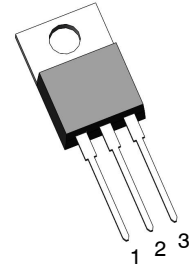


LN96N08AC

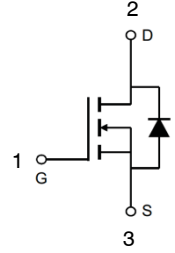
80V N-Channel (D-S) MOSFET

1. FEATURES

- $R_{DS(ON)} \leq 7.8m\Omega @ V_{GS}=10V$.
- $R_{DS(ON)} \leq 19.3m\Omega @ V_{GS}=6V$.
- Exceptional on-resistance and maximum DC current capability.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.



TO220



2. APPLICATIONS

- DC/DC Conversion

3. DEVICE MARKING AND RESISTOR VALUES

| Device | Marking | Shipping |
|-----------|---------|----------|
| LN96N08AC | 96N08AC | 50/Tube |

4. MAXIMUM RATINGS

| Parameter | | Symbol | Limits | Unit |
|--|----------|----------------------------------|----------|------|
| Drain-to-Source Voltage | | V _{DS} | 80 | V |
| Gate-to-Source Voltage | | V _{GS} | ± 20 | V |
| Continuous Drain Current | TC=25°C | I _D | 65 | A |
| | TC=100°C | | 41 | |
| Pulsed Drain Current (Note 2) | | I _{DM} | 260 | A |
| Avalanche Current | | I _{AS} | 37 | A |
| Avalanche Energy(L=0.1mH) | | E _{AS} | 68 | mJ |
| Power Dissipation | TC=25°C | PD | 83 | W |
| | TC=100°C | | 33 | |
| Operating Junction and Storage Temperature Range | | T _J /T _{STG} | -55~+150 | °C |

5. THERMAL CHARACTERISTICS

| Parameter | Symbol | Max | Unit |
|--|------------------|-----|------|
| Thermal Resistance Junction-to-Ambient(Note 1) | R _{θJA} | 65 | °C/W |
| Thermal Resistance Junction-to-Case | R _{θJC} | 1.5 | |

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 (T_J= 25°C)

| Characteristic | Symbol | Min. | Typ. | Max. | Unit |
|---|--|---------------------|------------|-------------|------|
| Static | | | | | |
| Drain-Source Breakdown Voltage (V _{GS} = 0 V, I _D = 250 μA) | V(BR)DSS | 80 | - | - | V |
| Gate-Source Threshold Voltage (V _{DS} = V _{GS} , I _D = 250 μA) | V _{GS(th)} | 2 | 3 | 4 | V |
| Gate-Body Leakage (V _{DS} = 0 V, V _{GS} = ±20 V) | I _{GSS} | - | - | ±100 | nA |
| Zero Gate Voltage Drain Current (V _{DS} = 80 V, V _{GS} = 0 V) | I _{DSS} | - | - | 1 | μA |
| Drain-Source On-Resistance(Note 3) (V _{GS} = 10 V, I _D = 7 A) (V _{GS} = 6 V, I _D = 5 A) | R _{DS(on)} | - | 6.8 8.3 | 7.8 19.3 | mΩ |
| Dynamic | | | | | |
| Input Capacitance | C _{iss} (V _{DS} = 40 V, V _{GS} = 0 V, f = 100kHz) | C _{iss} | - | 2248 | - |
| Output Capacitance | | C _{oss} | - | 405 | - |
| Reverse Transfer Capacitance | | C _{rss} | - | 13.5 | - |
| Total Gate Charge | Q _g (V _{DS} = 40 V, V _{GS} = 10 V, I _D = 7 A) | Q _g | - | 33 | - |
| Gate-Source Charge | | Q _{gs} | - | 8.4 | - |
| Gate-Drain Charge | | Q _{gd} | - | 7 | - |
| Turn-On Delay Time | (V _{DS} = 40 V, I _D = 7 A, V _{GS} = 10 V, R _G = 6 Ω) | t _{d(on)} | - | 20.5 | - |
| Rise Time | | t _r | - | 11 | - |
| Turn-Off Delay Time | | t _{d(off)} | - | 46 | - |
| Fall Time | | t _f | - | 11 | - |
| Gate Resistance (V _{DS} = 0 V, V _{GS} = 0 V, f = 1.0MHz) | R _g | - | 1.2 | - | Ω |
| Diode characteristics | | | | | |
| Continuous Current T _C =25° C | I _S | - | - | 65 | A |
| Plused Current T _C =25° C | I _{SM} | - | - | 260 | A |
| Diode Forward Voltage (I _S = 1 A, V _{GS} = 0 V) | V _{SD} | - | - | 1.2 | V |
| Reverse Recovery Time (V _R =40V, I _F =13A, dI _F /dt=100A/us) | t _{rr} | - | 55 | - | ns |
| Reverse Recovery Charge (V _R =40V, I _F =13A, dI _F /dt=100A/us) | Q _{rr} | - | 805 | - | nC |
| Reverse Recovery Current (V _R =40V, I _F =13A, dI _F /dt=100A/us) | I _{RRM} | - | 2.95 | - | A |

