

## General Description

The WST2035 is the highest performance trench P-Ch MOSFET with extreme high cell density , which provide excellent RDS(on) and gate charge for most of the synchronous buck converter applications .

The WST2035 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

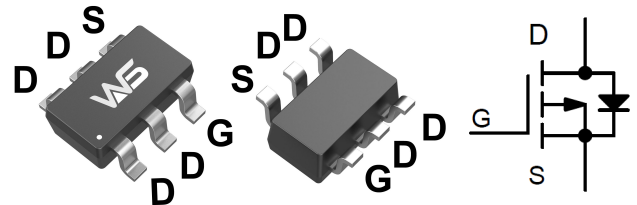
## Product Summary

BVDSS	RDS(on)	ID
-20V	37mΩ	-4A

## Applications

- Portable Equipment and Battery Powered Systems.
- Power Management in Notebook Computer

## SOT- 23-6L Pin Configuration



## Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V <sub>DS</sub>	Drain-Source Voltage	-20	V
V <sub>GS</sub>	Gate-Source Voltage	±8	V
I <sub>D</sub> @T <sub>A</sub> =25°C	Continuous Drain Current, V <sub>GS</sub> @ -4.5V <sup>1</sup>	-4	A
I <sub>D</sub> @T <sub>A</sub> =70°C	Continuous Drain Current, V <sub>GS</sub> @ -4.5V <sup>1</sup>	-3.2	A
I <sub>DM</sub>	Pulsed Drain Current <sup>2</sup>	-30	A
P <sub>D</sub> @T <sub>A</sub> =25°C	Total Power Dissipation <sup>3</sup>	0.35	W
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	°C
T <sub>J</sub>	Operating Junction Temperature Range	-55 to 150	°C

## Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R <sub>θJA</sub>	Thermal Resistance Junction-Ambient <sup>1</sup>	---	357	°C/W
R <sub>θJC</sub>	Thermal Resistance Junction-Case <sup>1</sup>	---	85	°C/W

**Electrical Characteristics (T<sub>J</sub>=25 °C, unless otherwise noted)**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-20	---	---	V
ΔBV <sub>DSS</sub> /ΔT <sub>J</sub>	BV <sub>DSS</sub> Temperature Coefficient	Reference to 25°C, I <sub>D</sub> =-1mA	---	-0.016	---	V/°C
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance <sup>2</sup>	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-4.0A	---	37	50	mΩ
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-4.0A	---	45	60	
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =-250uA	-0.3	-0.56	-1.0	V
ΔV <sub>GS(th)</sub>	V <sub>GS(th)</sub> Temperature Coefficient		---	3.97	---	mV/°C
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> =-20V, V <sub>GS</sub> =0V, T <sub>J</sub> =25°C	---	---	-1	uA
		V <sub>DS</sub> =-20V, V <sub>GS</sub> =0V, T <sub>J</sub> =125°C	---	---	-30	
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> =±10V, V <sub>DS</sub> =0V	---	---	±100	nA
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =-5V, I <sub>D</sub> =-3A	8	16	---	S
Q <sub>g</sub>	Total Gate Charge (-4.5V)	V <sub>DS</sub> =-16V, V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-4.0A	---	17.2	---	nC
Q <sub>gs</sub>	Gate-Source Charge		---	1.3	---	
Q <sub>gd</sub>	Gate-Drain Charge		---	4.5	---	
T <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DD</sub> =-10V, V <sub>GEN</sub> =-4.5V, R <sub>G</sub> =6Ω, I <sub>D</sub> =-4A	---	9.5	---	ns
T <sub>r</sub>	Rise Time		---	17	---	
T <sub>d(off)</sub>	Turn-Off Delay Time		---	94	---	
T <sub>f</sub>	Fall Time		---	35	---	
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =-10V, V <sub>GS</sub> =0V, f=1MHz	---	1450	---	pF
C <sub>oss</sub>	Output Capacitance		---	205	---	
C <sub>rss</sub>	Reverse Transfer Capacitance		---	160	---	

