



## 30V N-Channel Trench Power MOSFET

### General Description

The SJS3400LB uses advanced trench technology to provide excellent  $R_{DS(ON)}$ , low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a wide variety of applications.

### Features

- Low Gate Charge
- High Power and current handing capability
- Lead free product is acquired

### Application

- PWM Applications
- Load Switch
- Power Management

### Key Performance Parametes

Parameter	Value	Unit
$V_{DS}$	30	V
$R_{DS(ON\_TYP)}$	26.5	m $\Omega$
$I_D$	5.5	A
$Q_G$	14	nC



### Package Marking and Ordering Information

Device/Ordering Code	Marking	Package	Packing	Reel Size	Tape width	Quantity
SJS3400LB	3400L	SOT-23	Tape	\	\	3000 Pcs

**Table 1. Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$  unless otherwise noted)**

Symbol	Parameter	Limit	Unit
$V_{DS}$	Drain-Source Voltage ( $V_{GS}=0V$ )	30	V
$V_{GS}$	Gate-Source Voltage ( $V_{DS}=0V$ )	$\pm 20$	V
$I_D$	Drain Current-Continuous( $T_A=25^\circ\text{C}$ )	5.5	A
	Drain Current-Continuous( $T_A=100^\circ\text{C}$ )	3.5	A
$I_{DM}$ (pluse)	Drain Current-Continuous@ Current-Pulsed (Note 1)	22	A
$P_D$	Maximum Power Dissipation( $T_A=25^\circ\text{C}$ )	1.6	W
	Maximum Power Dissipation( $T_A=100^\circ\text{C}$ )	0.6	W
$E_{AS}$	Avalanche energy (Note 2)	25	mJ
$T_J, T_{STG}$	Operating Junction and Storage Temperature Range	-55 To 150	$^\circ\text{C}$

**Table 2. Thermal Characteristic**

Symbol	Parameter	Typ	Max	Unit
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient		80	$^\circ\text{C}/\text{W}$



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**Table 3. Electrical Characteristics ( $T_J=25^\circ\text{C}$  unless otherwise noted)**

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>On/Off States</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30			V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V, T_J=25^\circ\text{C}$			1	$\mu A$
		$V_{DS}=30V, V_{GS}=0V, T_J=125^\circ\text{C}$			100	$\mu A$
$I_{GSS}$	Gate-Body Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$			$\pm 100$	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.45		1.25	V
$g_{FS}$	Forward Transconductance	$V_{DS}=5V, I_D=2A$		5.5		S
$R_{DS(ON)}$	Drain-Source On-State Resistance	$V_{GS}=10V, I_D=3A, T_J=25^\circ\text{C}$		26.5	33.1	m $\Omega$
$R_{DS(ON)}$	Drain-Source On-State Resistance	$V_{GS}=4.5V, I_D=2A, T_J=25^\circ\text{C}$		30	39.9	m $\Omega$
$R_{DS(ON)}$	Drain-Source On-State Resistance	$V_{GS}=2.5V, I_D=2A, T_J=25^\circ\text{C}$		41	54.5	m $\Omega$
<b>Dynamic Characteristics</b>						
$C_{iss}$	Input Capacitance	$V_{DS}=15V, V_{GS}=0V, f=1.0\text{MHz}$		623		pF
$C_{oss}$	Output Capacitance			48		pF
$C_{riss}$	Reverse Transfer Capacitance			39		pF
$R_g$	Gate resistance	$V_{GS}=0V, V_{DS}=0V, f=1.0\text{MHz}$		3.7		$\Omega$
<b>Switching Parameters</b>						
$t_{d(on)}$	Turn-on Delay Time	$V_{GS}=10V, V_{DS}=15V, R_L=5\Omega, R_{GEN}=3\Omega$		6		nS
$t_r$	Turn-on Rise Time			45		nS
$t_{d(off)}$	Turn-Off Delay Time			26		nS
$t_f$	Turn-Off Fall Time			3		nS
$Q_g$	Total Gate Charge	$V_{GS}=10V, V_{DS}=15V, I_D=3A$		14		nC
$Q_{gs}$	Gate-Source Charge			1.3		nC
$Q_{gd}$	Gate-Drain Charge			1.7		nC
<b>Source-Drain Diode Characteristics</b>						
$I_{SD}$	Source-Drain Current (Body Diode)				5.5	A
$V_{SD}$	Forward on Voltage (Note 3)	$V_{GS}=0V, I_S=3A$			1.2	V
$t_{rr}$	Reverse Recovery Time	$I_F=3A, dI/dt=100A/\mu s$		15		ns
$Q_{rr}$	Reverse Recovery Charge	$I_F=3A, dI/dt=100A/\mu s$		3		nC

Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature.

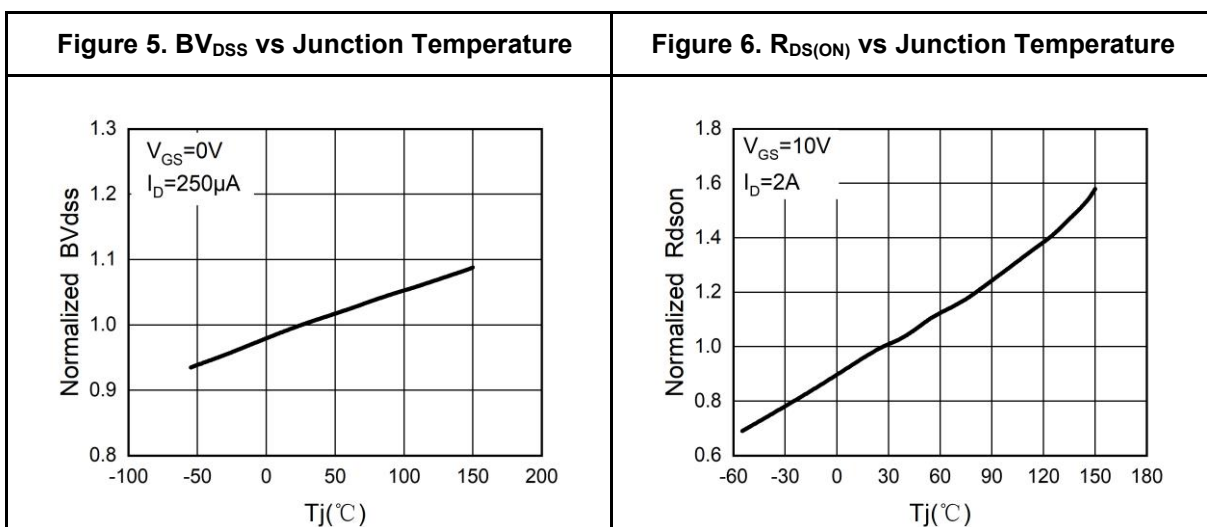
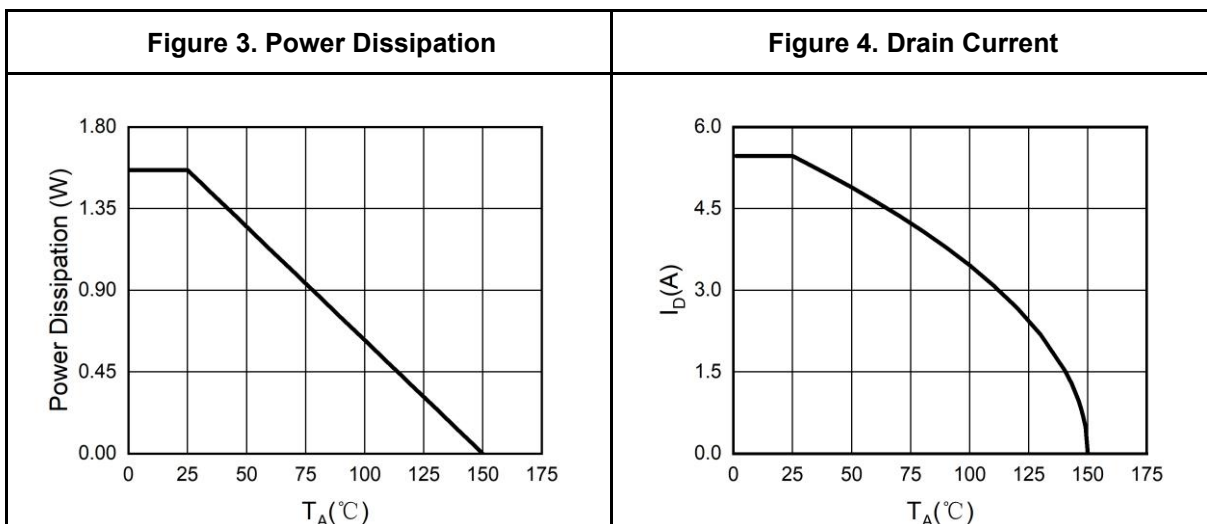
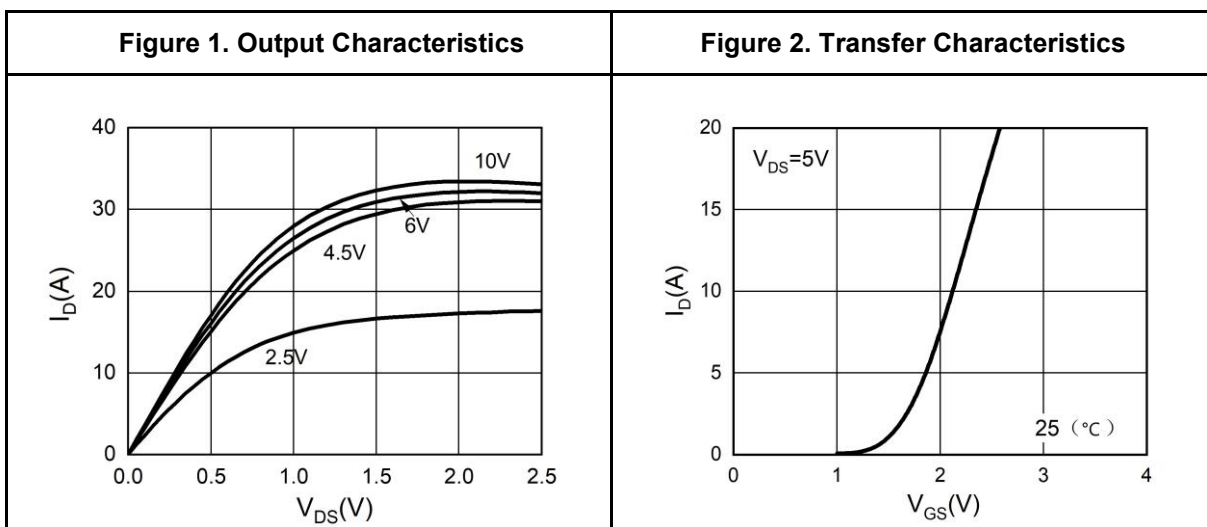
Notes 2.EAS condition:  $T_J=25^\circ\text{C}, V_{DS}=30V, V_G=10V, R_g=25\Omega, L=0.5\text{mH}$ .

Notes 3.Repetitive Rating: Pulse width limited by maximum junction temperature.