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

7. ELECTRICAL CHARACTERISTICS CURVES

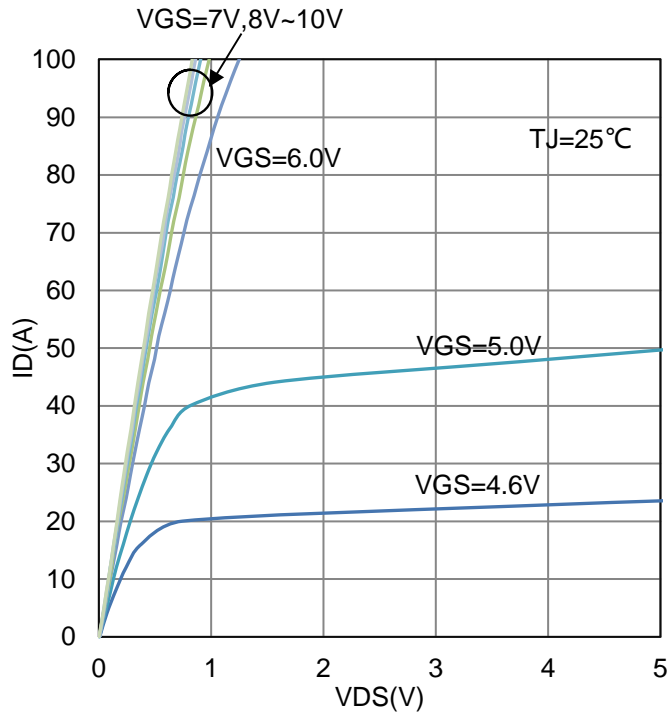


Figure 1. I_D vs. V_{DS}

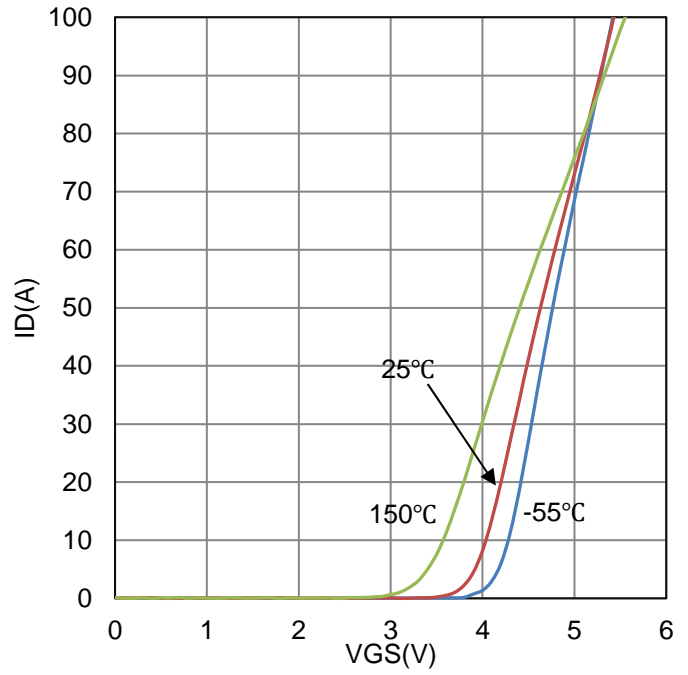


Figure 2. I_D vs. V_{GS}

