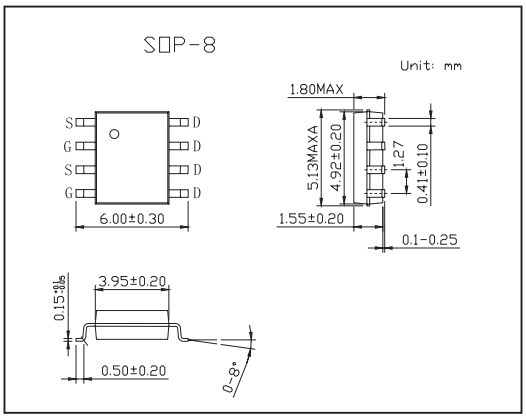
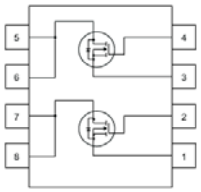
400V Dual N-Channel MOSFET

KQS4901



■ Features

- 0.45 A, 400 V. $R_{DS(ON)}$ = 4.2Ω @ V_{GS} = 10 V
- Low gate charge (typical 5.8nC)
- Low Crss (typical 5.0 Pf)
- Fast switching speed
- Improved dv/dt capability



■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain to Source Voltage	V_{DSS}	400	V
Drain Current Continuous (TA=25℃)	I_D	0.45	A
Drain Current Continuous (TA=70℃)		0.285	A
Drain Current Pulsed (Note 1)	I_{DM}	1.8	A
Gate-Source Voltage	V_{GS}	±25	V
Peak Diode Recovery dv/dt (Note 2)	dv/dt	4.5	V/ns
Power Dissipation (TA=25℃)	P_D	2	W
Power Dissipation (TA=70℃)		1.3	
Operating and Storage Temperature	T_J, T_{STG}	-55 to 150	℃
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	62.5	℃/W

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	B_{VDSS}	V_{GS} = 0 V, I_D = 250 μA	400			V
Breakdown Voltage Temperature Coefficient	$\frac{\Delta BV_{DSS}}{\Delta T_J}$	I_D = 250 μA, Referenced to 25℃		0.42		V/℃
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 400 V, V_{GS} = 0 V			1	μA
		V_{DS} = 320 V,T_c = 125℃			10	
Gate-Body Leakage, Forward	I_{GSSF}	V_{GS} = 25 V, V_{DS} = 0 V			100	nA
Gate-Body Leakage, Reverse	I_{GSSR}	V_{GS} = -25 V, V_{DS} = 0 V			-100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 μA	2.0		4.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10 V, I_D =0.225 A		3.2	4.2	mΩ
Forward Transconductance	g_{FS}	V_{DS} = 35 V, I_D = 0.225A (Note 3)		0.283		S
Input Capacitance	C_{iss}	V_{DS} = 25 V, V_{GS} = 0 V,f = 1.0 MHz		160	210	pF
Output Capacitance	C_{oss}			30	40	pF
Reverse Transfer Capacitance	C_{rss}			5	6.5	pF
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 200V, I_D =0.45 A, R_G = 25Ω (Note 3,4)		5	20	ns
Turn-On Rise Time	tr			20	50	ns
Turn-Off Delay Time	$t_{d(off)}$			20	50	ns
Turn-Off Fall Time	tf			35	80	ns
Total Gate Charge V_{gs}=5V	Q_g	V_{DS} = 320 V, I_D = 0.45 A,V_{GS}=10V (Note 3,4)		5.8	7.5	nC
Gate-Source Charge	Q_{gs}			0.53		nC
Gate-Drain Charge	Q_{gd}			3.22		nC
Maximum Continuous Drain-Source Diode Forward Current	I_S				0.45	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}				1.8	A
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS} = 0 V, I_S = 0.45 A			1.5	V
Diode Reverse Recovery Time	trr	V_{GS} = 0 V, I_S = 0.45 A (Not 3)		86		nS
Diode Reverse Recovery Charge	Qrr	di_F/dt = 100 A/μs		0.15		nC

Note:

1.Repetitive Rating: Pulse width limited by maximum junction temperature

2 I_{SD}≤0.45A,di/dt≤200A/μS,V_{DD}≤B_{VDSS},starting T_J=25℃

3 Pulse Test :Pulse width≤300μs,Duty cycle≤2%

4 Essentially indepentdent of operating temperature