

Dual N-Channel 30-V (D-S) MOSFET

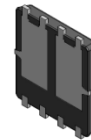
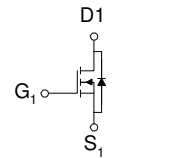
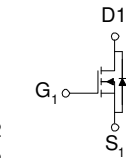
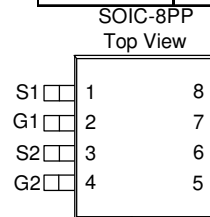
These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $r_{DS(on)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA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



RoHS
COMPLIANT
HALOGEN
FREE

| PRODUCT SUMMARY | | |
|-----------------|----------------------------|-----------|
| V_{DS} (V) | $r_{DS(on)}$ m(Ω) | I_D (A) |
| 30 | 8 @ $V_{GS} = 10V$ | 37 |
| | 12 @ $V_{GS} = 4.5V$ | 30 |



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED) | | | | |
|---|--------------------------|----------------|------------|------------------|
| Parameter | | Symbol | Limit | Units |
| Drain-Source Voltage | | V_{DS} | 30 | V |
| Gate-Source Voltage | | V_{GS} | 20 | |
| Continuous Drain Current ^a | $T_A = 25^\circ\text{C}$ | I_D | 37 | A |
| | $T_A = 70^\circ\text{C}$ | | 30 | |
| Pulsed Drain Current ^b | | I_{DM} | ± 50 | |
| Continuous Source Current (Diode Conduction) ^a | | I_S | 13 | A |
| Power Dissipation ^a | $T_A = 25^\circ\text{C}$ | P_D | 16 | W |
| | $T_A = 70^\circ\text{C}$ | | 10 | |
| Operating Junction and Storage Temperature Range | | T_J, T_{stg} | -55 to 150 | $^\circ\text{C}$ |

| THERMAL RESISTANCE RATINGS | | | | |
|--|-------------------------|-----------------|---------|--------------------|
| Parameter | | Symbol | Maximum | Units |
| Maximum Junction-to-Ambient ^a | $t \leq 10 \text{ sec}$ | $R_{\theta JA}$ | 35 | $^\circ\text{C/W}$ |
| | Steady State | $R_{\theta JC}$ | 8 | |

Notes

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

SPECIFICATIONS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

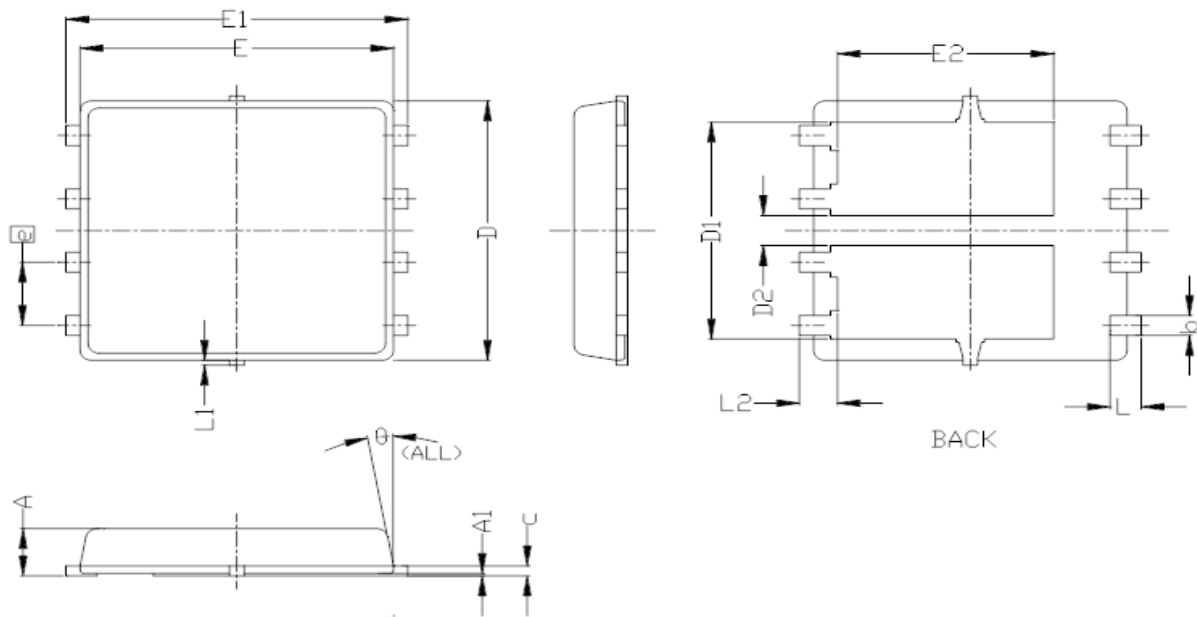
| Parameter | Symbol | Test Conditions | Limits | | | Unit |
|---|---------------------|--|--------|------|------|------|
| | | | Min | Typ | Max | |
| Static | | | | | | |
| Gate-Threshold Voltage | V _{GS(th)} | V _{GS} = V _{DS} , I _D = 250 uA | 1 | | | V |
| Gate-Body Leakage | I _{GSS} | V _{GS} = 20 V, V _{DS} = 0 V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} = 24 V, V _{GS} = 0 V | | | 1 | uA |
| 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 | | | 8 | mΩ |
| | | V _{GS} = 4.5 V, I _D = 1 A | | | 12 | |
| Forward Tranconductance ^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} | | | 6 | | |
| Gate-Drain Charge | Q _{gd} | | | 9 | | |
| Input Capacitance | C _{iss} | N-Channel V _{DS} =15V, V _{GS} =0V, f=1MHz | | 2000 | | pF |
| Output Capacitance | C _{oss} | | | 300 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 200 | | |
| Turn-On Delay Time | t _{d(on)} | N-Chaneel V _{DD} =15V, V _{GS} =10V, I _D =1A , R _{GEN} =25Ω | | 10 | | nS |
| Rise Time | t _r | | | 20 | | |
| Turn-Off Delay Time | t _{d(off)} | | | 50 | | |
| Fall-Time | t _f | | | 30 | | |

Notes

- Pulse test: $PW \leq 300\mu\text{s}$ duty cycle $\leq 2\%$.
- 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 | | |
| D2 | 0.50 | 0.60 | 0.75 | 0.020 | 0.024 | 0.030 |
| E | 5.55 BSC | | | 0.219 BSC | | |
| E1 | 6.05 BSC | | | 0.238 BSC | | |
| E2 | 3.82 BSC | | | 0.150 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° |