

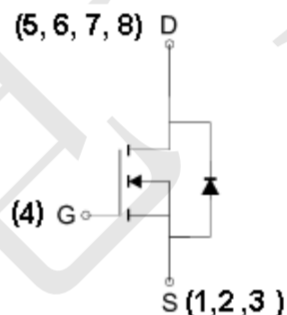
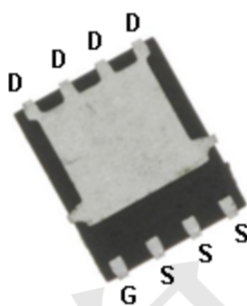
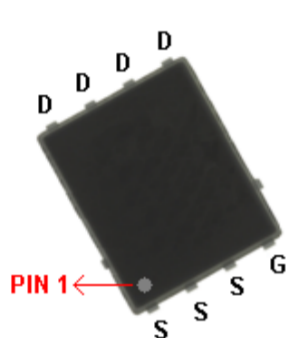
### Product Summary

- ◆  $V_{DS} = 30V$   $I_D = 150A$
- ◆  $R_{DS(ON)} \leq 2.5m\Omega @ V_{GS}=10V$
- ◆  $R_{DS(ON)} \leq 3.3m\Omega @ V_{GS}=4.5V$

### Application

- ◆ Load/Power switch
- ◆ Interfacing, logic switching
- ◆ Battery management for ultra portable electronics

PowerDFN 5x6



N-Channel MOSFET

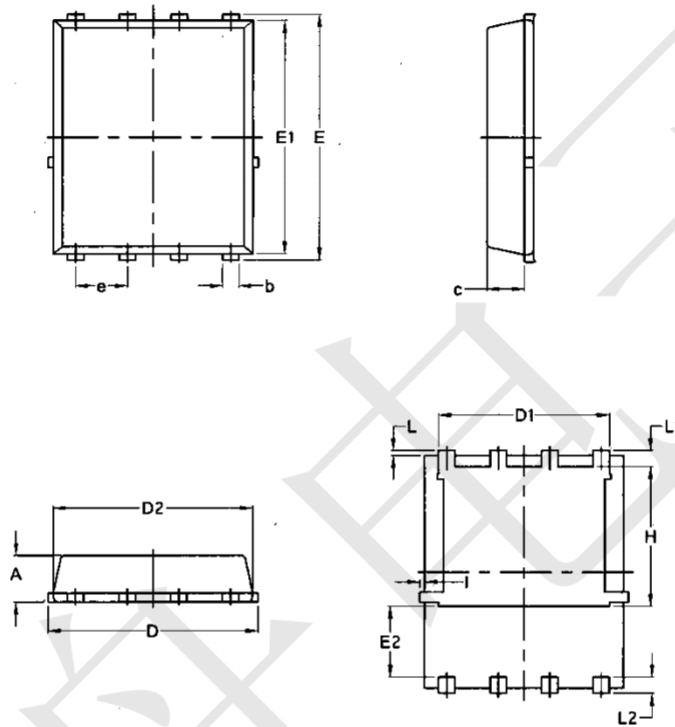
### Absolute Maximum Ratings ( $T_A=25^\circ C$ unless otherwise specified)

| Parameter                               |                       | Symbol           | Maximum Ratings |    | Unit |
|-----------------------------------------|-----------------------|------------------|-----------------|----|------|
| Drain-Source Voltage                    |                       | V <sub>DS</sub>  | 30              |    | V    |
| Gate-Source Voltage                     |                       | V <sub>GS</sub>  | ±20             |    | V    |
| Continuous Drain                        | T <sub>C</sub> =25°C  |                  | 150             |    | A    |
|                                         | T <sub>C</sub> =100°C |                  | 100             |    |      |
| Pulsed Drain Current                    |                       | I <sub>DM</sub>  | 350             |    | A    |
| Maximum Power Dissipation*              | T <sub>A</sub> =25°C  | P <sub>D</sub>   | 75              |    | W    |
|                                         | T <sub>A</sub> =100°C |                  | 30              |    |      |
| Operating Junction Temperature          |                       | T <sub>J</sub>   | -55 to 150      |    | °C   |
| Thermal Resistance-Junction to Ambient* |                       | R <sub>θJA</sub> | Steady State    | 45 | °C/W |
| Thermal Resistance-Junction to Case*    |                       | R <sub>θJC</sub> | 3.3             |    | °C/W |

