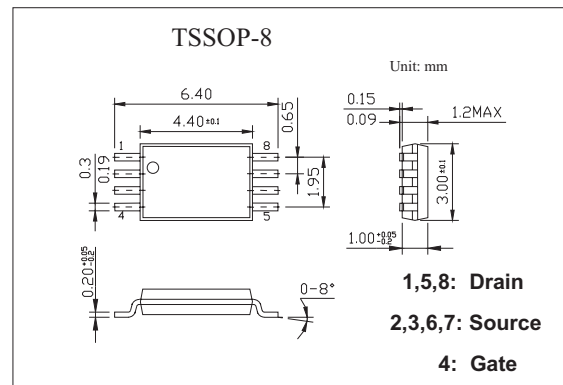


# HEXFET<sup>®</sup> Power MOSFET

## KRF7706

### ■ Features

- Ultra Low On-Resistance
- P-Channel MOSFET
- Very Small SOIC Package
- Low Profile (< 1.2mm)
- Available in Tape & Reel



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


| Parameter  | Symbol          | Rating       | Unit                      |
|--|-----------------|--------------|---------------------------|
| Drain- Source Voltage  | $V_{DS}$        | -30          | V                         |
| Continuous Drain Current, $V_{GS} @ -10V @ T_a = 25^\circ\text{C}$ | $I_D$           | -7           | A                         |
| Continuous Drain Current, $V_{GS} @ -10V @ T_a = 70^\circ\text{C}$ | $I_D$           | -5.7         |                           |
| Pulsed Drain Current *1  | $I_{DM}$        | -28          |                           |
| Power Dissipation *2 @ $T_a = 25^\circ\text{C}$                    | $P_D$           | 1.51         | W                         |
| Power Dissipation *2 @ $T_a = 70^\circ\text{C}$                    | $P_D$           | 0.96         | W                         |
| Linear Derating Factor   |                 | 0.01         | W/ $^\circ\text{C}$       |
| Gate-to-Source Voltage   | $V_{GS}$        | $\pm 20$     | V                         |
| Junction and Storage Temperature Range                             | $T_J, T_{STG}$  | -55 to + 150 | $^\circ\text{C}$          |
| Maximum Junction-to-Ambient *2                                     | $R_{\theta JA}$ | 83           | $^\circ\text{C}/\text{W}$ |

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

\*2 Surface mounted on 1 in square Cu board

## KRF7706

## ■ Electrical Characteristics Ta = 25°C

| Parameter                              | Symbol                            | Testconditons   | Min  | Typ   | Max  | Unit |
|--|-----------------------------------|---|------|-------|------|------|
| Drain-to-Source Breakdown Voltage      | $V_{(BR)DSS}$                     | $V_{GS} = 0V, I_D = -250 \mu A$   | -30  |       |      | V    |
| Breakdown Voltage Temp. Coefficient    | $\Delta V_{(BR)DSS} / \Delta T_J$ | $I_D = -1mA, \text{Reference to } 25^\circ C$   |      | 0.015 |      | V/°C |
| Static Drain-to-Source On-Resistance   | $R_{DS(on)}$                      | $V_{GS} = -10V, I_D = -7.0A^{*1}$   |      |       | 22   | mΩ   |
|  |                                   | $V_{GS} = -4.5V, I_D = -5.6A^{*1}$  |      |       | 36   |      |
| Gate Threshold Voltage                 | $V_{GS(th)}$                      | $V_{DS} = V_{GS}, I_D = -250 \mu A$   | -1.0 |       | -2.5 | V    |
| Forward Transconductance               | $g_{fs}$                          | $V_{DS} = -10V, I_D = -7.0A^{*1}$   | 6.9  |       |      | S    |
| Drain-to-Source Leakage Current        | $I_{DSS}$                         | $V_{DS} = -24V, V_{GS} = 0V$  |      |       | -15  | μA   |
|  |                                   | $V_{DS} = -24V, V_{GS} = 0V, T_J = 70^\circ C$  |      |       | -25  |      |
| Gate-to-Source Forward Leakage         | $I_{GSS}$                         | $V_{GS} = -20V$   |      |       | -100 | nA   |
| Gate-to-Source Reverse Leakage         |                                   | $V_{GS} = 20V$  |      |       | 100  |      |
| Total Gate Charge                      | $Q_g$                             | $I_D = -7.0A$   |      | 48    | 72   | nC   |
| Gate-to-Source Charge                  | $Q_{gs}$                          | $V_{DS} = -15V$   |      | 8.5   |      |      |
| Gate-to-Drain ("Miller") Charge        | $Q_{gd}$                          | $V_{GS} = -10V$   |      | 8.4   |      |      |
| Turn-On Delay Time                     | $t_{d(on)}$                       | $V_{DD} = -15V, V_{GS} = -10V$  |      | 17    |      | ns   |
| Rise Time                              | $t_r$                             | $I_D = -1.0A$   |      | 46    |      |      |
| Turn-Off Delay Time                    | $t_{d(off)}$                      | $R_G = 6 \Omega$  |      | 244   |      |      |
| Fall Time                              | $t_f$                             | $R_D = 15 \Omega$   |      | 122   |      |      |
| Input Capacitance                      | $C_{iss}$                         | $V_{GS} = 0V$   |      | 2211  |      | pF   |
| Output Capacitance                     | $C_{oss}$                         | $V_{DS} = -25V$   |      | 339   |      |      |
| Reverse Transfer Capacitance           | $C_{rss}$                         | $f = 1.0MHz$  |      | 207   |      |      |
| Continuous Source Current (Body Diode) | $I_S$                             | MOSFET symbol showing the integral reverse p-n junction diode.  |      |       | -1.5 | A    |
| Pulsed Source Current (Body Diode) *2  | $I_{SM}$                          |   |      |       | -28  |      |
| Diode Forward Voltage                  | $V_{SD}$                          | $T_J = 25^\circ C, I_S = -1.5A, V_{GS} = 0V^{*1}$   |      |       | -1.2 | V    |
| Reverse Recovery Time                  | $t_{rr}$                          | $T_J = 25^\circ C, I_F = -1.5A$   |      | 34    | 51   | ns   |
| Reverse Recovery Charge                | $Q_{rr}$                          | $di/dt = -100A/\mu s^{*1}$  |      | 32    | 48   | μC   |

\*1 Pulse width  $\leq 300 \mu s$ ; duty cycle  $\leq 2\%$ .

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