

Product Summary

- V_{DS} 1000 V
- I_{DS} 1.85A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) $<8.5\Omega$
- Low Gate Charge Minimize Switching Loss

Application

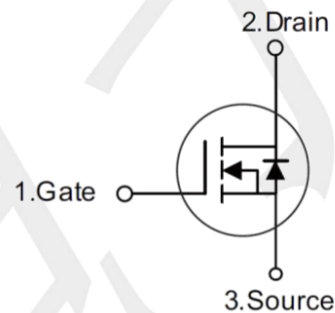
- Adaptor
- Charger
- Power management
- SMPS Standby Power

Package and Pin Configuration



TO-252

Circuit diagram



Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

| PARAMETER | SYMBOL | Value | UNIT |
|---|-----------|-------------|------------------|
| Drain-Source Voltage | V_{DS} | 1000 | V |
| Gate-Source Voltage | V_{GS} | ± 30 | V |
| Continuous Drain Current | I_D | 1.85 | A |
| Pulsed Drain Current | I_{DM} | 7.4 | A |
| Single Pulse Avalanche Energy($V_{DD}=50V$) | E_{AS} | 65 | mJ |
| Maximum Power Dissipation | P_D | 75 | W |
| Operating Junction Temperature Range | T_J | +150 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

Thermal Characteristic

| PARAMETER | Symbol | Value | Unit |
|---|-----------------|-------|--------------------|
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 1.3 | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 63 | $^\circ\text{C/W}$ |

Note : When mounted on 1" square PCB (FR4 material).

Electrical Characteristics (T_A=25°C unless otherwise noted)

| PARAMETER | CONDITIONS | SYMBOL | MIN | TYP | MAX | UNIT |
|--|--|---------------------|------|------|------|------|
| Static | | | | | | |
| Drain-Source Breakdown Voltage | V _{GS} =0V, I _D =250μA | BV _{DSS} | 1000 | -- | -- | V |
| Gate-Source Threshold Voltage | V _{DS} =V _{GS} , I _D =250μA | V _{GS(th)} | 2.5 | -- | 5.0 | V |
| Gate-Source Leakage | V _{DS} =0V, V _{GS} = ±30V | I _{GSS} | -- | -- | ±100 | nA |
| Zero Gate Voltage Drain Current | V _{DS} = 120V, V _{GS} =0V | I _{DSS} | -- | -- | 1 | μA |
| Drain-Source On-State Resistance (Note 1) | V _{GS} = 10V, I _D = 0.9A | R _{DS(on)} | -- | 6.5 | 8.5 | Ω |
| Dynamic (Note 2) | | | | | | |
| Total Gate Charge (Note 3) | V _{DS} = 960V, I _D = 1.85A, V _{GS} = 10V | Q _g | -- | 23.5 | -- | nC |
| Gate-Source Charge (Note 3) | | Q _{gs} | -- | 3.5 | -- | |
| Gate-Drain Charge (Note 3) | | Q _{gd} | -- | 15 | -- | |
| Input Capacitance | V _{DS} = 25V, V _{GS} = 0V, F = 1.0MHz | C _{iss} | -- | 634 | -- | pF |
| Output Capacitance | | C _{oss} | -- | 62 | -- | |
| Reverse Transfer Capacitance | | C _{rss} | -- | 7 | -- | |
| Switching | | | | | | |
| Turn-On Delay Time (Note 3) | V _{DD} = 600V, I _D = 1.85A, V _{GS} = 10V, R _G = 25Ω | t _{d(on)} | -- | 30 | -- | nS |
| Rise Time (Note 3) | | t _r | -- | 17 | -- | |
| Turn-Off Delay Time (Note 3) | | t _{d(off)} | -- | 75.5 | -- | |
| Fall Time (Note 3) | | t _f | -- | 51 | -- | |
| Source-Drain Diode Ratings and Characteristics (Note 2) | | | | | | |
| Forward Voltage | V _{GS} = 0V, I _S = 1.5A | V _{SD} | -- | 0.8 | 1.4 | V |
| Continuous Source Current | Integral reverse diode in the MOSFET | I _S | -- | -- | 1.85 | A |
| Pulsed Current (Note 1) | | I _{SM} | -- | -- | 7.4 | A |
| Reverse recovery time | V _{GS} =0V, I _F =1.85A, | t _{rr} | -- | 1200 | -- | nS |
| Reverse recovery charge | diF/dt=-100A/μs | Q _{rr} | -- | 3.95 | -- | nC |

Notes:

1. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 1%.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

TYPICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 1. Output Characteristics ($T_J = 25^\circ\text{C}$)

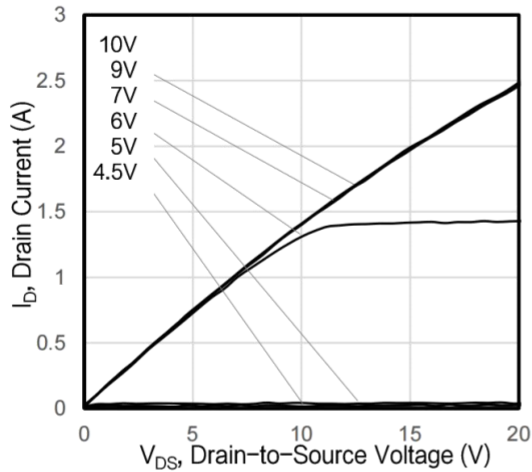


Figure 2. Body Diode Forward Voltage

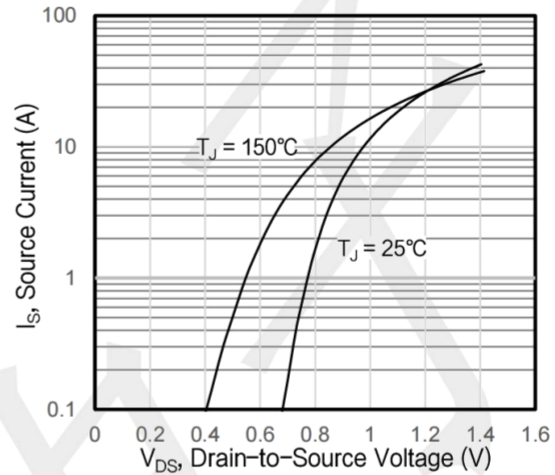


Figure 3. Drain Current vs. Temperature

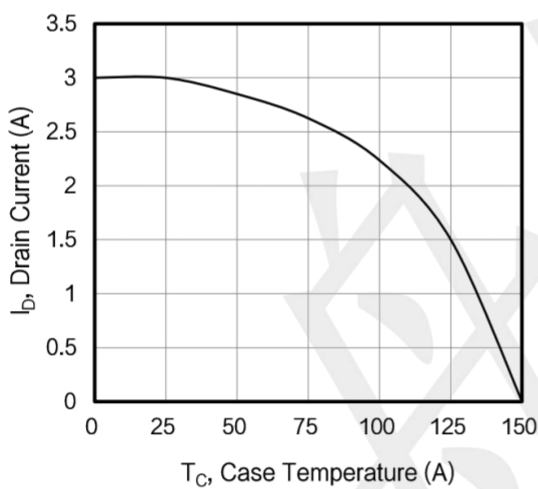


