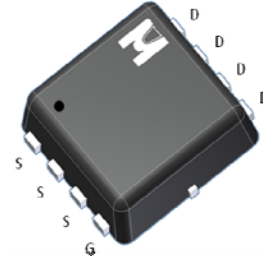
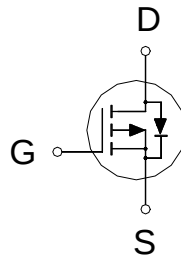


P-Channel Logic Level Enhancement Mode Field Effect Transistor

Product Summary:

|                     |              |
|---------------------|--------------|
| $BV_{DSS}$          | -30V         |
| $R_{DS(on)} (MAX.)$ | 20m $\Omega$ |
| $I_D$               | -18A         |



UIS, Rg 100% Tested

Pb-Free Lead Plating & Halogen Free



ABSOLUTE MAXIMUM RATINGS ( $T_C = 25^\circ\text{C}$  Unless Otherwise Noted)

| PARAMETERS/TEST CONDITIONS                     |                                                       | SYMBOL           | LIMITS     | UNIT             |
|------------------------------------------------|-------------------------------------------------------|------------------|------------|------------------|
| Gate-Source Voltage                            |                                                       | $V_{GS}$         | $\pm 25$   | V                |
| Continuous Drain Current                       | $T_C = 25^\circ\text{C}$                              | $I_D$            | -18        | A                |
|                                                | $T_C = 100^\circ\text{C}$                             |                  | -13        |                  |
| Pulsed Drain Current <sup>1</sup>              |                                                       | $I_{DM}$         | -72        |                  |
| Avalanche Current                              |                                                       | $I_{AS}$         | -10        | mJ               |
| Avalanche Energy                               | $L = 0.1\text{mH}, I_D = -10\text{A}, R_G = 25\Omega$ | $E_{AS}$         | 5          |                  |
| Repetitive Avalanche Energy <sup>2</sup>       | $L = 0.05\text{mH}$                                   | $E_{AR}$         | 2.5        |                  |
| Power Dissipation                              | $T_A = 25^\circ\text{C}$                              | $P_D$            | 2.5        | W                |
|                                                | $T_A = 100^\circ\text{C}$                             |                  | 1          |                  |
| Operating Junction & Storage Temperature Range |                                                       | $T_{j}, T_{stg}$ | -55 to 150 | $^\circ\text{C}$ |

THERMAL RESISTANCE RATINGS

| THERMAL RESISTANCE               | SYMBOL          | TYPICAL | MAXIMUM | UNIT                        |
|----------------------------------|-----------------|---------|---------|-----------------------------|
| Junction-to-Case                 | $R_{\theta JC}$ |         | 6       | $^\circ\text{C} / \text{W}$ |
| Junction-to-Ambient <sup>3</sup> | $R_{\theta JA}$ |         | 50      |                             |

<sup>1</sup>Pulse width limited by maximum junction temperature.

<sup>2</sup>Duty cycle  $\leq 1\%$

<sup>3</sup>50 $^\circ\text{C} / \text{W}$  when mounted on a 1 in<sup>2</sup> pad of 2 oz copper.

ELECTRICAL CHARACTERISTICS ( $T_c = 25\text{ }^{\circ}\text{C}$ , Unless Otherwise Noted)

