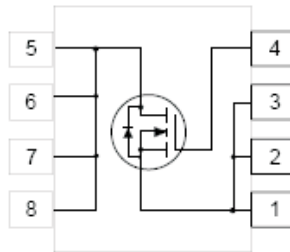
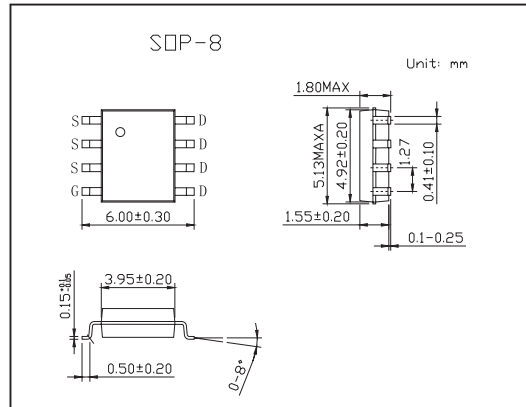


KDS5670

■ Features

- 10 A, 60 V. $R_{DS(ON)} = 0.014 \Omega$ @ $V_{GS} = 10 V$
 $R_{DS(ON)} = 0.017 \Omega$ @ $V_{GS} = 6 V$
- Low gate charge
- Fast switching speed.
- High performance trench technology for extremely low $R_{DS(ON)}$
- High power and current handling capability



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

Parameter	Symbol	Rating	Unit
Drain to Source Voltage	V_{DS}	60	V
Gate to Source Voltage	V_{GS}	± 20	V
Drain Current Continuous (Note 1a)	I_D	10	A
Drain Current Pulsed		50	A
Power dissipation (Note 1a)	P_D	2.5	W
Power dissipation (Note 1b)		1.2	
Power dissipation (Note 1c)		1	
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 175	$^\circ C$
Thermal Resistance Junction to Ambient (Note 1a)	$R_{\theta JA}$	50	$^\circ C/W$
Thermal Resistance Junction to Case (Note 1)	$R_{\theta JC}$	25	$^\circ C/W$

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BVDSS	VGS = 0 V, ID = 250 μ A	60			V
Breakdown Voltage Temperature Coefficient	$\frac{\Delta BVDSS}{\Delta T_J}$	ID = 250 μ A, Referenced to 25°C		58		mV/°C
Zero Gate Voltage Drain Current	IDSS	VDS = 48 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	2.4	4	V
Gate Threshold Voltage Temperature Coefficient	$\frac{\Delta VGS(th)}{\Delta T_J}$	ID = 250 μ A, Referenced to 25°C		6.8		mV/°C
Static Drain-Source On-Resistance	RDS(on)	VGS = 10 V, ID = 10 A		0.012	0.014	Ω
		VGS = 10 V, ID = 10 A, TJ = 125°C		0.019	0.027	
		VGS = 6 V, ID = 9 A		0.014	0.017	
On-State Drain Current	ID(on)	VGS = 10 V, VDS = 5V	25			A
Forward Transconductance	gFS	VDS = 5V, ID = 10 A		39		S
Input Capacitance	Ciss	VDS = 15 V, VGS = 0 V, f = 1.0 MHz		2900		pF
Output Capacitance	Coss			685		pF
Reverse Transfer Capacitance	Crss			180		pF
Turn-On Delay Time	td(on)			16	29	ns
Turn-On Rise Time	tr	VDD = 30 V, ID = 1 A, VGS = 10 V, RGEN = 6 Ω (Note 2)		10	20	ns
Turn-Off Delay Time	td(off)			50	80	ns
Turn-Off Fall Time	tf			23	42	ns
Total Gate Charge	Qg	VDS = 20 V, ID = 10 A, VGS = 10 V (Note 2)		49	70	nC
Gate-Source Charge	Qgs			9		nC
Gate-Drain Charge	Qgd			10.4		nC
Maximum Continuous Drain-Source Diode Forward Current	IS				2.1	A
Drain-Source Diode Forward Voltage	VSD	VGS = 0 V, IS = 2.1 A (Not 2)		0.72	1.2	V

Notes:

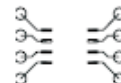
1. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design while $R_{\theta JA}$ is determined by the user's board design.



a) 50° C/W when mounted on a 0.5 in² pad of 2 oz. copper.



b) 105° C/W when mounted on a 0.02 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 μs, Duty Cycle ≤ 2.0%