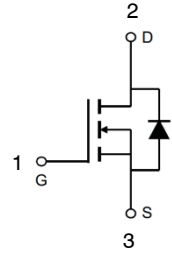
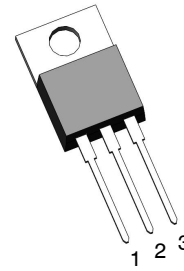


LN98N10AC

100V N-Channel Power MOSFET



TO220

1. FEATURES

- Low on-resistance and low gate-charge
- Fast switching speed.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

2. APPLICATIONS

- High-frequency DC-to-DC convertors
- Motor controllers
- Server power

3. DEVICE MARKING AND RESISTOR VALUES

| Device | Marking | Shipping |
|-----------|---------|----------|
| LN98N10AC | 98N10 | 50/Tube |

4. MAXIMUM RATINGS

| Parameter | Symbol | Limits | Unit | |
|--|-----------|-----------|-------|---|
| Drain-to-Source Voltage | VDS | 100 | V | |
| Gate-to-Source Voltage | VGS | ± 20 | V | |
| Continuous Drain Current(Note 1) | ID | TA =25°C | 14 | A |
| | | TA =100°C | 9 | |
| Pulsed Drain Current(Note 2) | IDM | 56 | | |
| Continuous Drain Current | ID | TC =25°C | 149.5 | A |
| | | TC =100°C | 90 | |
| Pulsed Drain Current | IDM | 598 | | |
| Avalanche Current | IAS | 47 | A | |
| Avalanche energy(L=0.1mH) | EAS | 110.5 | mJ | |
| Power Dissipation(Note 1) | PD | TA =25°C | 1.8 | W |
| | | TA =100°C | 0.7 | |
| Power Dissipation | PD | TC =25°C | 125 | W |
| | | TC =100°C | 50 | |
| Operating Junction and Storage Temperature Range | TJ , TSTG | -55~+150 | °C | |

5. THERMAL CHARACTERISTICS

| Parameter | Symbol | Max | Unit |
|-----------------------------|--------|-----|------|
| Junction-to-Ambient(Note 1) | RθJA | 70 | °C/W |
| Junction-to-Case | RθJC | 1 | |

Note:1.Surface mounted on "1.5in x 1.5in" FR4 board using 1*1 in pad, 2 oz Cu.

