General Description

The WST6008 is the highest performance trench N-Ch MOSFET with extreme high cell density , which provide excellent RDSON and gate charge for most of the small power switching and load switch applications.

The WST6008 meet the RoHS and Green Product requirement with full function reliability approved.

Features

- Low Gate Charge for Fast Switching
- Small 1.6 X 1.6 mm Footprint
- ESD Protected Gate
- We declare that the material of product is ROHS compliant and halogen free.

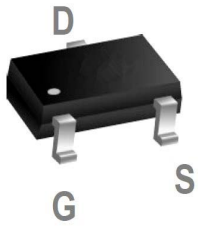
Product Summery

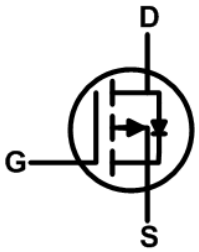
BVDSS	RDSON	ID
30V	140mΩ	300mA

Applications

- Power Management Load Switch
- Level Shift
- Portable Applications such as Cell Phones, Media Players, Digital Cameras, PDA's, Video Games, Hand Held Computers, etc.

SOT-523 Pin Configuration





Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±10	V
I_D@T_A=25℃	Continuous Drain Current, V_{GS} @ 10V[1]	300	mA
I_D@T_A=70℃	Continuous Drain Current, V_{GS} @ 10V[1]	250	mA
I_{DM}	Pulsed Drain Current[2]	1500	mA
P_D@T_A=25℃	Total Power Dissipation[3]	300	mW
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient [1]	---	416	℃/W

Electrical Characteristics (T_J=25 ℃, unless otherwise noted)

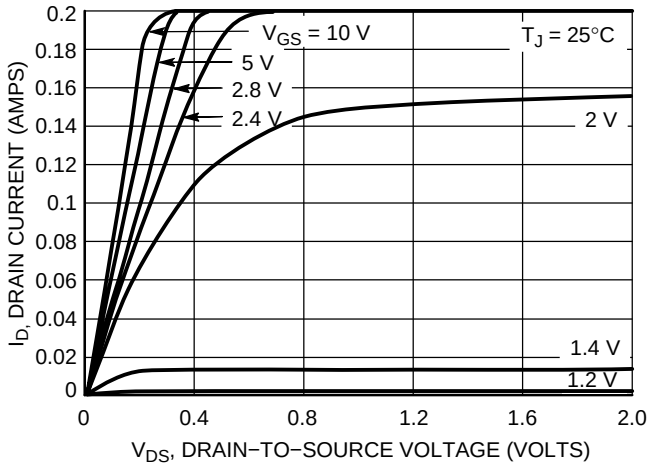
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=100uA	30	---	---	V
$\triangle BV_{DSS}/\triangle T_J$	BV_{DSS} Temperature Coefficient	Reference to 25℃ , I_D=1mA	---	0.05	---	V/℃
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=4.5V , I_D=154mA	---	140	200	mΩ
		V_{GS}=2.5V , I_D=154mA	---	250	350	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =100uA	0.5	1.0	1.5	V
$\triangle V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient		---	0.9	---	mV/℃
I_{DSS}	Drain-Source Leakage Current	V_{DS}=30V , V_{GS}=0V , T_J=25℃	---	---	1.0	uA
		V_{DS}=20V , V_{GS}=0V , T_J=85℃	---	---	1.0	
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±5V , V_{DS}=0V	---	---	±1.0	uA
gfs	Forward Transconductance	V_{DS}=5V , I_D=0.1A	---	140	---	mS
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=5V , V_{GS}=4.5V , R_G=10Ω, I_D=75mA	---	15	---	ns
T_r	Rise Time		---	16	---	
$T_{d(off)}$	Turn-Off Delay Time		---	98	---	
T_f	Fall Time		---	61	---	
C_{iss}	Input Capacitance	V_{DS}=5V , V_{GS}=0V , f=1MHz	---	180	---	pF
C_{oss}	Output Capacitance		---	50	---	
C_{rss}	Reverse Transfer Capacitance		---	20	---	

Diode Characteristics

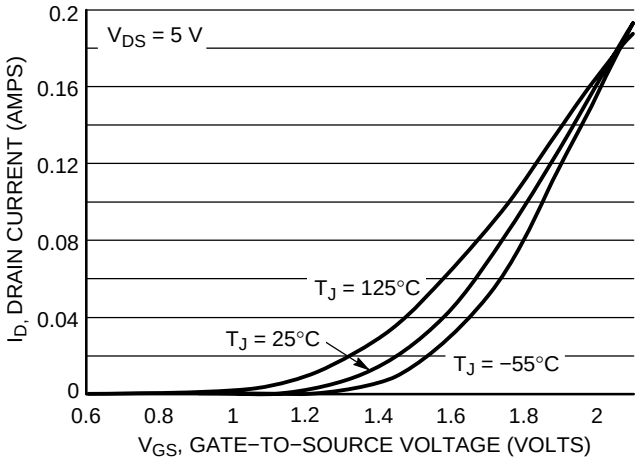
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current[1,4]	V_G=V_D=0V , Force Current	---	---	150	mA
I_{SM}	Pulsed Source Current[2,4]		---	---	0.8	A
V_{SD}	Diode Forward Voltage[2]	V_{GS}=0V , I_S=0.154mA , T_J=25℃	---	0.77	0.9	V

