

Descriptions

This 8A,100V N-Channel MOSFET in a SOP-8 Plastic Package.

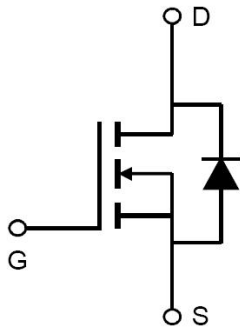
Features

- Low $R_{DS(ON)}$
- Low Gate Charge
- Optimized for fast-switching
- RoHS and Halogen-Free Compliant

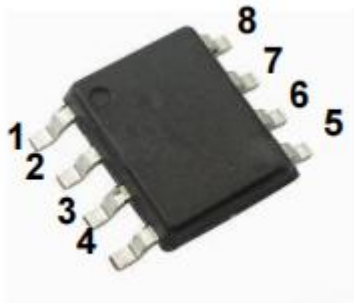
Applications

Synchronous Rectification in DC/DC and AC/DC Converters, Isolated DC/DC Converters in Telecom and Industrial.

Equivalent Circuit



Pinning



PIN1、PIN 2、PIN 3: Source PIN 4: Gate
PIN5、PIN 6、PIN 7、PIN 8: Drain

Absolute Maximum Ratings(Ta=25°C)

| Parameter | | Symbol | Rating | Unit |
|--|----------------------|---------------------------------|----------|------|
| Drain-Source Voltage | | V _{DS} | 100 | V |
| Gate-Source Voltage | | V _{GS} | ±20 | V |
| Continuous Drain Current | T _A =25°C | I _D | 8.0 | A |
| | T _A =70°C | | 6.2 | A |
| Pulsed Drain Current ^C | | I _{DM} | 32 | A |
| Avalanche Current ^C | | I _{AS} | 14 | A |
| Avalanche energy L=0.1mH ^C | | E _{AS} | 10 | mJ |
| VDS Spike | 10µS | V _{SPIKE} | 120 | V |
| Power Dissipation ^B | T _A =25°C | P _D | 3.1 | W |
| | T _A =70°C | | 2.0 | W |
| Maximum Junction-to-Ambient ^A t≤10S | | R _{θJA} | 40 | °C/W |
| Maximum Junction-to-Ambient ^{AD} Steady-State | | | 75 | °C/W |
| Maximum Junction-to-Lead Steady-State | | R _{θJL} | 24 | °C/W |
| Operating and Junction Temperature Range | | T _j T _{stg} | -55~+150 | °C |

Electrical Characteristics(Ta=25°C)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---------------------|---|-----|-----|------|------|
| Drain-Source Breakdown Voltage | BV _{DSS} | V _{GS} =0V I _D =250µA | 100 | | | V |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =95V V _{GS} =0V T _J =25°C | | | 1.0 | µA |
| | | V _{DS} =95V V _{GS} =0V T _J =150°C | | | 100 | µA |
| Gate-Body Leakage Current Forward | I _{GSS} | V _{GS} =±20V V _{DS} =0V | | | ±100 | nA |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} =V _{GS} I _D =250µA | 1.1 | | 2.5 | V |
| Static Drain-Source On-Resistance | R _{DS(on)} | V _{GS} =10V I _D =8A | | 19 | 23 | mΩ |
| | | V _{GS} =4.5V I _D =6A | | 23 | 33 | |
| Forward Transconductance | g _{FS} | V _{DS} =5.0V I _D =8A | | 30 | | S |
| Diode Forward Voltage | V _{SD} | I _{SD} =1.0A V _{GS} =0V | | | 1.0 | V |
| Maximum Continuous Drain-Source Diode Forward Current | I _S | | | | 4.0 | A |

