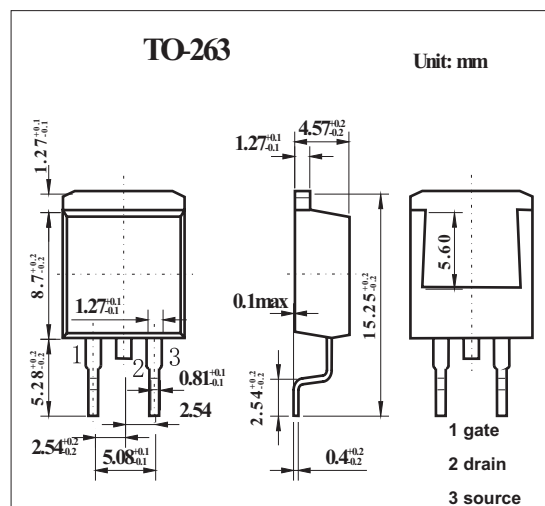
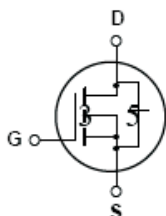


800V N-Channel MOSFET KQB2N80

■ Features

- 2.4A, 800 V. $R_{DS(ON)} = 6.3 \Omega$ @ $V_{GS} = 10 \text{ V}$
- Low gate charge (typical 12nC)
- Low C_{rss} (typical 5.5pF)
- 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}	800	V
Drain Current Continuous ($T_c=25^\circ\text{C}$)	I_D	2.4	A
Drain Current Continuous ($T_c=100^\circ\text{C}$)		1.52	A
Drain Current Pulsed *1	I_{DM}	9.6	A
Gate-Source Voltage	V_{GS}	± 30	V
Single Pulsed Avalanche Energy*2	E_{AS}	180	mJ
Avalanche Current *1	I_{AR}	2.4	A
Repetitive Avalanche Energy *1	E_{AR}	8.5	mJ
Peak Diode Recovery dv/dt *3	dv/dt	4	V/ns
Power dissipation @ $T_a=25^\circ\text{C}$	P_D	3.13	W
Power dissipation @ $T_c=25^\circ\text{C}$		85	W
Derate above 25°C		0.68	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	$R_{\theta JC}$	1.47	$^\circ\text{C/W}$
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 $I = 59 \text{ mA}$, $I_{AS} = 1.8 \text{ A}$, $V_{DD} = 50 \text{ V}$, $R_G = 25 \Omega$, Startiong $T_J = 25^\circ\text{C}$

*3 $I_{SD} \leq 2.4 \text{ A}$, $di/dt \leq 200 \text{ A}/\mu\text{S}$, $V_{DD} \leq B_{VDS}$, Startiong $T_J = 25^\circ\text{C}$

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

KQB2N80

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BVDSS	V _{GS} = 0 V, I _D = 250 μA	800			V
Breakdown Voltage Temperature Coefficient	$\frac{\Delta BVDSS}{\Delta T_J}$	I _D = 250 μA, Referenced to 25°C		0.9		mV/°C
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 800 V, V _{GS} = 0 V			10	μA
		V _{DS} = 640 V, T _C = 125°C			100	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	3.0		5.0	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10 V, I _D = 0.9A		4.9	6.3	Ω
Forward Transconductance	g _{FS}	V _{DS} = 50 V, I _D = 0.9A *		2.4		S
Input Capacitance	C _{iss}	V _{DS} = 25 V, V _{GS} = 0 V, f = 1.0 MHz		425	550	pF
Output Capacitance	C _{oss}			45	60	pF
Reverse Transfer Capacitance	C _{rss}			5.5	7.0	pF
Turn-On Delay Time	t _{d(on)}	V _{DD} = 400 V, I _D = 2.4A, R _G = 25 Ω *		12	35	ns
Turn-On Rise Time	t _r			30	70	ns
Turn-Off Delay Time	t _{d(off)}			25	60	ns
Turn-Off Fall Time	t _f			28	65	ns
Total Gate Charge	Q _g	V _{DS} = 640 V, I _D = 2.4A, V _{GS} = 10 V *		12	15	nC
Gate-Source Charge	Q _{gs}			2.6		nC
Gate-Drain Charge	Q _{gd}			6.0		nC
Maximum Continuous Drain-Source Diode Forward Current	I _S				1.8	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}				7.2	A
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = 1.8 A *			1.4	V
Diode Reverse Recovery Time	t _{rr}	V _{GS} = 0 V, dI _F /dt = 100 A/μs, I _S = 2.4A		480		ns
Diode Reverse Recovery Current	Q _{rr}			2.0		μC

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