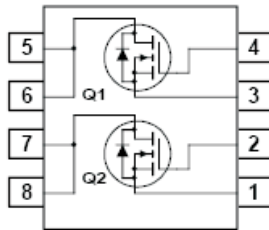
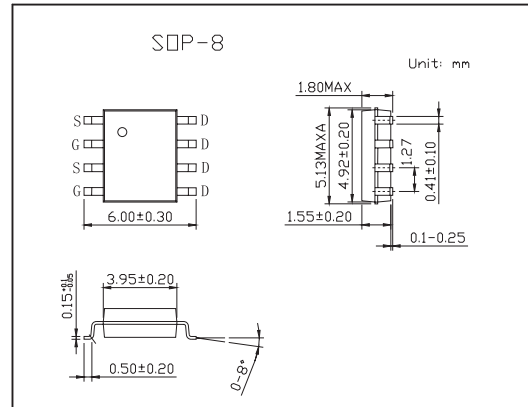


100V Dual N-Channel PowerTrench MOSFET

KDS3601

■ Features

- 1.3 A, 100 V. $R_{DS(ON)} = 480\text{m}\Omega$ @ $V_{GS} = 10\text{ V}$
 $R_{DS(ON)} = 530\text{m}\Omega$ @ $V_{GS} = 6\text{ V}$
- Low gate charge (3.7 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_{DSS}	100	V
Gate to Source Voltage	V_{GS}	± 20	V
Drain Current Continuous (Note 1a)	I_D	1.3	A
Drain Current Pulsed		6	A
Power Dissipation for Dual Operation	P_D	2	
Power Dissipation for Single Operation (Note 1a)	P_D	1.6	W
Power Dissipation for Single Operation (Note 1b)		1	
Power Dissipation for Single Operation (Note 1c)		0.9	
Operating and Storage Temperature	T_J, T_{STG}	-55 to 175	$^\circ\text{C}$
Thermal Resistance Junction to Case (Note 1)	$R_{\theta JC}$	40	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient (Note 1a)	$R_{\theta JA}$	78	$^\circ\text{C/W}$

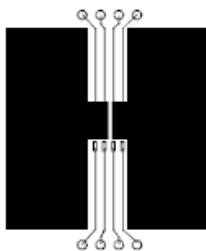
KDS3601

■ Electrical Characteristics Ta = 25°C

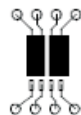
Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Single Pulse Drain-Source Avalanche Energy	W _{DSS}	Single Pulse, V _{DD} =50V, I _D =1.3A(Not 2)			26	mJ
Maximum Drain-Source Avalanche Current	I _{AR}	(Not 2)			1.3	A
Drain-Source Breakdown Voltage	B _V DSS	V _{GS} = 0 V, I _D = 250 μ A	100			V
Breakdown Voltage Temperature Coefficient	$\frac{\Delta B_{V_{DSS}}}{\Delta T_J}$	I _D = 250 μ A, Referenced to 25°C		105		mV/°C
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 80 V, V _{GS} = 0 V			10	μ A
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 μ A	2	2.6	4	V
Gate Threshold Voltage Temperature Coefficient	$\frac{\Delta V_{GS(th)}}{\Delta T_J}$	I _D = 250 μ A, Referenced to 25°C		-5		mV/°C
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10 V, I _D = 1.3 A		350	480	mΩ
		V _{GS} = 6 V, I _D = 1.3 A		376	530	
		V _{GS} = 10 V, I _D = 1.3 A, T _J = 125°C		664	955	
On-State Drain Current	I _{D(on)}	V _{GS} = 10 V, V _{DS} = 10V	3			A
Forward Transconductance	g _{FS}	V _{DS} = 5 V, I _D = 1.3 A		3.6		S
Input Capacitance	C _{iss}	V _{DS} = 50 V, V _{GS} = 0 V, f = 1.0 MHz		153		pF
Output Capacitance	C _{oss}			5		pF
Reverse Transfer Capacitance	C _{rss}			1		pF
Turn-On Delay Time	t _{d(on)}	V _{DD} = 50 V, I _D = 1 A, V _{GS} = 10 V, R _{GEN} = 6 Ω		8	16	ns
Turn-On Rise Time	t _r			4	8	ns
Turn-Off Delay Time	t _{d(off)}			11	20	ns
Turn-Off Fall Time	t _f			6	5	ns
Total Gate Charge	Q _g				3.7	80
Gate-Source Charge	Q _{gs}	V _{DS} = 50 V, I _D = 1.3 A, V _{GS} = 10 V (Note 2)		0.8		nC
Gate-Drain Charge	Q _{gd}			1		nC
Maximum Continuous Drain-Source Diode Forward Current	I _S				1.3	A
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = 1.3 A (Not 2)		0.8	1.2	V

Notes:

1. R_{θJA} 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_{θJC} is guaranteed by design while R_{θCA} is determined by the user's board design.



a) 78°C/W when mounted on a 0.5 in² pad of 2 oz copper



b) 125°C/W when mounted on a 0.02 in² pad of 2 oz copper



c) 135°C/W when mounted on a minimum pad.

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