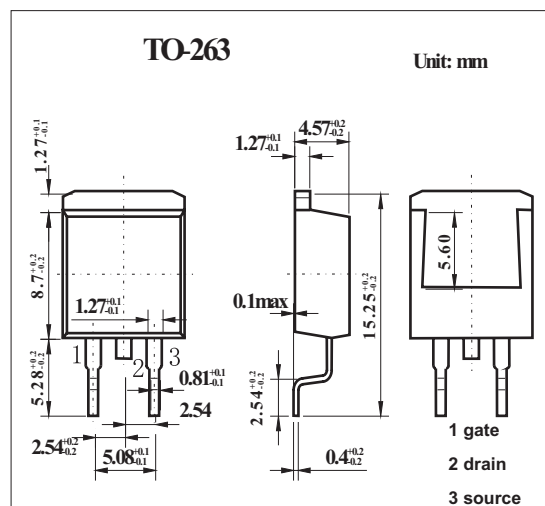
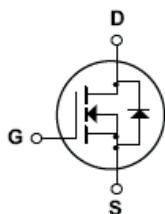


700V N-Channel MOSFET KQB6N70

■ Features

- 6.2A, 700 V. $R_{DS(ON)} = 1.5 \Omega$ @ $V_{GS} = 10 \text{ V}$
- Low gate charge (typical 130nC)
- Low C_{rss} (typical 15pF)
- 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_{DS}	700	V
Drain Current Continuous ($T_c=25^\circ\text{C}$)	I_D	6.2	A
Drain Current Continuous ($T_c=100^\circ\text{C}$)		3.9	A
Drain Current Pulsed *1	I_{DM}	24.8	A
Gate-Source Voltage	V_{GS}	± 30	V
Single Pulsed Avalanche Energy*2	E_{AS}	600	mJ
Avalanche Current *1	I_{AR}	6.2	A
Repetitive Avalanche Energy *1	E_{AR}	14.2	mJ
Peak Diode Recovery dv/dt *3	dv/dt	4.5	V/ns
Power dissipation @ $T_A=25^\circ\text{C}$	P_D	3.13	W
Power dissipation @ $T_c=25^\circ\text{C}$ Derate above 25°C	P_D	142	W
		1.14	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	$R_{\theta JC}$	0.88	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient *4	$R_{\theta JA}$	40	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$

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

*2 $I = 29 \text{ mA}$, $I_{AS} = 6.2 \text{ A}$, $V_{DD} = 50 \text{ V}$, $R_G = 25 \Omega$, Startion $T_J = 25^\circ\text{C}$

*3 $I_{SD} \leq 6.2 \text{ A}$, $di/dt \leq 200 \text{ A}/\mu\text{S}$, $V_{DD} \leq V_{DS}$, Startiong $T_J = 25^\circ\text{C}$

KQB6N70

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BVDSS	VGS = 0 V, ID = 250 μ A	700			V
Breakdown Voltage Temperature Coefficient	$\frac{\Delta BVDSS}{\Delta T_J}$	ID = 250 μ A, Referenced to 25°C		0.78		mV/°C
Zero Gate Voltage Drain Current	IDSS	VDS = 700 V, VGS = 0 V			10	μ A
		VDS = 560 V, TC=125°C			100	μ A
Gate-Body Leakage Current,Forward	IGSSF	VGS = 30 V, VDS = 0 V			100	nA
Gate-Body Leakage Current,Reverse	IGSSR	VGS = -30 V, VDS = 0 V			-100	nA
Gate Threshold Voltage	VGS(th)	VDS = VGS, ID = 250 μ A	3.0		5.0	V
Static Drain-Source On-Resistance	RDS(on)	VGS = 10 V, ID = 3.1A		1.16	1.5	Ω
Forward Transconductance	gFS	VDS = 50 V, ID = 3.1A *		6.4		S
Input Capacitance	Ciss	VDS = 25 V, VGS = 0 V, f = 1.0 MHz		1100	1400	pF
Output Capacitance	Coss			125	150	pF
Reverse Transfer Capacitance	Crss			15	120	pF
Turn-On Delay Time	td(on)	VDD = 350 V, ID = 6.2A, RG=25 Ω *		25	60	ns
Turn-On Rise Time	tr			70	150	ns
Turn-Off Delay Time	td(off)			55	120	ns
Turn-Off Fall Time	tf			50	110	ns
Total Gate Charge	Qg	VDS = 560 V, ID = 6.2A, VGS = 10 V *		30	40	nC
Gate-Source Charge	Qgs			6.5		nC
Gate-Drain Charge	Qgd			13		nC
Maximum Continuous Drain-Source Diode Forward Current	IS				6.2	A
Maximum Pulsed Drain-Source Diode Forward Current	ISM				24.8	A
Drain-Source Diode Forward Voltage	VSD	VGS = 0 V, IS = 6.2 A			1.4	V
Diode Reverse Recovery Time	trr	VGS = 0 V, dIF/dt = 100 A/ μ s, IS=6.2A*		340		ns
Diode Reverse Recovery Current	Qrr			2.7		μ C

* Pulse Test: Pulse Width $\leq$ 300 μ s, Duty Cycle $\leq$ 2.0%