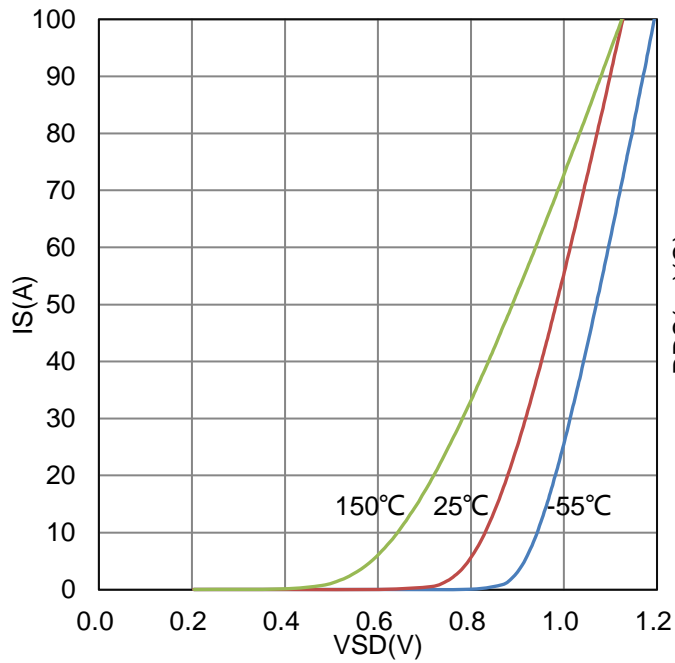


Figure 3. I_S vs. V_{SD}

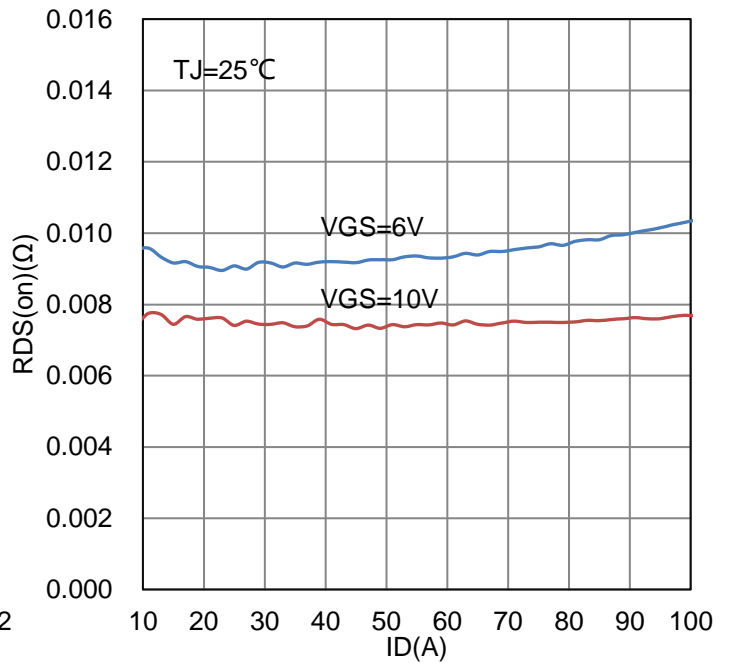


Figure 4. $R_{DS(on)}$ vs. I_D

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

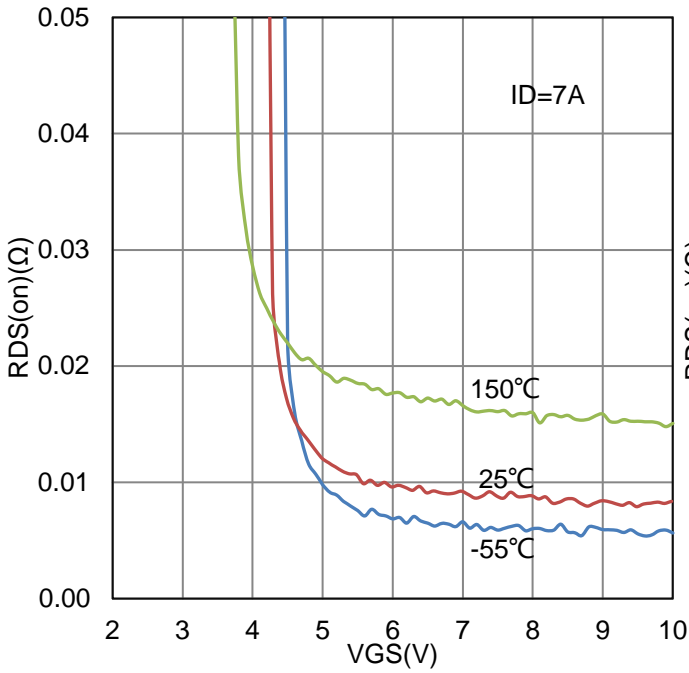


Figure 5.RDS(on) vs. VGS