Note :
1.The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3.The power dissipation is limited by 150℃ junction temperature.
4.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

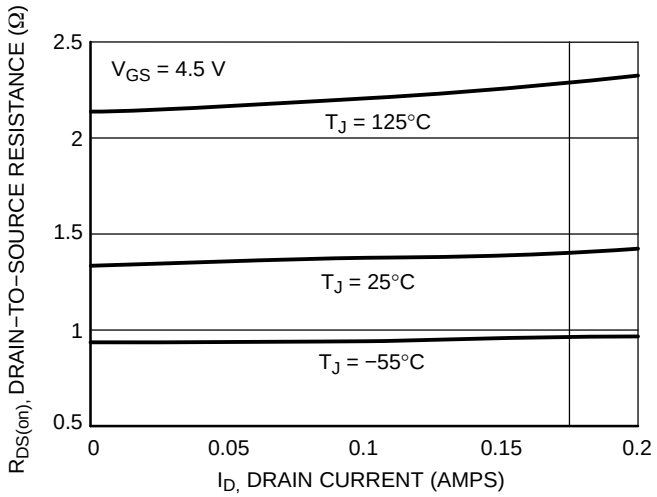
Typical Performance Characteristics



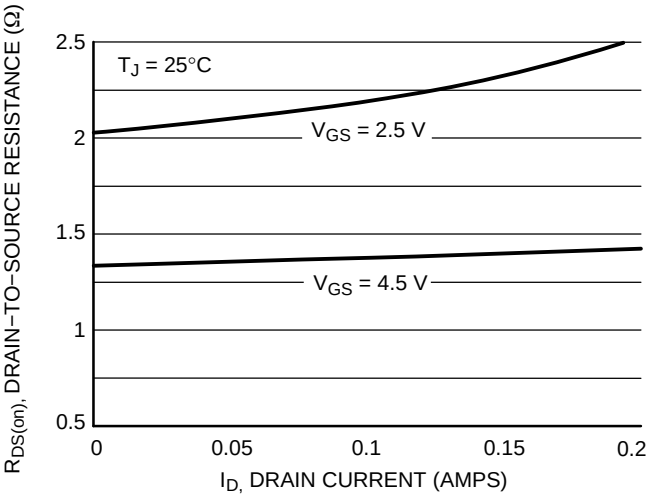
On−Region Characteristics



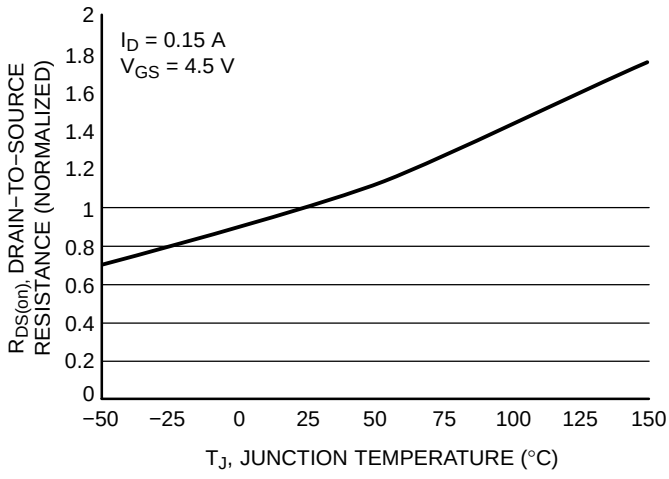
Transfer Characteristics



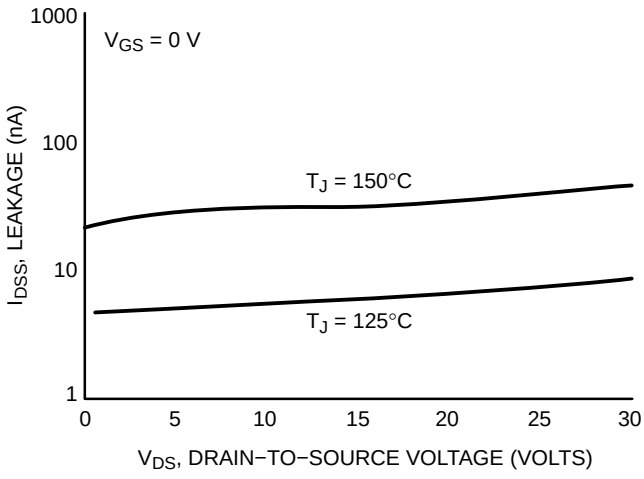
On−Resistance vs. Drain Current and Temperature



