

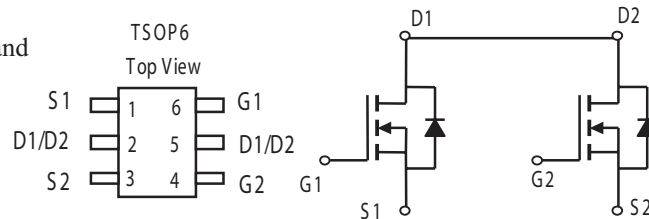


Dual N-Channel 20-V (D-S) MOSFET

These miniature surface mount MOSFETs utilize High Cell Density process. Low $r_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in power management circuitry. Typical applications are DC-DC converters, power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

- Low $r_{DS(on)}$ Provides Higher Efficiency and Extends Battery Life
- Low gate charge 7nC
- High performance
- High current handling
- Miniature TSOP-6 Surface Mount Package Saves Board Space

| PRODUCT SUMMARY | | |
|-----------------|-------------------------|-----------|
| V_{DS} (V) | $R_{DS(on)}$ (ohm) | I_D (A) |
| 20 | 0.025 @ $V_{GS} = 4.5V$ | 6.0 |
| | 0.035 @ $V_{GS} = 2.5V$ | 5.2 |



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ UNLESS OTHERWISE NOTED) | | | | |
|---|--------------------|----------------|------------|------------|
| Parameter | | Symbol | Maximum | Units |
| Drain-Source Voltage | | V_{DS} | 20 | V |
| Gate-Source Voltage | | V_{GS} | ± 10 | |
| Continuous Drain Current ^a | $T_A = 25^\circ C$ | I_D | 3.8 | A |
| | $T_A = 70^\circ C$ | | 3.0 | |
| Pulsed Drain Current ^b | | I_{DM} | 10 | |
| Continuous Source Current (Diode Conduction) ^a | | I_S | 0.46 | A |
| Power Dissipation ^a | $T_A = 25^\circ C$ | P_D | 1.25 | W |
| | $T_A = 70^\circ C$ | | 0.8 | |
| Operating Junction and Storage Temperature Range | | T_J, T_{stg} | -55 to 150 | $^\circ C$ |

| THERMAL RESISTANCE RATINGS | | | | |
|--|----------------|------------|---------|--------------|
| Parameter | | Symbol | Maximum | Units |
| Maximum Junction-to-Ambient ^a | $t \leq 5$ sec | R_{THJA} | 100 | $^\circ C/W$ |
| | Steady-State | | 166 | |

Notes

- a. Surface Mounted on 1" x 1" FR4 Board.
- b. Pulse width limited by maximum junction temperature



| SPECIFICATIONS (T _A = 25°C UNLESS OTHERWISE NOTED) | | | | | | |
|---|----------------------|--|--------|------|------|------|
| Parameter | Symbol | Test Conditions | Limits | | | Unit |
| | | | Min | Typ | Max | |
| Static | | | | | | |
| Drain-Source Breakdown Voltage | V _{(BR)DSS} | V _{GS} = 0 V, I _D = 250 uA | 20 | | | V |
| Gate-Threshold Voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = 250 uA | 0.5 | 0.8 | 1.5 | V |
| Gate-Body Leakage | I _{GSS} | V _{DS} = 0 V, V _{GS} = ±10V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = 16 V, V _{GS} = 0 V | | | 1 | uA |
| | | V _{DS} = 20 V, V _{GS} = 0 V, T _J = 55°C | | | 10 | |
| On-State Drain Current ^A | I _{D(on)} | V _{DS} = 5 V, V _{GS} = 4.5 V | 10 | | | A |
| Drain-Source On-Resistance ^A | r _{DS(on)} | V _{GS} = 4.5 V, I _D = 6.0A | | 25 | | mΩ |
| | | V _{GS} = 2.5 V, I _D = 5.2 A | | 35 | | |
| Forward Transconductance ^A | g _{fs} | V _{DS} = 5 V, I _D = 3.0 A | | 11 | | S |
| Diode Forward Voltage | V _{SD} | I _S = 2.00 A, V _{GS} = 0 V | | 0.80 | 1.20 | V |
| Dynamic^b | | | | | | |
| Total Gate Charge | Q _g | V _{DS} = 10 V, V _{GS} = 4.5 V, I _D = 4.0 A | | 11 | | nC |
| Gate-Source Charge | Q _{gs} | | | 2.20 | | |
| Gate-Drain Charge | Q _{gd} | | | 2.50 | | |
| Switching | | | | | | |
| Turn-On Delay Time | t _{d(on)} | V _{DD} = 10 V, I _D = 1 A, R _G = 10 ohm, V _{GEN} = 4.5 V | | 9 | 17 | ns |
| Rise Time | t _r | | | 11 | 18 | |
| Turn-Off Delay Time | t _{d(off)} | | | 18 | 29 | |
| Fall-Time | t _f | | | 5 | 10 | |

- a. Pulse test: PW ≤ 300us duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

Megasy's(MEI) reserves the right to make changes without further notice to any products herein. MEI makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does MEI assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in MEI data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typical" must be validated for each customer application by customer's technical experts. MEI does not convey any license under its patent rights nor the rights of others. MEI products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the MEI product could create a situation where personal injury or death may occur. Should Buyer purchase or use MEI products for any such unintended or unauthorized application, Buyer shall indemnify and hold MEI and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that MEI was negligent regarding the design or manufacture of the part. MEI is an Equal Opportunity/Affirmative Action Employer.