

General Description

The WST2066 is the highest performance trench N-ch MOSFETs with extreme high cell density, which provide excellent RDSON and gate charge for most of the small power switching and load switch applications.

The WST2066 meet the RoHS and Green Product requirement with full function reliability approved.

Features

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent Cdv/dt effect decline
- Green Device Available

Product Summery

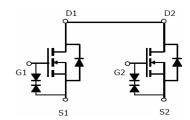
BVDSS	RDSON	ID		
20V	16mΩ	7.2A		

Applications

- Power management in portable and battery operated products
- One cell battery pack protection
- ESD:2KV

SOT-23-6L Pin Configuration





Absolute Maximum Ratings

Symbol	Parameter	Rating	Units	
V_{DS}	Drain-Source Voltage	20	V	
V_{GS}	Gate-Source Voltage	±12	V	
I _D @T _C =25℃	Continuous Drain Current, V _{GS} @ 4.5V ¹	7.2	Α	
I _D @T _C =70°C	Continuous Drain Current, V _{GS} @ 4.5V ¹	5.8	Α	
I _{DM}	Pulsed Drain Current ²	20	Α	
P _D @T _A =25℃	Total Power Dissipation ³	1.4	W	
T _{STG}	Storage Temperature Range	-55 to 150	$^{\circ}\!\mathbb{C}$	
T_J	Operating Junction Temperature Range -55 to 150		°C	

Thermal Data

Symbol	Parameter	Тур.	Max.	Unit
$R_{ heta JA}$	Thermal Resistance Junction-ambient ¹		150	°C/W
$R_{ heta JC}$	Thermal Resistance Junction-Case ¹		70	°C/W

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

Symbol	Parameter	Conditions	Min.	Тур.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	20			V
$\triangle BV_{DSS}/\triangle T_{J}$	BVDSS Temperature Coefficient	Reference to 25℃, I _D =1mA		0.028		V/°C
		V _{GS} =4.5V , I _D =6.7A		16	18	
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =2.5V , I _D =5.2A		20	25	mΩ
		V _{GS} =1.8V , I _D =3A		30	40	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	0.3	0.6	1.5	, , , , ,
$\triangle V_{GS(th)}$	V _{GS(th)} Temperature Coefficient	VGS-VDS , ID -230UA		-3.21		
	Drain-Source Leakage Current	V_{DS} =16V , V_{GS} =0V , T_{J} =25 $^{\circ}{ m C}$			1	uA
I _{DSS}		V _{DS} =16V , V _{GS} =0V , T _J =55℃			5	uA
I _{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 12V$, $V_{DS}=0V$			±100	nA
gfs	Forward Transconductance	V _{DS} =5V , I _D =5A		8		S
R_g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz		4	6	Ω
Qg	Total Gate Charge (4.5V)			13	17	
Q _{gs}	Gate-Source Charge	V _{DS} =10V , V _{GS} =4.5V , I _D =6.7A		1.5	2.5	nC
Q_gd	Gate-Drain Charge			1.8	2.9	
T _{d(on)}	Turn-On Delay Time			6.1		
T _r	Rise Time	V_{DD} =10V , V_{GEN} =4.5V , R_{G} =6 Ω		9.7		ns
T _{d(off)}	Turn-Off Delay Time	I _D =1.0A ,RL=30Ω.		26		
T _f	Fall Time			5.2		
C _{iss}	Input Capacitance	V _{DS} =10V , V _{GS} =0V , f=1MHz		610	725	
C _{oss}	Output Capacitance			140	175	pF
C _{rss}	Reverse Transfer Capacitance			130	150	

Diode Characteristics

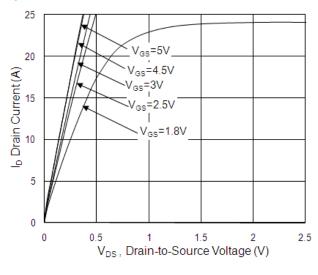
Symbol	Parameter	Conditions	Min.	Тур.	Max.	Unit
I _S	Continuous Source Current ^{1,4}	V =V =0V Force Current			1.0	Α
I _{SM}	Pulsed Source Current ^{2,4}	V _G =V _D =0V , Force Current			20	Α
V_{SD}	Diode Forward Voltage ²	V _{GS} =0V , I _{SD} =1.3A , T _J =25℃			1.3	V
t _{rr}	Reverse Recovery Time			18		nS
Q _{rr}	Reverse Recovery Charge	lF=6.7A,dI/dt=100A/μs , T _J =25℃		12		nC

Note:

- 1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width \leq 300us , duty cycle \leq 2%
- 4.The data is theoretically the same as I_D and I_{DM} , in real applications, should be limited by total power dissipation.



