



FMP06N20D Dual Die 20V N-Channel Enhancement-Mode Mosfet

$V_{DS} = 20V, I_D = 6A$

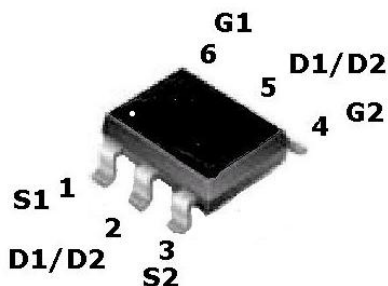
$R_{DS(ON)}, V_{GS}@2.5V, I_{DS}@5.2A = 40m\Omega$

$R_{DS(ON)}, V_{GS}@4.5V, I_{DS}@6A = 28m\Omega$

Features

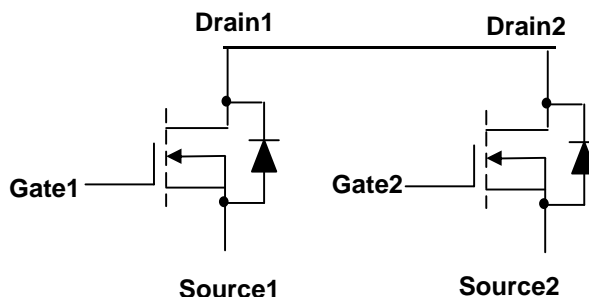
- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- High Power and Current handing capability
- Fully Characterized Avalanche Voltage and Current
- Ideal for Li ion battery pack applications

TSOP-6



Top View

Internal Schematic Diagram



N-Channel MOSFET

Maximum Ratings and Thermal Characteristics ($T_A = 25^\circ C$ unless otherwise noted)

| Parameter | Symbol | Limit | Unit | |
|--|-----------------|--------------------|--------------|---|
| Drain-Source Voltage | V_{DS} | 20 | V | |
| Gate-Source Voltage | V_{GS} | ± 12 | | |
| Continuous Drain Current | I_D | 6 | A | |
| Pulsed Drain Current ¹⁾ | I_{DM} | 30 | | |
| Maximum Power Dissipation | P_D | $T_A = 25^\circ C$ | 2.0 | W |
| | | $T_A = 75^\circ C$ | 1.3 | |
| Operating Junction and Storage Temperature Range | T_J, T_{stg} | -55 to 150 | $^\circ C$ | |
| Junction-to-Ambient Thermal Resistance (PCB mounted) ²⁾ | $R_{\theta JA}$ | 62.5 | $^\circ C/W$ | |

Note: 1. Maximum DC current limited by the package

2. 1-in² 2oz Cu PCB board



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ELECTRICAL CHARACTERISTICS

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|----------------------------------|--------------|--|-----|-------|-----------|------------|
| Static | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | $V_{GS} = 0V, I_D = 250\mu A$ | 20 | - | - | V |
| Drain-Source On-State Resistance | $R_{DS(on)}$ | $V_{GS} = 2.5V, I_D = 5.2A$ | | 34 | 40 | m Ω |
| Drain-Source On-State Resistance | $R_{DS(on)}$ | $V_{GS} = 4.5V, I_D = 6A$ | | 24 | 28 | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\mu A$ | 0.6 | | | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = 20V, V_{GS} = 0V$ | | | 1 | μA |
| Gate Body Leakage | I_{GSS} | $V_{GS} = \pm 12V, V_{DS} = 0V$ | | | ± 100 | nA |
| Gate Resistance | R_g | | | | | |
| Forward Transconductance | g_{fs} | $V_{DS} = 10V, I_D = 6A$ | 7 | 13 | | S |
| Dynamic | | | | | | |
| Total Gate Charge | Q_g | $V_{DS} = 10V, I_D = 6A$ $V_{GS} = 4.5V$ | | 4.86 | | nC |
| Gate-Source Charge | Q_{gs} | | | 0.92 | | |
| Gate-Drain Charge | Q_{gd} | | | 1.4 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD} = 10V,$ $I_D = 1A, V_{GEN} = 4.5V$ $R_G = 6\Omega$ | | 8.1 | | ns |
| Turn-On Rise Time | t_r | | | 9.95 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 21.85 | | |
| Turn-Off Fall Time | t_f | | | 5.35 | | |
| Input Capacitance | C_{iss} | $V_{DS} = 8V, V_{GS} = 0V$ $f = 1.0\text{ MHz}$ | | 562 | | pF |
| Output Capacitance | C_{oss} | | | 106 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 75 | | |
| Source-Drain Diode | | | | | | |
| Max. Diode Forward Current | I_S | | | | 1.7 | A |
| Diode Forward Voltage | V_{SD} | $I_S = 1.7A, V_{GS} = 0V$ | | | 1.2 | V |

Note: Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

