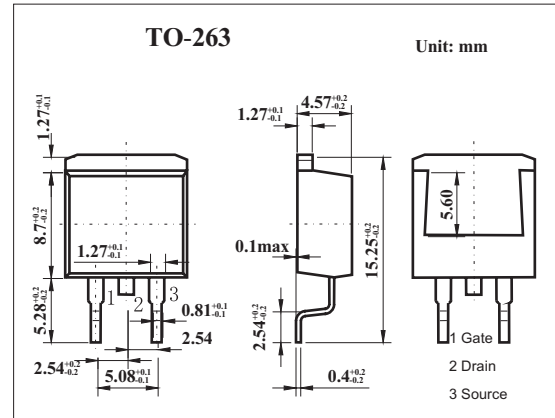
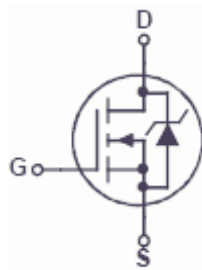


## 150V N-Channel PowerTrench MOSFET

### KDB2570(FDB2570)

#### ■ Features

- 22 A, 150 V.  $R_{DS(ON)} = 80 \text{ m}\Omega$  @  $V_{GS} = 10 \text{ V}$   
 $R_{DS(ON)} = 90 \text{ m}\Omega$  @  $V_{GS} = 6 \text{ V}$
- Low gate charge
- Fast switching speed
- High performance trench technology for extremely low  $R_{DS(ON)}$



#### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain to source voltage	$V_{DS}$	150	V
Gate to source voltage	$V_{GS}$	$\pm 20$	V
Drain current-Continuous	$I_D$	22	A
Drain current-Pulsed	$I_{DP}$	50	A
Power dissipation	$P_D$	93	W
Derate above $25^\circ\text{C}$		0.63	W/ $^\circ\text{C}$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	62.5	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.6	$^\circ\text{C}/\text{W}$
Channel temperature	$T_{ch}$	175	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +175	$^\circ\text{C}$

**KDB2570(FDB2570)**

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain to source breakdown voltage	V <sub>DSS</sub>	I <sub>D</sub> =250μA, V <sub>GS</sub> =0V	150			V
Drain cut-off current	I <sub>DSS</sub>	V <sub>DS</sub> =120V, V <sub>GS</sub> =0			1	μA
Gate leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V			±100	nA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	2.0	2.6	4.0	V
Drain to source on-state resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =11A		61	80	mΩ
		V <sub>GS</sub> =6V, I <sub>D</sub> =10A		63	90	
		V <sub>GS</sub> =10V, I <sub>D</sub> =11A, T <sub>C</sub> =125°C		127	175	
On-State Drain Current	I <sub>D(on)</sub>	V <sub>GS</sub> = 10 V, V <sub>DS</sub> = 10 V	25			A
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 11 A		39		S
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> =75V, V <sub>GS</sub> =0, f=1MHZ		1911		pF
Output capacitance	C <sub>oss</sub>			106		pF
Reverse transfer capacitance	C <sub>rss</sub>			33		pF
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 75 V, I <sub>D</sub> = 11 A, V <sub>GS</sub> = 10 V*		40	56	nC
Gate-Source Charge	Q <sub>gs</sub>			7		nC
Gate-Drain Charge	Q <sub>gd</sub>			12		nC
Turn-On Delay Time	t <sub>d(ON)</sub>	V <sub>DD</sub> = 75 V, I <sub>D</sub> = 1 A, V <sub>GS</sub> = 10 V, R <sub>GEN</sub> = 6 Ω*		12	22	ns
Rise Time	t <sub>r</sub>			5	10	ns
Turn-Off Delay Time	t <sub>d(OFF)</sub>			33	53	ns
Fall Time	t <sub>f</sub>			23	37	ns
Maximum Continuous Drain-Source Diode Forward Current	I <sub>S</sub>				22	A
Source to Drain Diode Voltage	V <sub>SD</sub>	V <sub>GS</sub> = 0 V, I <sub>S</sub> = 11 A *		0.83	1.3	V

\* Pulse Test: Pulse Width &lt; 300μs, Duty Cycle &lt; 2.0%