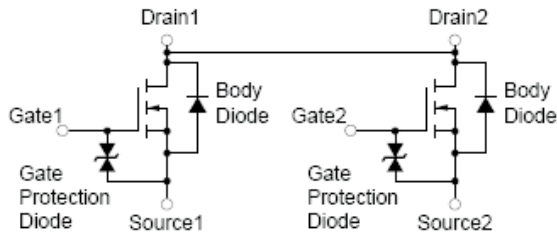
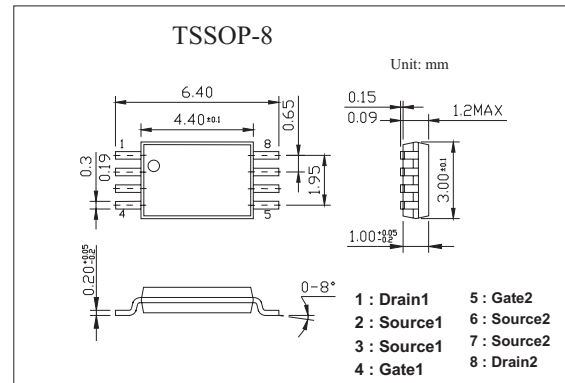


MOS Field Effect Transistor

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}	± 12	V
Drain Current (DC)	$I_{D(DC)}$	± 6	A
Drain Current (Pulse) *1	$I_{D(pulse)}$	± 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}	$V_{GS} = \pm 12\text{ V}, V_{DS} = 0$			± 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