Figure 4. BV_{DSS} Variation vs. Temperature

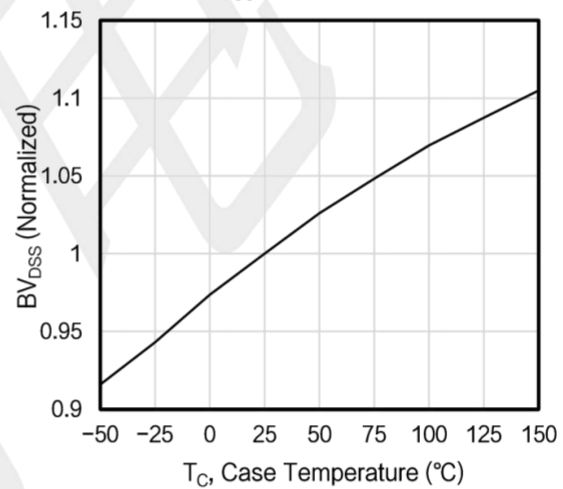


Figure 5. Transfer Characteristics

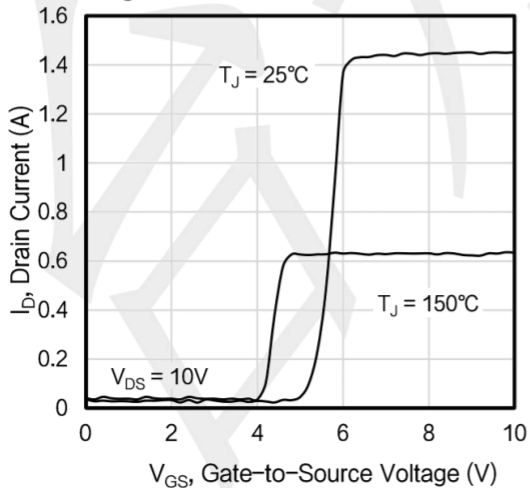
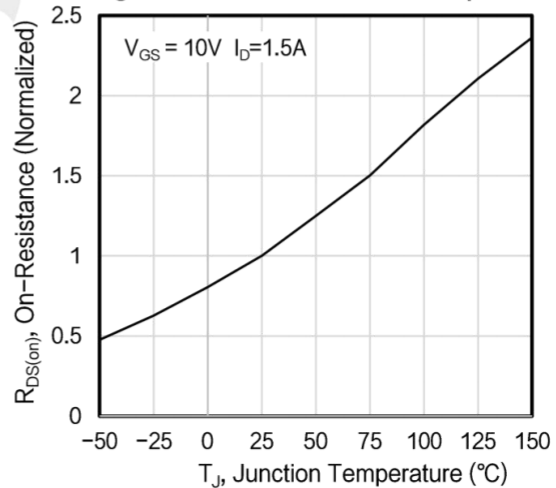
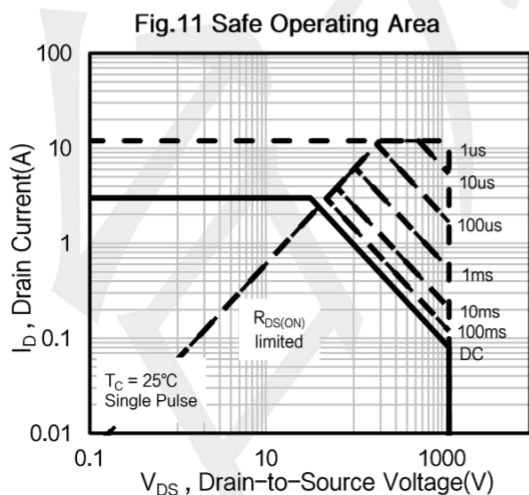
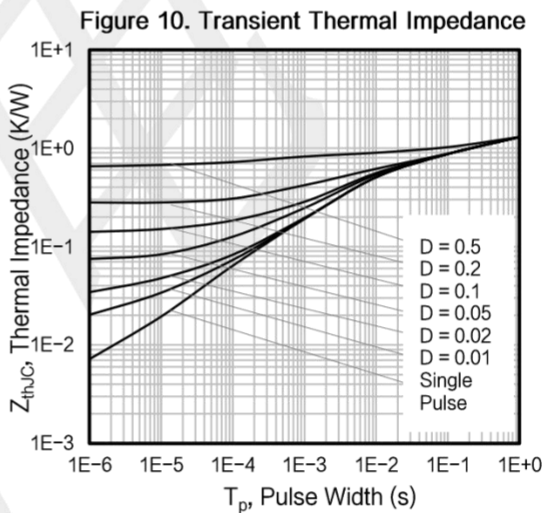
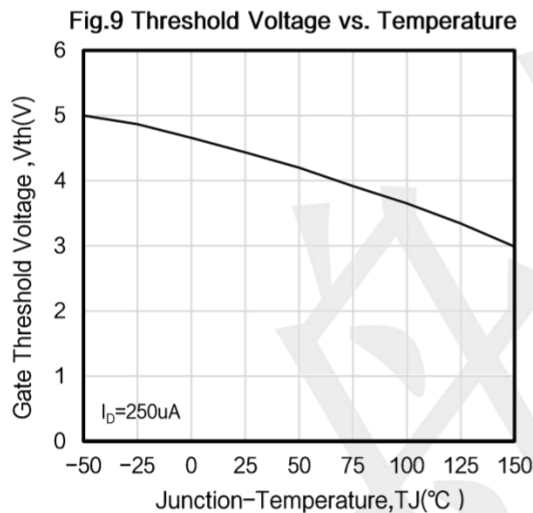
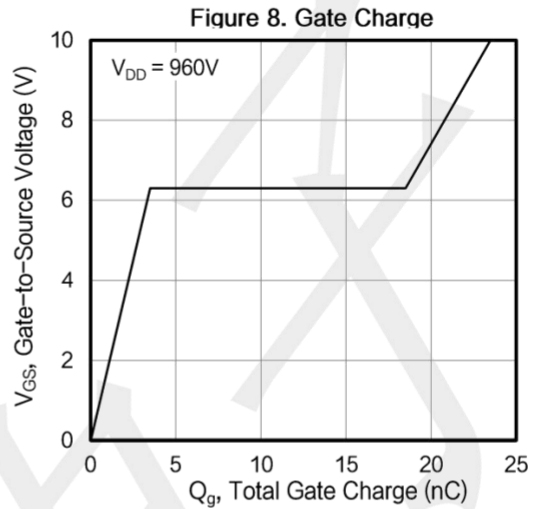
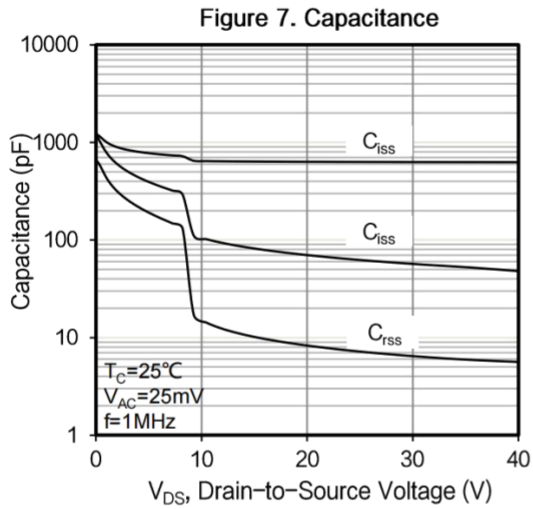


