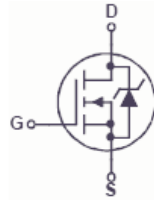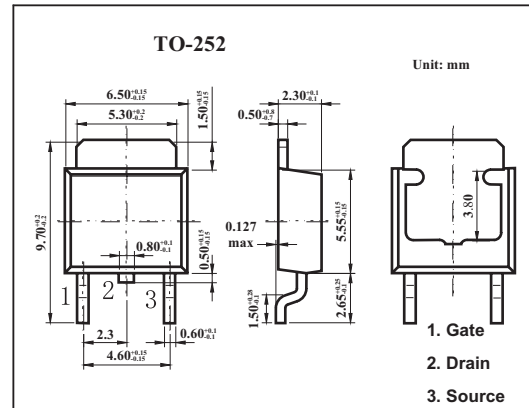# N-Channel PowerTrench MOSFET

KDD2572

■ Features

- ● $r_{DS(ON)}$ = 45mΩ (Typ.), V_{GS} = 10V, I_D = 9A
- ● $Q_{g(tot)}$ = 26nC (Typ.), V_{GS} = 10V
- ● Low Miller Charge
- ● Low Q_{RR} Body Diode
- ● UIS Capability (Single Pulse and Repetitive Pulse)
- ● Qualified to AEC Q101

TO-252

Unit: mm

1. Gate
2. Drain
3. Source

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain to Source Voltage	V_{DSS}	150	V
Gate to Source Voltage	V_{GS}	$\pm$20	V
Drain Current Continuous (T$_C$ = 25℃, V$_{GS}$ = 10V)		29	A
Drain Current Continuous (T$_C$ = 100℃, V$_{GS}$ = 10V)	I_D	20	A
Drain Current Continuous(T$_C$=100℃,V$_{GS}$=10V,R$_{\theta JA}$=52℃/W))		4	A
Single Pulse Avalanche Energy *	E_{AS}	36	mJ
Power dissipation	P_D	135	W
Derate above 25℃	P_D	0.9	W/℃
Operating and Storage Temperature	T_J, T_{STG}	-55 to 175	℃
Thermal Resistance Junction to Case	$R_{\theta JC}$	1.11	℃/W
Thermal Resistance Junction to Ambient to252	$R_{\theta JA}$	100	℃/W
Thermal Resistance Junction to Ambient to252 ,1in^2 copper pad area	$R_{\theta JA}$	52	℃/W

* Starting T_J = 25℃, L = 0.2 mH, I_{AS} = 19A.

KDD2572

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Drain to Source Breakdown Voltage	BV_{DSS}	$I_D = 250\,\mu A$, $V_{GS} = 0V$	150			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 120V$, $V_{GS} = 0V$			1	μ A
		$V_{DS} = 120V$, $V_{GS} = 0V$, $T_C = 150℃$			250	
Gate to Source Leakage Current	I_{GSS}	$V_{GS} = \pm 20V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\,\mu A$	2		4	V
Drain to Source On-Resistance	$r_{DS(ON)}$	$I_D = 9A$, $V_{GS} = 10V$		0.045	0.054	Ω
		$I_D = 4A$, $V_{GS} = 6V$,		0.05	0.075	
		$I_D = 9A$, $V_{GS} = 10V$, $T_C = 175℃$		0.126	0.146	
Input Capacitance	C_{ISS}	$V_{DS} = 25V$, $V_{GS} = 0V$, $f = 1MHz$		1770		pF
Output Capacitance	C_{OSS}			183		pF
Reverse Transfer Capacitance	C_{RSS}			40		pF
Total Gate Charge at 10V	$Q_{g(TOT)}$	$V_{GS} = 0V$ to $10V$, $V_{DD} = 75V$, $I_D = 9A$, $I_g = 1.0mA$		26	34	nC
Threshold Gate Charge	$Q_{g(TH)}$	$V_{GS} = 0V$ to $2V$, $V_{DD} = 75V$, $I_D = 9A$, $I_g = 1.0mA$		3.3	4.3	nC
Gate to Source Gate Charge	Q_{gs}	$V_{DD} = 75V$, $I_D = 9A$, $I_g = 1.0mA$		8		nC
Gate Charge Threshold to Plateau	Q_{gs2}			5		nC
Gate to Drain "Miller" Charge	Q_{gd}			6		nC
Turn-On Time	t_{ON}	$V_{DD} = 75V$, $I_D = 33A$, $V_{GS} = 10V$, $R_{GS} = 11\,\Omega$			36	ns
Turn-On Delay Time	$t_{d(ON)}$			11		ns
Rise Time	t_r			14		ns
Turn-Off Delay Time	$t_{d(OFF)}$			31		ns
Fall Time	t_f			14		ns
Turn-Off Time	t_{OFF}				66	ns
Source to Drain Diode Voltage	V_{SD}	$I_{SD} = 9A$			1.25	V
		$I_{SD} = 4A$			1.0	V
Reverse Recovery Time	t_{rr}	$I_{SD} = 9A$, $dI_{SD}/dt = 100A/\mu s$			74	ns
Reverse Recovery Charge	Q_{RR}	$I_{SD} = 9A$, $dI_{SD}/dt = 100A/\mu s$			169	nC

KEXIN