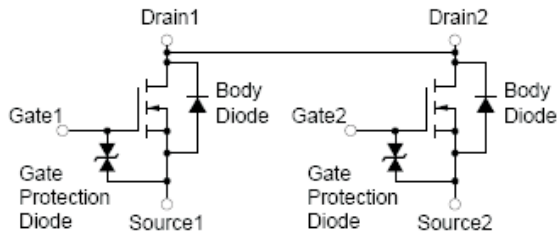
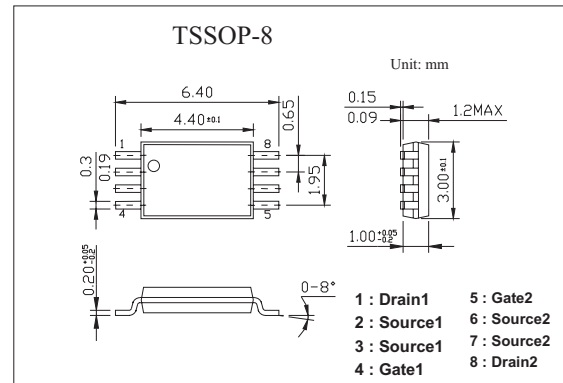


## MOS Field Effect Transistor

## KPA1871

## ■ Features

- Can be driven by a 2.5-V power source
- Low on-state resistance  
 $R_{DS(on)1} = 26 \text{ m}\Omega$  TYP. ( $V_{GS} = 4.5 \text{ V}$ ,  $I_D = 3.0 \text{ A}$ )  
 $R_{DS(on)2} = 27 \text{ m}\Omega$  TYP. ( $V_{GS} = 4.0 \text{ V}$ ,  $I_D = 3.0 \text{ A}$ )  
 $R_{DS(on)3} = 38 \text{ m}\Omega$  TYP. ( $V_{GS} = 2.5 \text{ V}$ ,  $I_D = 3.0 \text{ A}$ )
- Built-in G-S protection diode against ESD

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

Parameter	Symbol	Rating	Unit
Drain to Source Voltage ( $V_{GS} = 0$ )	$V_{BSS}$	30	V
Gate to Source Voltage ( $V_{DS} = 0$ )	$V_{GSS}$	$\pm 12$	V
Drain Current (DC)	$I_{D(DC)}$	$\pm 6$	A
Drain Current (Pulse) *1	$I_{D(pulse)}$	$\pm 80$	A
Total Power Dissipation *2	$P_T$	2.0	W
Channel Temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to + 150	$^\circ\text{C}$

\*1  $PW \leq 10 \mu\text{s}$ , Duty cycle  $\leq 1\%$

\*2 Mounted on ceramic substrate of  $50 \text{ cm}^2 \times 1.1 \text{ mm}$

## KPA1871

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 30\text{ V}, V_{GS} = 0$			10	$\mu\text{ A}$
Gate Leakage Current	$I_{GSS}$	$V_{GS} = \pm 12\text{ V}, V_{DS} = 0$			$\pm 10$	$\mu\text{ A}$
Gate Cut-off Voltage	$V_{GS(off)}$	$V_{DS} = 10\text{ V}, I_D = 1\text{ mA}$	0.5	1.0	1.5	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = 10\text{ V}, I_D = 3.0\text{ A}$	5			S
Drain to Source On-state Resistance	$R_{DS(on)1}$	$V_{DS} = 4.5\text{ V}, I_D = 3.0\text{ A}$	15.0	20.5	26.0	$\text{m}\Omega$
	$R_{DS(on)2}$	$V_{GS} = 4.0\text{ V}, I_D = 3.0\text{ A}$	16.0	21.5	27.0	$\text{m}\Omega$
	$R_{DS(on)3}$	$V_{GS} = 2.5\text{ V}, I_D = 3.0\text{ A}$	21.0	27.8	38.0	$\text{m}\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = 10\text{ V}, V_{GS} = 0, f = 1\text{ MHz}$		930		pF
Output Capacitance	$C_{oss}$			220		pF
Reverse Transfer Capacitance	$C_{rss}$			105		pF
Turn-on Delay Time	$t_{d(on)}$			55		ns
Rise Time	$t_r$	$I_D = 3.0\text{ A}, V_{GS(on)} = 4.0\text{ V}, V_{DD} = 10\text{ V}, R_G = 10\ \Omega$		180		ns
Turn-off Delay Time	$t_{d(off)}$			260		ns
Fall Time	$t_f$			230		ns
Total Gate Charge	$Q_G$	$I_D = 6.0\text{ A}, V_{DD} = 24\text{ V}, V_{GS} = 4.0\text{ V}$		9		nC
Gate to Source Charge	$Q_{GS}$			2		nC
Gate to Drain Charge	$Q_{GD}$			4		nC
Body Diode forward Voltage	$V_{F(S-D)}$	$I_F = 6.0\text{ A}, V_{GS} = 0$		0.80		V
Reverse Recovery Time	$t_{rr}$	$I_F = 6.0\text{ A}, V_{GS} = 0\text{ V}$		180		ns
Reverse Recovery Charge	$Q_{rr}$	$di/dt = 50\text{ A}/\mu\text{ s}$		120		nC