

Description

The SX03P35MI uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 10V. This device is suitable for use as a Battery protection or in other Switching application.

General Features

$V_{DS} = -350V$ $I_D = -0.3A$

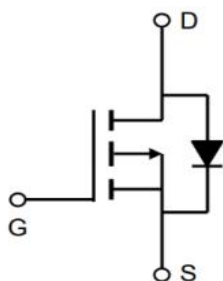
$R_{DS(ON)} < 22\Omega$ @ $V_{GS}=10V$

Application

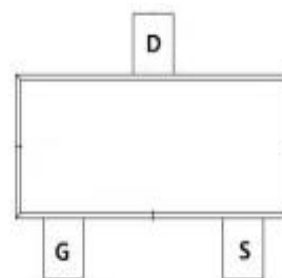
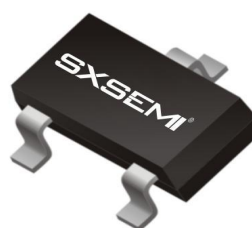
Brushless motor

Load switch

Uninterruptible power supply



SOT-23-3L



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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-350	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_A=25^\circ\text{C}$	Continuous Drain Current, $-V_{GS}$ @ $-10V^1$	-0.3	A
$I_D@T_A=70^\circ\text{C}$	Continuous Drain Current, $-V_{GS}$ @ $-10V^1$	-0.12	A
I_{DM}	Pulsed Drain Current ²	-0.9	A
E_{AS}	Single Pulse Avalanche Energy ³	45.5	mJ
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation ⁴	0.2	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ¹	125	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	250	$^\circ\text{C/W}$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BVDSS	Drain-Source Breakdown Voltage	VGS=0V , ID=-250uA	-350	-380	---	V
RDS(ON)	Static Drain-Source On-Resistance	VGS=-10V , ID=-1A	---	13	22	Ω
VGS(th)	Gate Threshold Voltage	VGS=VDS , ID =-250uA	-1.0	-2.0	-3.0	V
IDSS	Drain-Source Leakage Current	VDS=-350V , VGS=0V , TJ=25℃	---	---	1	uA
IDSS	Drain-Source Leakage Current	VDS=-350V , VGS=0V , TJ=85℃	---	---	100	uA
IGSS	Gate-Source Leakage Current	VGS=±20V , VDS=0V	---	---	±100	nA
Rg	Gate Resistance	VDS=0V , VGS=0V , f=1MHz	---	12	---	Ω
Qg	Total Gate Charge	VDS=-25V , VGS=-10V , ID=-0.3A	---	1.8	---	nC
Qgs	Gate-Source Charge		---	0.5	---	nC
Qgd	Gate-Drain Charge		---	0.2	---	nC
Td(on)	Turn-On Delay Time	VDD=-10V , VGS=-10V , RG=25Ω, ID=-0.3A	---	12	---	ns
Tr	Rise Time		---	60	---	ns
Td(off)	Turn-Off Delay Time		---	136	---	ns
Tf	Fall Time		---	320	---	ns
Ciss	Input Capacitance	VDS=-25V , VGS=0V , f=1MHz	---	44	---	pF
Coss	Output Capacitance		---	6.95	---	pF
Crss	Reverse Transfer Capacitance		---	0.84	---	pF

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 $\leq 300\mu s$, duty cycle $\leq 2\%$