Figure 6. On-Resistance vs. Temperature

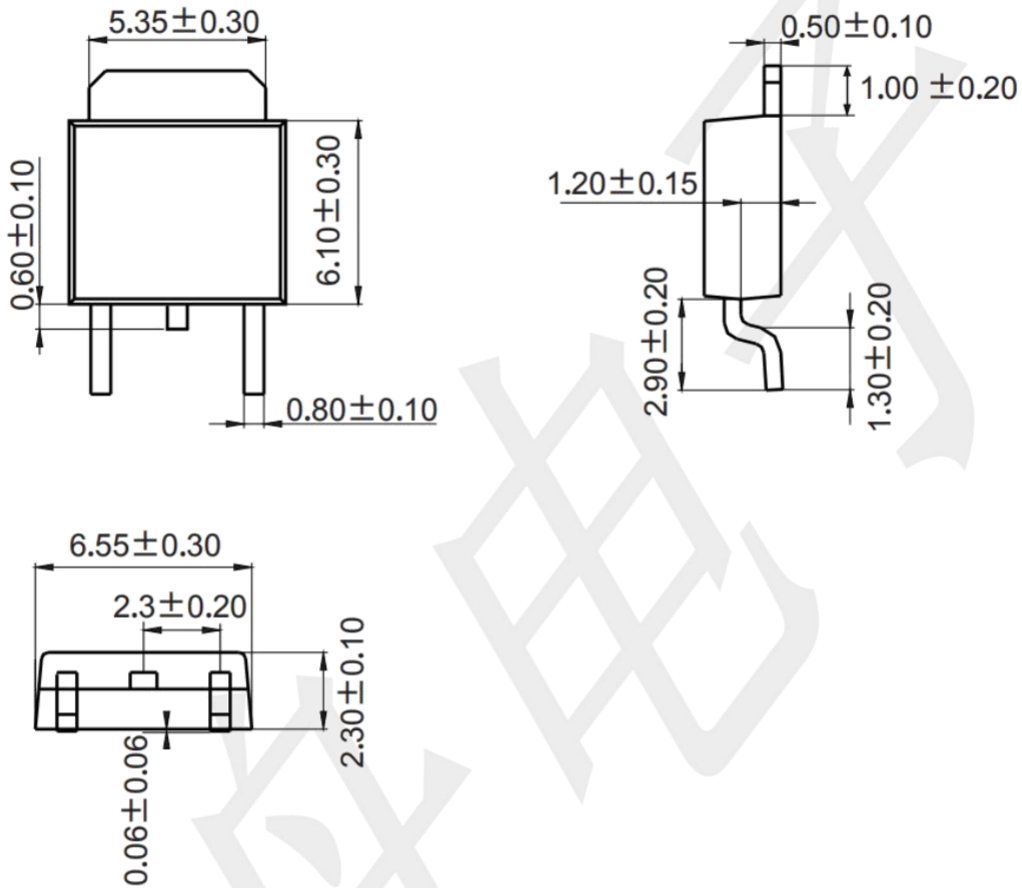


TYPICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)



Package Outline Dimensions (unit: mm)

TO-252



Mounting Pad Layout (unit: mm)