Typical Characteristics



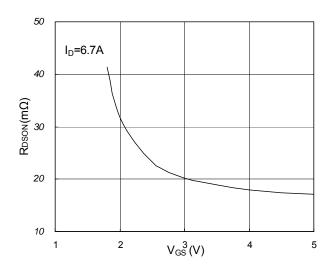


Fig.1 Typical Output Characteristics

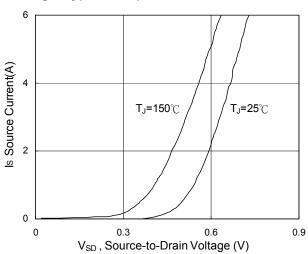


Fig.2 On-Resistance vs. Gate-Source

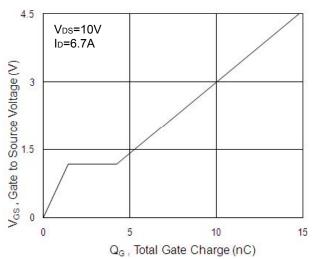


Fig.3 Forward Characteristics of reverse

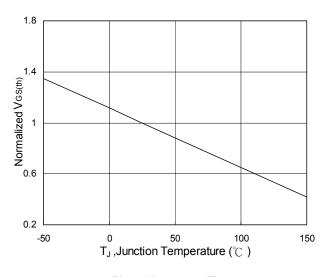


Fig.4 Gate-Charge Characteristics

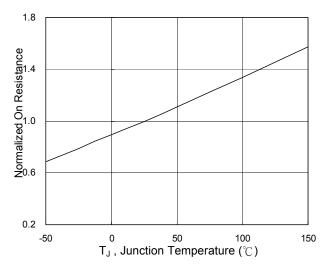
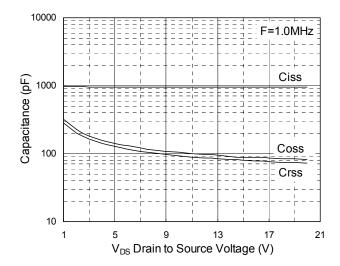


Fig.5 $V_{GS(th)}$ vs. T_J

Fig.6 Normalized R_{DSON} vs. T_{J}





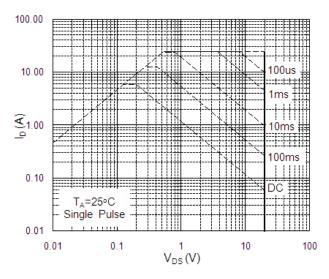


Fig.7 Capacitance

Fig.8 Safe Operating Area

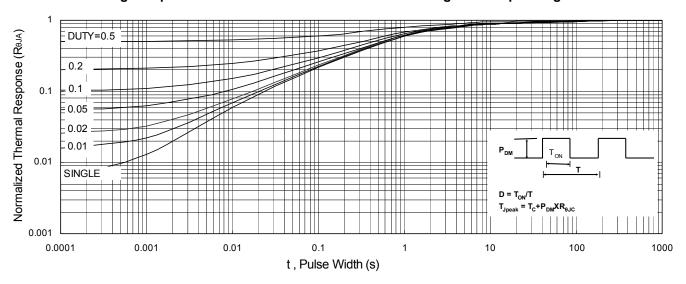


Fig.9 Normalized Maximum Transient Thermal Impedance

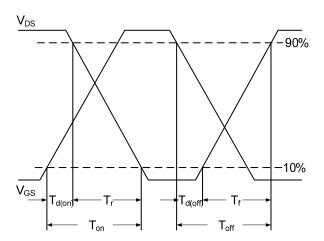


Fig.10 Switching Time Waveform

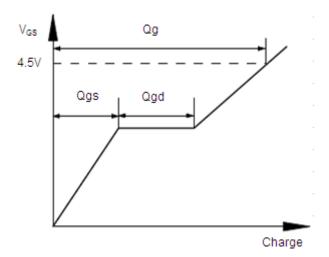


Fig.11 Gate Charge Waveform



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