

MOS Field Effect Transistor

KPA1716

■ Features

- Low on-state resistance

$R_{DS(on)1} = 12.5 \text{ m}\Omega$ TYP. ($V_{GS} = -10 \text{ V}$, $I_D = -4 \text{ A}$)

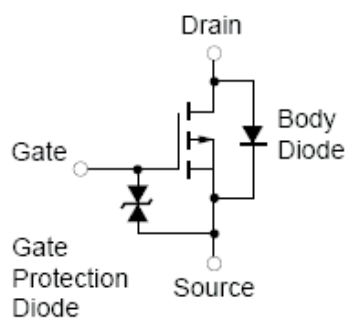
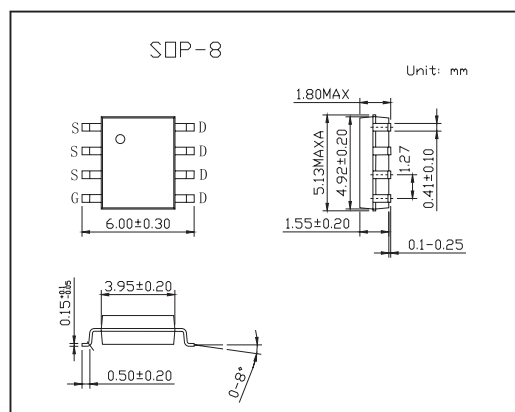
$R_{DS(on)2} = 17 \text{ m}\Omega$ TYP. ($V_{GS} = -4.5 \text{ V}$, $I_D = -4 \text{ A}$)

$R_{DS(on)3} = 19 \text{ m}\Omega$ TYP. ($V_{GS} = -4.01 \text{ V}$, $I_D = -4 \text{ A}$)

- Low C_{iss} : $C_{iss} = 2100 \text{ pF}$ TYP.

- Built-in G-S protection diode

- Small and surface mount package

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

Parameter	Symbol	Rating	Unit
Drain to Source Voltage ($V_{GS} = 0$)	V_{DSS}	-30	V
Gate to Source Voltage ($V_{DS} = 0$)	V_{GSS}	± 20	V
Drain Current (DC) $T_a = 25^\circ\text{C}$	$I_{D(DC)}$	± 8	A
Drain Current (Pulse) *1	$I_{D(pulse)}$	± 32	A
Total Power Dissipation $T_a = 25^\circ\text{C}$ *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 $1200\text{mm}^2 \times 1.0 \text{ mm}$

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain to Source On-state Resistance	RDS(on)1	VDS = -10V, ID = -4.0 A		12.5	16	mΩ
	RDS(on)2	VGS = -4.5V, ID = -4.0 A		17	23	mΩ
	RDS(on)3	VGS = -4.0V, ID = -4.0 A		19	26	mΩ
Gate Cut-off Voltage	VGS(off)	VDS = -10 V, ID = 1 mA	-1.0	-1.6	-2.5	V
Forward Transfer Admittance	yfs	VDS = 10 V, ID = -4.0A	7	14		S
Zero Gate Voltage Drain Current	IDSS	VDS = -30 V, VGS = 0			-1	μA
Gate Leakage Current	IGSS	VGS = ±20V, VDS = 0			±10	μA
Input Capacitance	Ciss	VDS = -10 V, VGS = 0, f = 1 MHz		2100		pF
Output Capacitance	Coss			700		pF
Reverse Transfer Capacitance	Crss			300		pF
Turn-on Delay Time	td(on)	ID = -4.0 A, VGS(on) = -10 V, VDD = -15 V, RG = 10 Ω		30		ns
Rise Time	tr			150		ns
Turn-off Delay Time	td(off)			120		ns
Fall Time	tf			76		ns
Total Gate Charge	QG	ID = -8.0A, VDD = -24V, VGS = -10 V		40		nC
Gate to Source Charge	QGS			6		nC
Gate to Drain Charge	QGD			10		nC
Body Diode forward Voltage	VF(S-D)	IF = 8.0 A, VGS = 0		0.8		V
Reverse Recovery Time	trr	IF = 8.0 A, VGS = 0 V		45		ns
Reverse Recovery Charge	Qrr			33		nC