

Product Summary

| $V_{(BR)DSS}$ | $R_{DS(on)TYP}$ | I_D |
|---------------|-----------------|-------|
| -30V | 8mΩ@-10V | -10A |
| | 11mΩ@-4.5V | |

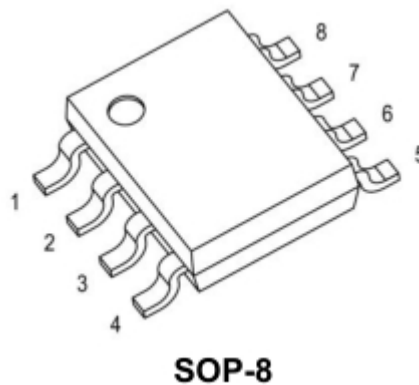
Feature

- TrenchFET Power MOSFET
- Excellent $R_{DS(on)}$ and Low Gate Charge

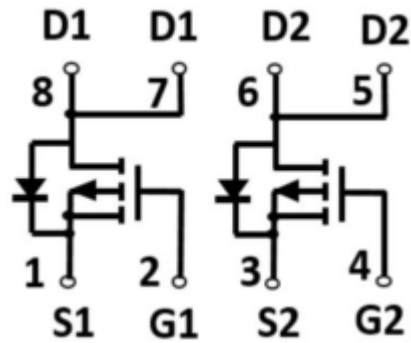
Application

- High power and current handing capability
- Ideal for Lion battery pack applications
- Networking DC-DC Power System
- Load Switch

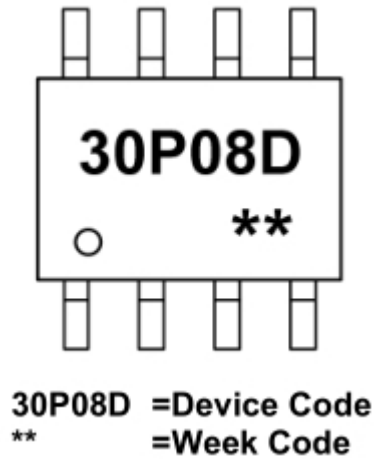
Package



Circuit diagram



Marking



Absolute maximum ratings

($T_a=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|-----------------|-----------|-----------------------------|
| Drain-Source Voltage | V_{DS} | -30 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current | I_D | -10 | A |
| Pulsed Drain Current ¹⁾ | I_{DM} | -40 | A |
| Power Dissipation | P_D | 1.5 | W |
| Thermal Resistance from Junction to Ambient ²⁾ | $R_{\theta JA}$ | 85 | $^{\circ}\text{C}/\text{W}$ |
| Junction Temperature | T_J | 150 | $^{\circ}\text{C}$ |
| Storage Temperature | T_{STG} | -55~ +150 | $^{\circ}\text{C}$ |

Electrical characteristics

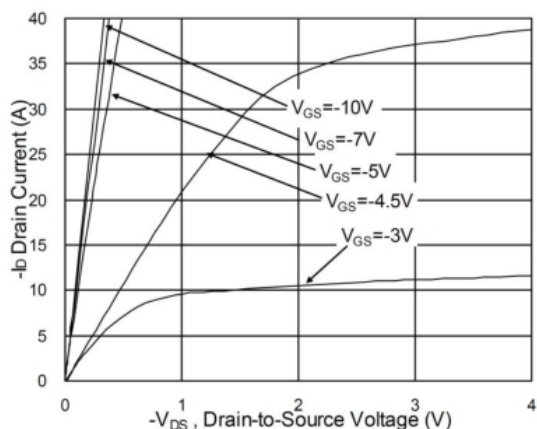
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