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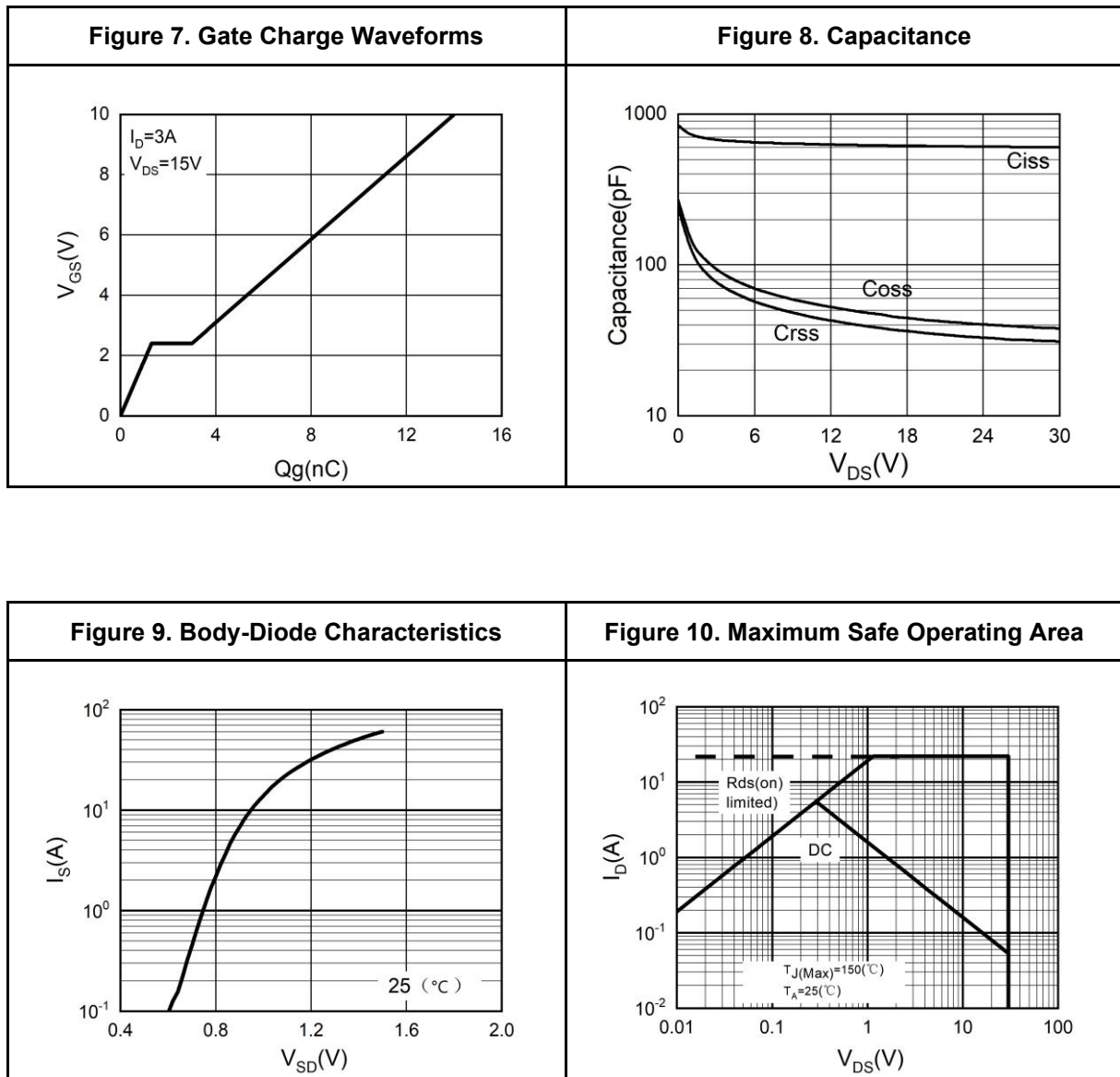
## Typical Electrical And Thermal Characteristics (Curves)





