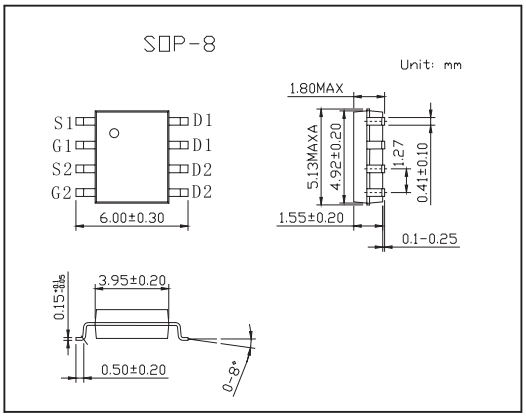
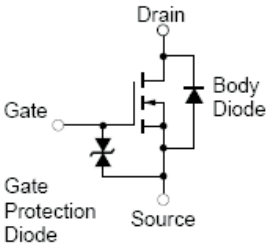
MOS Field Effect Transistor

KPA1792

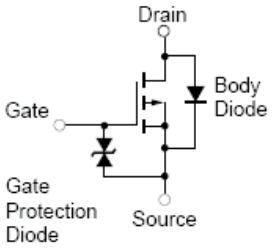


Features

- Low on-state resistance
  - N-channel $R_{DS(on)1}$ = 26 mΩ MAX. (V_{GS} = 10 V, I_D = 3.4 A)
  - $R_{DS(on)2}$ = 36 mΩ MAX. (V_{GS} = 4.5 V, I_D = 3.4 A)
  - $R_{DS(on)3}$ = 42 mΩ MAX. (V_{GS} = 4.0 V, I_D = 3.4 A)
  - P-channel $R_{DS(on)1}$ = 36 mΩ MAX. (V_{GS} = -10 V, I_D = -2.9 A)
  - $R_{DS(on)2}$ = 54 mΩ MAX. (V_{GS} = -4.5 V, I_D = -2.9 A)
  - $R_{DS(on)3}$ = 65 mΩ MAX. (V_{GS} = -4.0 V, I_D = -2.9 A)
- Low input capacitance
  - N-channel C_{iss} = 760 pF TYP.
  - P-channel C_{iss} = 900 pF TYP.
- Built-in gate protection diode
- Small and surface mount package



N-Channel



P-Channel

Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	N-Channel	P- Channel	Unit
Drain to Source Voltage (V_{GS} = 0 V)	V_{DSS}	30	-30	V
Gate to Source Voltage (V_{DS} = 0 V)	V_{GSS}	±20	±20	V
Drain Current (DC)	$I_{D(DC)}$	±6.8	±5.8	A
Drain Current (pulse) *1	$I_{D(pulse)}$	±27.2	±23.2	A
Total Power Dissipation (1 unit) *2	P_T	1.7		W
Total Power Dissipation (2 units) *2	P_T	2		W
Channel Temperature	T_{ch}	150		℃
Storage Temperature	T_{stg}	-55 to +150		℃

*1 PW ≤ 10 μs, Duty Cycle ≤ 1%

*2 Mounted on ceramic substrate of 2000 mm^2 X 1.6 mm

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons		Min	Typ	Max	Unit
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 30 V, V_{GS} = 0 V	N-Ch			10	μA
		V_{DS} = -30V, V_{GS} = 0 V	P- Ch			-1	
Gate Leakage Current	I_{GSS}	V_{GS} = ±16 V, V_{DS} = 0 V	N-Ch			±10	μA
		V_{GS} = ±16 V, V_{DS} = 0 V	P- Ch			±10	
Gate Cut-off Voltage	$V_{GS(off)}$	V_{DS} = 10 V, I_D = 1 mA	N-Ch	1.5	2.1	2.5	V
		V_{DS} = -10 V, I_D = -1 mA	P- Ch	-1.5	-2.0	-2.5	
Forward Transfer Admittance	$\|y_{fs}\|$	V_{DS} = 10 V, I_D = 3.4 A	N-Ch	3.0	7.5		S
		V_{DS} = -10 V, I_D = -2.9A	P- Ch	3.5	8.0		
Drain to Source On-state Resistance	$R_{DS(on)1}$	V_{GS} = 10 V, I_D = 3.4 A	N-Ch		20.5	26	mΩ
	$R_{DS(on)2}$	V_{GS} = 4.5 V, I_D = 3.4 A			27	36	mΩ
	$R_{DS(on)3}$	V_{GS} = 4.0 V, I_D = 3.4A			31	42	mΩ
	$R_{DS(on)1}$	V_{GS} = -10 V, I_D = -2.9 A	P- Ch		30	36	mΩ
	$R_{DS(on)2}$	V_{GS} = -4.5 V, I_D = -2.9 A			43	54	mΩ
	$R_{DS(on)3}$	V_{GS} = -4.0 V, I_D = -2.9 A			49	65	mΩ
Input Capacitance	C_{iss}	N-Channel V_{DS} = 10 V,V_{GS} = 0 V,f = 1 MHz	N-Ch		760		pF
			P- Ch		900		
Output Capacitance	C_{oss}	P- Channel V_{DS} = -10 V,V_{GS} = 0 V,f = 1 MHz	N-Ch		250		pF
			P- Ch		300		
Reverse Transfer Capacitance	C_{rss}		N-Ch		95		pF
			P- Ch		120		
Turn-on Delay Time	$t_{d(on)}$	N-Channel V_{DD} = 15 V, I_D = 3.4 A,V_{GS} = 10 V R_G = 10 Ω	N-Ch		20		ns
			P- Ch		23		
Rise Time	t_r		N-Ch		140		ns
		P- Channel V_{DD} = -15 V, I_D = -2.9 A,V_{GS} = -10 V R_G = 10 Ω	P- Ch		220		
Turn-off Delay Time	$t_{d(off)}$		N-Ch		50		ns
			P- Ch		90		
Fall Time	t_f		N-Ch		30		ns
			P- Ch		70		
Total Gate Charge	Q_G	N-Channel I_D = 6.8 A,V_{DD} = 24 V,V_{GS} = 10 V	N-Ch		14		nC
			P- Ch		17		
Gate to Source Charge	Q_{GS}	P- Channel I_D = -5.8 A,V_{DD} = -24 V,V_{GS} = -10 V	N-Ch		2		nC
			P- Ch		2.5		
Gate to Drain Charge	Q_{GD}		N-Ch		5		nC
			P- Ch		4.0		
Body Diode Forward Voltage Note	$V_{F(S-D)}$	I_F = 6.8 A, V_{GS} = 0 V	N-Ch		0.86		V
		I_F = 5.8 A, V_{GS} = 0 V	P- Ch		0.85		
Reverse Recovery Time	t_{rr}	N-Channel I_F = 6.8A, V_{GS} = 0 V,di/dt = 100 A/μs	N-Ch		30		ns
			P- Ch		40		
Reverse Recovery Charge	Q_{rr}	P-Channel I_F = 5.8A, V_{GS} = 0 V,di/dt = 100 A/μs	N-Ch		20		nC
			P- Ch		30		