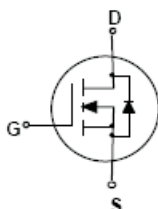
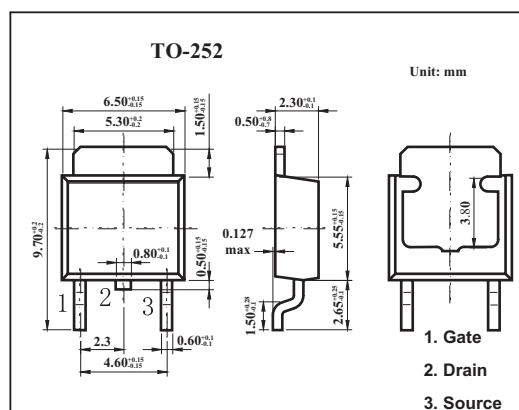


100V N-Channel PowerTrench MOSFET

KDD3670

■ Features

- 34 A, 100 V. $R_{DS(ON)} = 32\text{m}\Omega$ @ $V_{GS} = 10\text{ V}$
 $R_{DS(ON)} = 35\text{m}\Omega$ @ $V_{GS} = 6\text{ V}$
- Low gate charge (57 nC typical)
 Fast switching speed
- High performance trench technology for extremely low $R_{DS(ON)}$
- High power and current handling capability

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

Parameter	Symbol	Rating	Unit
Drain to Source Voltage	V_{DS}	100	V
Gate to Source Voltage	V_{GS}	± 20	V
Drain Current Continuous (Note 1)	I_D	34	A
Drain Current Pulsed		100	A
Power dissipation @ $T_c=25^\circ\text{C}$ (Note 1)	P_D	83	W
Power dissipation @ $T_a=25^\circ\text{C}$ (Note 1a)		3.8	
Power dissipation @ $T_a=25^\circ\text{C}$ (Note 1b)		1.6	
Operating and Storage Temperature	T_J, T_{STG}	-55 to 175	$^\circ\text{C}$
Thermal Resistance Junction to Case	$R_{\theta JC}$	1.8	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	96	$^\circ\text{C/W}$

KDD3670

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Single Pulse Drain-Source Avalanche Energy	WDSS	VDD = 50 V, ID = 7.3A (Not 2)			360	mJ
Maximum Drain-Source Avalanche Current	IAR	(Not 2)			7.3	A
Drain-Source Breakdown Voltage	BVDSS	VGS = 0 V, ID = 250 μ A	100			V
Breakdown Voltage Temperature Coefficient	$\frac{\Delta BVDSS}{\Delta T_J}$	ID = 250 μ A, Referenced to 25℃		92		mV/℃
Zero Gate Voltage Drain Current	IDSS	VDS = 80 V, VGS = 0 V			1	μ A
Gate-Body Leakage, Forward	IGSSF	VGS = 20 V, VDS = 0 V			100	nA
Gate-Body Leakage, Reverse	IGSSR	VGS = -20 V, VDS = 0 V			-100	nA
Gate Threshold Voltage	VGS(th)	VDS = VGS, ID = 250 μ A	2	2.5	4	V
Gate Threshold Voltage Temperature Coefficient	$\frac{\Delta VGS(th)}{\Delta T_J}$	ID = 250 μ A, Referenced to 25℃		-7.2		mV/℃
Static Drain-Source On-Resistance	RDS(on)	VGS = 10 V, ID = 7.3 A		22	32	mΩ
		VGS = 10 V, ID = 7.3 A, TJ = 125℃		39	56	
		VGS = 6 V, ID = 7 A,		24	35	
On-State Drain Current	ID(on)	VGS = 10 V, VDS = 5 V	25			A
Forward Transconductance	gFS	VDS = 5 V, ID = 7.3 A	15	31		S
Input Capacitance	Ciss	VDS = 50 V, VGS = 0 V, f = 1.0 MHz		2490		pF
Output Capacitance	Coss			265		pF
Reverse Transfer Capacitance	Crss			80		pF
Turn-On Delay Time	td(on)	VDD = 30 V, ID = 1 A, VGS = 10 V, RGEN = 6 Ω		16	26	ns
Turn-On Rise Time	tr			10	18	ns
Turn-Off Delay Time	td(off)			56	84	ns
Turn-Off Fall Time	tf			25	40	ns
Total Gate Charge	Qg	VDS = 50 V, ID = 7.3 A, VGS = 10 V (Note 2)		57	80	nC
Gate-Source Charge	Qgs			11		nC
Gate-Drain Charge	Qgd			15		nC
Maximum Continuous Drain-Source Diode Forward Current	IS				2.7	A
Drain-Source Diode Forward Voltage	VSD	VGS = 0 V, IS = 2.7 A (Not 2)		0.72	1.2	V

Notes:

1. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design while $R_{\theta JA}$ is determined by the user's board design.



- a) $R_{\theta JA} = 40^{\circ}\text{C/W}$ when mounted on a 1in² pad of 2oz copper.



- b) $R_{\theta JA} = 96^{\circ}\text{C/W}$ on a minimum mounting pad.

Scale 1 : 1 on letter size paper

Pulse Test: Pulse Width < 300μs, Duty Cycle < 2.0%