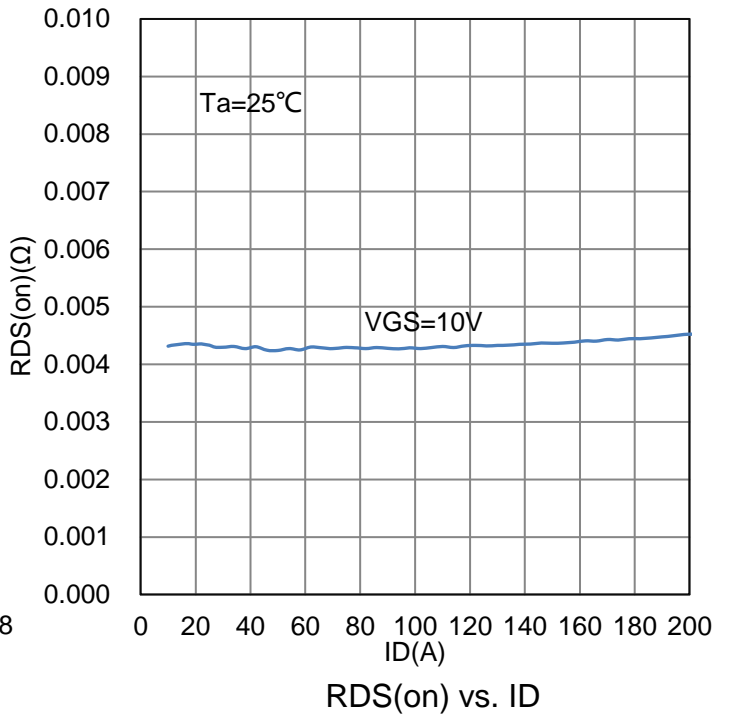
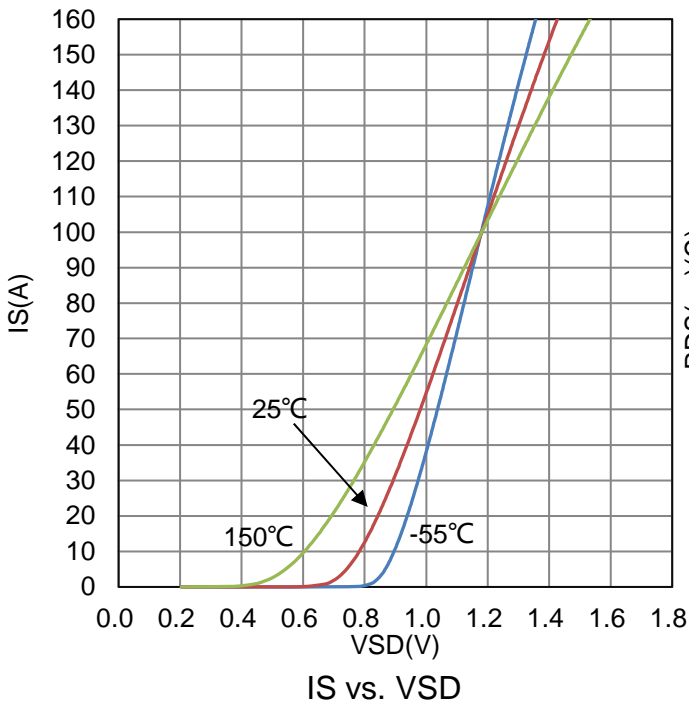
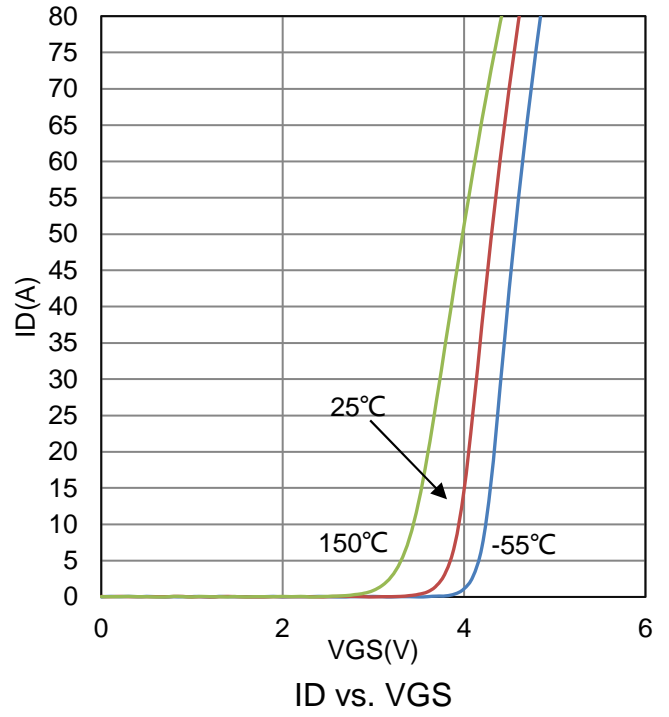
