## Product Summary

| $V_{(BR)DSS}$ | $R_{DS(on)TYP}$ | $I_D$ |
|---|---|---|
| -30V | 8mΩ@-10V | -15A |
| | 10.5mΩ@-4.5V | |

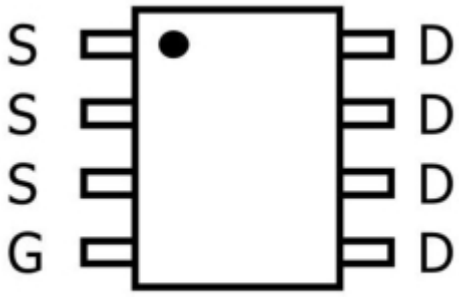
## Feature

- $V_{DS}$ = -30V,$I_D$ = -15A,
  $R_{DS(ON)}$ <12mΩ @ $V_{GS}$=-10V
- High power and current handing capability
- Lead free product is acquired
- Surface mount package.

## Application

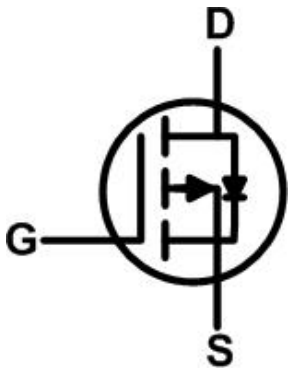
- Power management
- Load switch

## Package

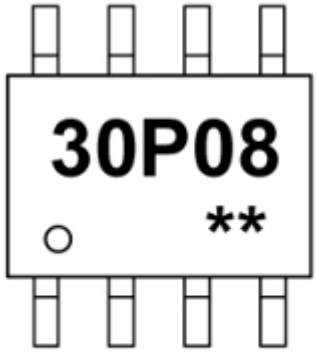



SOP-8

## Circuit diagram




## Marking




30P08 =Device Code
** =Week Code

## Absolute maximum ratings

($T_a$=25℃ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DS}$ | -30 | V |
| Gate-Source Voltage | $V_{GS}$ | ±20 | V |
| Drain Current-Continuous | $I_D$ | -15 | A |
| Drain Current-Pulsed [1] | $I_{DM}$ | -60 | A |
| Maximum Power Dissipation | $P_D$ | 3.1 | W |
| Thermal Resistance,Junction-to-Ambient [2] | $R_{\theta JA}$ | 40 | ℃/W |
| Operating Junction and Storage Temperature Range | $T_J$, $T_{STG}$ | -55 To 150 | ℃ |

## Electrical characteristics

($T_A$=25℃, 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 | uA |
| Gate-Source Leakage | $I_{GSS}$ | $V_{GS}$ =±20V, $V_{DS}$ =0V | | | ±100 | uA |
| Gate-Source Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$ =$V_{GS}$, $I_D$ =-250μA | -1 | -1.6 | -2.5 | V |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}$ =-10V, $I_D$ =-15A | | 8 | 12 | mΩ |
| | | $V_{GS}$ =-4.5V, $I_D$ =-10A | | 10.5 | 15 | |
| Forward Transconductance | $g_{FS}$ | $V_{DS}$=-10V,$I_D$=-15A | 30 | | | S |
| **Dynamic Characteristics** | | | | | | |
| Input Capacitance | $C_{iss}$ | $V_{DS}$=-15V, $V_{GS}$=0V, f=1MHz | | 2900 | | pF |
| Output Capacitance | $C_{oss}$ | | | 410 | | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 280 | | |
| **Switching Characteristics** | | | | | | |
| Turn-on Delay Time | $T_{d(on)}$ | $V_{DD}$=-15V, $I_D$=-10A, $V_{GS}$ =-10V, $R_{GEN}$=3Ω | | 15 | | nS |
| Turn-on Rise Time | $T_r$ | | | 11 | | |
| Turn-off Delay Time | $T_{d(off)}$ | | | 44 | | |
| Turn-off Fall Time | $T_f$ | | | 21 | | |
| Total Gate Charge | $Q_g$ | $V_{DS}$=-15V, $I_D$=-10A, $V_{GS}$=-10V | | 48 | | nC |
| Gate-Source Charge | $Q_{gs}$ | | | 12 | | |
| Gate-Drain Charge | $Q_{gd}$ | | | 14 | | |
| **Drain-Source Diode Characteristics** | | | | | | |
| Diode Forward Voltage[3] | $V_{SD}$ | $V_{GS}$=0V,$I_S$=-2A | | | -1.2 | V |

