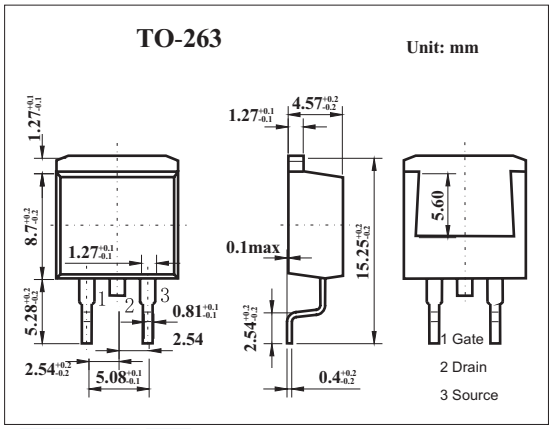
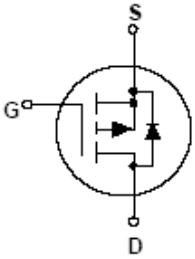
P-Channel 2.5V Specified Enhancement Mode Field Effect Transistor

KDB4020P(FDB4020P)



■ Features

- -16 A, -20 V. $R_{DS(on)}$ = 0.08 Ω @ V_{GS} = -4.5 V
  $R_{DS(on)}$ = 0.11 Ω @ V_{GS} = -2.5 V.
- Critical DC electrical parameters specified at elevated temperature.
- High density cell design for extremely low $R_{DS(on)}$.



■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain to source voltage	V_{DSS}	-20	V
Gate to source voltage	V_{GSS}	±8	V
Drain current Tc=25℃	I_D	-16	A
Drain current-pulsed	I_{dp}	-48	A
Power dissipation Derate above 25℃	P_D	37.5 0.25	W W/℃
Thermal Resistance, Junction-to- Case	$R_{\theta JC}$	4	℃/W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	40	℃/W
Channel temperature	T_{ch}	175	℃
Storage temperature	T_{stg}	-55 to +175	℃

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain to source breakdown voltage	V_{DSS}	I_D=250μA，V_{GS}=0V	-20			V
Drain cut-off current	I_{DSS}	V_{DS}=-16V,V_{GS}=0,T_C=25℃			-1	μA
Gate leakage current	I_{GSS}	V_{GS}=±8V,V_{GS}=0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-0.4	-0.58	-1	V
Drain to source on-state resistance	$R_{DS(on)}$	V_{GS}=-4.5V,I_D=-8A		0.068	0.08	Ω
		V_{GS}=-4.5V,I_D=-8A,T_J=125℃		0.098	0.13	
		V_{GS}=-2.5V,I_D=-7A		0.096	0.110	
On-State Drain Current	$I_{D(on)}$	V_{GS} = -4.5 V, V_{DS} = -5 V	-20			A
Forward Transconductance	g_{FS}	V_{DS} = -5 V, I_D = -8 A		14		S
Input capacitance	C_{iss}	V_{DS}=-10V,V_{GS}=0,f=1MHZ		665		pF
Output capacitance	C_{oss}			270		pF
Reverse transfer capacitance	C_{rss}			70		pF
Total Gate Charge	Q_g	V_{DS} = -5 V, I_D = -16 A, V_{GS} = -4.5 V *		9.5	13	nC
Gate-Source Charge	Q_{gs}			1.3		nC
Gate-Drain Charge	Q_{gd}			2.2		nC
Turn-on delay time	t_{on}	V_{DD} = -5 V, I_D = -1 A, V_{GS} = -4.5 V, R_{GEN} = 6 Ω*		8	16	ns
Rise time	t_r			24	38	ns
Turn-off delay time	t_{off}			50	80	ns
Fall time	t_f			29	45	ns
Maximum Continuous Drain-Source Diode Forward Current	I_S				-16	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}				-48	A
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS} = 0 V, I_S = -16 A *			-1.2	V

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