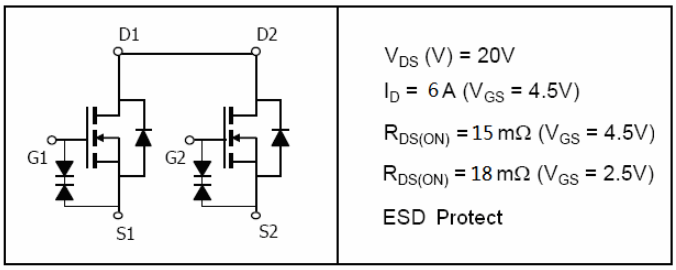
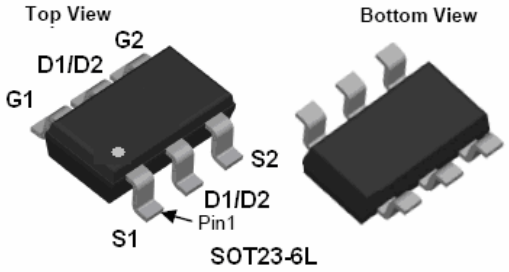
Features

- ♦ Ron(typ.)=15mΩ @VGS=4.5V
- ♦ Low On-Resistance
- ♦ Fast Switching
- ♦ ESD Protection
- ♦ Green Product



Description

VS6808AH designed by the trench processing techniques to achieve extremely low on-resistance,fast switching speed and improved transfer effective . These features combine to make this design an extremely efficient and reliable device for variety of DC-DC applications.



Absolute Maximum Ratings

Symbol	Parameter		Rating	Unit
Common Ratings (T_C=25°C Unless Otherwise Noted)				
V_{GS}	Gate-Source Voltage		±10	V
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage		20	V
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-50 to 155	°C
I_S	Diode Continuous Forward Current	T_C=25°C	6①	A
ESD	HBM		2000	V
Mounted on Large Heat Sink				
I_{DM}	Pulse Drain Current Tested	T_C=25°C	24①	A
I_D	Continuous Drain Current(VGS=4.5V)	T_C=25°C	6①	A
		T_C=70°C	4.5	
P_D	Maximum Power Dissipation	T_C=25°C	1.15	W
		T_C=70°C	0.8	
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		120	°C/W

Typical Electrical Characteristics

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V I_D=250μA	20	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current (Tc=25℃)	V_{DS}=16V,V_{GS}=0V	--	--	1	μA
	Zero Gate Voltage Drain Current(Tc=100℃)	V_{DS}=16V,V_{GS}=0V	--	--	100	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±4.5V,V_{DS}=0V	--	--	±1	μA
		V_{GS}=±8V,V_{DS}=0V	--	--	±10	μA
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250μA	0.5	0.7	1.0	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=4.5V, I_D=6A	--	15	20	mΩ
		V_{GS}=2.5V, I_D=5A	--	18	25	mΩ
		V_{GS}=1.8V, I_D=2A	--	22	35	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C_{iss}	Input Capacitance	V_{DS}=5V,V_{GS}=0V, f=1MHz	--	710	--	pF
C_{oss}	Output Capacitance		--	180	--	pF
C_{rss}	Reverse Transfer Capacitance		--	85	--	pF
Q_g	Total Gate Charge	V_{DS}=10V,I_D=1A, V_{GS}=4.5V	--	9	--	nC
Q_{gs}	Gate-Source Charge		--	1.8	--	nC
Q_{gd}	Gate-Drain Charge		--	4	--	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=10V, I_D=1A, R_G=3Ω, V_{GS}=4.5V, RL=5Ω,	--	200	--	ns
t_r	Turn-on Rise Time		--	400	--	ns
$t_{d(off)}$	Turn-Off Delay Time		--	12	--	ns
t_f	Turn-Off Fall Time		--	6	--	ns
Source- Drain Diode Characteristics						
V_{SD}	Forward on voltage	T_j=25℃,I_{SD}=3A, V_{GS}=0V	--	0.7	1.3	V
Q_{rr}	Reverse Recovery Charge	I_{SD}=6A, dI/dt=100A/μs	--	10	--	nC
t_{rr}	Reverse Recovery Time		--	26	--	ns

Notes: ① Pulse test ; Pulse width≤300μs, duty cycle≤2%.

