

Description

The SX3400CI 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 Battery protection or in other Switching application.

General Features

$V_{DS} = 30V$ $I_D = 5.2A$

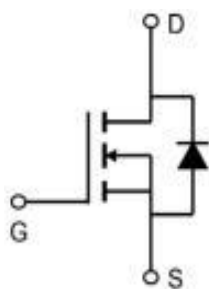
$R_{DS(ON)} < 38m\Omega$ @ $V_{GS}=10V$

Application

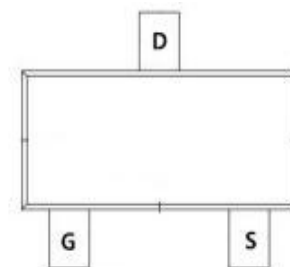
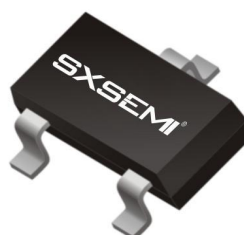
Battery protection

Load switch

Uninterruptible power supply



SOT-23



Absolute Maximum Ratings ($T_c=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Max.	Units
V_{DSS}	Drain-Source Voltage	30	V
V_{GSS}	Gate-Source Voltage	± 12	V
$I_D @ T_A=25^\circ\text{C}$	Continuous Drain Current	5.2	A
$I_D @ T_A=70^\circ\text{C}$	Continuous Drain Current	3.6	A
I_{DM}	Pulsed Drain Current	16	A
P_D	Power Dissipation $T_A = 25^\circ\text{C}$	1.1	W
$R_{\theta JA}$	Thermal Resistance, Junction to Case	113.6	$^\circ\text{C/W}$
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	$^\circ\text{C}$

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V(BR)DSS	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	30	32	-	V
IDSS	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V,	-	-	1.0	μA
IGSS	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±12V	-	-	±100	nA
VGS(th)	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	0.5	0.9	1.4	V
RDS(on)	Static Drain-Source on-Resistance	V _{GS} =10V, I _D =4A	-	32	42	mΩ
RDS(on)	Static Drain-Source on-Resistance	V _{GS} =4.5V, I _D =3A	-	36	48	mΩ
RDS(on)	Static Drain-Source on-Resistance	V _{GS} =2.5V, I _D =2A	-	50	70	mΩ
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1.0MHz	-	285	-	pF
C _{oss}	Output Capacitance		-	33	-	pF
C _{rss}	Reverse Transfer Capacitance		-	27	-	pF
Q _g	Total Gate Charge	V _{DS} =15V, I _D =4A, V _{GS} =4.5V	-	2.6	-	nC
Q _{gs}	Gate-Source Charge		-	0.6	-	nC
Q _{gd}	Gate-Drain("Miller") Charge		-	0.9	-	nC
td(on)	Turn-on Delay Time	V _{DS} =15V, I _D =2A, R _{GEN} =3Ω, V _{GS} =4.5V	-	15	-	ns
t _r	Turn-on Rise Time		-	42	-	ns
td(off)	Turn-off Delay Time		-	16	-	ns
t _f	Turn-off Fall Time		-	10	-	ns
IS	Maximum Continuous Drain to Source Diode Forward Current		-	-	4	A
ISM	Maximum Pulsed Drain to Source Diode Forward Current		-	-	16	A
VSD	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S =4A	-	-	1.2	V

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 ≦ 300us , duty cycle ≦ 2%
- 3、The power dissipation is limited by 150°C 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 Characteristics