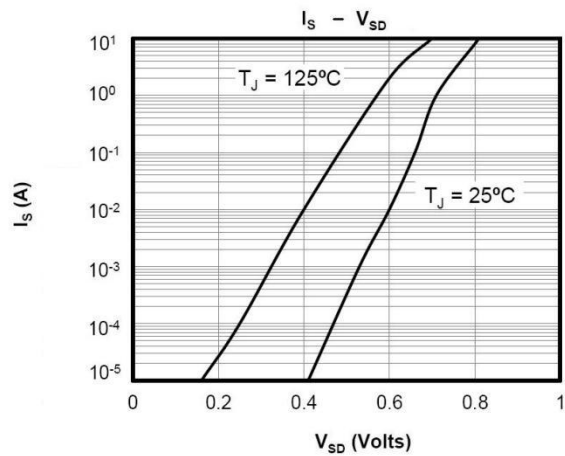
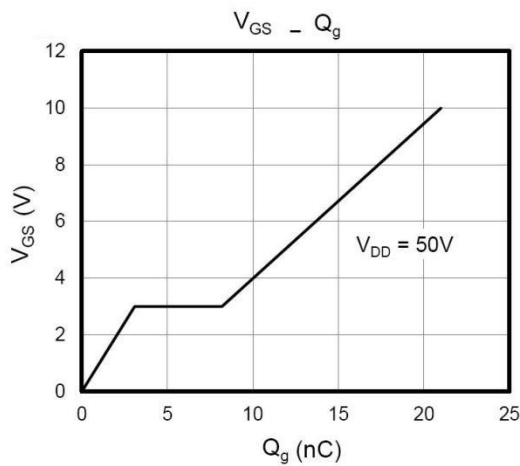
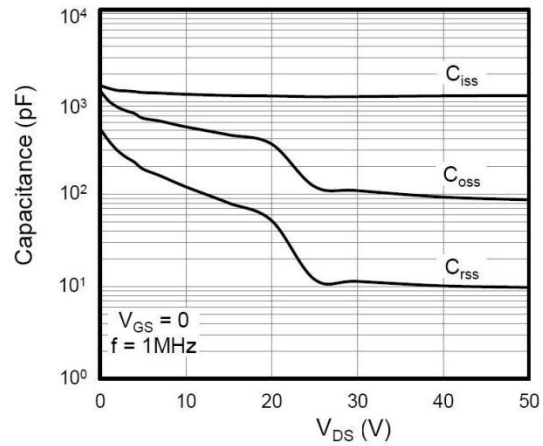
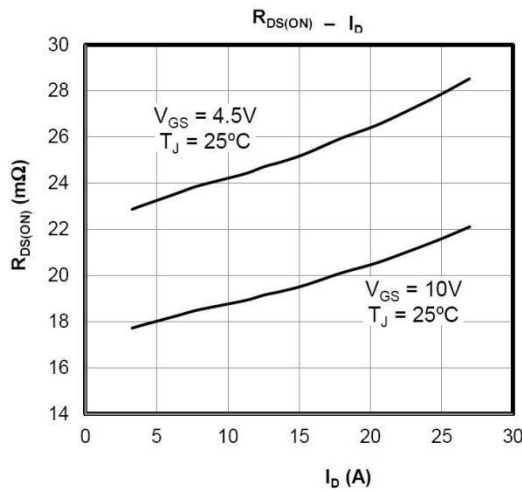
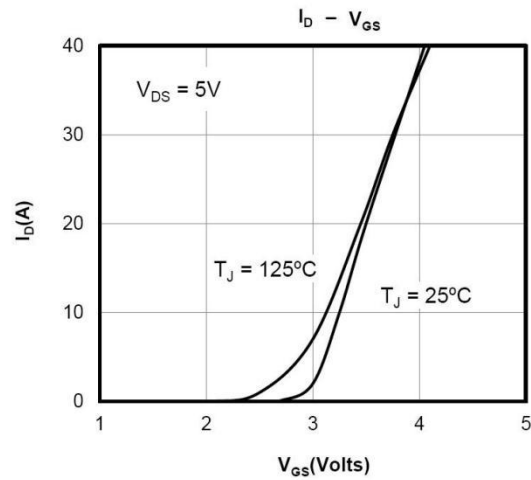
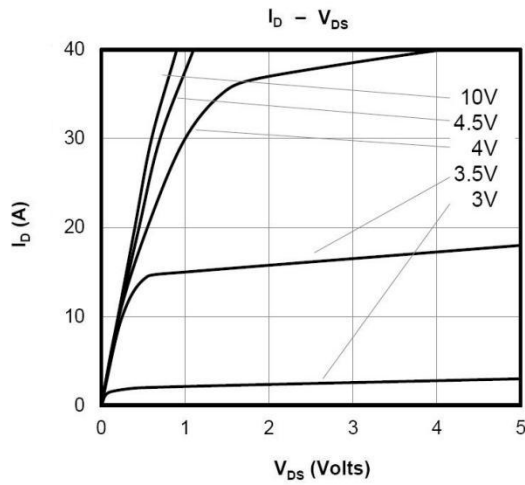
Electrical Characteristics(Ta=25°C)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit | |
|------------------------------------|--------------|---|----------|------|-----|------|--|
| Input Capacitance | C_{iss} | $V_{DS}=50V$ $V_{GS}=0V$ $f=1.0MHz$ | | 1134 | | pF | |
| Output Capacitance | C_{oss} | | | 92 | | | |
| Reverse Transfer Capacitance | C_{rss} | | | 10.3 | | | |
| Total Gate Charge(10V) | Q_g | $V_{DD}=50V$ $I_D=8A$ $V_{GS}=10V$ | | 21 | | nC | |
| Total Gate Charge(4.5V) | | | | 11 | | | |
| Gate-Source Charge | | | Q_{gs} | | 3.1 | | |
| Gate-Drain Charge | | | Q_{gd} | | 5.1 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD}=50V$ $I_D=8A$ $R_G=3.0\Omega$ | | 7.0 | | ns | |
| Turn-On Rise Time | t_r | | | 3.0 | | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 20 | | | |
| Turn-Off Fall Time | t_f | | | 3.0 | | | |
| Body Diode Reverse Recovery Time | t_{rr} | $I_F=8A$ $di/dt=500A/\mu s$ | | 20 | | ns | |
| Body Diode Reverse Recovery Charge | Q_{rr} | | | 90 | | nC | |