| Parameter | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|------------------------------------|---------------------|--|------|------|------|------|
| Static Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | BV (BR)DSS | V _{GS} = 0V, I _D = -250μA | -30 | | | V |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = -30V, V _{GS} = 0V | | | -1 | μA |
| Gate-Source Leakage | I _{GSS} | V _{GS} = ±20V, V _{DS} =0V | | | ±100 | μA |
| Gate-Source Threshold Voltage | V _{GS(th)} | V _{DS} =V _{GS} , I _D = -250μA | -1 | -1.8 | -2.5 | V |
| Drain-Source On-Resistance | R _{DS(on)} | V _{GS} = -10V, I _D = -15A | | 8 | 10 | mΩ |
| | | V _{GS} = -4.5V, I _D = -10A | | 11 | 16 | |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | C _{iss} | V _{DS} = -15V, V _{GS} =0V, f=1MHz | | 3448 | | pF |
| Output Capacitance | C _{OSS} | | | 508 | | |
| Reverse Transfer Capacitance | C _{rSS} | | | 421 | | |
| Switching Characteristics | | | | | | |
| Turn-on Delay Time | T _{d(on)} | V _{GS} = -10V V _{DD} = -15V, R _{GEN} =3.3Ω, I _D = -1A | | 9.4 | | nS |
| Turn-on Rise Time | T _r | | | 10.2 | | |
| Turn-off Delay Time | T _{d(off)} | | | 117 | | |
| Turn-off Fall Time | T _f | | | 24 | | |
| Total Gate Charge | Q _g | V _{DS} = -15V , V _{GS} = -4.5V, I _D = -12A | | 30 | | nC |
| Gate-Source Charge | Q _{gs} | | | 10 | | |
| Gate-Drain Charge | Q _{gd} | | | 10.4 | | |
| Drain-Source Diode Characteristics | | | | | | |
| Body Diode Voltage | V _{SD} | V _{GS} =0V,I _S = -1A | | | -1.2 | V |

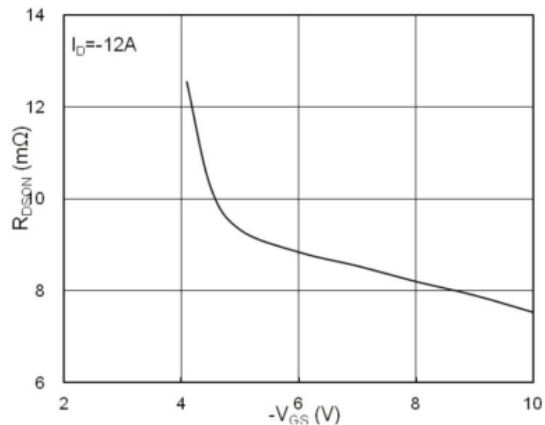
Note:

1. Repetitive rating: Pulse width limited by junction temperature.
2. Surface mounted on FR4 board, $t \leq 10s$.
3. Pulse Test: Pulse Width $\leq 80\mu s$, Duty Cycle $\leq 0.5\%$.
4. Guaranteed by design, not subject to producing.

