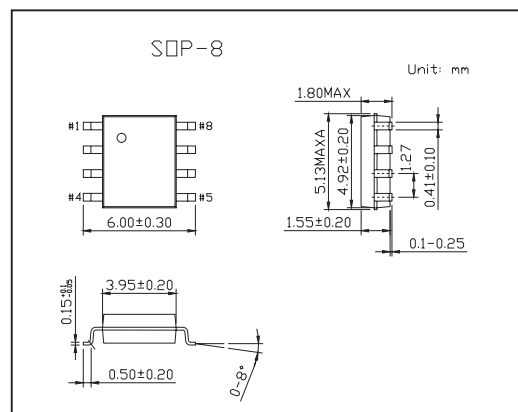
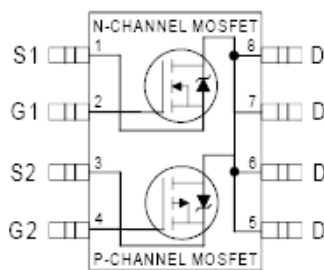


HEXFET<sup>®</sup> Power MOSFET

## KRF7379

## ■ Features

- Generation V Technology
- Ultra Low On-Resistance
- Complimentary Half Bridge
- Surface Mount
- Fully Avalanche Rated

■ Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$ 

| Parameter                                                         | Symbol          | N-Channel    | P-Channel | Unit                      |
|-------------------------------------------------------------------|-----------------|--------------|-----------|---------------------------|
| Drain-Source Voltage                                              | $V_{DS}$        | 30           | -30       | V                         |
| Continuous Drain Current, $V_{GS} @ 10V @ T_a = 25^\circ\text{C}$ | $I_D$           | 5.8          | -4.3      | A                         |
| Continuous Drain Current, $V_{GS} @ 10V @ T_a = 70^\circ\text{C}$ | $I_D$           | 4.6          | -3.4      |                           |
| Pulsed Drain Current *1                                           | $I_{DM}$        | 46           | -34       |                           |
| Power Dissipation @ $T_a = 25^\circ\text{C}$                      | $P_D$           | 2.5          |           | W                         |
| Linear Derating Factor                                            |                 | 0.02         |           | W/ $^\circ\text{C}$       |
| Gate-to-Source Voltage                                            | $V_{GS}$        | $\pm 20$     |           | V                         |
| Peak Diode Recovery $dv/dt$ *2                                    | $dv/dt$         | 5.0          | -5.0      | V/ns                      |
| Junction and Storage Temperature Range                            | $T_J, T_{STG}$  | -55 to + 150 |           | $^\circ\text{C}$          |
| Maximum Junction-to-Ambient *3                                    | $R_{\theta JA}$ | 50           |           | $^\circ\text{C}/\text{W}$ |

\*1 Repetitive rating; pulse width limited by max. junction temperature.

\*2 N-Channel  $I_{SD} \leq 2.4A$ ,  $di/dt \leq 73A/\mu s$ ,  $V_{DD} \leq V_{(BR)DSS}$ ,  $T_J \leq 150^\circ\text{C}$

P-Channel  $I_{SD} \leq -1.8A$ ,  $di/dt \leq 90A/\mu s$ ,  $V_{DD} \leq V_{(BR)DSS}$ ,  $T_J \leq 150^\circ\text{C}$

\*3 Surface mounted on FR-4 board,  $t \leq 10\text{sec}$ .

