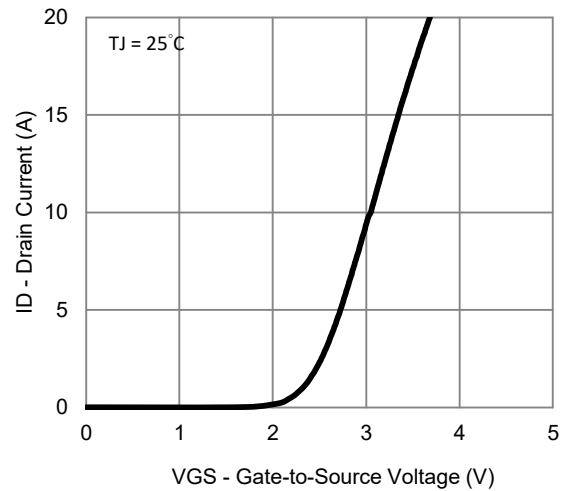
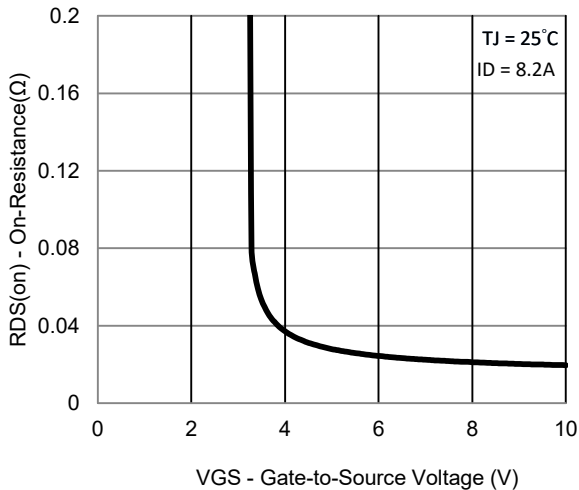
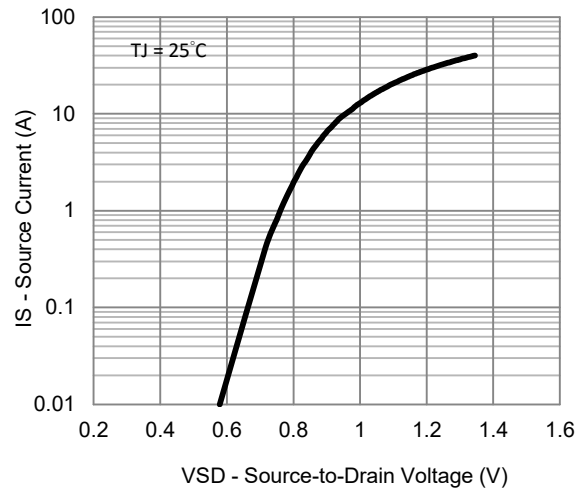
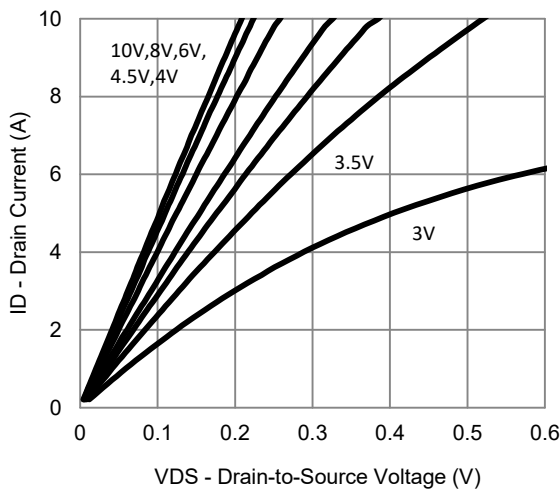
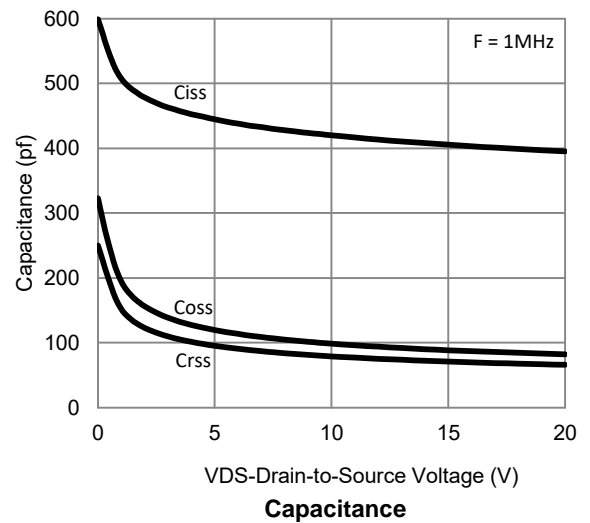
6. ELECTRICAL CHARACTERISTICS