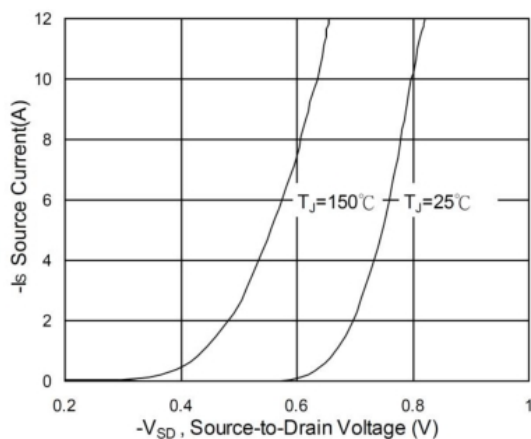
Typical Characteristics



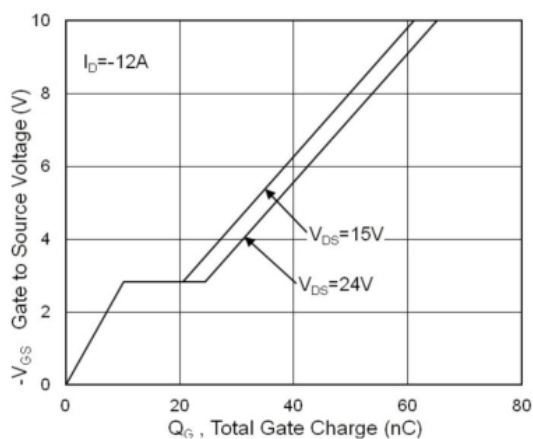
Typical Output Characteristics



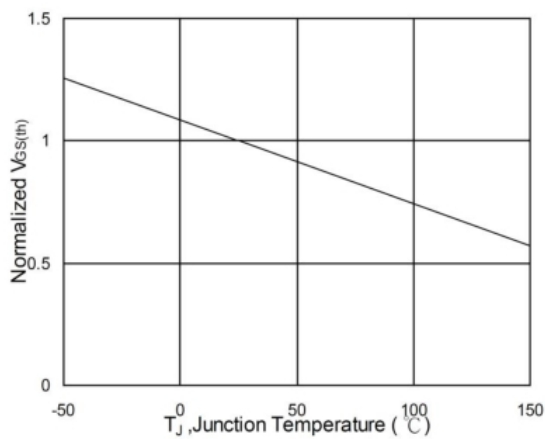
On-Resistance v.s Gate-Source



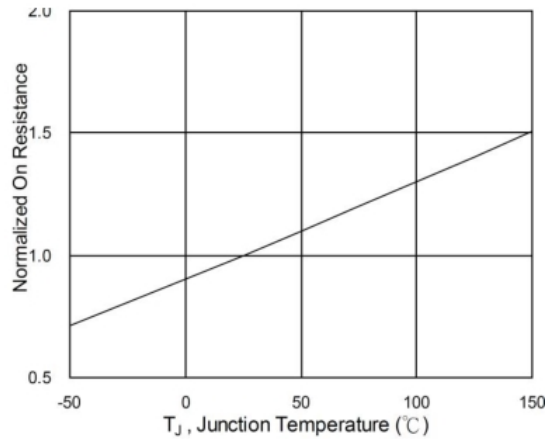
