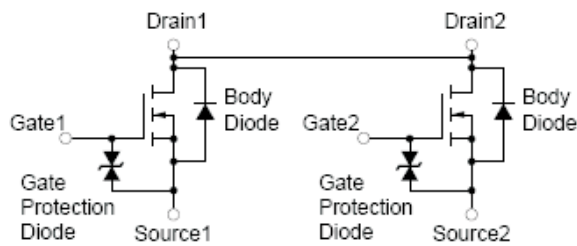
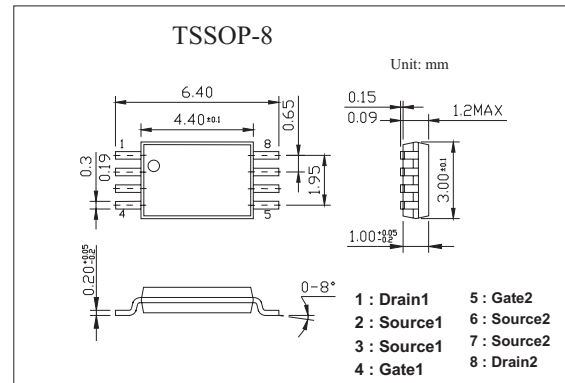


## MOS Field Effect Transistor

## KPA1873

## ■ Features

- 2.5 V drive available
- Low on-state resistance  
 $R_{DS(on)1} = 23 \text{ m}\Omega$  TYP. ( $V_{GS} = 4.5 \text{ V}$ ,  $I_D = 3.0 \text{ A}$ )  
 $R_{DS(on)2} = 24 \text{ m}\Omega$  TYP. ( $V_{GS} = 4.0 \text{ V}$ ,  $I_D = 3.0 \text{ A}$ )  
 $R_{DS(on)3} = 28 \text{ m}\Omega$  TYP. ( $V_{GS} = 3.1 \text{ V}$ ,  $I_D = 3.0 \text{ A}$ )  
 $R_{DS(on)4} = 29 \text{ m}\Omega$  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 ( $V_{GS} = 0$ )	$V_{DSS}$	20	V
Gate to Source Voltage ( $V_{DS} = 0$ )	$V_{GSS}$	$\pm 12$	V
Drain Current (DC) $T_a = 25^\circ\text{C}$	$I_{D(DC)}$	$\pm 6$	A
Drain Current (Pulse) *1	$I_{D(pulse)}$	$\pm 80$	A
Total Power Dissipation(2 unit) *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  $5000\text{mm}^2 \times 1.1 \text{ mm}$

## KPA1873

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 20 V, V <sub>GS</sub> = 0			10	μ A
Gate Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±12V, V <sub>DS</sub> = 0			±10	μ A
Gate Cut-off Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 1 mA	0.5	1.0	1.5	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 3.0A	5			S
Drain to Source On-state Resistance	R <sub>DS(on)1</sub>	V <sub>DS</sub> = 4.5V, I <sub>D</sub> = 3.0 A	13	18	23	mΩ
	R <sub>DS(on)2</sub>	V <sub>GS</sub> = 4.0V, I <sub>D</sub> = 3.0 A	14	19	24	mΩ
	R <sub>DS(on)3</sub>	V <sub>GS</sub> = 3.1V, I <sub>D</sub> = 3.0 A	14.5	21.5	28	mΩ
	R <sub>DS(on)4</sub>	V <sub>GS</sub> = 2.5 V, I <sub>D</sub> = 3.0 A	15	24.5	29	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 0, f = 1 MHz		705		pF
Output Capacitance	C <sub>oss</sub>			205		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			145		pF
Turn-on Delay Time	t <sub>d(on)</sub>			60		ns
Rise Time	t <sub>r</sub>	I <sub>D</sub> = 3.0 A, V <sub>GS(on)</sub> = 4.0 V, V <sub>DD</sub> = 10 V, R <sub>G</sub> = 10 Ω		310		ns
Turn-off Delay Time	t <sub>d(off)</sub>			380		ns
Fall Time	t <sub>f</sub>			420		ns
Total Gate Charge	Q <sub>G</sub>	I <sub>D</sub> = 6.0A, V <sub>DD</sub> = 16V, V <sub>GS</sub> = 4.0 V		9.0		nC
Gate to Source Charge	Q <sub>GS</sub>			2.0		nC
Gate to Drain Charge	Q <sub>GD</sub>			4.0		nC
Body Diode forward Voltage	V <sub>F(S-D)</sub>	I <sub>F</sub> = 6.0 A, V <sub>GS</sub> = 0		0.84		V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 6.0 A, V <sub>GS</sub> = 0 V		480		ns
Reverse Recovery Charge	Q <sub>rr</sub>	di/dt = 50 A/μ s		1200		nC