## KRF7379

## ■ Electrical Characteristics Ta = 25°C

| Parameter                            | Symbol            | Testconditons                                                         |           | Min  | Typ                              | Max   | Unit |
|--------------------------------------|-------------------|-----------------------------------------------------------------------|-----------|------|----------------------------------|-------|------|
| Drain-to-Source Breakdown Voltage    | V(BR)DSS          | VGS = 0V, ID = 250 μ A                                                | N-Ch      | 30   |                                  |       | V    |
|                                      |                   | VGS = 0V, ID = 250 μ A                                                | P-Ch      | -30  |                                  |       |      |
| Breakdown Voltage Temp. Coefficient  | ΔV(BR)DSS/<br>ΔTJ | ID = 1mA,Reference to 25℃                                             | N-Ch      |      | 0.032                            |       | V/℃  |
|                                      |                   | ID = 1mA,Reference to 25℃                                             | P-Ch      |      | -0.037                           |       |      |
| Static Drain-to-Source On-Resistance | RDS(on)           | VGS = 10V, ID = 5.8A*1                                                | N-Ch      |      | 0.038                            | 0.045 | Ω    |
|                                      |                   | VGS = 4.5V, ID = 4.9A*1                                               |           |      | 0.055                            | 0.075 |      |
| Static Drain-to-Source On-Resistance | RDS(on)           | VGS = -10V, ID = -4.3A*1                                              | P-Ch      |      | 0.070                            | 0.090 |      |
|                                      |                   | VGS = -4.5V, ID = -3.7A*1                                             |           |      | 0.130                            | 0.180 |      |
| Gate Threshold Voltage               | VGS(th)           | VDS = VGS, ID = 250 μ A                                               | N-Ch      | 1.0  |                                  |       | V    |
|                                      |                   | VDS = VGS, ID = -250 μ A                                              | P-Ch      | -1.0 |                                  |       |      |
| Forward Transconductance             | gfs               | VDS = 15V, ID = 2.4A*1                                                | N-Ch      | 5.2  |                                  |       | S    |
|                                      |                   | VDS = -24V, ID = -1.8A*1                                              | P-Ch      | 2.5  |                                  |       |      |
| Drain-to-Source Leakage Current      | IDSS              | VDS = 24V, VGS = 0V                                                   | N-Ch      |      |                                  | 1.0   | μ A  |
|                                      |                   | VDS = -24V, VGS = 0V                                                  | P-Ch      |      |                                  | -1.0  |      |
|                                      |                   | VDS = 24V, VGS = 0V, TJ = 125℃                                        | N-Ch      |      |                                  | 25    |      |
|                                      |                   | VDS = -24V, VGS = 0V, TJ = 125℃                                       | P-Ch      |      |                                  | -25   |      |
| Gate-to-Source Forward Leakage       | IGSS              | VGS = ±20V                                                            | N-Ch      |      |                                  | ±100  |      |
|                                      |                   |                                                                       | P-Ch      |      |                                  | ±100  |      |
| Total Gate Charge                    | Qg                | N-Channel<br>ID = 2.4A,VDS = 24V,VGS =10V                             | N-Ch      |      |                                  | 25    | nC   |
| Gate-to-Source Charge                | Qgs               |                                                                       | P-Channel | P-Ch |                                  |       |      |
|                                      |                   | Gate-to-Drain ("Miller") Charge                                       |           | Qgd  | ID = -1.8A,VDS = -24V,VGS = -10V | N-Ch  |      |
| P-Ch                                 |                   |                                                                       |           |      |                                  | 2.9   |      |
| Turn-On Delay Time                   | td(on)            | N-Channel<br>VDD = 15V,ID = 2.4A,RG = 6.0 Ω                           | N-Ch      |      | 6.8                              |       | ns   |
|                                      |                   |                                                                       | P-Ch      |      | 11                               |       |      |
| Rise Time                            | tr                | RD=6.2 Ω<br>P-Channel                                                 | N-Ch      |      | 21                               |       |      |
|                                      |                   |                                                                       | P-Ch      |      | 17                               |       |      |
| Turn-Off Delay Time                  | td(off)           | VDD = -15V,ID = -1.8A,RG = 6.0 Ω<br>RD=8.2 Ω                          | N-Ch      |      | 22                               |       |      |
|                                      |                   |                                                                       | P-Ch      |      | 25                               |       |      |
| Fall Time                            | tf                |                                                                       | N-Ch      |      | 7.7                              |       |      |
|                                      |                   |                                                                       | P-Ch      |      | 18                               |       |      |
| Internal Drain Inductace             | LD                | Between lead, 6mm (0.25in.) from<br>package and center of die contact | N-Ch      |      | 4.0                              |       | nH   |
|                                      |                   |                                                                       | P-Ch      |      | 4.0                              |       |      |
| Internal Source Inductance           | LS                |                                                                       | N-Ch      |      | 6.0                              |       |      |
|                                      |                   |                                                                       | P-Ch      |      | 6.0                              |       |      |
| Input Capacitance                    | Ciss              | N-Channel<br>VGS = 0V,VDS = 25V,f = 1.0MHz                            | N-Ch      |      | 520                              |       | pF   |
|                                      |                   |                                                                       | P-Ch      |      | 440                              |       |      |
| Output Capacitance                   | Coss              |                                                                       | N-Ch      |      | 180                              |       |      |
|                                      |                   |                                                                       | P-Ch      |      | 200                              |       |      |
| Reverse Transfer Capacitance         | Crss              | VGS = 0V,VDS = -25V,f = 1.0MHz                                        | N-Ch      |      | 72                               |       |      |
|                                      |                   |                                                                       | P-Ch      |      | 93                               |       |      |

## KRF7379

## ■ Electrical Characteristics Ta = 25°C

| Parameter                              | Symbol | Testconditions                            | Min  | Typ | Max  | Unit |
|----------------------------------------|--------|-------------------------------------------|------|-----|------|------|
| Continuous Source Current (Body Diode) | Is     |                                           | N-Ch |     | 3.1  | A    |
|                                        |        |                                           | P-Ch |     | -3.1 |      |
| Pulsed Source Current (Body Diode) *2  | ISM    |                                           | N-Ch |     | 46   |      |
|                                        |        |                                           | P-Ch |     | -34  |      |
| Diode Forward Voltage                  | VSD    | TJ = 25°C, Is = 1.8A, VGS = 0V*1          | N-Ch |     | 1.0  | V    |
|                                        |        | TJ = 25°C, Is = -1.8A, VGS = 0V*1         | P-Ch |     | -1.0 |      |
| Reverse Recovery Time                  | trr    | N-Channel                                 | N-Ch | 47  | 71   | ns   |
|                                        |        | TJ = 25°C, IF = 2.4A, di/dt = 100A/μs*1   | P-Ch | 53  | 80   |      |
| Reverse Recovery Charge                | Qrr    | P-Channel                                 | N-Ch | 56  | 84   | nC   |
|                                        |        | TJ = 25°C, IF = -1.8A, di/dt = -100A/μs*1 | P-Ch | 66  | 99   |      |

\*1 Pulse width ≤ 300 μs; duty cycle ≤ 2%.

\*2 Repetitive rating; pulse width limited by max. junction temperature.