



Micro Commercial Components



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MCQ4822

Features

- Halogen free available upon request by adding suffix "-HF"
- High power and current handling capability
- Lead free product is acquired
- Surface mount package
- Moisture Sensitivity Level 1
- Epoxy meets UL 94 V-0 flammability rating

Mechanical Data

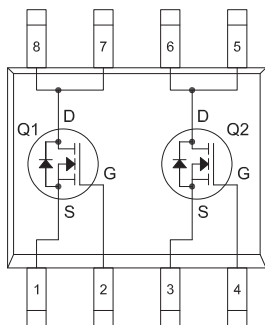
- Case: SOP-8, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking: Q4822

Maximum Ratings

- Operating Temperature: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Thermal Resistance; 89°C/W Junction To Ambient

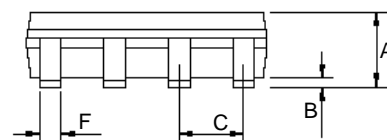
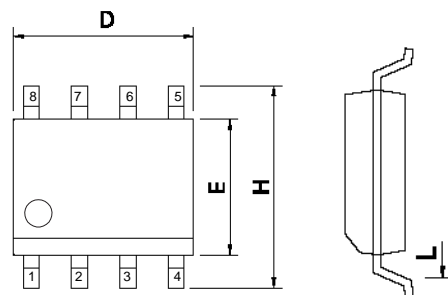
| Parameter | Symbol | Value | Unit |
|--|----------|----------|------|
| Drain-Source-Voltage | V_{DS} | 30 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current ($t \leq 10s$) (note 1) | I_D | 8.5 | A |
| Pulsed Drain Current (note 2) | I_{DM} | 30 | A |
| Power Dissipation | P_D | 1.4 | W |

Equivalent circuit



N-Channel Enhancement Mode Field Effect Transistor

SOP-8



| DIMENSIONS | | | | | |
|------------|----------|------|---------|------|------|
| DIM | INCHES | | MM | | NOTE |
| | MIN | MAX | MIN | MAX | |
| A | .053 | .069 | 1.35 | 1.75 | |
| B | .004 | .010 | 0.10 | 0.25 | |
| C | 0.050BSC | | 1.27BSC | | |
| F | .013 | .020 | 0.33 | 0.51 | |
| D | .189 | .197 | 4.80 | 5.00 | |
| E | .150 | .157 | 3.80 | 4.00 | |
| H | .228 | .244 | 5.80 | 6.20 | |
| L | .016 | .050 | 0.40 | 1.27 | |