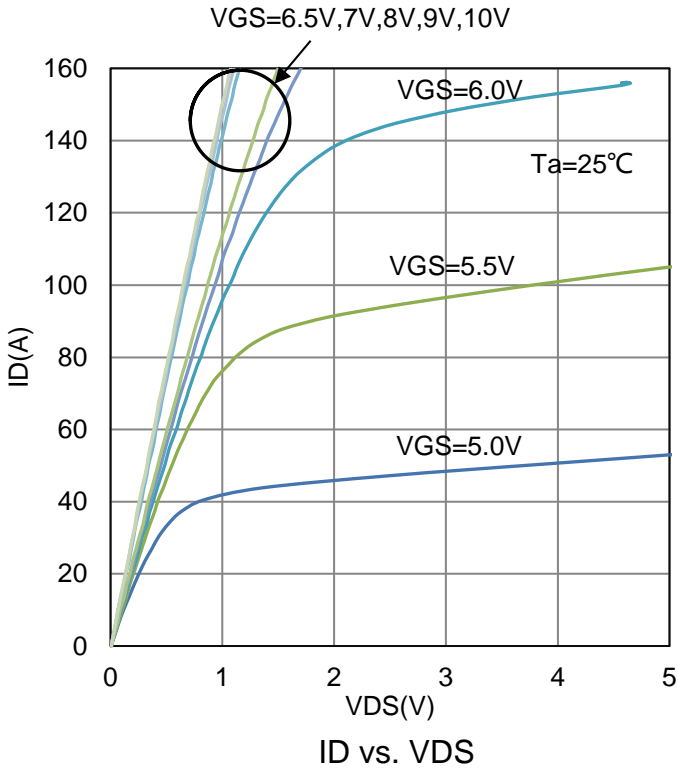
2.Pulse width limited by maximum junction temperature.