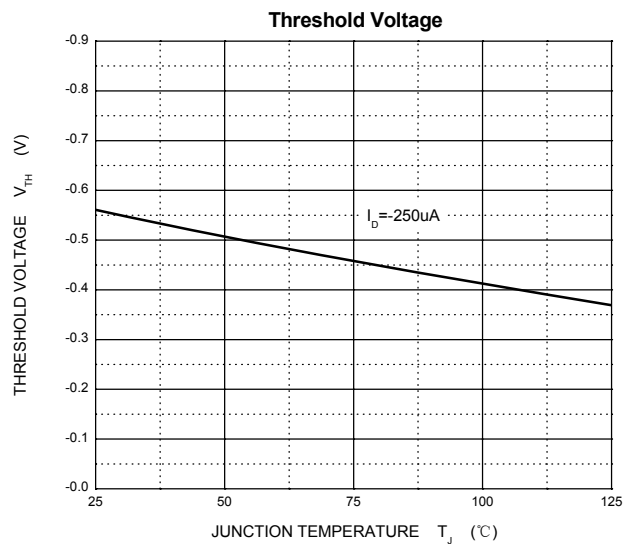
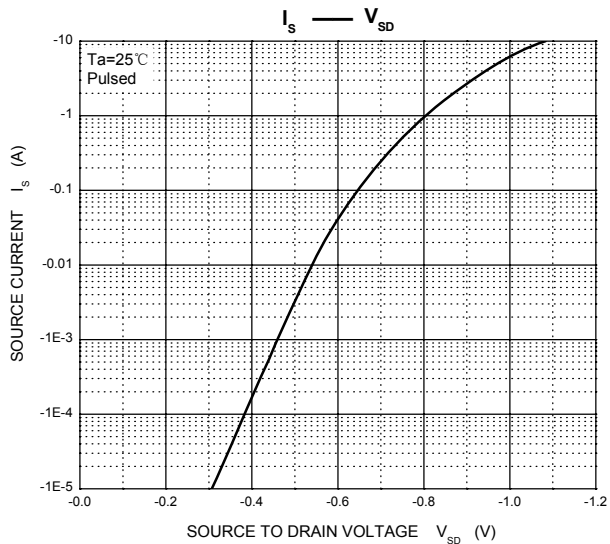
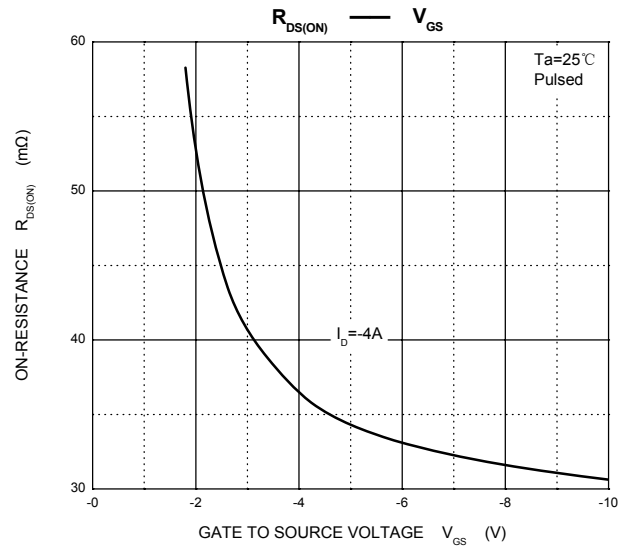
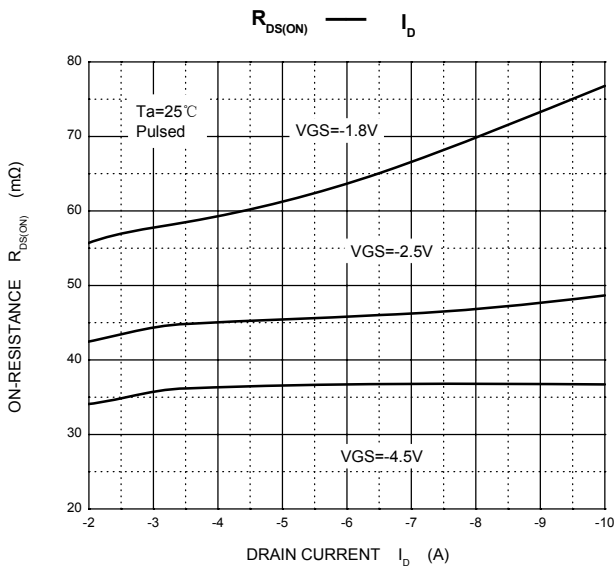
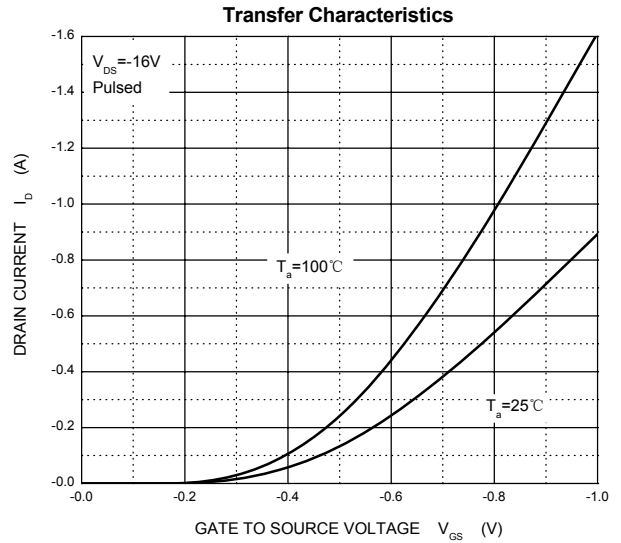
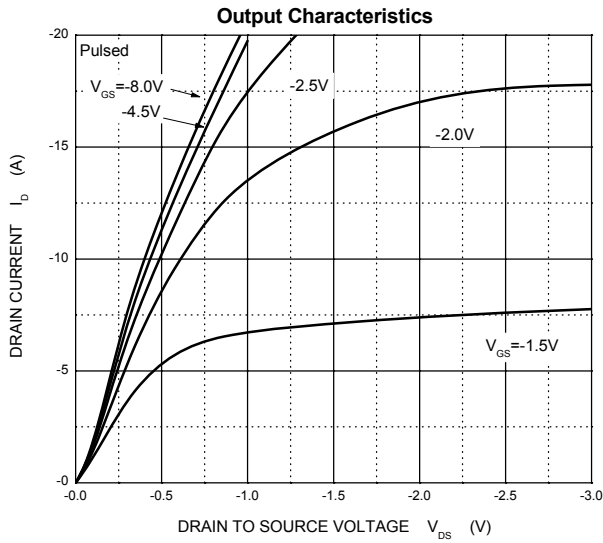
**Diode Characteristics**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I <sub>S</sub>	Continuous Source Current <sup>1,4</sup>	V <sub>G</sub> =V <sub>D</sub> =0V, Force Current	---	---	-1.0	A
I <sub>SM</sub>	Pulsed Source Current <sup>2,4</sup>		---	---	-4.0	A
V <sub>SD</sub>	Diode Forward Voltage <sup>2</sup>	V <sub>GS</sub> =0V, I <sub>S</sub> =-1A, T <sub>J</sub> =25°C	---	---	-1.2	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>F</sub> =-4.0A, dI/dt=100A/μs, T <sub>J</sub> =25°C	---	9.5	---	nS
Q <sub>rr</sub>	Reverse Recovery Charge		---	94	---	nC