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 Characteristics

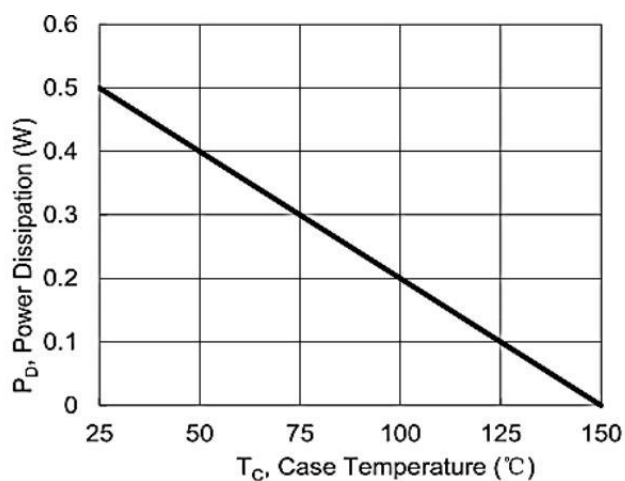


Figure 1. Maximum Power Dissipation vs. Case Temperature

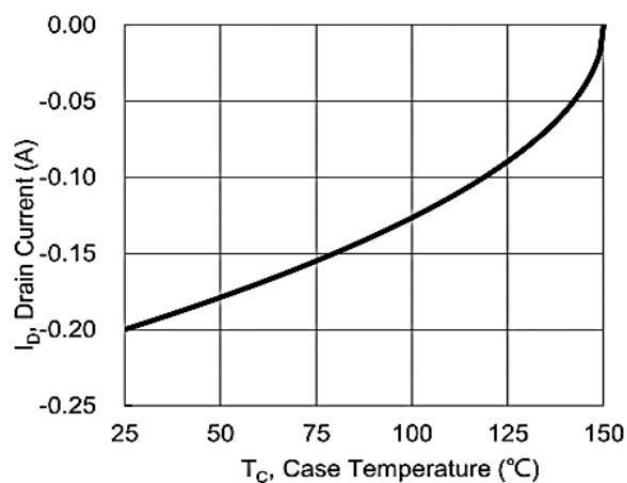


Figure 2. Maximum Continuous Drain Current vs Case Temperature

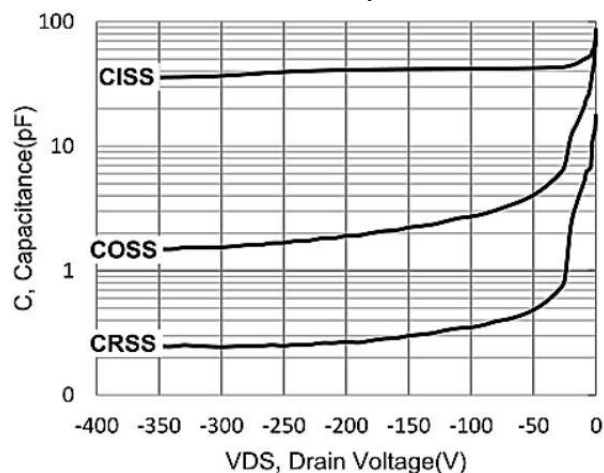


Figure 3. Typical Capacitance vs. Drain-to-Source Voltage

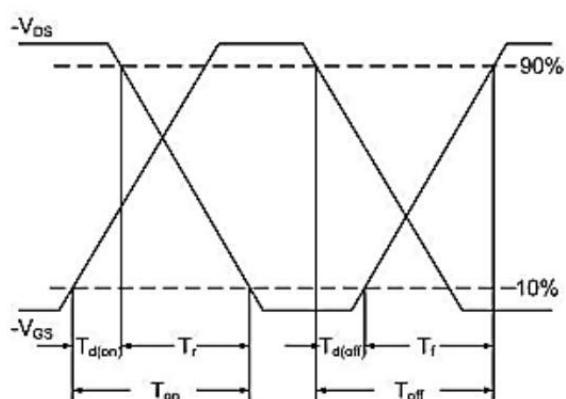


Fig.10 Switching Time Waveform

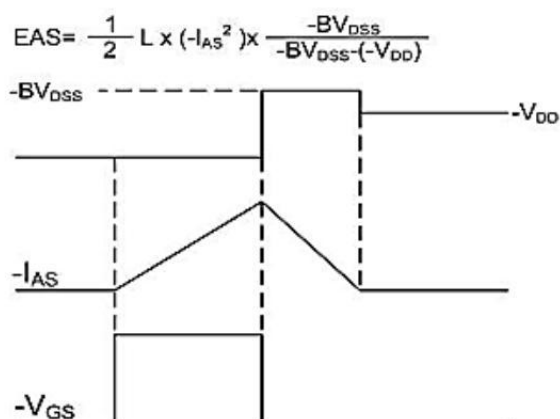
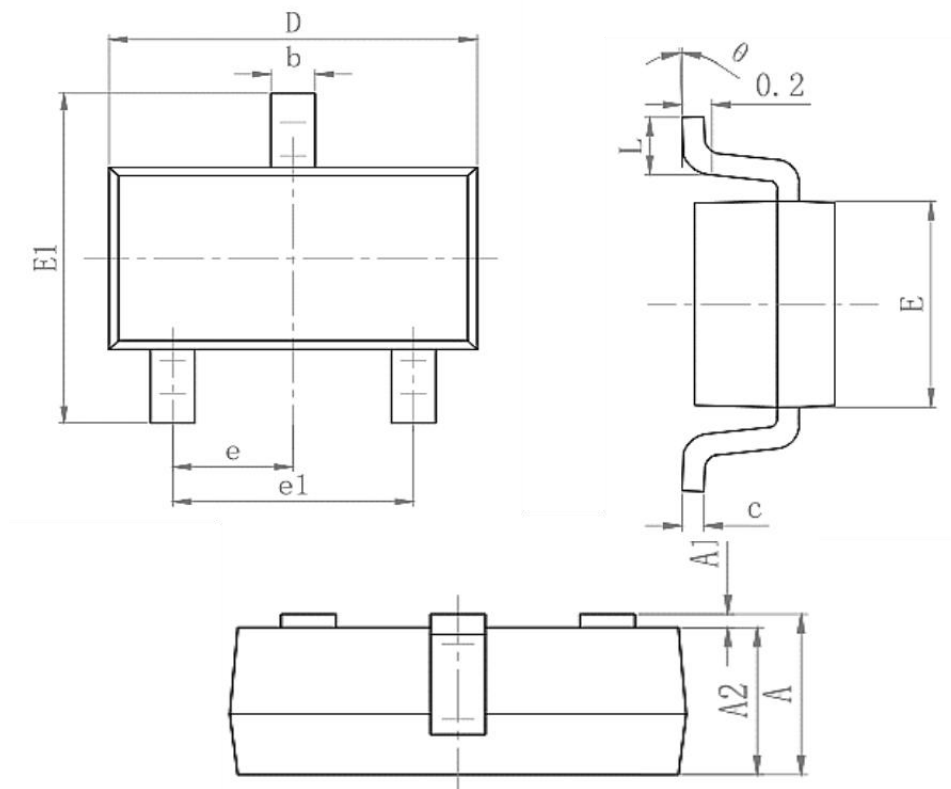


Fig.11 Unclamped Inductive Waveform

Package Mechanical Data-SOT23-3-XC-Single



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.25	0.45
c	0.100	0.200
D	2.820	3.020
E	1.5	1.7
E1	2.650	2.950
e	0.950(BSC)	
e1	1.800	2.000
L	0.300	0.500
θ	0°	8°

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
TAPING	SOT-23-3L		3000