6. ELECTRICAL CHARACTERISTICS

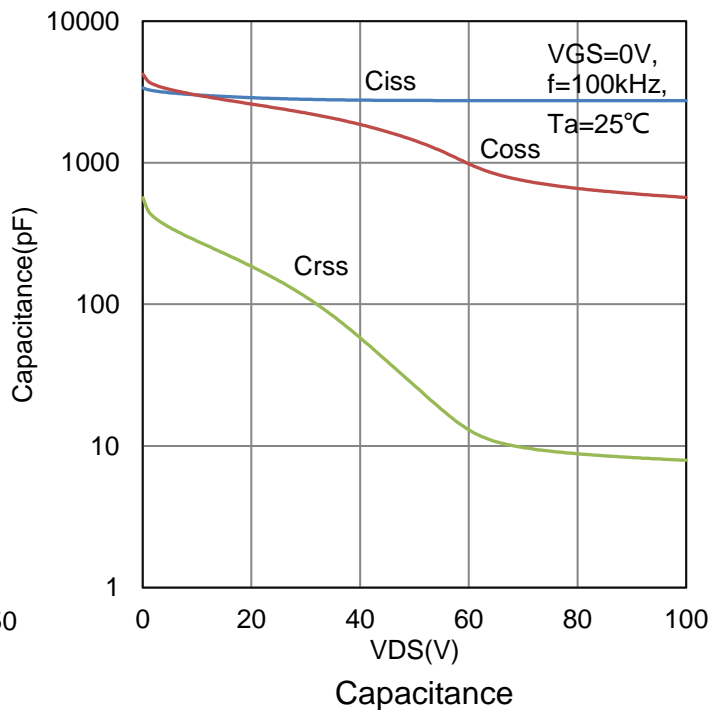
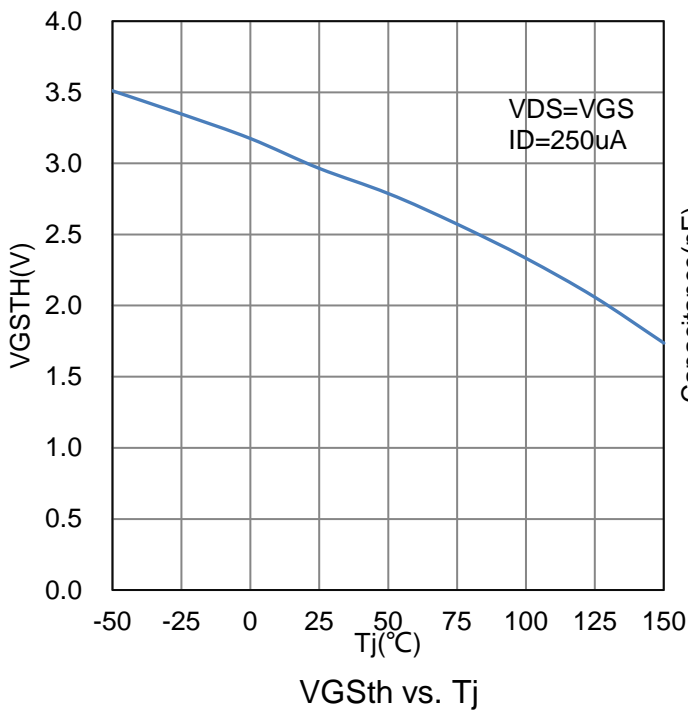
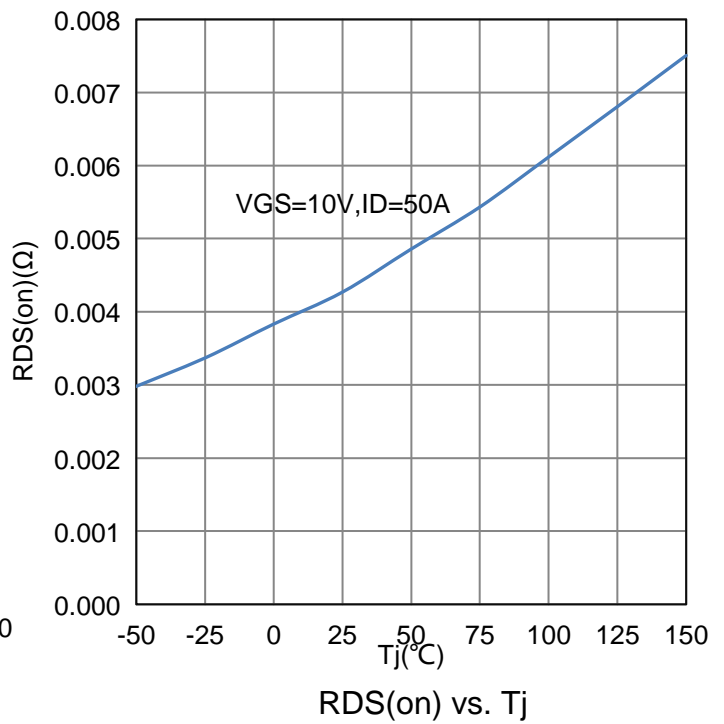
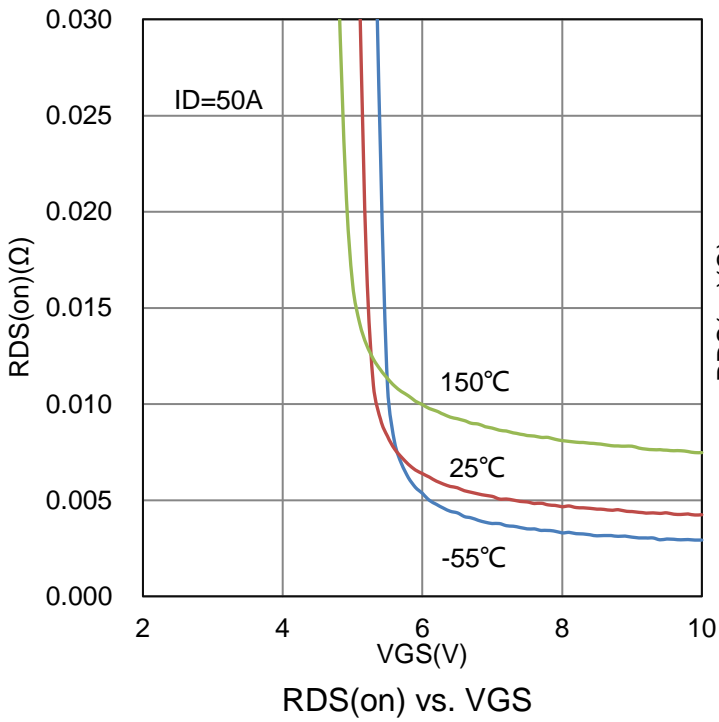
| Characteristic | Symbol | Min. | Typ. | Max. | Unit |
|--|---|---------|------|-----------|------------|
| Static | | | | | |
| Drain to Source Breakdown Voltage (VGS = 0 V, ID = 250 μ A) | BVDSS | 100 | - | - | V |
| Gate-Source Threshold Voltage (VDS = VGS, ID = 250 μ A) | VGS(th) | 2 | - | 4 | V |
| Gate-Body Leakage (VDS = 0 V, VGS = \pm 20 V) | IGSS | - | - | \pm 100 | nA |
| Zero Gate Voltage Drain Current (VDS = 100 V, VGS = 0 V) | IDSS | - | - | 1 | μ A |
| Drain-Source On-Resistance(Note 3) (VGS = 10 V, ID = 50 A) | RDS(on) | - | 4.2 | 4.6 | m Ω |
| Dynamic | | | | | |
| Input Capacitance | (VDS = 50 V, VGS = 0 V, f = 100KHz) | Ciss | - | 2793 | pF |
| Output Capacitance | | Coss | - | 1448 | |
| Reverse Transfer Capacitance | | Crss | - | 28 | |
