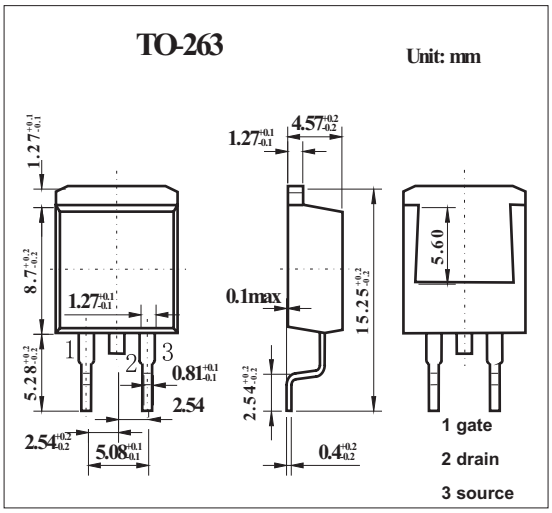
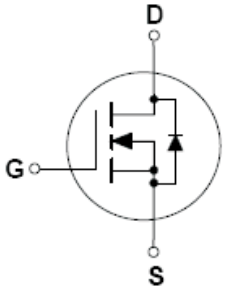
N-Channel Logic Level Enhancement Mode Field Effect Transistor
KDB6030L



■ Features

- 52A, 30 V. $R_{DS(ON)}$ = 0.0135 Ω @ V_{GS} = 10 V
  $R_{DS(ON)}$ = 0.020 Ω @ V_{GS} = 4.5 V
- Low gate charge (typical 34 nC).
- Low Crss (typical 175 pF).
- Fast switching speed.



■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain to Source Voltage	V_{DSS}	30	V
Gate to Source Voltage	V_{GS}	±20	V
Drain Current Continuous	I_D	52	A
Drain Current Pulsed		156	A
Power dissipation @ Tc=25℃	P_D	75	W
Derate above 25℃	P_D	0.5	W/℃
Operating and Storage Temperature	T_J, T_{STG}	-65 to 175	℃
Thermal Resistance Junction to Case	$R_{\theta JC}$	2	℃/W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	62.5	℃/W

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Single Pulse Drain-Source Avalanche Energy *	W_{DSS}	V_{DD} = 15 V, I_D = 21A			150	mJ
Maximum Drain-Source Avalanche Current	I_{AR}				21	A
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0 V, I_D = 250 μA	30			V
Breakdown Voltage Temperature Coefficient	$\frac{\Delta BV_{DSS}}{\Delta T_J}$	I_D = 250 μA, Referenced to 25℃		37		mV/℃
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 24 V, V_{GS} = 0 V			10	μA
Gate-Body Leakage, Forward	I_{GSSF}	V_{GS} = 20 V, V_{DS} = 0 V			100	nA
Gate-Body Leakage, Reverse	I_{GSSR}	V_{GS} = -20 V, V_{DS} = 0 V			-100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 μA	1	1.6	3	V
Gate Threshold Voltage Temperature Coefficient	$\frac{\Delta V_{GS(th)}}{\Delta T_J}$	I_D = 250 μA, Referenced to 25℃		-4		mV/℃
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10 V, I_D = 26 A		0.0095	0.0135	mΩ
		V_{GS} = 10 V, I_D = 26 A,TJ = 125℃		0.014	0.023	
		V_{GS} = 4.5 V, I_D =21 A,		0.015	0.02	
On-State Drain Current	$I_{D(on)}$	V_{GS} = 10 V, V_{DS} = 10 V	60			A
On-State Drain Current	$I_{D(on)}$	V_{GS} = 4.5 V, V_{DS} = 10 V	15			
Forward Transconductance	g_{FS}	V_{DS} = 10 V, I_D = 26 A		37		S
Input Capacitance	C_{iss}	V_{DS} = 15 V, V_{GS} = 0 V,f = 1.0 MHz		1230		pF
Output Capacitance	C_{oss}			640		pF
Reverse Transfer Capacitance	C_{rss}			175		pF
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 15 V, I_D = 52 A,V_{GS} = 10 V, R_{GEN} = 24 Ω*		7.6	15	ns
Turn-On Rise Time	tr			150	210	ns
Turn-Off Delay Time	$t_{d(off)}$			29	46	ns
Turn-Off Fall Time	tf			17	27	ns
Total Gate Charge	Qg	V_{DS} = 12 V, I_D = 26A,V_{GS} = 10 V *		34	46	nC
Gate-Source Charge	Qgs			6		nC
Gate-Drain Charge	Qgd			8		nC
Maximum Continuous Drain□Source Diode Forward Current *	Is				52	A
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS} = 0 V, Is = 26 A *		0.91	1.3	V
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS} = 0 V, Is = 26 A *T_J=125℃		0.8	1.2	V

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