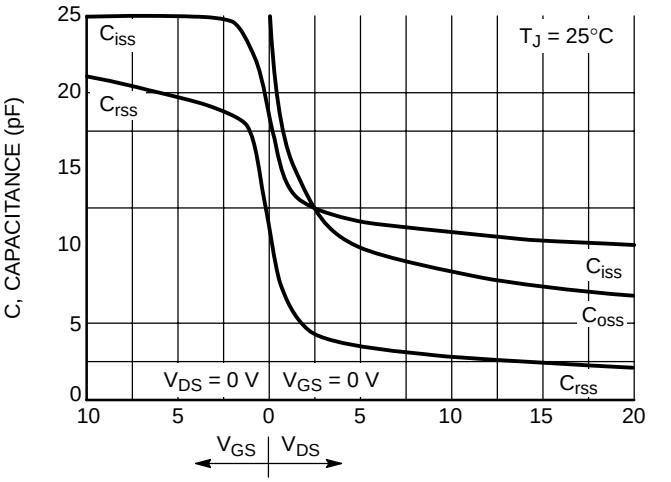
On−Resistance vs. Drain Current and Gate Voltage



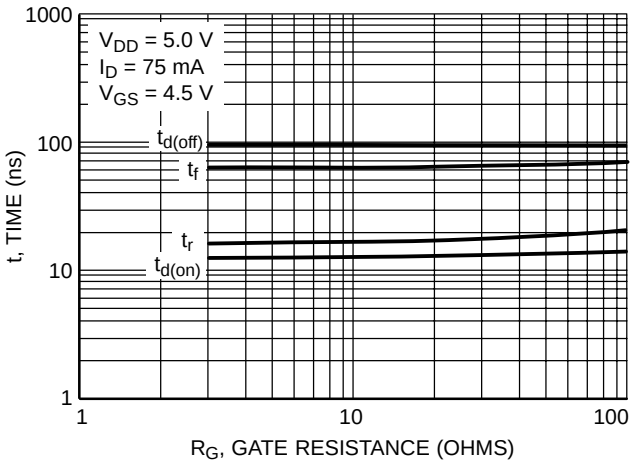
On−Resistance Variation with Temperature



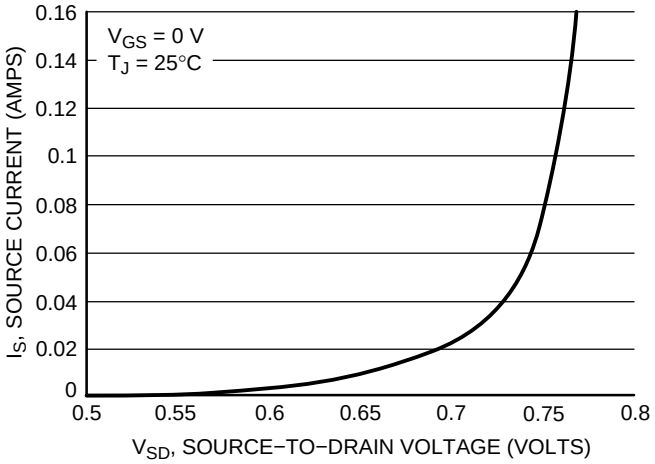
Drain−to−Source Leakage Current vs. Voltage



Capacitance Variation

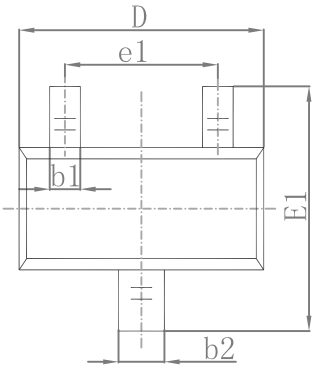


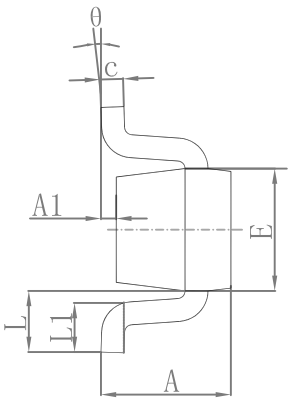
Resistive Switching Time Variation vs. Gate Resistance

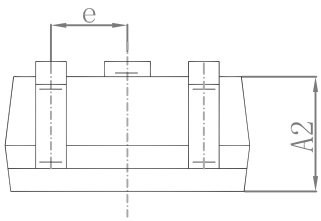


Diode Forward Voltage vs. Current

SOT-523 Package Outline Dimensions

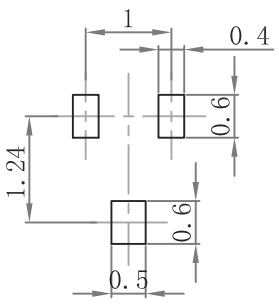






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-523 Suggested Pad Layout



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