| Total Gate Charge | (VDS = 50 V, VGS = 10 V, ID = 20 A) | Qg | - | 50 | nC |
| Gate-Source Charge | | Qgs | - | 13.3 | |
| Gate-Drain Charge | | Qgd | - | 14 | |
| Turn-On Delay Time | (VDS = 50 V, ID = 50 A, VGS = 10 V, RG = 3 Ω) | td(on) | - | 24 | ns |
| Rise Time | | tr | - | 27 | |
| Turn-Off Delay Time | | td(off) | - | 43 | |
| Fall Time | | tf | - | 21 | |
| Gate Resistance (VDS = 0 V, VGS = 0 V, f = 1.0MHz) | Rg | - | 15 | - | Ω |
| Diode characteristics | | | | | |
| Continuous Current TC =25° C | IS | - | - | 149.5 | A |
| Plused Current TC =25° C | ISM | - | - | 598 | A |
| Diode Forward Voltage (IS = 10 A, VGS = 0 V) | VSD | - | 0.8 | 1.3 | V |
| Reverse Recovery Time (VR=50V, IF=10A, dIF/dt=100A/us) | trr | - | 101 | - | ns |
| Reverse Recovery Charge (VR=50V, IF=10A, dIF/dt=100A/us) | Qrr | - | 200 | - | nC |
| Reverse Recovery Current (VR=50V, IF=10A, dIF/dt=100A/us) | IRRM | - | 4 | - | A |