Typical Characteristics

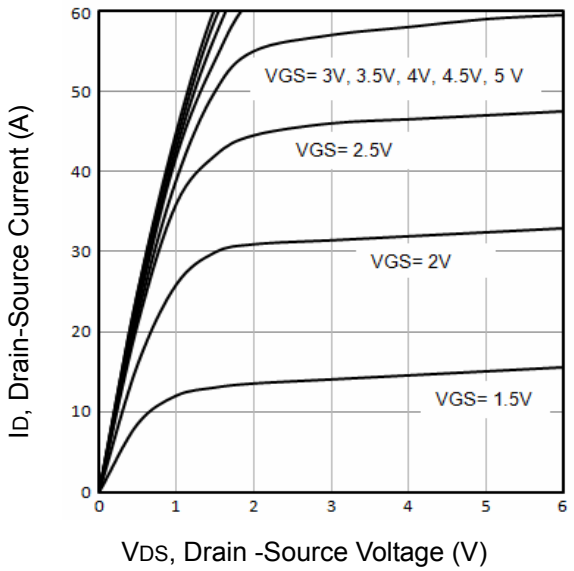


Fig1. Typical Output Characteristics

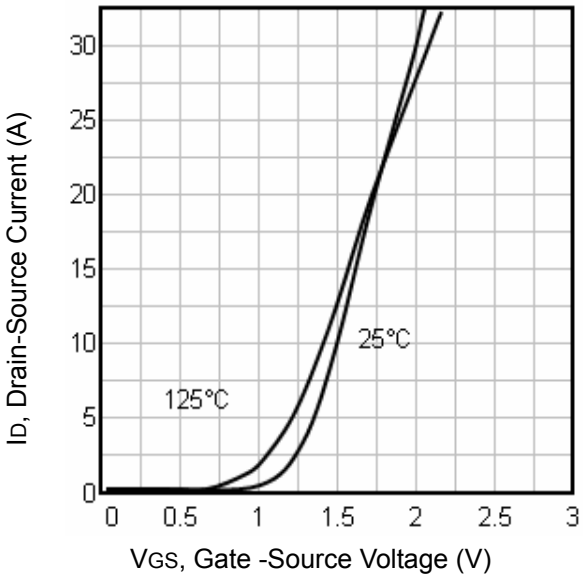


Fig2. Typical Transfer Characteristics

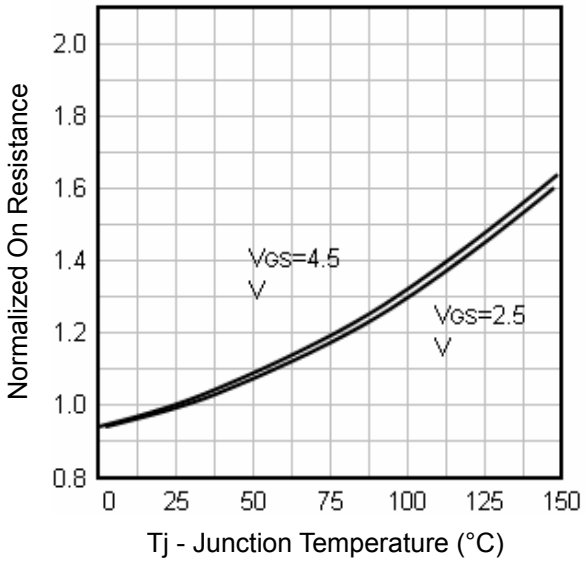


Fig3. Normalized On-Resistance Vs. Temperature

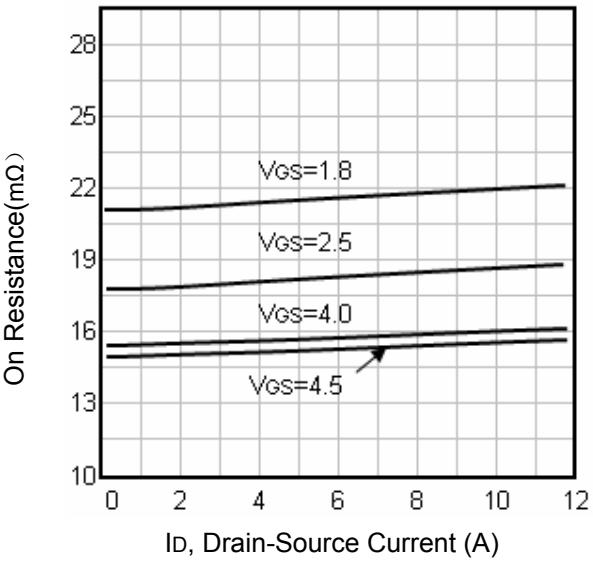


Fig4. On-Resistance Vs. Drain-Source Current

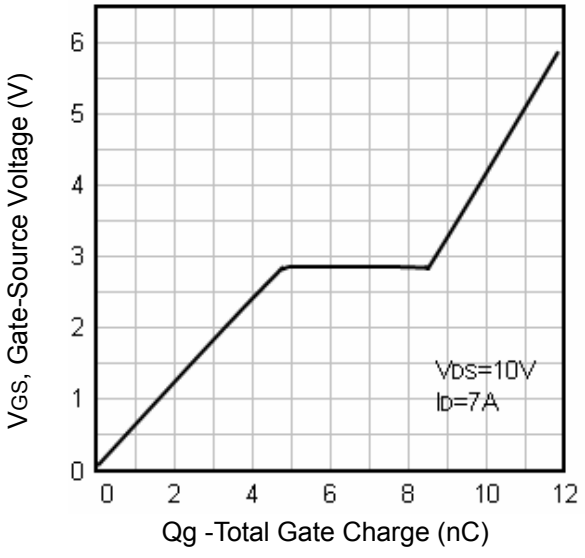