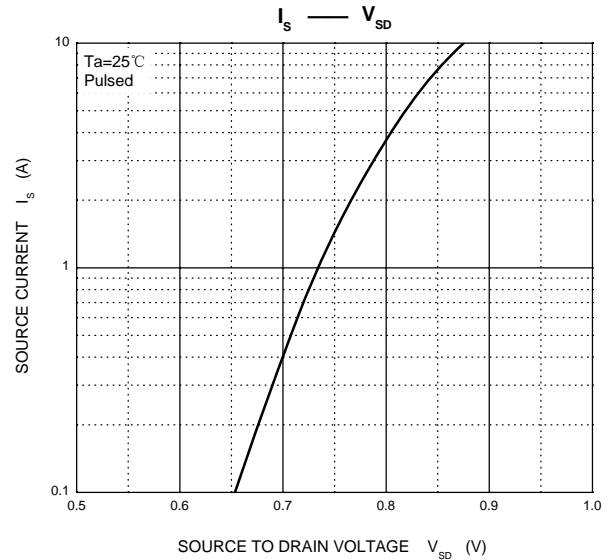
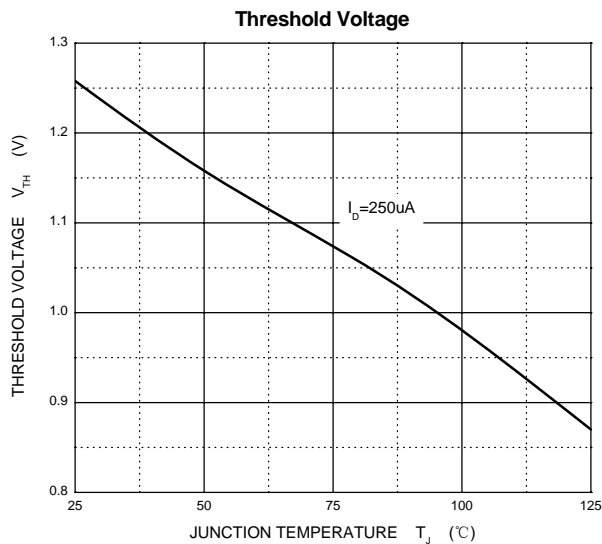
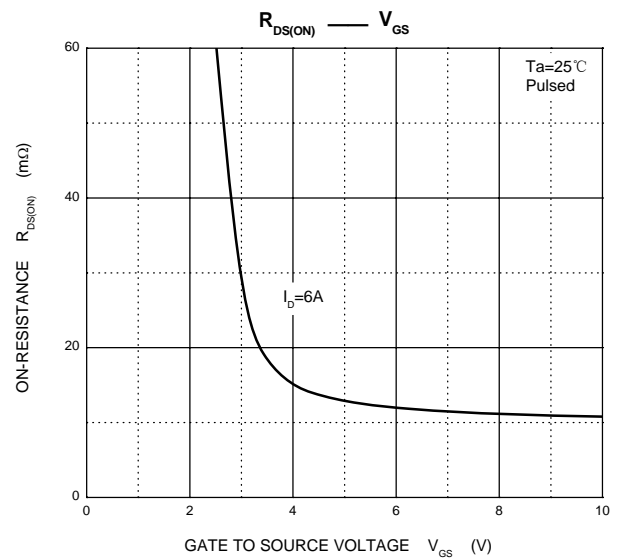
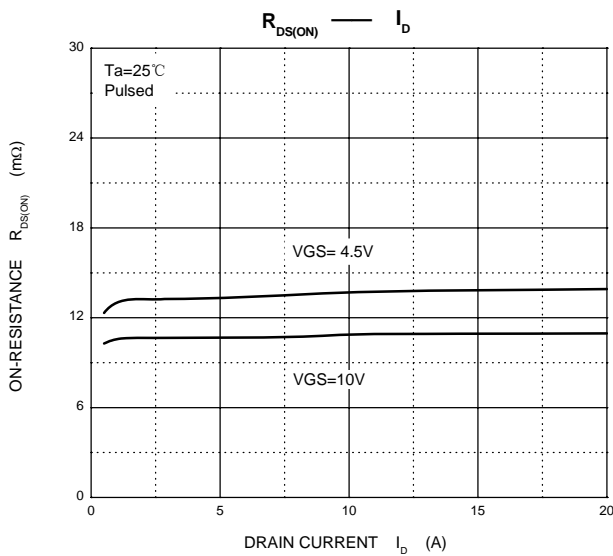
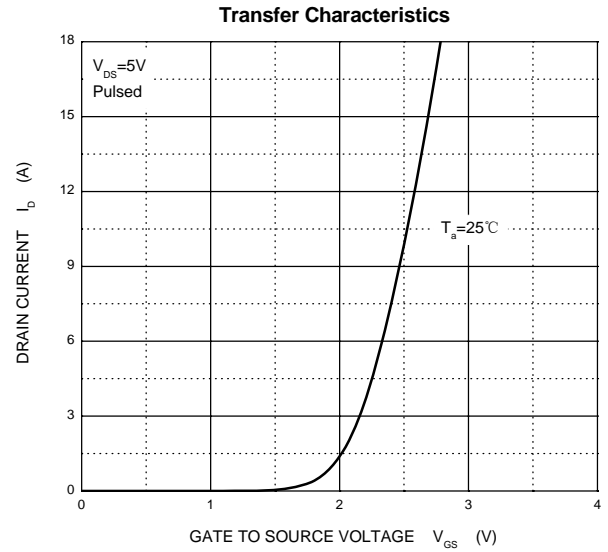
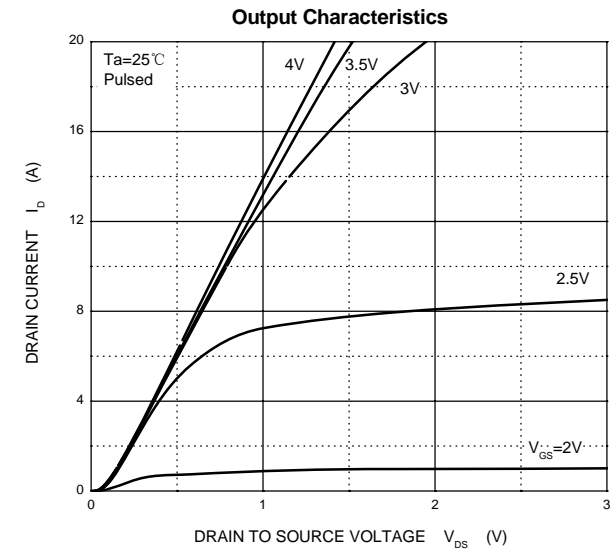
Electrical characteristics (T_a=25°C unless otherwise noted)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|-------------------------------------|----------------------|---|-----|-----|------|------|
| STATIC PARAMETERS | | | | | | |
| Drain-source breakdown voltage | V _{(BR)DSS} | V _{GS} = 0V, I _D =250μA | 30 | | | V |
| Zero gate voltage drain current | I _{DSS} | V _{DS} =24V,V _{GS} = 0V | | | 1 | μA |
| Gate-body leakage current | I _{GSS} | V _{GS} =±20V, V _{DS} = 0V | | | ±100 | nA |
| Gate threshold voltage | V _{GS(th)} | V _{DS} =V _{GS} , I _D =250μA | 1 | | 3 | V |
| Drain-source on-resistance (note 3) | R _{DS(on)} | V _{GS} =10V, I _D =8.5A | | | 16 | mΩ |
| | | V _{GS} =4.5V, I _D =6A | | | 26 | mΩ |
| Forward tranconductance (note 3) | g _{FS} | V _{DS} =5V, I _D =8.5A | | 20 | | 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} =15V,V _{GS} =0V,f =1MHz | | | 1250 | pF |
| Output capacitance | C _{oss} | | | 180 | | pF |