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

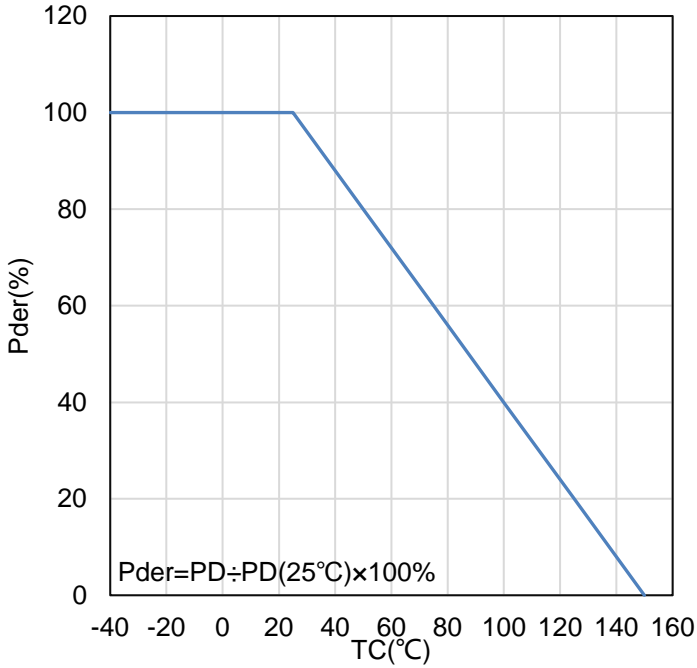
7. ELECTRICAL CHARACTERISTICS CURVES



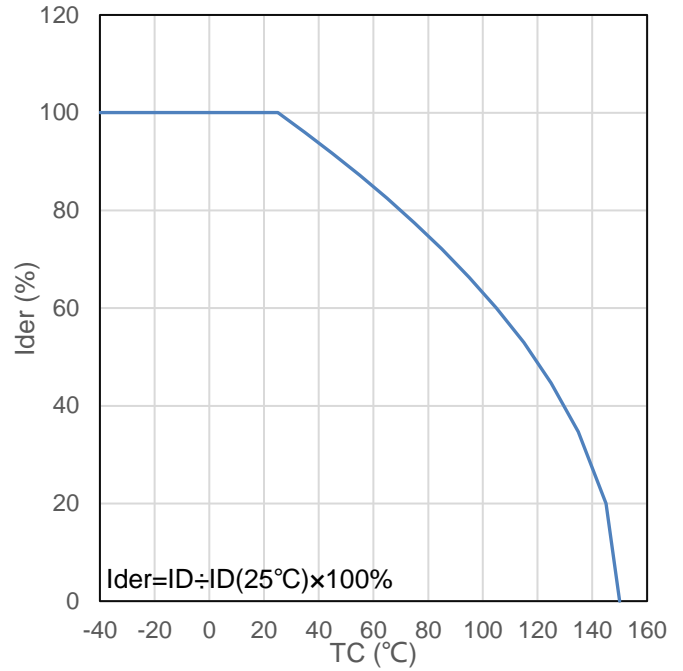
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



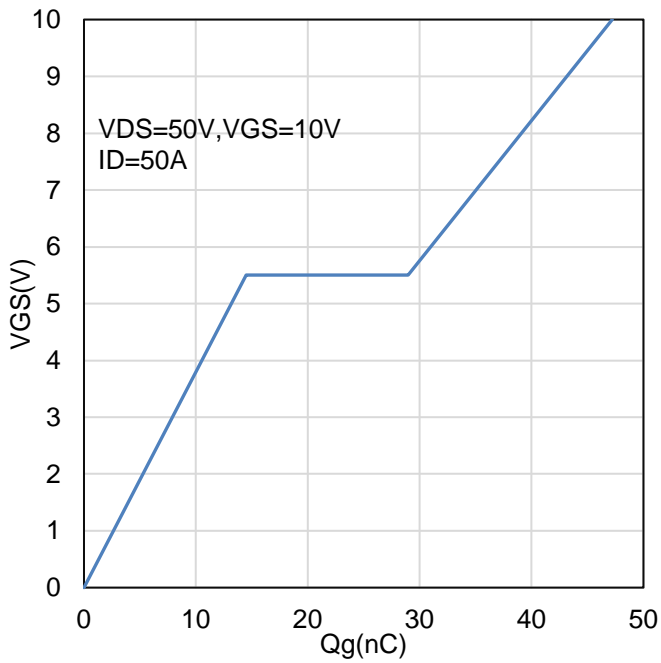
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



