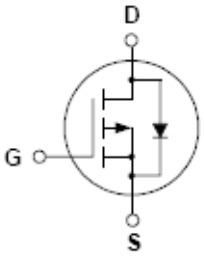
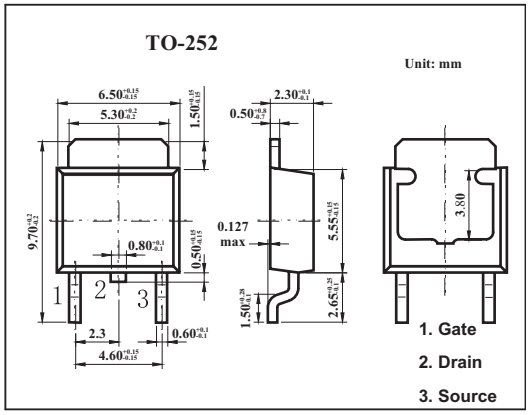
100V P-Channel MOSFET
KQD5P10

Features

- -3.6A, -100V, $R_{DS(on)}$ = 1.05Ω @V_{GS} = -10 V
- Low gate charge (typical 6.3 nC)
- Low Crss (typical 18 pF)
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability





Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain to Source Voltage	V_{DSS}	-100	V
Drain Current Continuous (Tc=25℃)	I_D	-3.6	A
Drain Current Continuous (Tc=100℃)		-2.28	A
Drain Current Pulsed *1	I_{DM}	-14.4	A
Gate-Source Voltage	V_{GSS}	±30	V
Single Pulsed Avalanche Energy*2	E_{AS}	55	mJ
Avalanche Current *1	I_{AR}	-3.6	A
Repetitive Avalanche Energy *1	E_{AR}	2.5	mJ
Peak Diode Recovery dv/dt *3	dv/dt	-6	V/ns
Power dissipation @ T_A=25℃	P_D	2.5	W
Power dissipation @ Tc=25℃	P_D	25	W
Derate above 25℃		0.2	W/℃
Operating and Storage Temperature	T_J, T_{STG}	-55 to150	℃
Maximum lead temperature for soldering purposes,1/8" from case for 5 seconds	T_L	300	℃
Thermal Resistance Junction to Case	$R_{\theta JC}$	5	℃/W
Thermal Resistance Junction to Ambient *4	$R_{\theta JA}$	50	℃/W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	110	℃/W

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

*2 l= 6.4 mH,I_{AS}=-3.6A,V_{DD}=-25V,R_G=25Ω,Startion T_J=25℃

*3 I_{SD}≤-4.5A,di/dt≤300A/μS,V_{DD}≤BV_{DSS},Startiong T_J=25℃

*4 When mounted on the minimum pad size recommended (PCB Mount)

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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 = -250μA	-100			V
Breakdown Voltage Temperature Coefficient	$\frac{\Delta BV_{DSS}}{\Delta T_J}$	I_D = -250μA, Referenced to 25℃		-0.1		mV/℃
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -100 V, V_{GS} = 0 V			-1	μA
		V_{DS} = -80 V, T_C=125℃			-10	μA
Gate-Body Leakage Current,Forward	I_{GSSF}	V_{GS} = -30 V, V_{DS} = 0 V			-100	nA
Gate-Body Leakage Current,Reverse	I_{GSSR}	V_{GS} =30 V, V_{DS} = 0 V			100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-2.0		-4.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = -10 V, I_D = -1.8A		0.82	1.05	Ω
Forward Transconductance	g_{FS}	V_{DS} = -40 V, I_D =-1.8A *		2.3		S
Input Capacitance	C_{iss}	V_{DS} = -25 V, V_{GS} = 0 V,f = 1.0 MHz		190	250	pF
Output Capacitance	C_{oss}			70	90	pF
Reverse Transfer Capacitance	C_{rss}			18	25	pF
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = -50 V, I_D = -4.5A,RG=25Ω *		9	30	ns
Turn-On Rise Time	tr			70	150	ns
Turn-Off Delay Time	$t_{d(off)}$			12	35	ns
Turn-Off Fall Time	tf			30	70	ns
Total Gate Charge	Q_g	V_{DS} = -80V, I_D = -4.5A,V_{GS} = -10 V *		6.3	8.2	nC
Gate-Source Charge	Q_{gs}			1.7		nC
Gate-Drain Charge	Q_{gd}			3.0		nC
Maximum Continuous Drain-Source Diode Forwrad Current	I_S				-3.6	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}				-14.4	A
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS} = 0 V, I_S =-3.6 A			-4.0	V
Diode Reverse Recovery Time	t_{rr}	V_{GS} = 0 V,dI_F/dt = 100 A/μs,I_S=-4.5A*		85		ns
Diode Reverse Recovery Current	Q_{rr}			0.27		μC

* Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2.0%