| Characteristic | Symbol | Min. | Typ. | Max. | Unit | |
|--|--|---------|----------|-----------|------------|----|
| Static | | | | | | |
| Gate-Source Threshold Voltage (VDS = VGS, ID = 250 μ A) | VGS(th) | 1 | 1.5 | 2 | V | |
| Gate-Body Leakage (VDS = 0 V, VGS = \pm 20 V) | IGSS | - | - | \pm 100 | nA | |
| Zero Gate Voltage Drain Current (VDS = 24 V, VGS = 0 V) (VDS = 24 V, VGS = 0 V, TJ = 85°C) | IDSS | - | - | 1 30 | μ A | |
| On-State Drain Current(Note 3) (VDS = 5 V, VGS = 10 V) | ID(on) | 20 | - | - | A | |
| Drain-Source On-Resistance(Note 3) (VGS = 10 V, ID = 0.5 A) (VGS = 4.5 V, ID = 0.5 A) | RDS(on) | - | 16 22 | 24 34 | m Ω | |
| Forward Transconductance(Note 3) (VDS = 15 V, ID = 8.2 A) | gfs | - | 11 | - | S | |
| Diode Forward Voltage(Note 3) (IS = 0.5A, VGS = 0 V) | VSD | - | - | 1.3 | V | |
| Dynamic(Note 4) | | | | | | |
| Total Gate Charge | (VDS = 15 V, VGS = 4.5 V, ID = 8.2 A) | Qg | - | 5.16 | - | nC |
| Gate-Source Charge | | Qgs | - | 1.48 | - | |
| Gate-Drain Charge | | Qgd | - | 2.5 | - | |
| Input Capacitance | (VDS = 15 V, VGS = 0 V, f = 1 Mhz) | Ciss | - | 425 | - | pF |
| Output Capacitance | | Coss | - | 54.8 | - | |
| Reverse Transfer Capacitance | | Crss | - | 50.8 | - | |
| Turn-On Delay Time | (VDS = 15 V, RL = 1.9 Ω , ID = 8.2 A, VGEN = 10 V, RGEN = 6 Ω) | td(on) | - | 24 | - | ns |
| Rise Time | | tr | - | 34 | - | |
| Turn-Off Delay Time | | td(off) | - | 46 | - | |
| Fall Time | | tf | - | 44 | - | |
| Gate-Resistance (VDS=0V, VGS=0V, f=1.0MHz) | Rg | - | 1.1 | - | Ω | |