Fig5. Typical Gate Charge Vs.Gate-Source Voltage

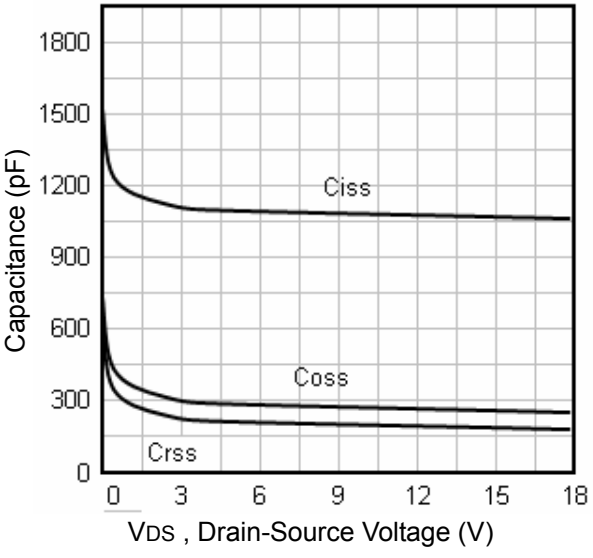


Fig6 Typical Capacitance Vs.Drain-Source Voltage

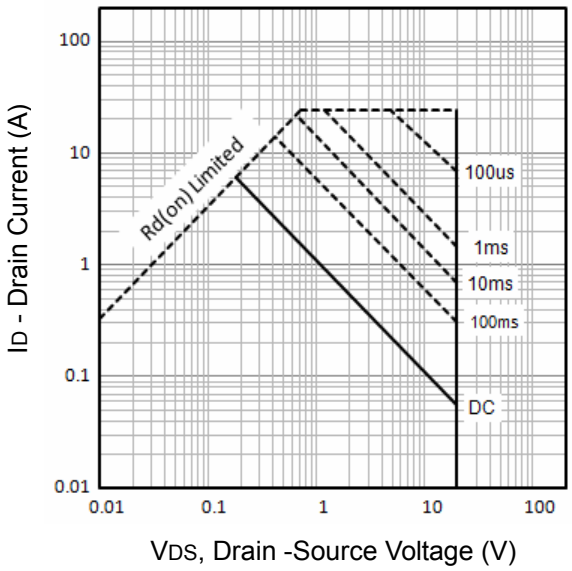


Fig7. Maximum Safe Operating Area

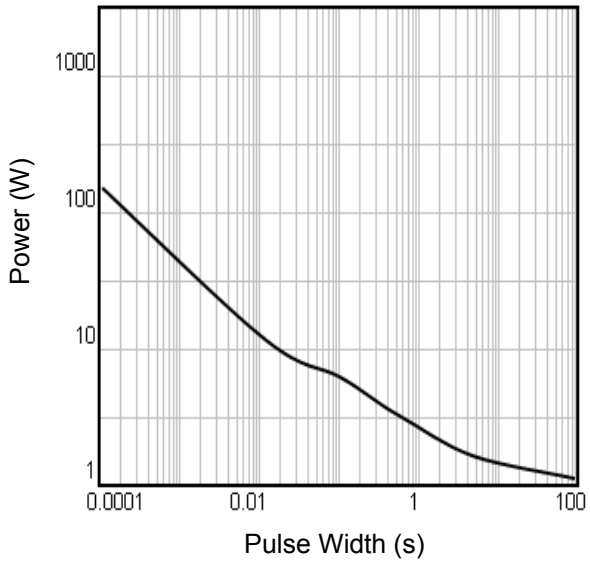


Fig8. Typical Single Puls Power Rating Juntion-toAmbient

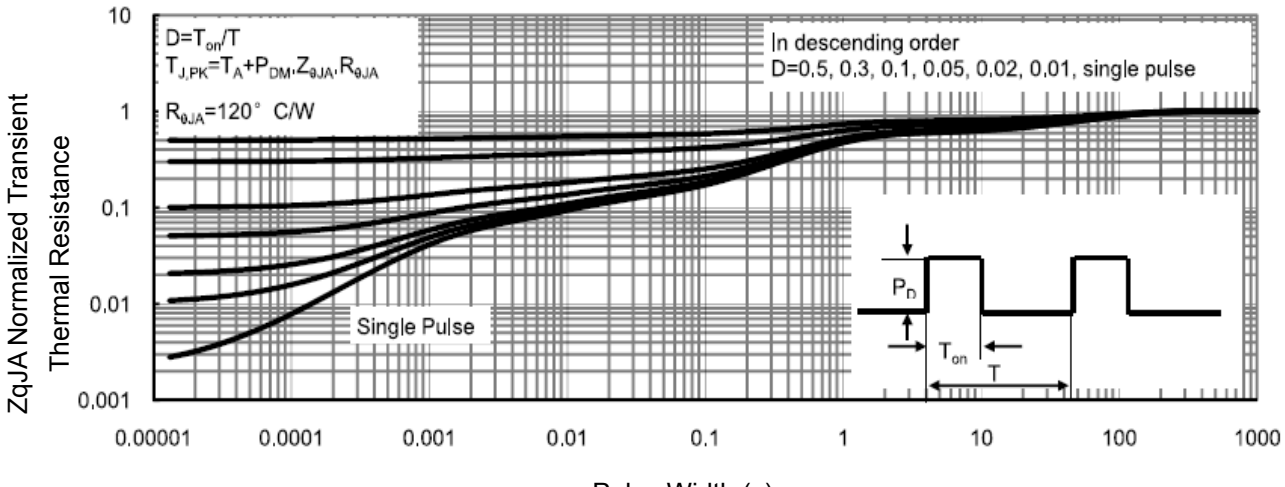


