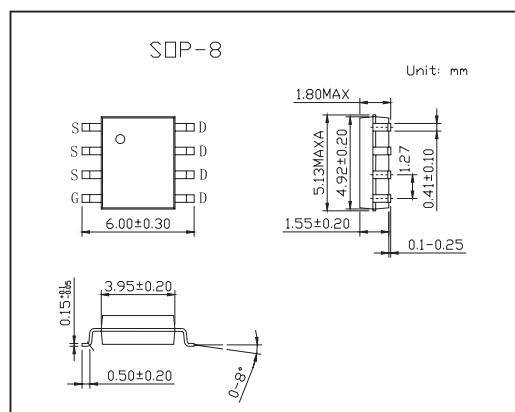
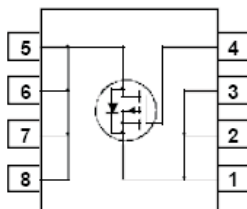


P-Channel 2.5V Specified PowerTrench MOSFET

KDS6375

■ Features

- -8 A, -20 V. $R_{DS(ON)} = 24\text{m}\Omega$ @ $V_{GS} = -4.5\text{ V}$
 $R_{DS(ON)} = 32\text{m}\Omega$ @ $V_{GS} = -2.5\text{ V}$
- 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	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient (Note 1c)	$R_{\theta JA}$	125	$^\circ\text{C/W}$
Thermal Resistance Junction to Case (Note 1)	$R_{\theta JC}$	25	$^\circ\text{C/W}$

KDS6375

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BVDSS	VGS = 0 V, ID = -250 μ A	-20			V
Breakdown Voltage Temperature Coefficient	$\frac{\Delta BVDSS}{\Delta T_J}$	ID = -250 μ A, Referenced to 25°C		-13		mV/°C
Zero Gate Voltage Drain Current	IDSS	VDS = -16 V, VGS = 0 V			-1	μ A
Gate-Body Leakage, Forward	IGSSF	VGS = 8V, VDS = 0 V			100	nA
Gate-Body Leakage, Reverse	IGSSR	VGS = -8 V, VDS = 0 V			-100	nA
Gate Threshold Voltage(Not 2)	VGS(th)	VDS = VGS, ID = -250 μ A	-0.4	-0.7	-1.5	V
Gate Threshold Voltage Temperature Coefficient(Not 2)	$\frac{\Delta VGS(th)}{\Delta T_J}$	ID = -250 μ A, Referenced to 25°C		3		mV/°C
Static Drain-Source On-Resistance(Not 2)	RDS(on)	VGS = -4.5 V, ID = -8 A		14	24	m Ω
		VGS = -2.5 V, ID = -7 A		19	32	
		VGS = -4.5 V, ID = -8 A, TJ = 125°C		18	39	
On-State Drain Current	ID(on)	VGS = -4.5 V, VDS = -5V	-50			A
Forward Transconductance	gFS	VDS = -5 V, ID = -8A		35		S
Input Capacitance	Ciss	VDS = -10 V, VGS = 0 V, f = 1.0 MHz		2694		pF
Output Capacitance	Coss			480		pF
Reverse Transfer Capacitance	Crss			229		pF
Turn-On Delay Time	td(on)	VDD = -10 V, ID = -1 A, VGS = -4.5 V, RGEN = 6 Ω (Note 2)		12	22	ns
Turn-On Rise Time	tr			9	17	ns
Turn-Off Delay Time	td(off)			124	197	ns
Turn-Off Fall Time	tf			57	92	ns
Total Gate Charge	Qg	VDS = -10 V, ID = -8 A, VGS = -4.5V (Note 2)		26	36	nC
Gate-Source Charge	Qgs			5		nC
Gate-Drain Charge	Qgd			6		nC
Maximum Continuous Drain-Source Diode Forward Current	IS				-2.1	A
Drain-Source Diode Forward Voltage	VSD	VGS = 0 V, IS = -2.1A (Not 2)		-0.7	-1.2	V

Notes:

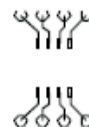
1. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design while $R_{\theta JA}$ is determined by the user's board design.



a) 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 < 300 μ s, Duty Cycle < 2.0%