Forward Characteristics Of Reverse



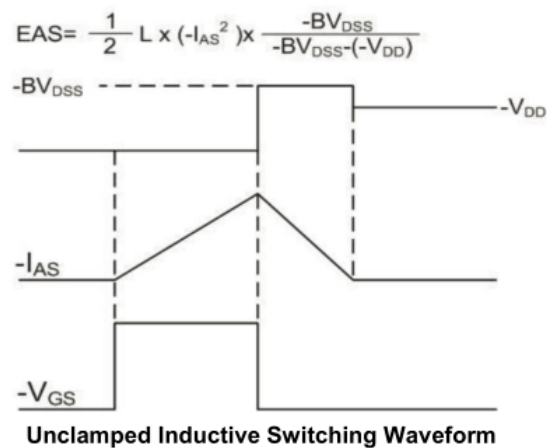
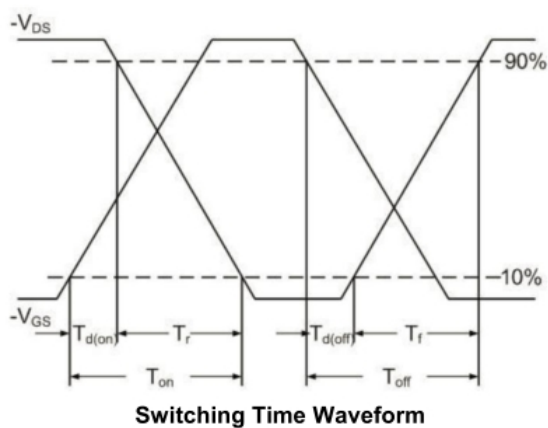
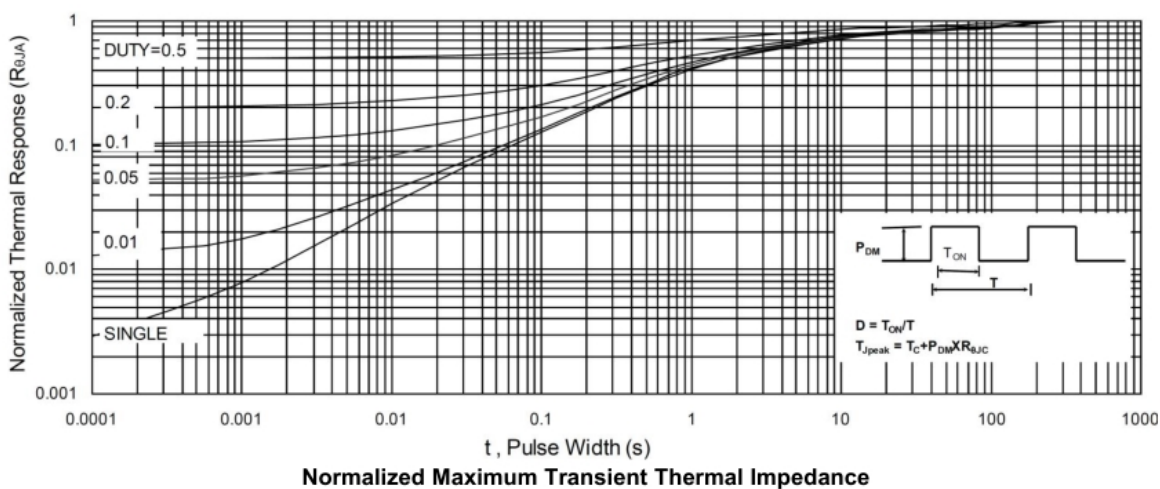
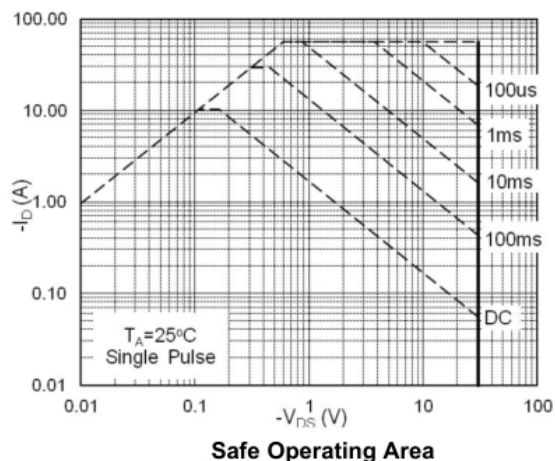
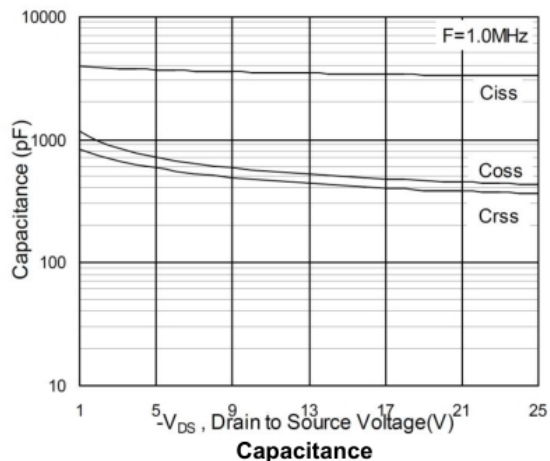
Gate-Charge Characteristics



