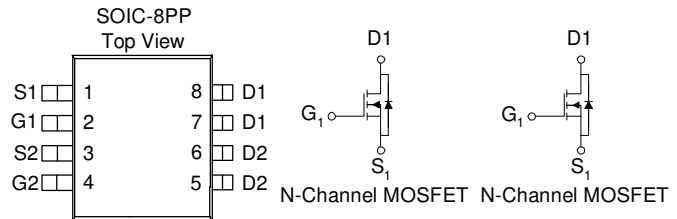


Dual N-Channel 40-V (D-S) MOSFET

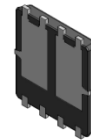
These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $r_{DS(on)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

- Low $r_{DS(on)}$ provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe SOIC-8PP saves board space
- Fast switching speed
- High performance trench technology

| PRODUCT SUMMARY | | |
|-----------------|----------------------------|-----------|
| V_{DS} (V) | $r_{DS(on)}$ m(Ω) | I_D (A) |
| 40 | 19 @ $V_{GS} = 10V$ | 24 |
| | 22 @ $V_{GS} = 4.5V$ | 22 |



RoHS
COMPLIANT
HALOGEN
FREE



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)

| Parameter | Symbol | Limit | Units | |
|---|----------------|------------------|------------|---|
| Drain-Source Voltage | V_{DS} | 40 | V | |
| Gate-Source Voltage | V_{GS} | 20 | | |
| Continuous Drain Current ^a | I_D | $T_A=25^\circ C$ | 24 | A |
| | | $T_A=70^\circ C$ | 20 | |
| Pulsed Drain Current ^b | I_{DM} | ± 50 | | |
| Continuous Source Current (Diode Conduction) ^a | I_S | 13 | A | |
| Power Dissipation ^a | P_D | $T_A=25^\circ C$ | 16 | W |
| | | $T_A=70^\circ C$ | 10 | |
| 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 | $t \leq 10$ sec | 35 | $^\circ C/W$ |
| | Steady State | 8 | |

Notes

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

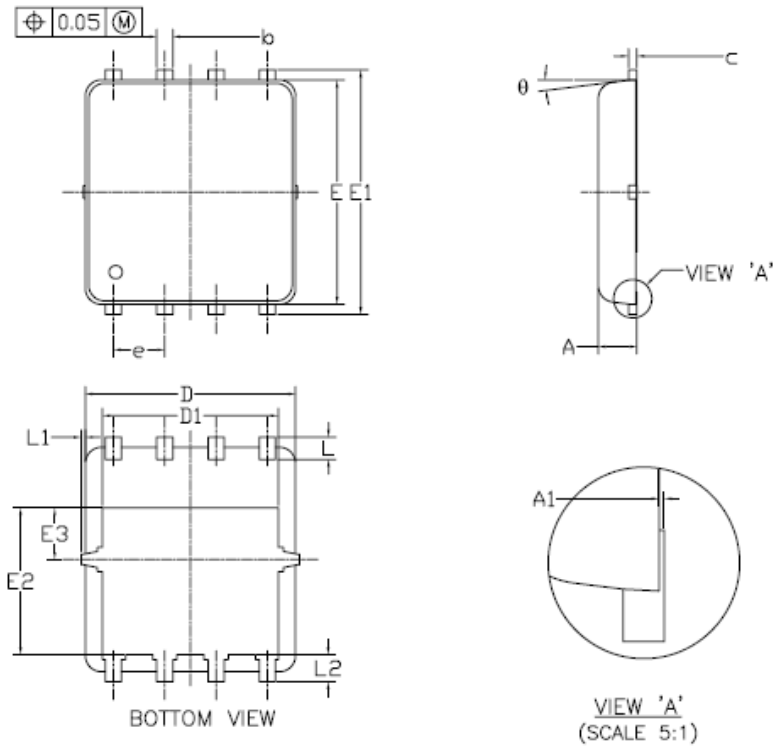
| SPECIFICATIONS (T _A = 25°C UNLESS OTHERWISE NOTED) | | | | | | |
|---|---------------------|--|--------|-----|------|------|
| Parameter | Symbol | Test Conditions | Limits | | | Unit |
| | | | Min | Typ | Max | |
| Static | | | | | | |
| Gate-Threshold Voltage | V _{GS(th)} | V _{GS} = V _{DS} , I _D = 250 μA | 1 | | | V |
| Gate-Body Leakage | I _{GSS} | V _{GS} = 20 V, V _{DS} = 0 V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = 80 V, V _{GS} = 0 V | | | 1 | μA |
| On-State Drain Current ^A | I _{D(on)} | V _{DS} = 5 V, V _{GS} = 10 V | 20 | | | A |
| Drain-Source On-Resistance ^A | r _{DS(on)} | V _{GS} = 10 V, I _D = 1 A | | | 19 | mΩ |
| | | V _{GS} = 4.5 V, I _D = 1 A | | | 22 | |
| Forward Transconductance ^A | g _{fs} | V _{DS} = 15 V, I _D = 1 A | | 40 | | S |
| Dynamic | | | | | | |
| Total Gate Charge | Q _g | N-Channel V _{DS} =15V, V _{GS} =4.5V, I _D =1A | | 10 | | nC |
| Gate-Source Charge | Q _{gs} | | | 2 | | |
| Gate-Drain Charge | Q _{gd} | | | 2 | | |
| Input Capacitance | C _{iss} | N-Channel V _{DS} =15V, V _{GS} =0V, f=1MHz | | 600 | | pF |
| Output Capacitance | C _{oss} | | | 100 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 50 | | |
| Turn-On Delay Time | t _{d(on)} | N-Channel V _{DD} =15V, V _{GS} =10V, I _D =1A , R _{GEN} =25Ω | | 12 | | nS |
| Rise Time | t _r | | | 14 | | |
| Turn-Off Delay Time | t _{d(off)} | | | 20 | | |
| Fall-Time | t _f | | | 10 | | |

Notes

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

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Package Information



| SYMBOLS | DIMENSIONS IN MILLIMETERS | | | DIMENSIONS IN INCHES | | |
|----------|---------------------------|------|------|----------------------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.85 | 0.95 | 1.00 | 0.033 | 0.037 | 0.039 |
| A1 | 0.00 | — | 0.05 | 0.000 | — | 0.002 |
| b | 0.30 | 0.40 | 0.50 | 0.012 | 0.016 | 0.020 |
| c | 0.15 | 0.20 | 0.25 | 0.006 | 0.008 | 0.010 |
| D | 5.20 BSC | | | 0.205 BSC | | |
| D1 | 4.35 BSC | | | 0.171 BSC | | |
| E | 5.55 BSC | | | 0.219 BSC | | |
| E1 | 6.05 BSC | | | 0.238 BSC | | |
| E2 | 3.625 BSC | | | 0.143 BSC | | |
| E3 | 1.275 BSC | | | 0.050 BSC | | |
| e | 1.27 BSC | | | 0.050 BSC | | |
| L | 0.45 | 0.55 | 0.65 | 0.018 | 0.022 | 0.026 |
| L1 | 0 | — | 0.15 | 0 | — | 0.006 |
| L2 | 0.68 REF | | | 0.027 REF | | |
| θ | 0° | — | 10° | 0° | — | 10° |