## Electrical Characteristics (T = 25°C unless otherwise specified)

| Symbol         | Parameter                                     | Limit                                                                  | Min | Typ  | Max       | Unit       |
|----------------|-----------------------------------------------|------------------------------------------------------------------------|-----|------|-----------|------------|
| <b>STATIC</b>  |                                               |                                                                        |     |      |           |            |
| $V_{(BR)DSS}$  | Drain-Source Breakdown Voltage                | $V_{GS}=0V, I_D=250 \mu A$                                             | 30  |      |           | V          |
| $V_{GS(th)}$   | Gate Threshold Voltage                        | $V_{DS}=V_{GS}, I_D=250 \mu A$                                         | 1.3 |      | 3.0       | V          |
| $I_{GSS}$      | Gate Leakage Current                          | $V_{DS}=0V, V_{GS}=\pm 20V$                                            |     |      | $\pm 100$ | nA         |
| $I_{DSS}$      | Zero Gate Voltage Drain Current               | $V_{DS}=30V, V_{GS}=0V$                                                |     |      | 1         | $\mu A$    |
| $R_{DS(ON)}$   | Drain-Source On-State Resistance <sup>a</sup> | $V_{GS}=10V, I_D=27A$                                                  |     | 1.9  | 2.5       | m $\Omega$ |
|                |                                               | $V_{GS}=4.5V, I_D=20A$                                                 |     | 2.5  | 3.3       |            |
| $V_{SD}$       | Diode Forward Voltage                         | $I_S=2.8A, V_{GS}=0V$                                                  |     | 0.75 | 1.1       | V          |
| <b>DYNAMIC</b> |                                               |                                                                        |     |      |           |            |
| $Q_g$          | Total Gate Charge                             | $V_{DS}=15V, V_{GS}=4.5V, I_D=27A$                                     |     | 58   |           | nC         |
| $Q_{gs}$       | Gate-Source Charge                            |                                                                        |     | 23   |           |            |
| $Q_{gd}$       | Gate-Drain Charge                             |                                                                        |     | 30   |           |            |
| $C_{iss}$      | Input Capacitance                             | $V_{DS}=15V, V_{GS}=0V, F=1MHz$                                        |     | 5930 |           | pF         |
| $C_{oss}$      | Output Capacitance                            |                                                                        |     | 660  |           |            |
| $C_{rss}$      | Reverse Transfer Capacitance                  |                                                                        |     | 220  |           |            |
| $R_g$          | Gate-Resistance                               | $V_{DS}=0V, V_{GS}=0V, F=1MHz$                                         |     | 0.85 |           | $\Omega$   |
| $t_{d(on)}$    | Turn-On Delay Time                            | $V_{DD}=15V, R_L=15 \Omega$<br>$I_D=1A, V_{GEN}=10V$<br>$R_G=6 \Omega$ |     | 36   |           | Ns         |
| $t_r$          | Turn-On Rise Time                             |                                                                        |     | 23   |           |            |
| $t_{d(off)}$   | Turn-Off Delay Time                           |                                                                        |     | 170  |           |            |
| $t_f$          | Turn-Off Fall Time                            |                                                                        |     | 44   |           |            |

## Package Outline Dimensions PDFN5\*6-8L



| Symbol | Common   |        |          |        |
|--------|----------|--------|----------|--------|
|        | mm       |        | Inch     |        |
|        | Min      | Max    | Min      | Max    |
| A      | 1.03     | 1.17   | 0.0406   | 0.0461 |
| b      | 0.34     | 0.48   | 0.0134   | 0.0189 |
| c      | 0.824    | 0.0970 | 0.0324   | 0.082  |
| D      | 4.80     | 5.40   | 0.1890   | 0.2126 |
| D1     | 4.11     | 4.31   | 0.1618   | 0.1697 |
| D2     | 4.80     | 5.00   | 0.1890   | 0.1969 |
| E      | 5.95     | 6.15   | 0.2343   | 0.2421 |
| E1     | 5.65     | 5.85   | 0.2224   | 0.2303 |
| E2     | 1.60     | /      | 0.0630   | /      |
| e      | 1.27 BSC |        | 0.05 BSC |        |
| L      | 0.05     | 0.25   | 0.0020   | 0.0098 |
| L1     | 0.38     | 0.50   | 0.0150   | 0.0197 |
| L2     | 0.38     | 0.50   | 0.0150   | 0.0197 |
| H      | 3.30     | 3.50   | 0.1299   | 0.1378 |
| I      | /        | 0.18   | /        | 0.0070 |