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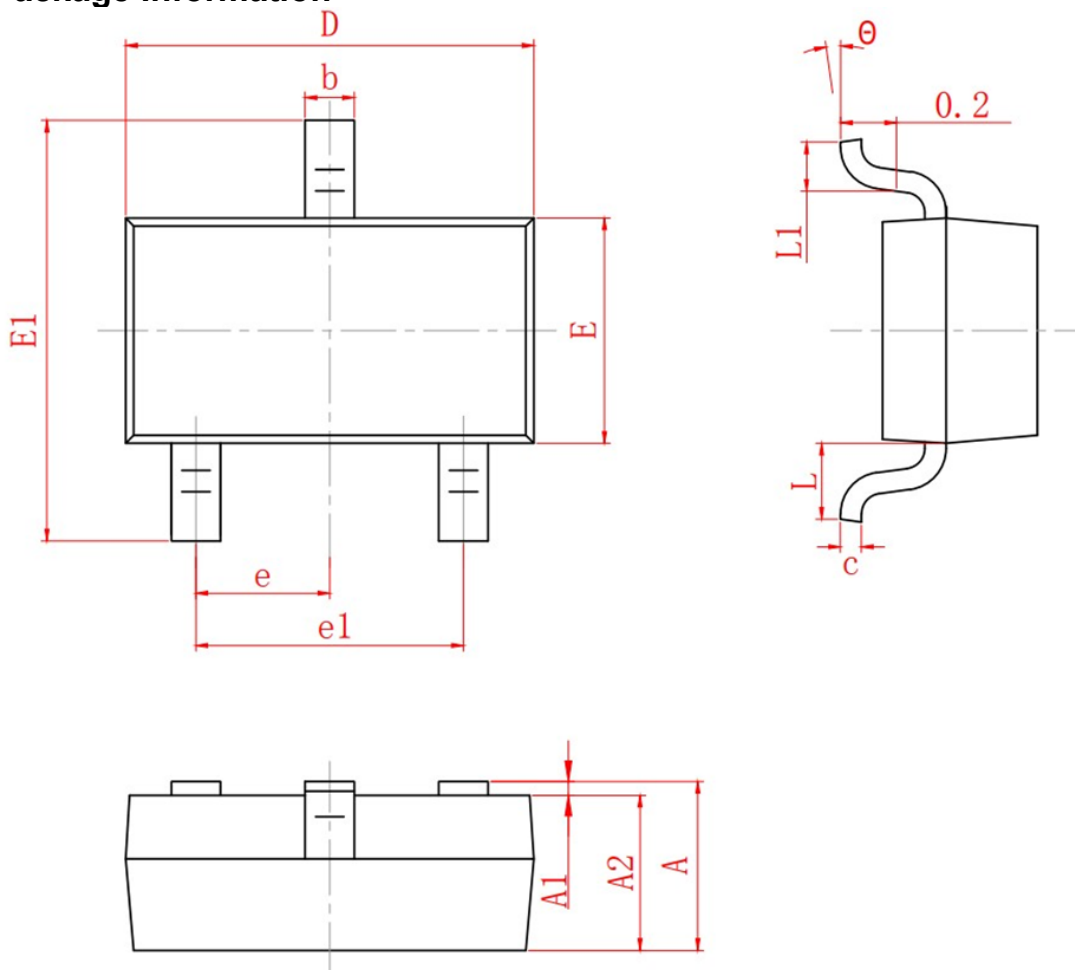
## Typical Electrical And Thermal Characteristics (Curves)





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#### SOT-23 Package Information



SYMBOL	MIN	NOM	MAX
A	0.90	1.05	1.20
A1	0.00	0.05	0.10
A2	0.90	1.00	1.10
b	0.30	0.40	0.50
c	0.08	0.10	0.15
D	2.80	2.90	3.00
E	1.20	1.30	1.40
E1	2.30	2.40	2.50
L	0.30	0.40	0.50
$\theta$	0°	5°	10°
L1	0.55 REF		
e	0.95 BSC		
e1	1.90 REF		



## **Attention**

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