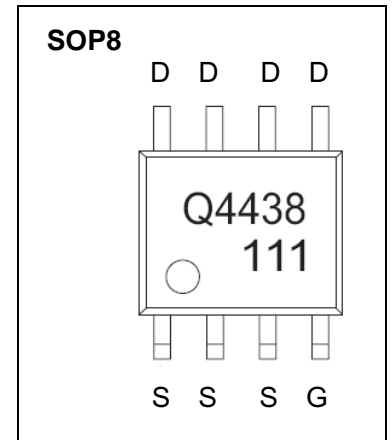
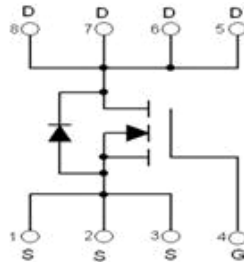


SOP8 Plastic-Encapsulate MOSFETS

CJQ4438 N-Channel MOSFET

DESCRIPTION

The CJQ4438 uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. This device is suitable for use as a load switch or in PWM applications.



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

| Parameter | Symbol | Value | Unit |
|--|-----------------|----------|-----------------------------|
| Drain-Source Voltage | V_{DS} | 60 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current (note 1) | I_D | 8.2 | A |
| Pulsed Drain Current (note 2) | I_{DM} | 40 | A |
| Power Dissipation | P_D | 1.25 | W |
| Thermal Resistance from Junction to Ambient (note 1) | $R_{\theta JA}$ | 100 | $^{\circ}\text{C}/\text{W}$ |
| 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 PARAMETERS | | | | | | |
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$ | 60 | | | V |
| Zero gate voltage drain current | I_{DSS} | $V_{DS} = 60V, V_{GS} = 0V$ | | | 1 | μA |
| Gate-body leakage current | I_{GSS} | $V_{GS} = \pm 20V, V_{DS} = 0V$ | | | ± 100 | nA |
| Gate threshold voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\mu A$ | 1 | | 3 | V |
| Drain-source on-resistance (note 3) | $R_{DS(on)}$ | $V_{GS} = 10V, I_D = 8.2A$ | | | 22 | m Ω |
| | | $V_{GS} = 4.5V, I_D = 7.6A$ | | | 30 | m Ω |
| Forward tranconductance (note 3) | g_{fs} | $V_{DS} = 5V, I_D = 8.2A$ | 10 | | | S |
| Diode forward voltage (note 3) | V_{SD} | $I_S = 1A, V_{GS} = 0V$ | | | 1 | V |
| DYNAMIC PARAMETERS (note 4) | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS} = 30V, V_{GS} = 0V, f = 1MHz$ | | | 2300 | pF |
| Output Capacitance | C_{oss} | | | 155 | | pF |
| Reverse Transfer Capacitance | C_{rss} | | | 116 | | pF |
| SWITCHING PARAMETERS (note 4) | | | | | | |
| Turn-on delay time | $t_{d(on)}$ | $V_{GS} = 10V, V_{DS} = 30V$ $R_L = 3.6\Omega, R_{GEN} = 3\Omega$ | | 8.2 | | ns |
| Turn-on rise time | t_r | | | 5.5 | | ns |
| Turn-off delay time | $t_{d(off)}$ | | | 29.7 | | ns |
| Turn-off fall time | t_f | | | 5.2 | | ns |
| Total Gate Charge (10V) | Q_g | $V_{DS} = 30V, V_{GS} = 10V, I_D = 8.2A$ | | | 58 | nC |
| Total Gate Charge (4.5V) | | | | | 30 | nC |
| Gate-Source Charge | Q_{gs} | | | 6 | | nC |
| Gate-Drain Charge | Q_{gd} | | | 14.4 | | nC |

Notes :

1. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² FR4 board with 2oz. Copper, in a still air environment with $T_a=25^\circ\text{C}$. The value in any given application depends on the user's specific board design. The current rating is based on the $t \leq 10s$ thermal resistance rating.
2. Repetitive rating : Pulse width limited by junction temperature.
3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. These parameters have no way to verify.