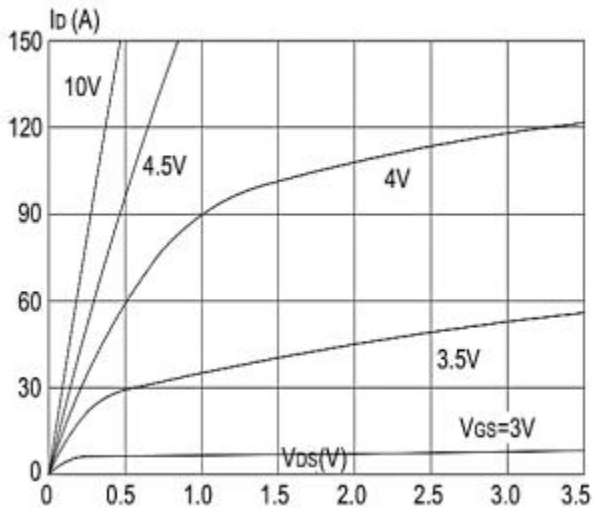


Figure1: Output Characteristics

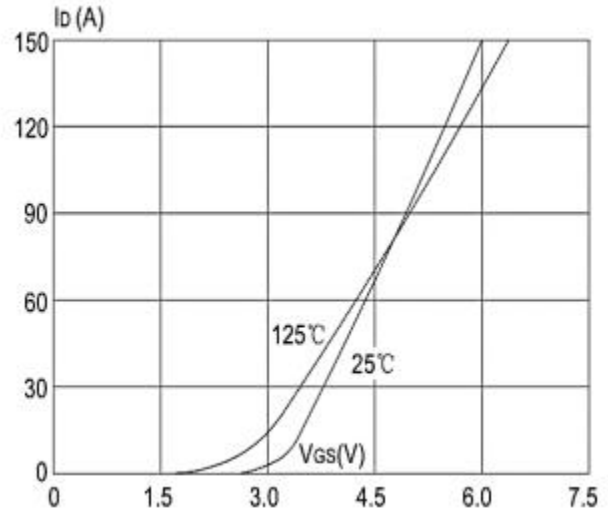


Figure 2: Typical Transfer Characteristics

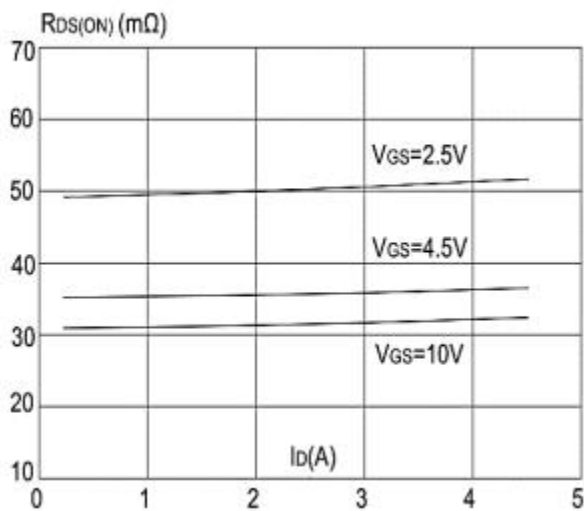


Figure 3: On-resistance vs. Drain Current

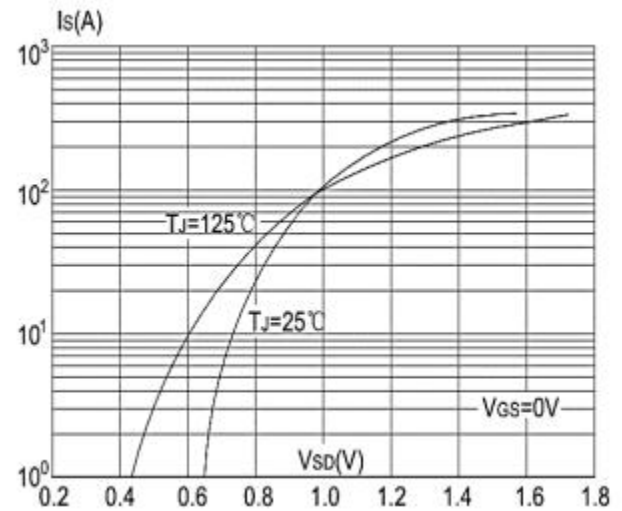


Figure 4: Body Diode Characteristics

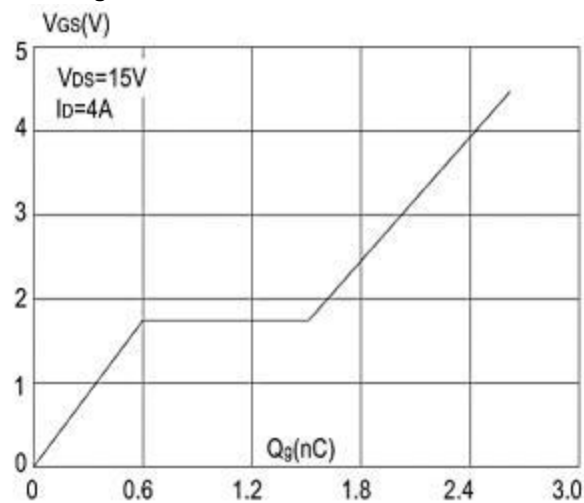


