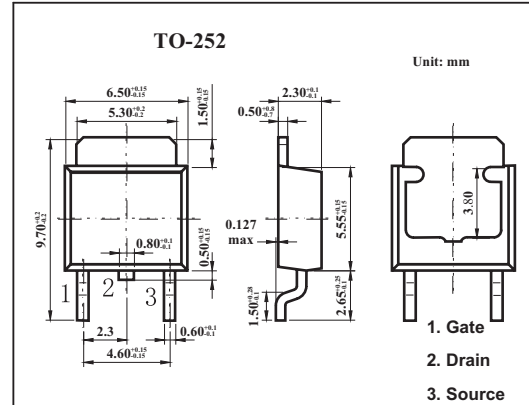
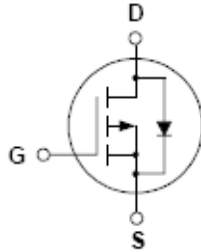


100V P-Channel MOSFET KQD5P10

■ Features

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



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

Parameter	Symbol	Rating	Unit
Drain to Source Voltage	V_{DSS}	-100	V
Drain Current Continuous ($T_c=25^\circ\text{C}$)	I_D	-3.6	A
Drain Current Continuous ($T_c=100^\circ\text{C}$)		-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 @ $T_A=25^\circ\text{C}$	P_D	2.5	W
Power dissipation @ $T_c=25^\circ\text{C}$		25	W
Derate above 25°C		0.2	W/ $^\circ\text{C}$
Operating and Storage Temperature	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$
Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	T_L	300	$^\circ\text{C}$
Thermal Resistance Junction to Case	$R_{\theta JC}$	5	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient *4	$R_{\theta JA}$	50	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	110	$^\circ\text{C}/\text{W}$

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

*2 $I = 6.4$ mA, $I_{AS} = -3.6$ A, $V_{DD} = -25$ V, $R_G = 25 \Omega$, Startion $T_J = 25^\circ\text{C}$

*3 $I_{SD} \leq -4.5$ A, $di/dt \leq 300$ A/ μ S, $V_{DD} \leq V_{DSS}$, Startiong $T_J = 25^\circ\text{C}$

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

KQD5P10

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0 V, I _D = -250 μA	-100			V
Breakdown Voltage Temperature Coefficient	$\frac{\Delta BV_{DSS}}{\Delta T_J}$	I _D = -250 μA, Referenced to 25°C		-0.1		mV/°C
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -100 V, V _{GS} = 0 V			-1	μA
		V _{DS} = -80 V, T _C = 125°C			-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 = -250 μA	-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, R _G = 25 Ω *		9	30	ns
Turn-On Rise Time	t _r			70	150	ns
Turn-Off Delay Time	t _{d(off)}			12	35	ns
Turn-Off Fall Time	t _f			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 Forward 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 ≤ 300 μs, Duty Cycle ≤ 2.0%