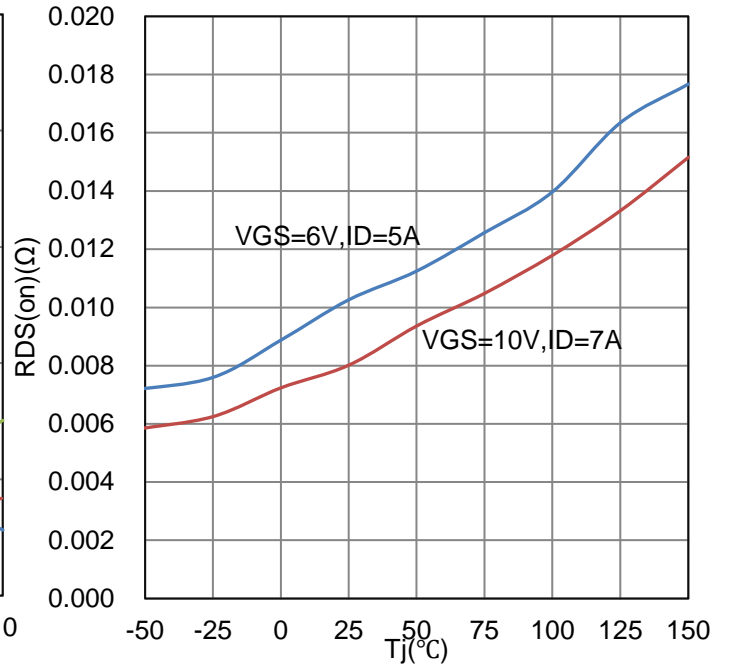


Figure 6.RDS(on) vs. Tj

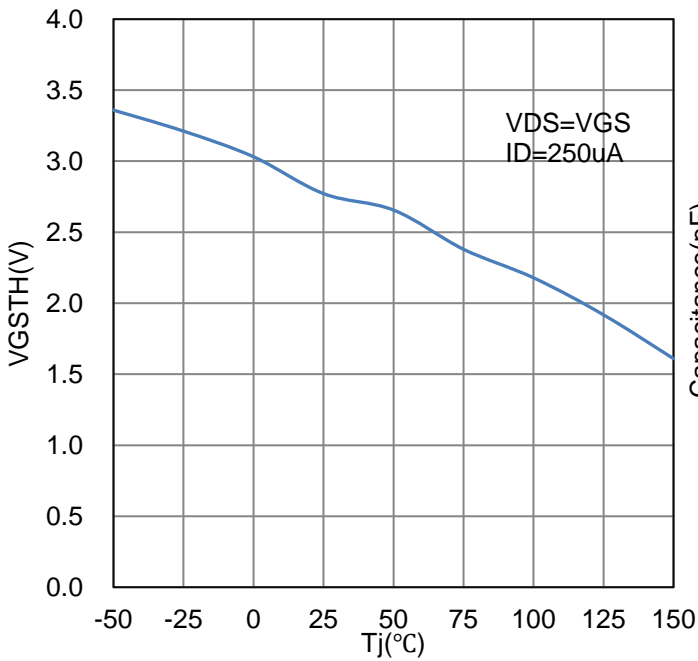


Figure 7.VGStH vs. Tj

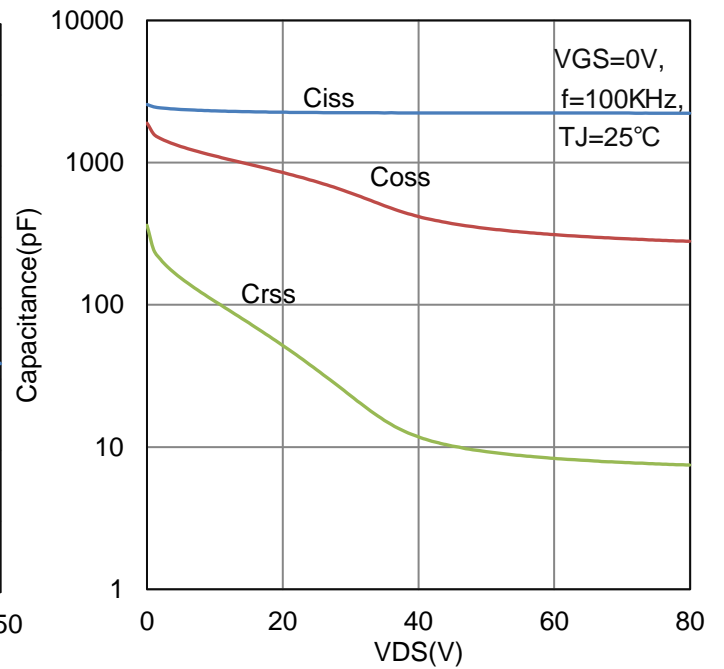


Figure 8.Capacitance

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