Figure 5: Gate Charge Characteristics

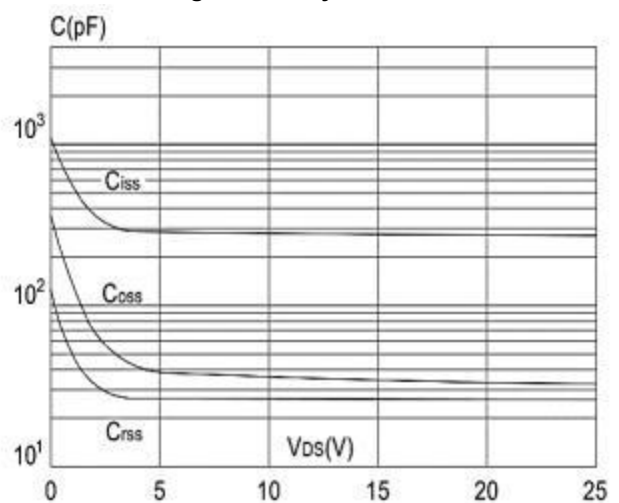


Figure 6: Capacitance Characteristics

Typical Characteristics

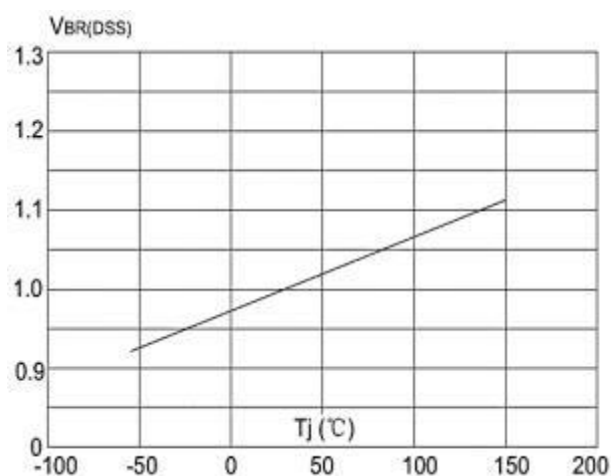


Figure 7: Normalized Breakdown Voltage vs Junction Temperature

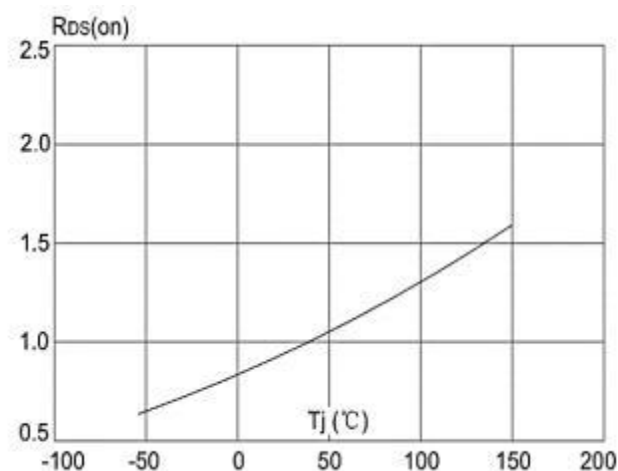


Figure 8: Normalized on Resistance vs. Junction Temperature

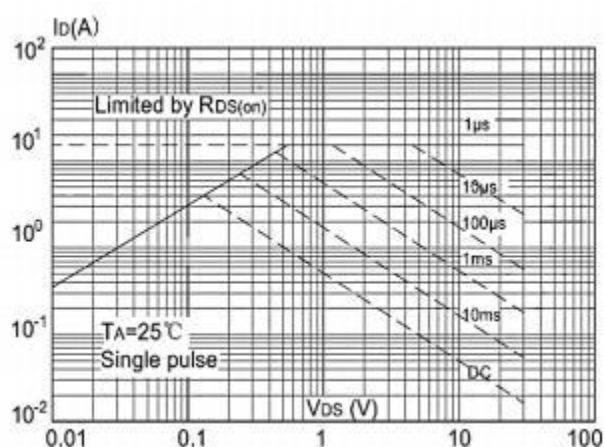