| PARAMETER                                                               | SYMBOL             | TEST CONDITIONS                                                    | LIMITS |      |           | UNIT       |
|-------------------------------------------------------------------------|--------------------|--------------------------------------------------------------------|--------|------|-----------|------------|
|                                                                         |                    |                                                                    | MIN    | TYP  | MAX       |            |
| STATIC                                                                  |                    |                                                                    |        |      |           |            |
| Drain-Source Breakdown Voltage                                          | $V_{(BR)DSS}$      | $V_{GS} = 0V, I_D = -250\mu A$                                     | -30    |      |           | V          |
| Gate Threshold Voltage                                                  | $V_{GS(th)}$       | $V_{DS} = V_{GS}, I_D = -250\mu A$                                 | -1     | -1.5 | -3        |            |
| Gate-Body Leakage                                                       | $I_{GSS}$          | $V_{DS} = 0V, V_{GS} = \pm 20V$                                    |        |      | $\pm 100$ | nA         |
|                                                                         |                    | $V_{DS} = 0V, V_{GS} = \pm 25V$                                    |        |      | $\pm 500$ |            |
| Zero Gate Voltage Drain Current                                         | $I_{DSS}$          | $V_{DS} = -24V, V_{GS} = 0V$                                       |        |      | -1        | $\mu A$    |
|                                                                         |                    | $V_{DS} = -20V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$           |        |      | -10       |            |
| On-State Drain Current <sup>1</sup>                                     | $I_{D(ON)}$        | $V_{DS} = -5V, V_{GS} = -10V$                                      | -18    |      |           | A          |
| Drain-Source On-State Resistance <sup>1</sup>                           | $R_{DS(ON)}$       | $V_{GS} = -10V, I_D = -10A$                                        |        | 17.5 | 20        | m $\Omega$ |
|                                                                         |                    | $V_{GS} = -4.5V, I_D = -7A$                                        |        | 26   | 35        |            |
| Forward Transconductance <sup>1</sup>                                   | $g_{fs}$           | $V_{DS} = -5V, I_D = -10A$                                         |        | 24   |           | S          |
| DYNAMIC                                                                 |                    |                                                                    |        |      |           |            |
| Input Capacitance                                                       | $C_{iss}$          | $V_{GS} = 0V, V_{DS} = -15V, f = 1MHz$                             |        | 1407 |           | pF         |
| Output Capacitance                                                      | $C_{oss}$          |                                                                    |        | 208  |           |            |
| Reverse Transfer Capacitance                                            | $C_{rss}$          |                                                                    |        | 164  |           |            |
| Gate Resistance                                                         | $R_g$              | $V_{GS} = 15mV, V_{DS} = 0V, f = 1MHz$                             |        | 4.5  |           | $\Omega$   |
| Total Gate Charge <sup>1,2</sup>                                        | $Q_g(V_{GS}=10V)$  | $V_{DS} = -15V, V_{GS} = -10V,$<br>$I_D = -10A$                    |        | 20.3 |           | nC         |
|                                                                         | $Q_g(V_{GS}=4.5V)$ |                                                                    |        | 9.8  |           |            |
| Gate-Source Charge <sup>1,2</sup>                                       | $Q_{gs}$           |                                                                    |        | 3.2  |           |            |
| Gate-Drain Charge <sup>1,2</sup>                                        | $Q_{gd}$           |                                                                    |        | 4.9  |           |            |
| Turn-On Delay Time <sup>1,2</sup>                                       | $t_{d(on)}$        | $V_{DS} = -15V,$<br>$I_D = -1A, V_{GS} = -10V, R_{GS} = 2.7\Omega$ |        | 10   |           | nS         |
| Rise Time <sup>1,2</sup>                                                | $t_r$              |                                                                    |        | 8    |           |            |
| Turn-Off Delay Time <sup>1,2</sup>                                      | $t_{d(off)}$       |                                                                    |        | 25   |           |            |
| Fall Time <sup>1,2</sup>                                                | $t_f$              |                                                                    |        | 6    |           |            |
| SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T <sub>C</sub> = 25 °C) |                    |                                                                    |        |      |           |            |
| Continuous Current                                                      | $I_S$              |                                                                    |        |      | -3.5      | A          |
| Pulsed Current <sup>3</sup>                                             | $I_{SM}$           |                                                                    |        |      | -14       |            |
| Forward Voltage <sup>1</sup>                                            | $V_{SD}$           | $I_F = I_S A, V_{GS} = 0V$                                         |        |      | -1.2      | V          |
| Reverse Recovery Time                                                   | $t_{rr}$           | $I_F = I_S, dI_F/dt = 100A / \mu S$                                |        | 32   |           | nS         |
| Reverse Recovery Charge                                                 | $Q_{rr}$           |                                                                    |        | 26   |           | nC         |



