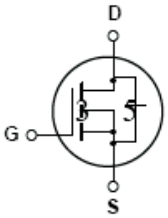
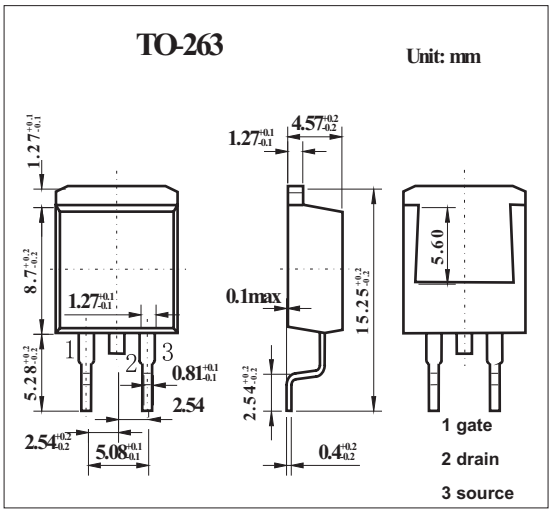
800V N-Channel MOSFET
KQB2N80

Features

- 2.4A, 800 V. $R_{DS(ON)}$ = 6.3Ω @ V_{GS} = 10 V
- Low gate charge (typical 12nC)
- Low Crss(typical 5.5pF)
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability





Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain to Source Voltage	V_{DSS}	800	V
Drain Current Continuous (Tc=25℃)	I_D	2.4	A
Drain Current Continuous (Tc=100℃)		1.52	A
Drain Current Pulsed *1	I_{DM}	9.6	A
Gate-Source Voltage	V_{GSS}	±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 @ Ta=25℃	P_D	3.13	W
Power dissipation @ Tc=25℃	P_D	85	W
Derate above 25℃		0.68	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	$R_{\theta JC}$	1.47	℃/W
Thermal Resistance Junction to Ambient *4	$R_{\theta JA}$	40	℃/W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	62.5	℃/W

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

*2 l=59mH,I_{AS}=1.8A,V_{DD}=50V,R_G=25Ω,Startion T_J=25℃

*3 I_{SD}≤2.4A,di/dt≤200A/μS,V_{DD}≤B_{VDSS},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 = 250 μA	800			V
Breakdown Voltage Temperature Coefficient	$\frac{\Delta BV_{DSS}}{\Delta T_J}$	I_D = 250 μA, Referenced to 25℃		0.9		mV/℃
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 800 V, V_{GS} = 0 V			10	μA
		V_{DS} = 640 V, T_C=125℃			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,RG=25Ω *		12	35	ns
Turn-On Rise Time	tr			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 Forwrad 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	trr	V_{GS} = 0 V,dI_F/dt = 100 A/μs,Is=2.4A		480		ns
Diode Reverse Recovery Current	Qrr			2.0		μC

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