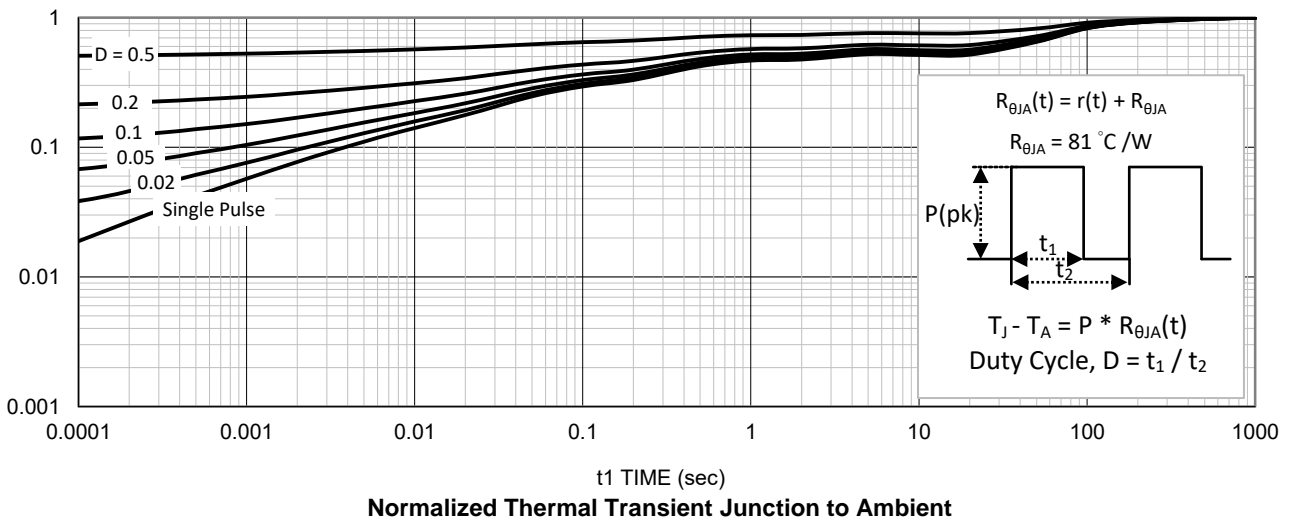
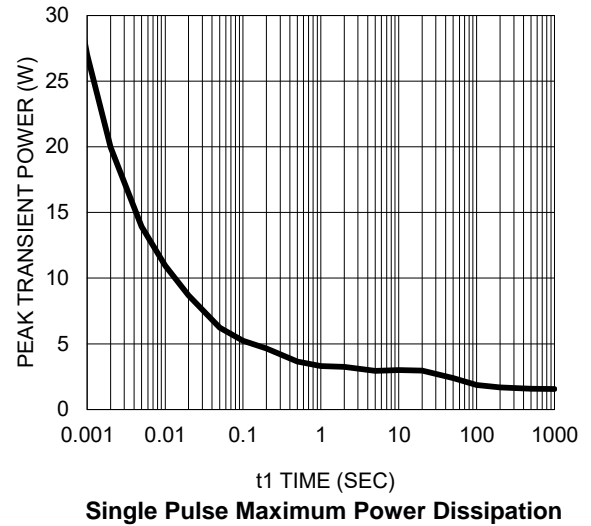
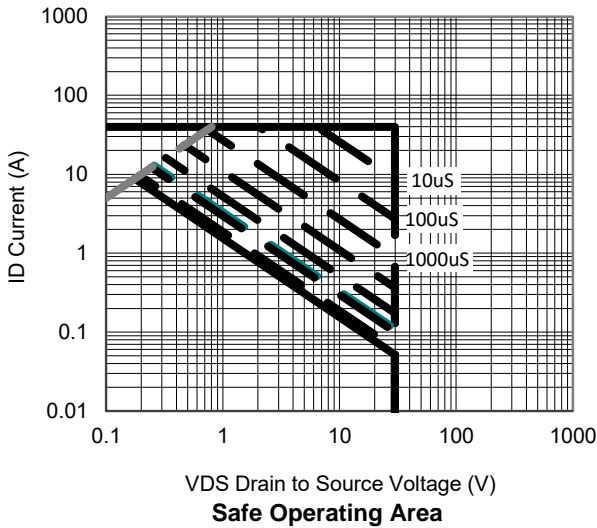
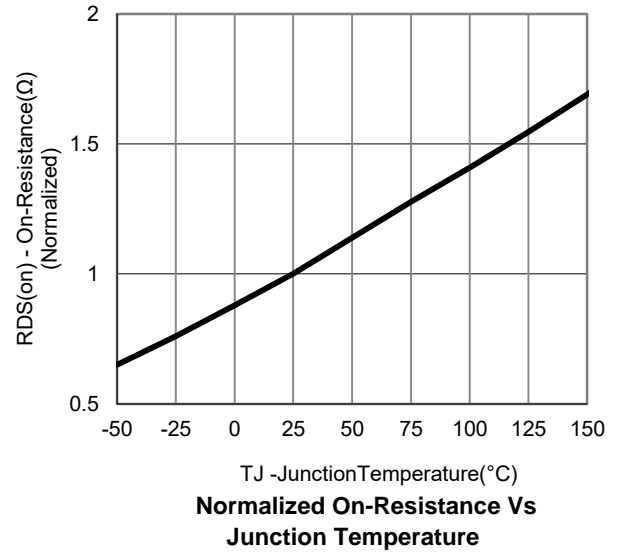
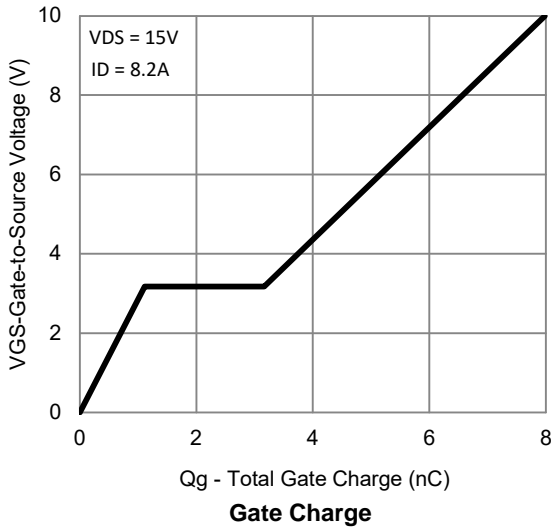
3. Pulse test: PW \leq 300 μ s duty cycle \leq 2%.