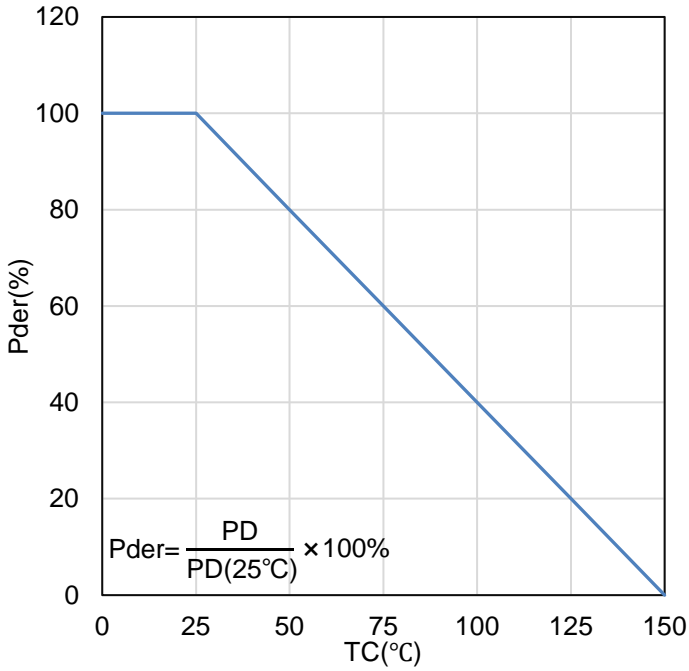


Figure 9. Normalized Derating Curve

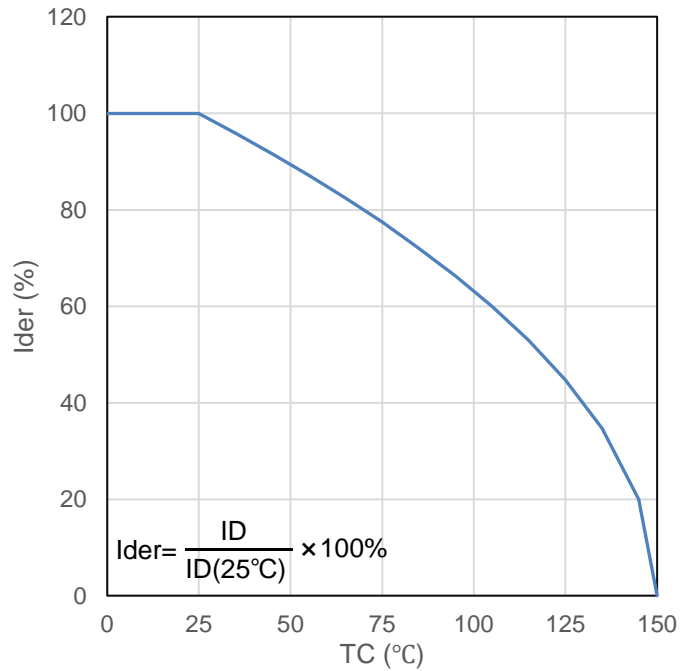


Figure 10. Normalized drain Current

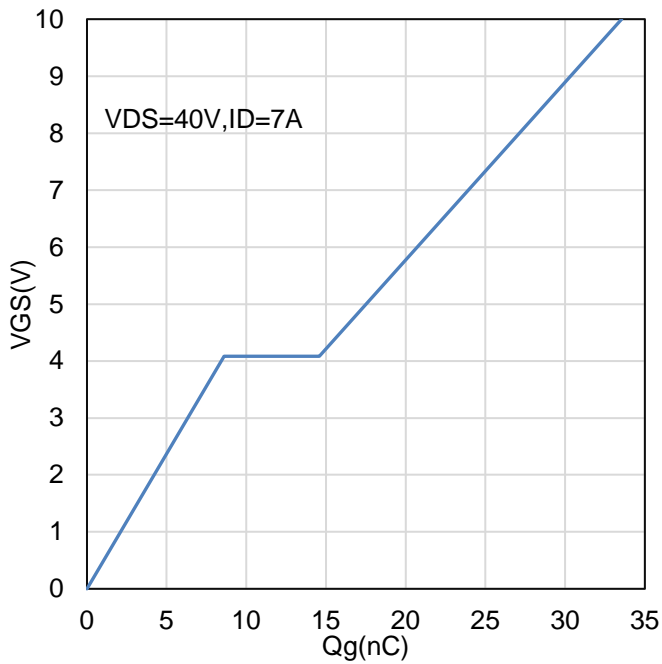


Figure 11. VGS vs. Qg