**Note:**

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

## Typical Characteristics

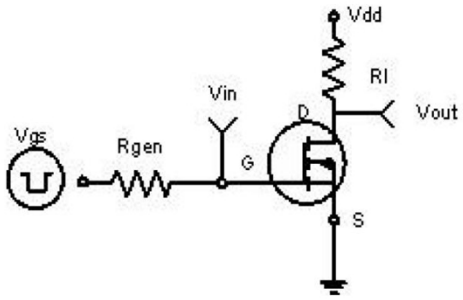



**Figure 1 Switching Test Circuit**

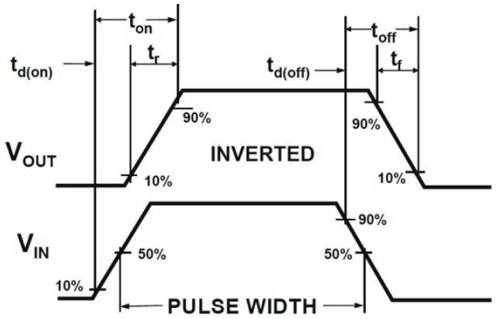



**Figure 2 Switching Waveforms**

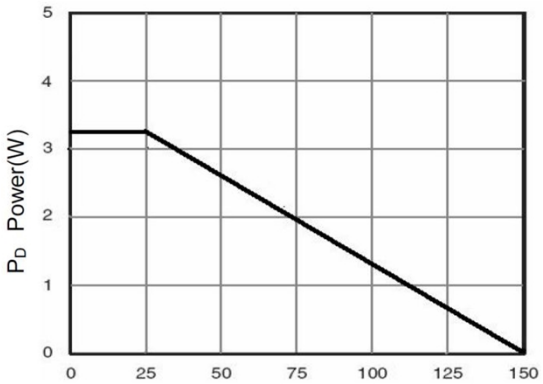



**Figure 3 Power Dissipation**

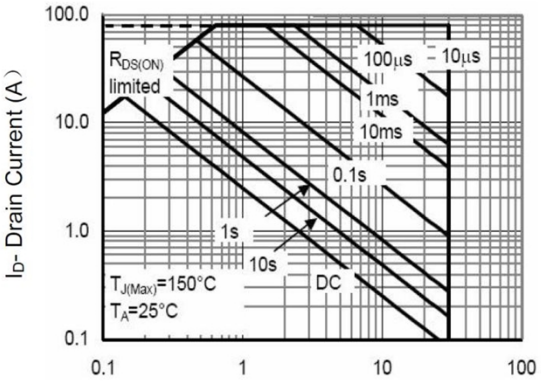



