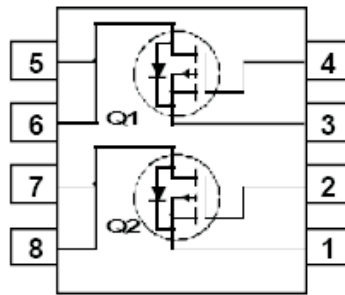
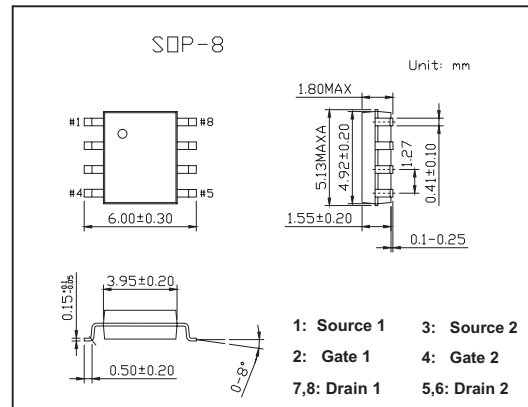


Dual 30V P-Channel PowerTrench MOSFET

KDS4953

■ Features

- -5 A, -30 V. $R_{DS(ON)} = 55m\Omega$ @ $V_{GS} = -10V$
 $R_{DS(ON)} = 95m\Omega$ @ $V_{GS} = -4.5V$
- Low gate charge(6nC typical)
- High performance trench technology for extremely low $R_{DS(ON)}$
- High power and current handling capability
- Fast switching speed



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

Parameter	Symbol	Rating	Unit
Drain to Source Voltage	V_{bss}	-30	V
Gate to Source Voltage	V_{GS}	± 20	V
Drain Current Continuous (Note 1a)	I_D	-5	A
Drain Current Pulsed		-20	A
Power Dissipation for Single Operation (Note 1a)	P_D	2	W
Power Dissipation for Single Operation (Note 1b)		1.6	
Power Dissipation for Single Operation (Note 1c)		1	
Operating and Storage Temperature	T_J, T_{STG}	-55 to 175	$^\circ\text{C}$
Thermal Resistance Junction to Ambient (Note 1a)	$R_{\theta JA}$	78	$^\circ\text{C/W}$
Thermal Resistance Junction to Case (Note 1)	$R_{\theta JC}$	40	$^\circ\text{C/W}$

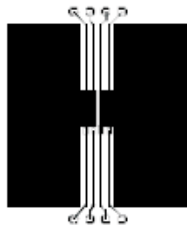
KDS4953

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BVDSS	V _{GS} = 0 V, I _D = -250 μA	-30			V
Breakdown Voltage Temperature Coefficient	$\frac{\Delta BVDSS}{\Delta T_J}$	I _D = -250 μA, Referenced to 25°C		-23		mV/°C
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -24 V, V _{GS} = 0 V			-1	μA
Gate-Body Leakage, Forward	I _{GSSF}	V _{GS} = -20V, 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(Not 2)	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 μA	-1	-1.7	-3	V
Gate Threshold Voltage Temperature Coefficient(Not 2)	$\frac{\Delta V_{GS(th)}}{\Delta T_J}$	I _D = -250 μA, Referenced to 25°C		4.5		mV/°C
Static Drain-Source On-Resistance(Not 2)	R _{DS(on)}	V _{GS} = -10 V, I _D = -5 A		46	55	mΩ
		V _{GS} = -4.5 V, I _D = -3.3 A		70	95	
		V _{GS} = -10 V, I _D = -5 A, T _J = 125°C		63	85	
On State Drain Current	I _{D(on)}	V _{GS} = -10 V, V _{DS} = -5 V	-20			A
Forward Transconductance	g _{FS}	V _{DS} = -5 V, I _D = -5A		10		S
Input Capacitance	C _{iss}	V _{DS} = -15 V, V _{GS} = 0 V, f = 1.0 MHz		528		pF
Output Capacitance	C _{oss}			132		pF
Reverse Transfer Capacitance	C _{rss}			70		pF
Turn-On Delay Time	t _{d(on)}			7	14	ns
Turn-On Rise Time	t _r	V _{DD} = -15 V, I _D = -1 A, V _{GS} = -10 V, R _{GEN} = 6 Ω (Note 2)		13	24	ns
Turn-Off Delay Time	t _{d(off)}			14	25	ns
Turn-Off Fall Time	t _f			9	17	ns
Total Gate Charge	Q _g	V _{DS} = -15 V, I _D = -5 A, V _{GS} = -5V (Note 2)		6	9	nC
Gate-Source Charge	Q _{gs}			2.2		nC
Gate-Drain Charge	Q _{gd}			2		nC
Maximum Continuous Drain-Source Diode Forward Current	I _S				-1.3	A
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = -1.3A (Note 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 0.5in² pad of 2 oz copper



b) 126°C/W when mounted on a 0.02 in² pad of 2 oz copper



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

Scale 1 : 1 on letter size paper

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