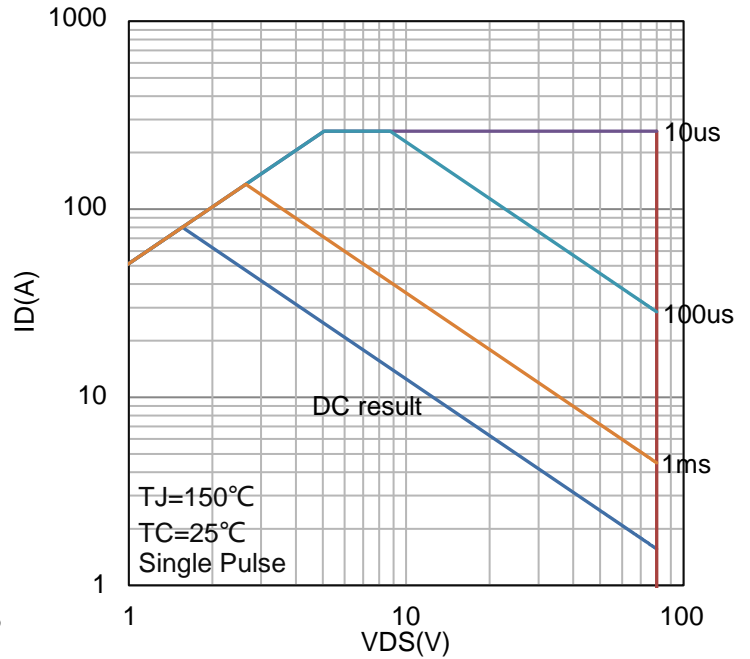


Figure 12. Safe Operating Area

7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

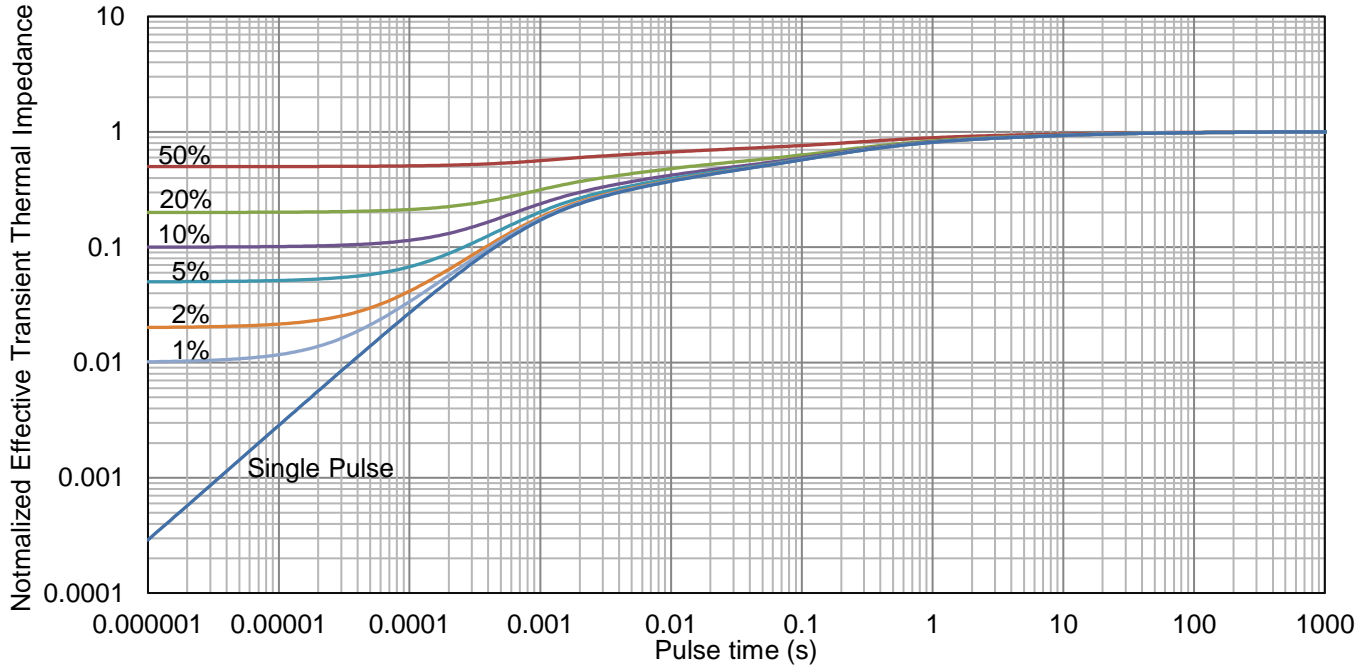
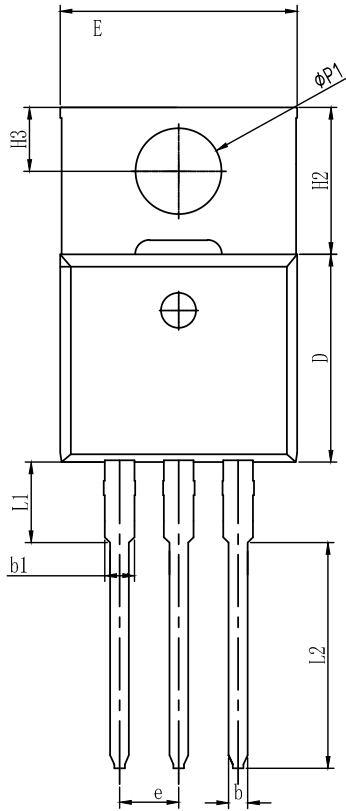
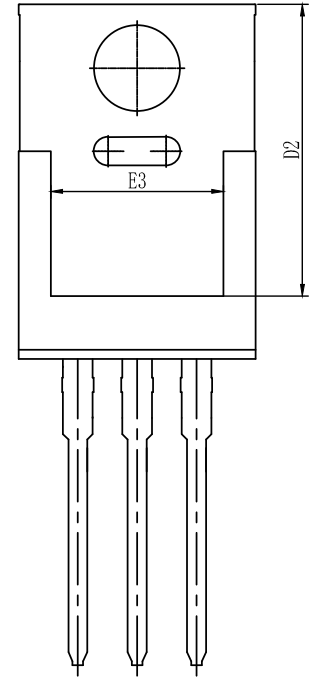
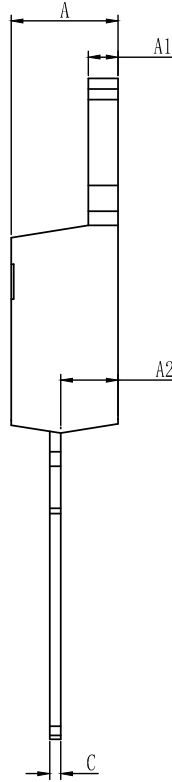


Figure 13. Thermal Response

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 Ra0.2um
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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