**Figure 4 Safe Operation Area**

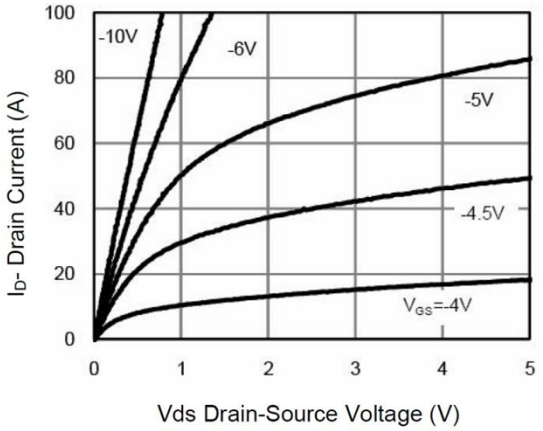



**Figure 5 Output Characteristics**

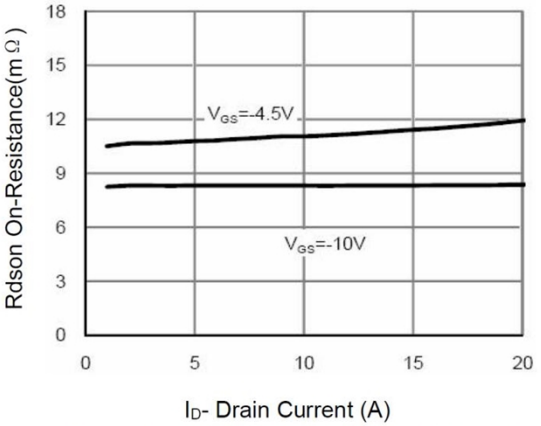



**Figure 6 Drain-Source On-Resistance**

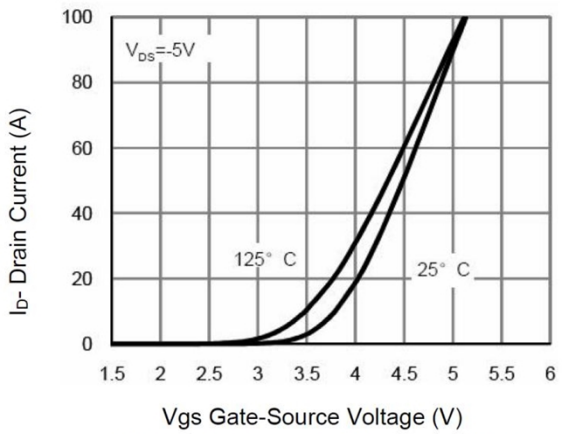



**Figure 7 Transfer Characteristics**

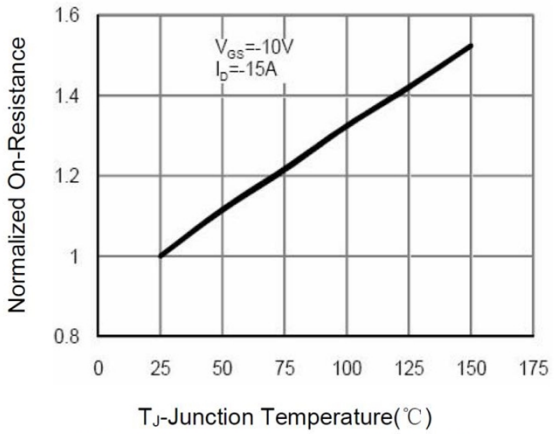



**Figure 8 Drain-Source On-Resistance**

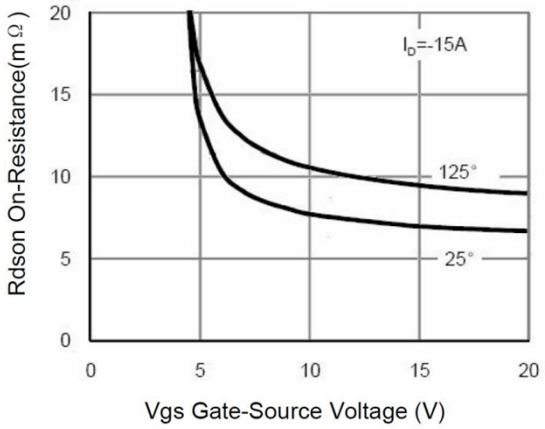



**Figure 9 Rdson vs Vgs**

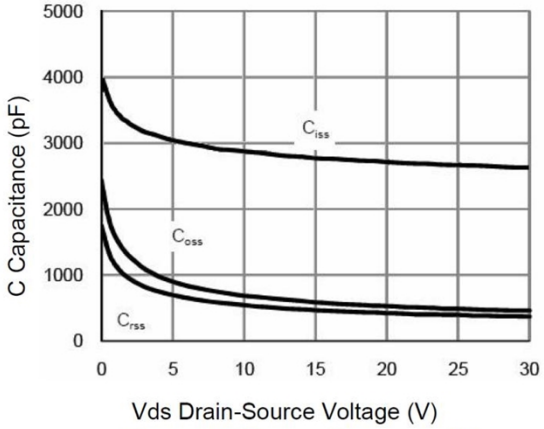