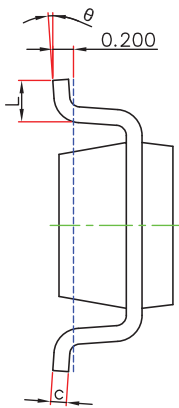
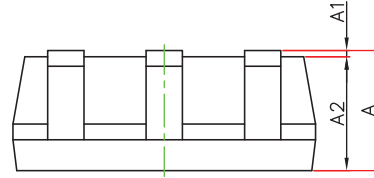
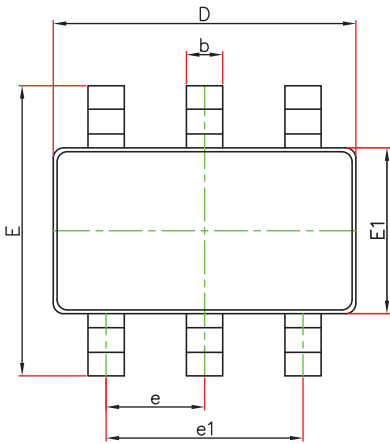
**Notes:**

1. Repetitive rating, pulse width limited by junction temperature.
2. Puls Test : Pulse width ≤300μs, duty cycle ≤2%.
3. These parameters have no way to verify.

**Typical Characteristics**

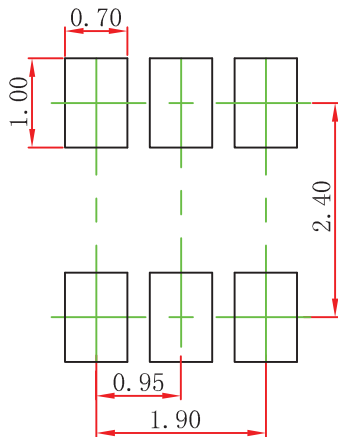


**SOT-23-6L Package Outline Dimensions**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
$\theta$	0°	8°	0°	8°

**SOT-23-6L Suggested Pad Layout**



**Note:**

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.

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