Fig9. Normalized Maximum Transient Thermal Impedance

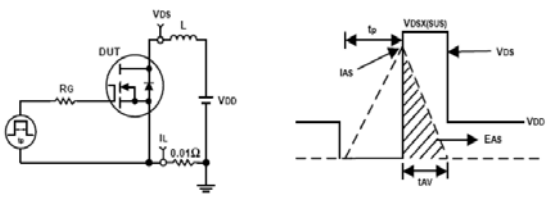


Fig10. Unclamped Inductive Test Circuit and waveforms

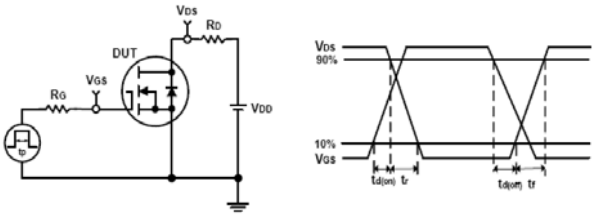
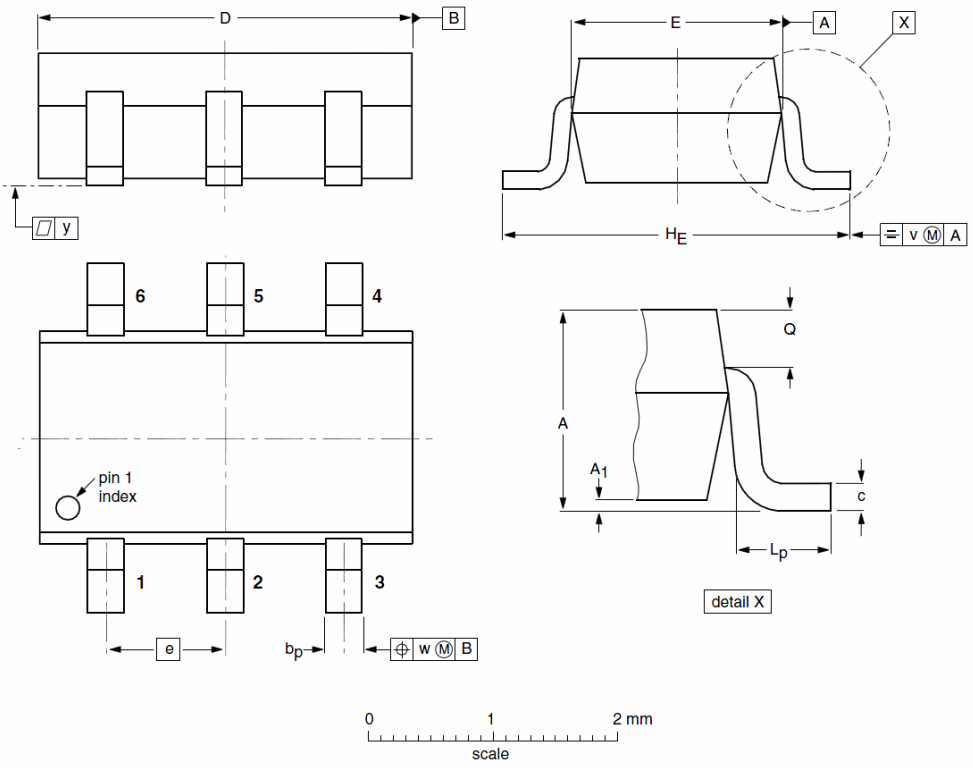


Fig11. Switching Time Test Circuit and waveforms

SOT23-6L Package Outline Data



DIMENSIONS (unit : mm)

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	0.90	1.07	1.10	**A_1**	0.01	0.05	0.10
b_p	0.25	0.35	0.40	**c**	0.10	0.18	0.26
D	2.70	2.92	3.10	**E**	1.30	1.55	1.70
e	--	0.95	--	**H_E**	2.50	2.80	3.00
L_p	0.20	0.38	0.60	**Q**	0.23	0.29	0.33
v	--	0.20	--	**w**	--	0.20	--
y	--	0.10					

Order Information

Product	Marking	Package	Packaging	Min Unit Quantity
VS6808A	V688	SOT23-6	3000/Reel	6000

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