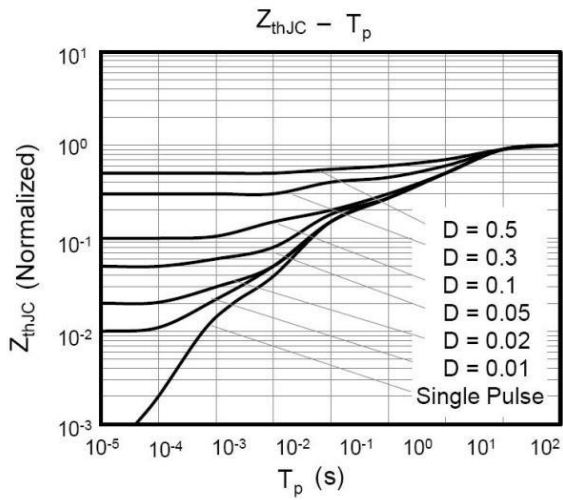
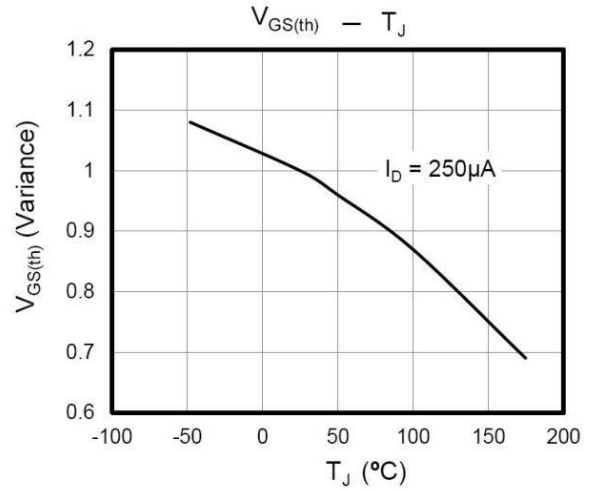
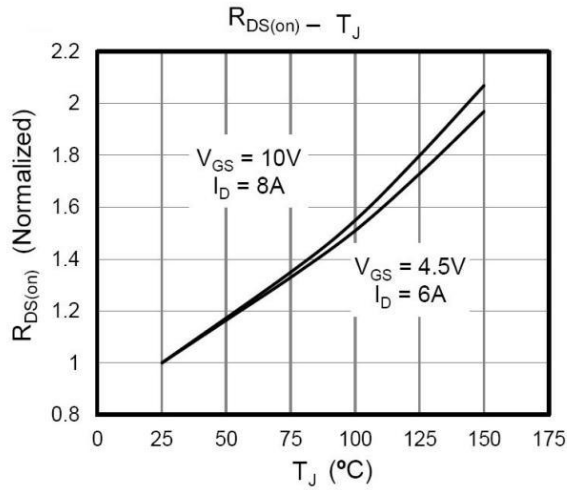
Notes:

- A. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ C$. The value in any given application depends on the user's specific board design.
- B. The power dissipation P_D is based on $T_{J(MAX)}=150^\circ C$, using $\leq 10s$ junction-to-ambient thermal resistance.
- C. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}=150^\circ C$. Ratings are based on low frequency and duty cycles to keep initial $T_J=25^\circ C$.
- D. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.
- E. The static characteristics in Figures 1 to 6 are obtained using $<300\mu s$ pulses, duty cycle 0.5% max.
- F. These curves are based on the junction-to-ambient thermal impedance which is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, assuming a maximum junction temperature of $T_{J(MAX)}=150^\circ C$. The SOA curve provides a single pulse rating.

Electrical Characteristic Curve



Electrical Characteristic Curve



Test Circuit & Waveform

Figure A: Gate Charge Test Circuit and Waveform

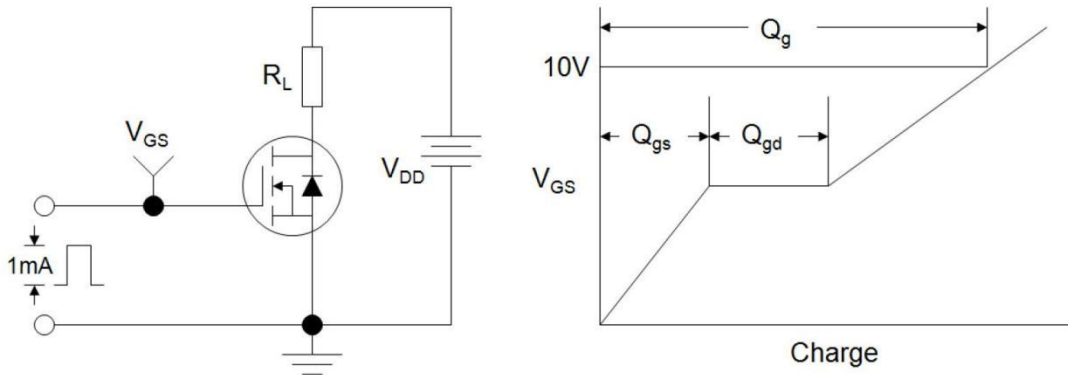


Figure B: Resistive Switching Test Circuit and Waveform

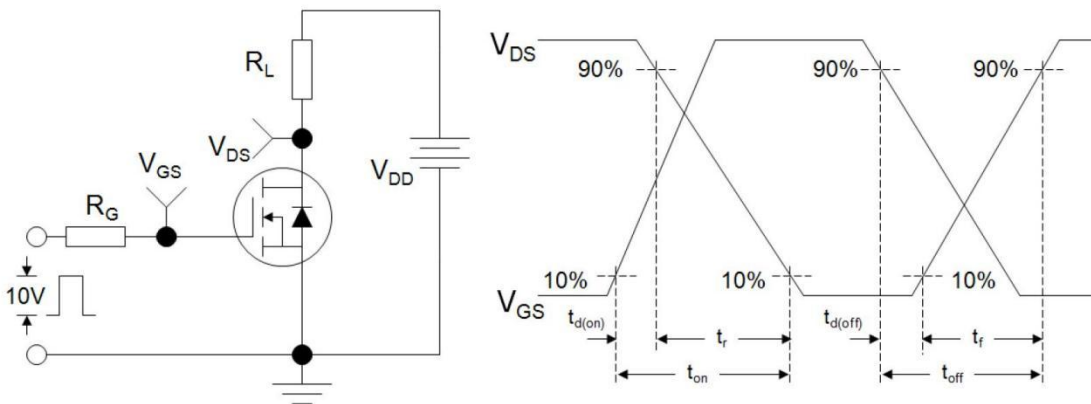
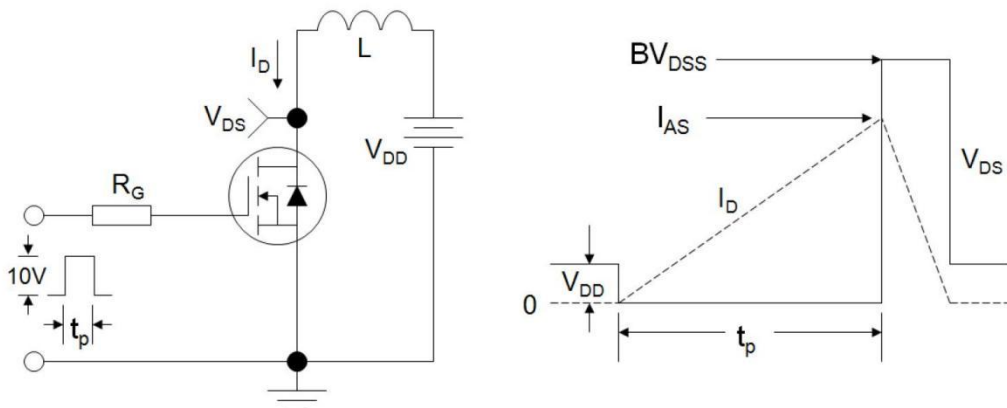
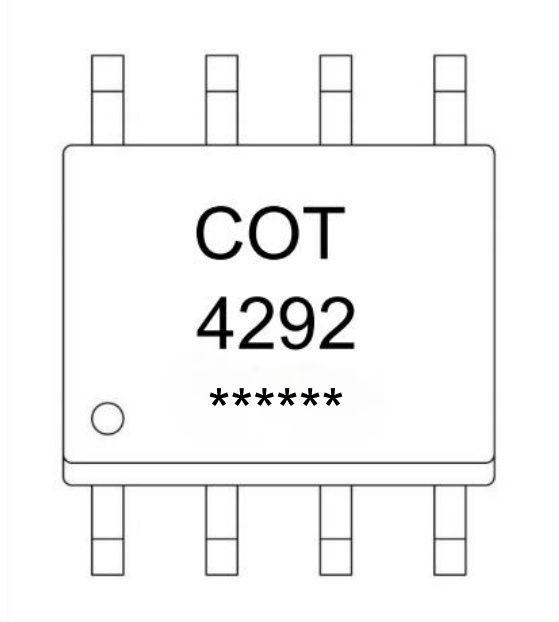


Figure C: Unclamped Inductive Switching Test Circuit and Waveform



Marking Instructions



Note:

COT: Company Logo

4292: Product Type.

*****: Lot No. Code, code change with Lot No.

Packaging SPEC

REEL INFORMATION

| Package Type | Units | | | | | Dimension (unit: mm ³) | | |
|--------------|------------|-----------------|-----------------|-----------------------|-----------------|------------------------------------|------------|-------------|
| | Units/Reel | Reels/Inner Box | Units/Inner Box | Inner Boxes/Outer Box | Units/Outer Box | Reel | Inner Box | Outer Box |
| SOP-8 | 4,000 | 2 | 8,000 | 6 | 48,000 | 13" × 12" | 360×360×50 | 380×335×366 |

Package Outline Dimensions

SOP-8

Unit:mm