| Reverse transfer capacitance | C _{rss} | | | 110 | | pF |
| SWITCHING PARAMETERS(Note 4) | | | | | | |
| Turn-on delay time | t _{d(on)} | V _{GS} =10V,V _{DS} =15V, R _L =1.8Ω,R _{GEN} =3Ω | | | 7.5 | ns |
| Turn-on rise time | t _r | | | | 6.5 | ns |
| Turn-off delay time | t _{d(off)} | | | | 25 | ns |
| Turn-off fall time | t _f | | | | 5 | ns |
| Total gate charge (10V) | Q _g | V _{DS} =15V,V _{GS} =10V,I _D =8.5A | | | 23 | nC |
| Total gate charge (4.5V) | | | | | 11.2 | nC |
| Gate-source charge | Q _{gs} | | | 2.6 | | nC |
| Gate-drain charge | Q _{gd} | | | 4.2 | | nC |

Notes :

1. The value of R_{θJA} is measure with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_a=25°C. The value in any given application depends on the user's specific board design. The current rating is based on the t≤10s thermal resistance rating.
2. Repetitive rating : Pulse width limited by junction temperature.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle≤2%.
4. Guaranteed by design, not subject to production testing.

MCQ4822



Ordering Information :

| Device | Packing |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 4Kpcs/Reel |

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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