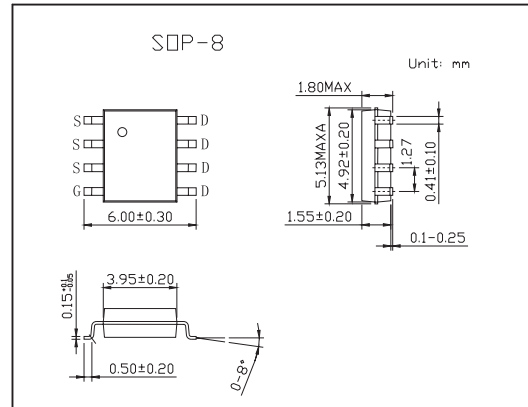
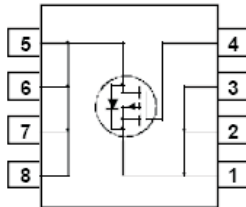


P-Channel 2.5V Specified PowerTrench MOSFET

KDS6375

■ Features

- -8 A, -20 V. $R_{DS(ON)} = 24m\Omega$ @ $V_{GS} = -4.5V$
 $R_{DS(ON)} = 32m\Omega$ @ $V_{GS} = -2.5V$
- Low gate charge(26nC typical)
- 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}	-20	V
Gate to Source Voltage	V_{GS}	± 8	V
Drain Current Continuous (Note 1a)	I_D	-8	A
Drain Current Pulsed		-50	A
Power Dissipation for Single Operation (Note 1a)	P_D	2.5	W
Power Dissipation for Single Operation (Note 1b)		1.2	
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)	$R_{\theta JA}$	50	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Ambient (Note 1c)	$R_{\theta JA}$	125	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Case (Note 1)	$R_{\theta JC}$	25	$^\circ\text{C}/\text{W}$

KDS6375

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0 V, I _D = -250 μA	-20			V
Breakdown Voltage Temperature Coefficient	$\frac{\Delta BV_{DSS}}{\Delta T_J}$	I _D = -250 μA, Referenced to 25°C		-13		mV/°C
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -16 V, V _{GS} = 0 V			-1	μA
Gate-Body Leakage, Forward	I _{GSSF}	V _{GS} = 8V, V _{DS} = 0 V			100	nA
Gate-Body Leakage, Reverse	I _{GSSR}	V _{GS} = -8 V, V _{DS} = 0 V			-100	nA
Gate Threshold Voltage(Not 2)	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 μA	-0.4	-0.7	-1.5	V
Gate Threshold Voltage Temperature Coefficient(Not 2)	$\frac{\Delta V_{GS(th)}}{\Delta T_J}$	I _D = -250 μA, Referenced to 25°C		3		mV/°C
Static Drain-Source On-Resistance(Not 2)	R _{DS(on)}	V _{GS} = -4.5 V, I _D = -8 A		14	24	mΩ
		V _{GS} = -2.5 V, I _D = -7 A		19	32	
		V _{GS} = -4.5 V, I _D = -8 A, T _J = 125°C		18	39	
On-State Drain Current	I _{D(on)}	V _{GS} = -4.5 V, V _{DS} = -5V	-50			A
Forward Transconductance	g _{FS}	V _{DS} = -5 V, I _D = -8A		35		S
Input Capacitance	C _{iss}	V _{DS} = -10 V, V _{GS} = 0 V, f = 1.0 MHz		2694		pF
Output Capacitance	C _{oss}		480		pF	
Reverse Transfer Capacitance	C _{rss}		229		pF	
Turn-On Delay Time	t _{d(on)}			12	22	ns
Turn-On Rise Time	t _r	V _{DD} = -10 V, I _D = -1 A, V _{GS} = -4.5 V, R _{GEN} = 6 Ω (Note 2)		9	17	ns
Turn-Off Delay Time	t _{d(off)}		124	197	ns	
Turn-Off Fall Time	t _f		57	92	ns	
Total Gate Charge	Q _g			26	36	nC
Gate-Source Charge	Q _{gs}	V _{DS} = -10 V, I _D = -8 A, V _{GS} = -4.5V (Note 2)		5		nC
Gate-Drain Charge	Q _{gd}			6		nC
Maximum Continuous Drain-Source Diode Forward Current	I _S				-2.1	A
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = -2.1A (Not 2)		-0.7	-1.2	V

Notes:

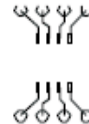
1. R_{θJA} is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. R_{θJC} is guaranteed by design while R_{θJA} is determined by the user's board design.



a) 50 °C/W when mounted on a 1in² pad of 2 oz copper



b) 105 °C/W when mounted on a .04 in² pad of 2 oz copper



c) 125 °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%