**Figure 10 Capacitance vs Vds**

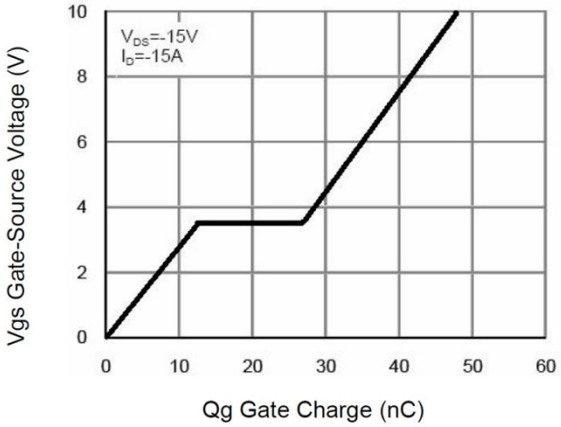



**Figure 11 Gate Charge**

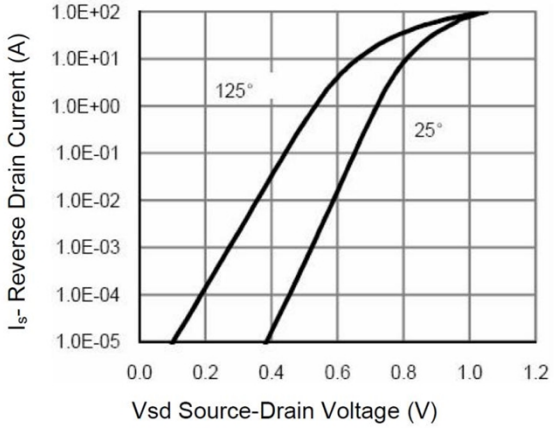



**Figure 12 Source- Drain Diode Forward**

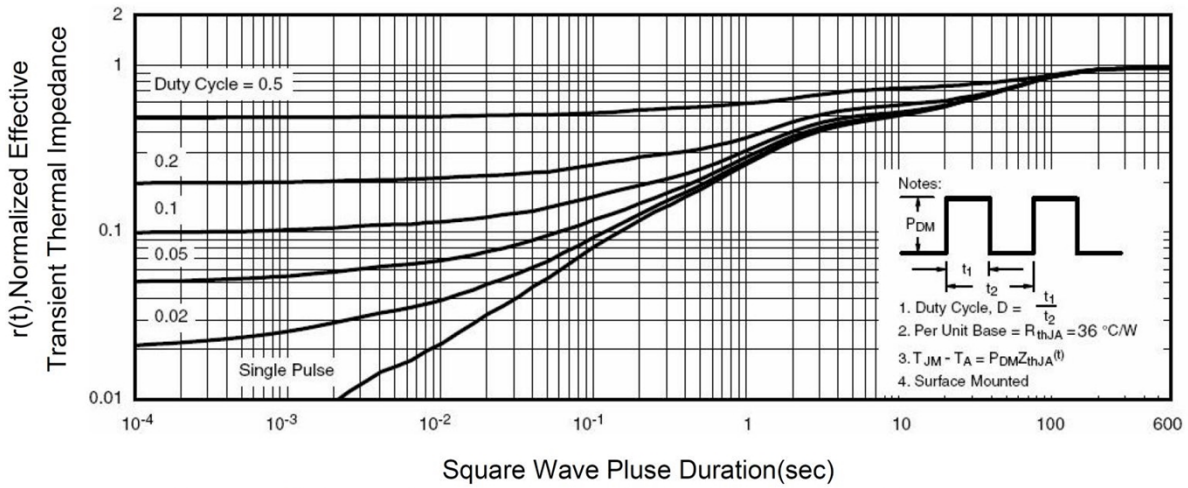
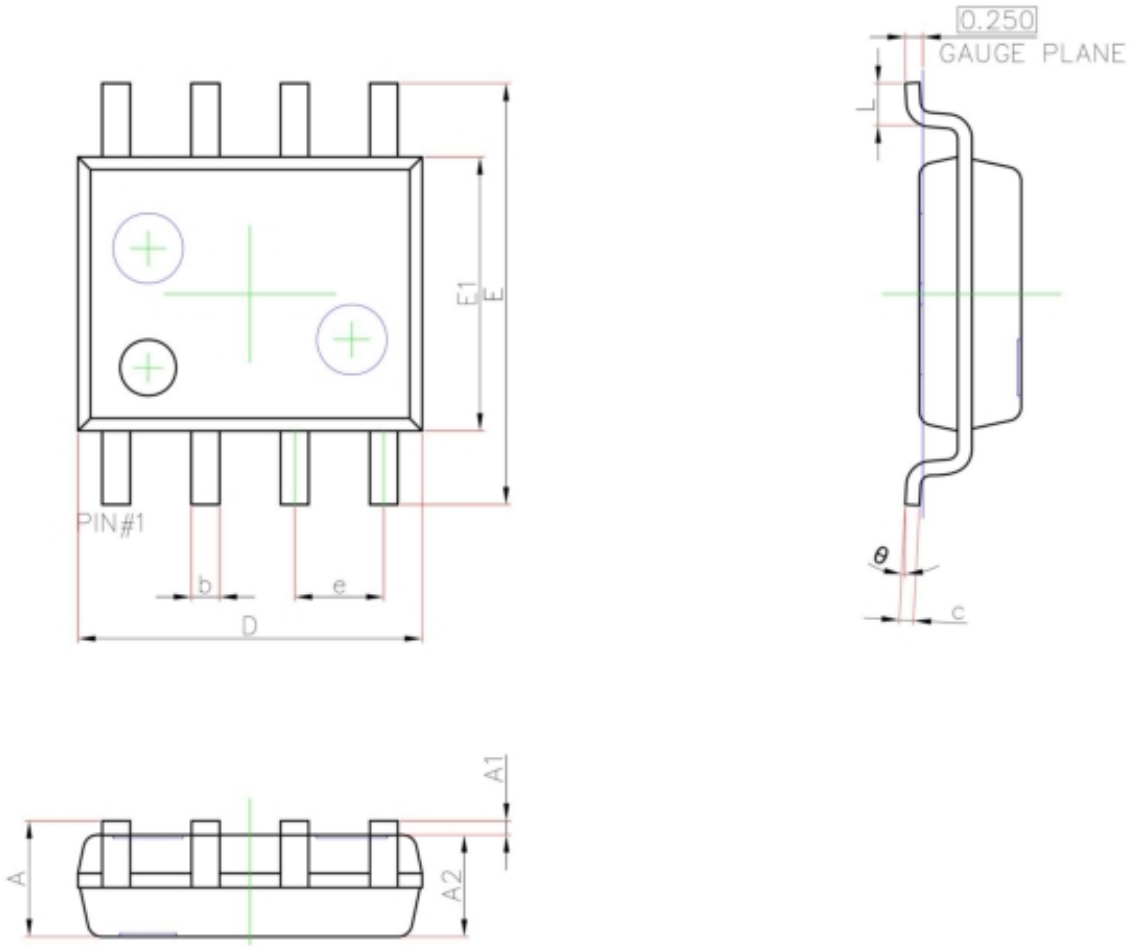



**Figure 13 Normalized Maximum Transient Thermal Impedance**

## SOP-8 Package Information




| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 1.450 | 1.750 | 0.057 | 0.069 |
| A1 | 0.100 | 0.250 | 0.004 | 0.010 |
| A2 | 1.350 | 1.550 | 0.053 | 0.061 |
| b | 0.330 | 0.510 | 0.013 | 0.020 |
| c | 0.170 | 0.250 | 0.007 | 0.010 |
| D | 4.700 | 5.100 | 0.185 | 0.201 |
| E | 5.800 | 6.200 | 0.228 | 0.244 |
| e | 1.270(BSC) | | 0.050(BSC) | |
| L | 0.400 | 1.270 | 0.016 | 0.050 |
| θ | 0° | 8° | 0° | 8° |