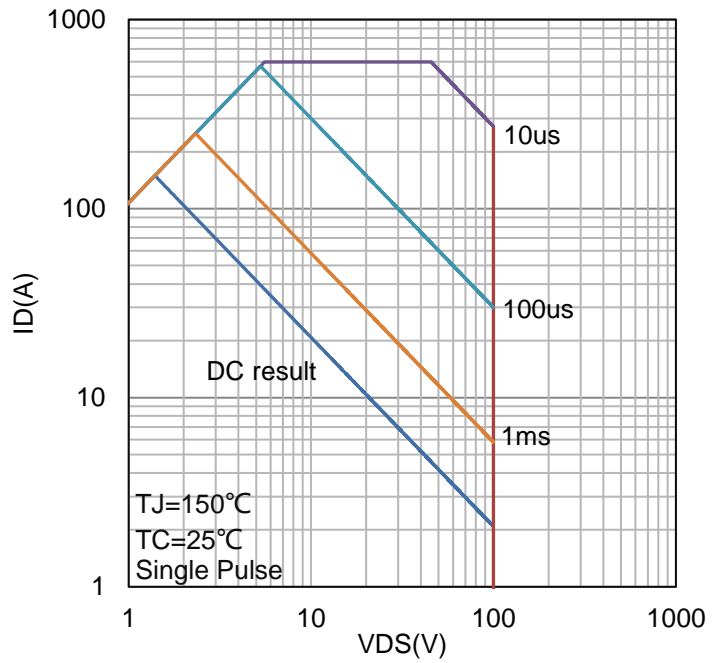
Normalized Derating Curve



Normalized drain Current

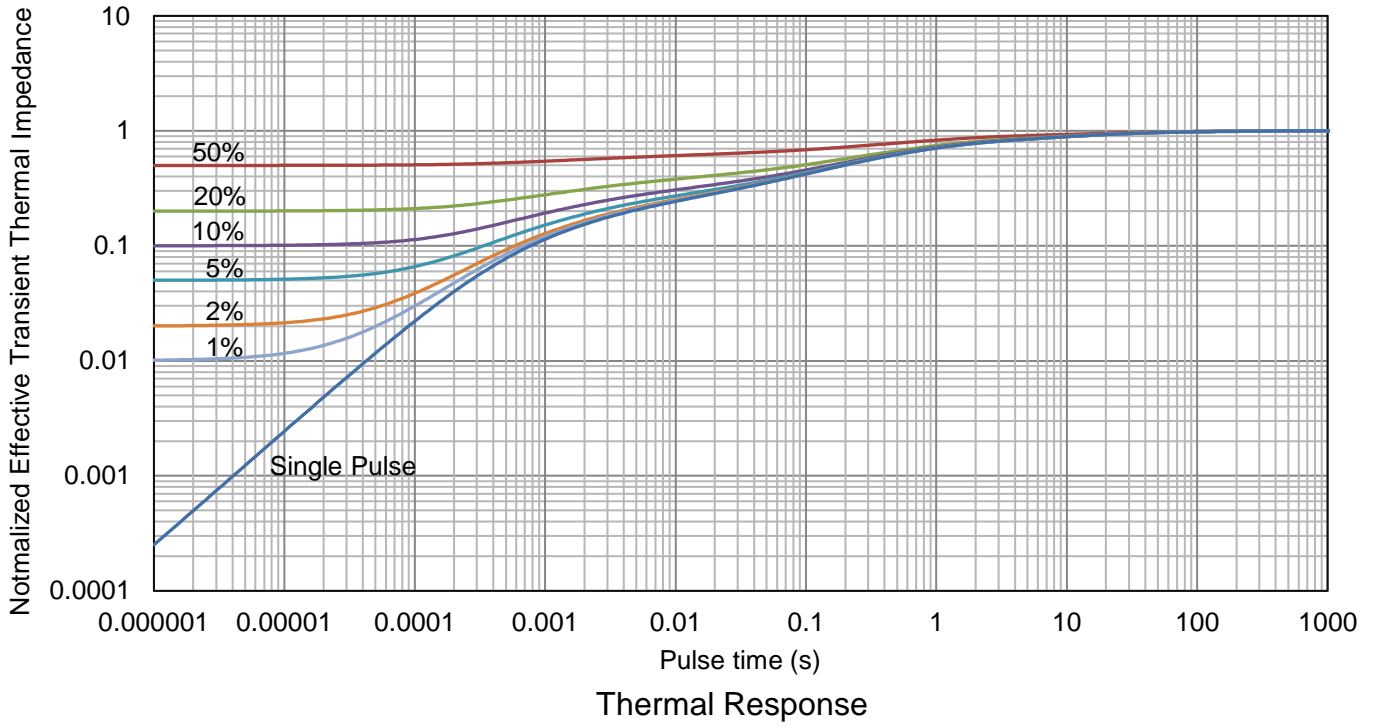


VGS vs. Qg

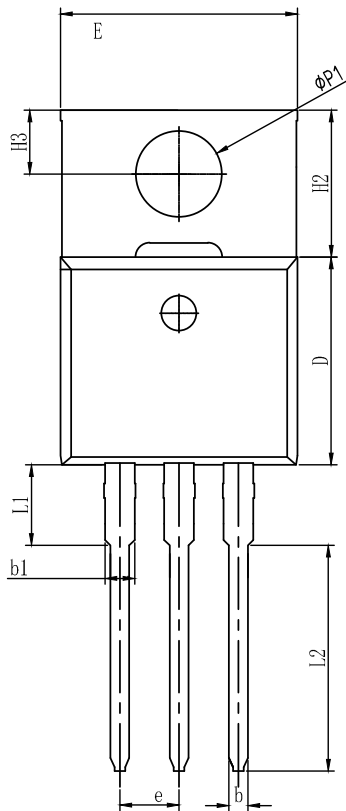


Safe Operating Area

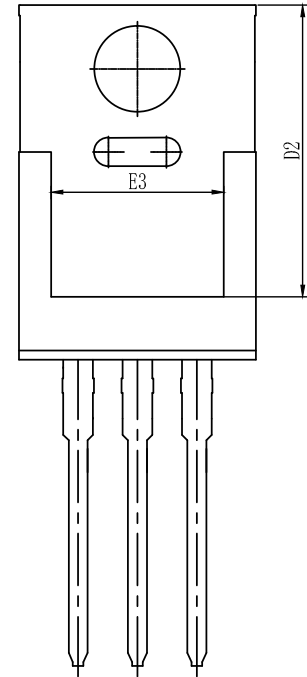
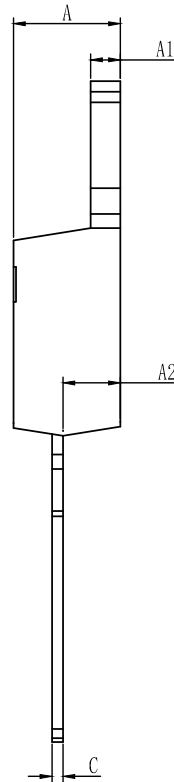
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



8.OUTLINE AND DIMENSIONS



TOP VIEW



BOTTOM VIEW

GENERAL NOTES

1. Top package surface finish Max Ra1,2±0.2um
2. Bottom package surface finish MAX Ra02um
3. Protrusion or Gate Burrs shall not exceed 0.05mm per side.
4. Off center Max0.05mm; Mismatch Max 0.05mm.

| DIM | MILLIMETERS | | |
|-----|-------------|-------|-------|
| | MIN | NOM | MAX |
| A | 4.42 | 4.57 | 4.72 |
| A1 | 1.20 | 1.30 | 1.40 |
| A2 | 2.35 | 2.45 | 2.55 |
| b | 0.73 | 0.83 | 0.93 |
| b1 | 1.20 | 1.30 | 1.40 |
| c | 0.41 | 0.48 | 0.58 |
| D | 8.70 | 8.90 | 9.10 |
| D2 | 12.20 | 12.50 | 12.80 |
| E | 9.85 | 10.15 | 10.45 |
| E3 | 7.10 | 7.40 | 7.70 |
| e | 2.54BSC | | |
| H2 | 6.10 | 6.30 | 6.50 |
| H3 | 2.54 | 2.74 | 2.94 |
| L1 | 3.16 | 3.46 | 3.76 |
| L2 | 9.36 | 9.66 | 9.96 |
| ØP1 | 3.48 | 3.68 | 3.88 |

DISCLAIMER

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.
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