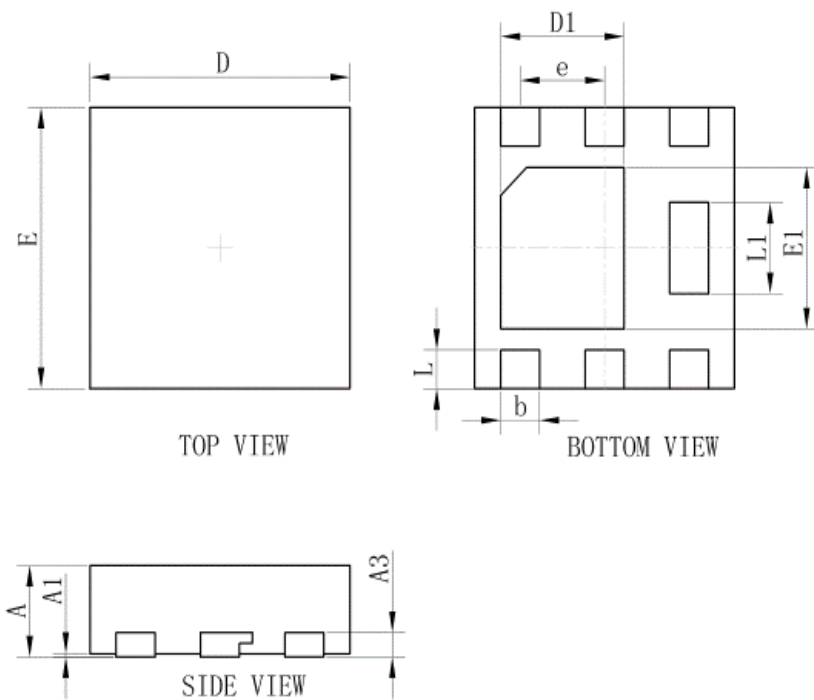
4. Guaranteed by design, not subject to production testing.



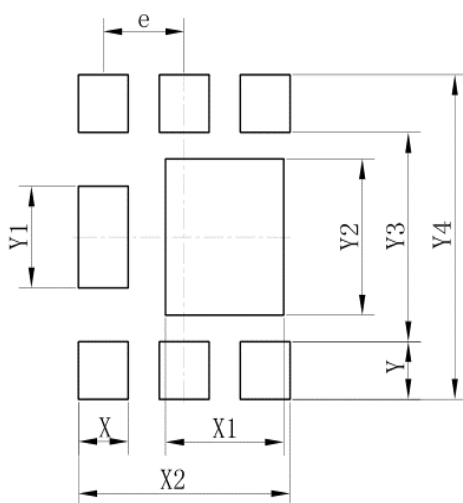
7. ELECTRICAL CHARACTERISTICS CURVES

On-Resistance vs. Drain Current

Transfer Characteristics

On-Resistance vs. Gate-to-Source Voltage

Drain-to-Source Forward Voltage

Output Characteristics

Capacitance


7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



8. OUTLINE AND DIMENSIONS


| DFN2020-6S | | | |
|----------------------|----------|------|------|
| DIM | MIN | NOR | MAX |
| A | 0.60 | 0.65 | 0.70 |
| A1 | 0.01 | 0.03 | 0.05 |
| b | 0.25 | 0.30 | 0.35 |
| D | 1.95 | 2.00 | 2.05 |
| E | 1.95 | 2.00 | 2.05 |
| e | 0.65TYP. | | |
| L | 0.23 | 0.28 | 0.33 |
| L1 | 0.60 | 0.65 | 0.65 |
| D1 | 0.90 | 0.95 | 1.00 |
| E1 | 1.10 | 1.15 | 1.20 |
| A3 | 0.152REF | | |
| All Dimensions in mm | | | |

9. SOLDERING FOOTPRINT


| DFN2020-6S | |
|------------|------|
| Dim | (mm) |
| X | 0.40 |
| X1 | 0.95 |
| X2 | 1.70 |
| e | 0.65 |
| Y | 0.43 |
| Y1 | 0.75 |
| Y2 | 1.15 |
| Y3 | 1.54 |
| Y4 | 2.39 |