Figure 9: Maximum Safe Operating Area

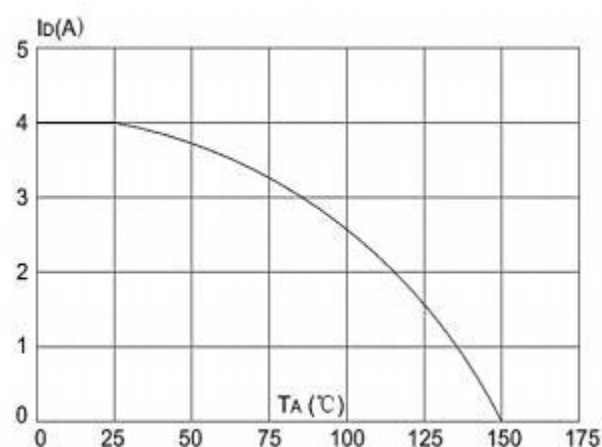


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

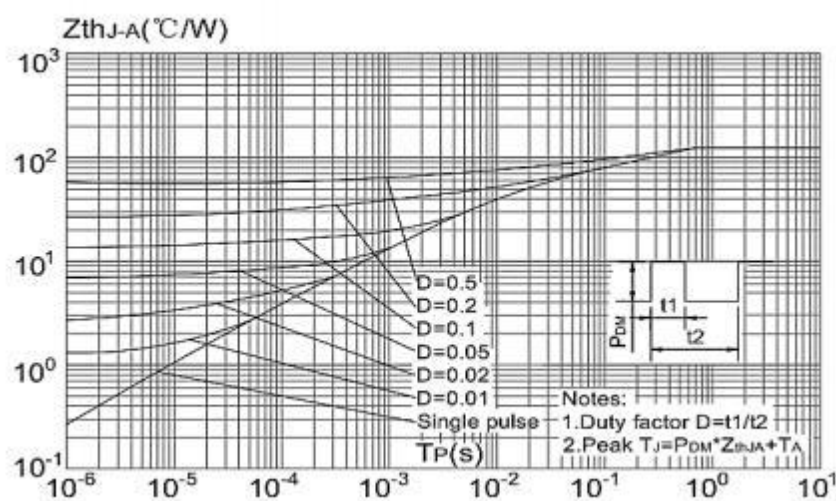
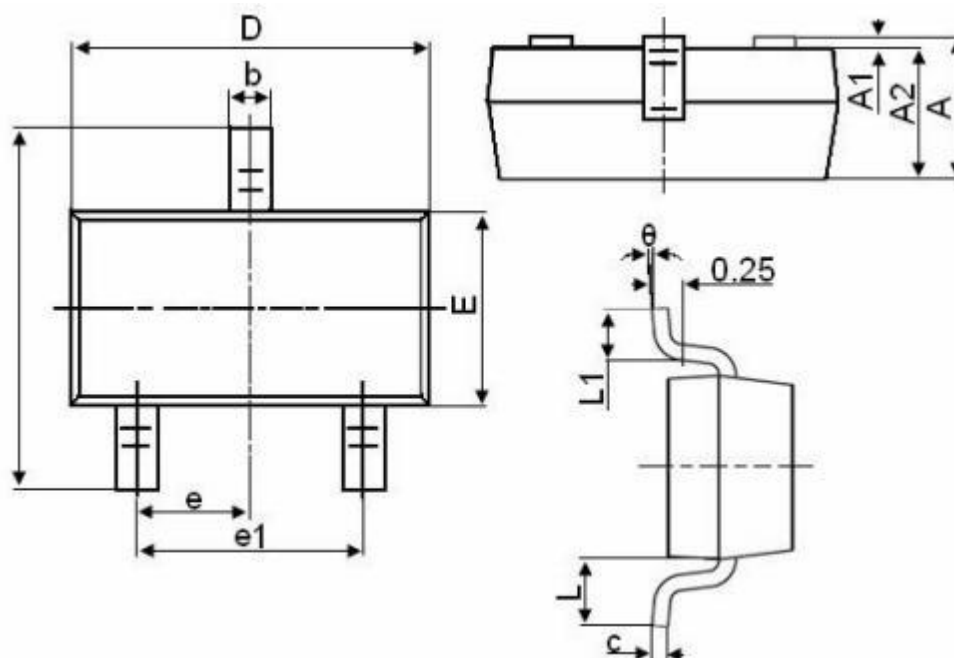


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambien

Package Mechanical Data-SOT23-XC-Single



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
TAPING	SOT23		3000