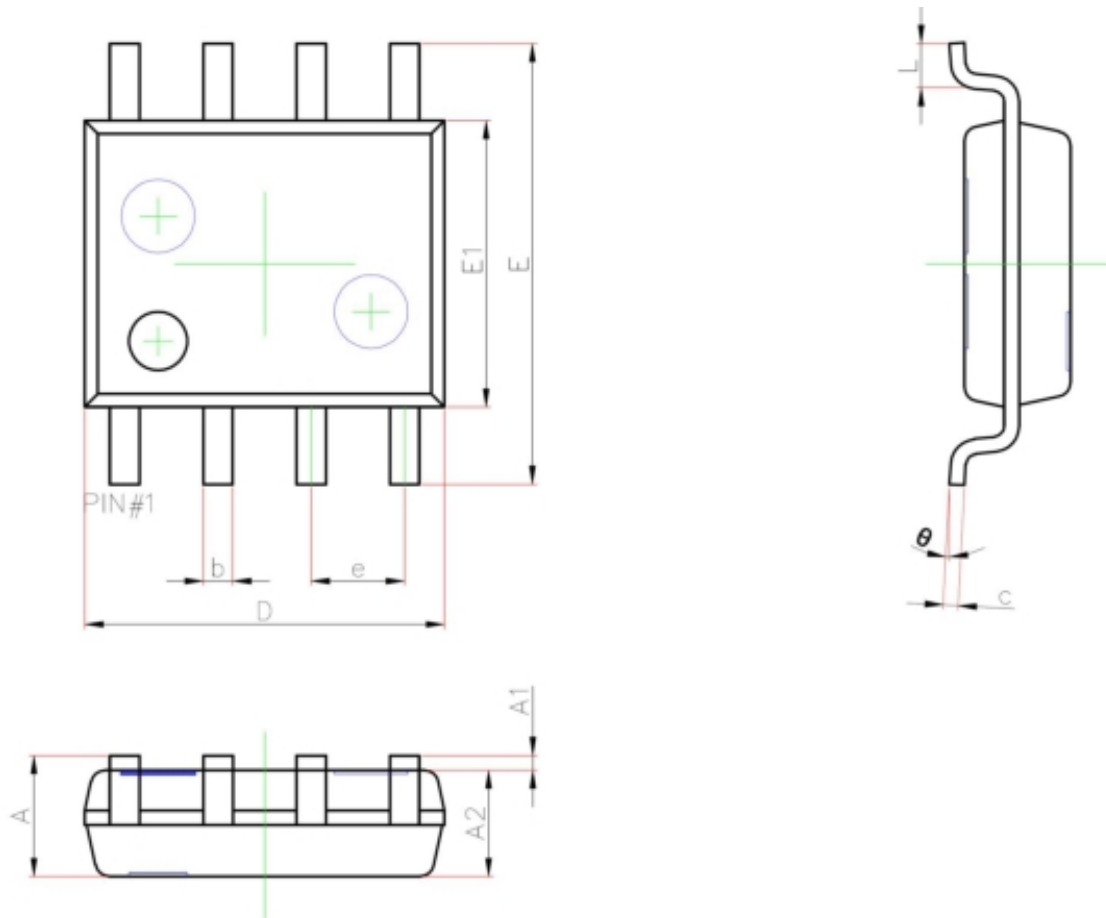
Normalized $V_{GS(th)}$ vs. T_J



Normalized $R_{DS(on)}$ vs. T_J



SOP-8 Package Information



| Symbol | Dimensions In Millimeters | |
|----------|---------------------------|------|
| | Min. | Max. |
| A | 1.35 | 1.75 |
| A1 | 0.10 | 0.25 |
| A2 | 1.35 | 1.55 |
| b | 0.33 | 0.51 |
| c | 0.17 | 0.25 |
| D | 4.80 | 5.00 |
| e | 1.27 REF. | |
| E | 5.80 | 6.20 |
| E1 | 3.80 | 4.00 |
| L | 0.40 | 1.27 |
| θ | 0° | 8° |