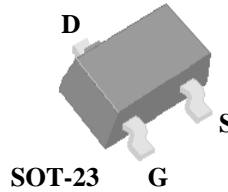
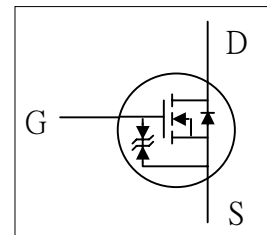


- ▼ Simple Drive Requirement
- ▼ Small Package Outline
- ▼ Surface Mount Device
- ▼ Halogen Free & RoHS Compliant Product



BV_{DSS}	600V
$R_{DS(ON)}$	72 Ω
I_D	51mA



Description

XSemi MOSFETs utilized advanced processing techniques to achieve the lowest possible on-resistance, extremely efficient and cost-effectiveness device.

The special design SOT-23 package with good thermal performance is widely preferred for all commercial-industrial surface mount applications using infrared reflow technique and suited for voltage conversion or switch applications.

Absolute Maximum Ratings @ $T_j=25^\circ\text{C}$ (unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	600	V
V_{GS}	Gate-Source Voltage	± 32	V
$I_D @ T_A=25^\circ\text{C}$	Drain Current ³ , V_{GS} @ 10V	51	mA
$I_D @ T_A=70^\circ\text{C}$	Drain Current ³ , V_{GS} @ 10V	41	mA
$I_D @ T_A=70^\circ\text{C}$	Drain Current ⁴ , V_{GS} @ 10V	68	mA
I_{DM}	Pulsed Drain Current ¹	300	mA
$P_D @ T_A=25^\circ\text{C}$	Total Power Dissipation	0.5	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Value	Unit
Rthj-a	Maximum Thermal Resistance, Junction-ambient ³	250	$^\circ\text{C}/\text{W}$

Electrical Characteristics @T_j=25°C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	600	-	-	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =60mA	-	-	72	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	2	-	5	V
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =60mA	-	110	-	mS
I _{DSS}	Drain-Source Leakage Current	V _{DS} =480V, V _{GS} =0V	-	-	25	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =±32V, V _{DS} =0V	-	-	±30	uA
Q _g	Total Gate Charge ²	I _D =0.1A	-	2	3.2	nC
Q _{gs}	Gate-Source Charge	V _{DS} =200V	-	1	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =10V	-	0.3	-	nC
t _{d(on)}	Turn-on Delay Time ²	V _{DS} =300V	-	10	-	ns
t _r	Rise Time	I _D =60mA	-	7	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω	-	15	-	ns
t _f	Fall Time	V _{GS} =10V	-	70	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	40	64	pF
C _{oss}	Output Capacitance	V _{DS} =25V	-	13.5	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	3.5	-	pF

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =0.05A, V _{GS} =0V	-	-	1.5	V

Notes:

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse test
- 3.Mounted on min. copper pad FR4 board
- 4.Mounted on 1 in² copper pad FR4 board t ≤ 10s thermal resistance.

THIS PRODUCT IS SENSITIVE TO ELECTROSTATIC DISCHARGE, PLEASE HANDLE WITH CAUTION.

USE OF THIS PRODUCT AS A CRITICAL COMPONENT IN LIFE SUPPORT OR OTHER SIMILAR SYSTEMS IS NOT AUTHORIZED.

XSEMI DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

XSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN.

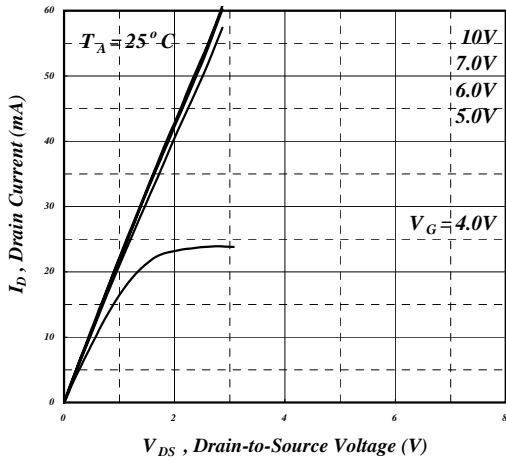


Fig 1. Typical Output Characteristics

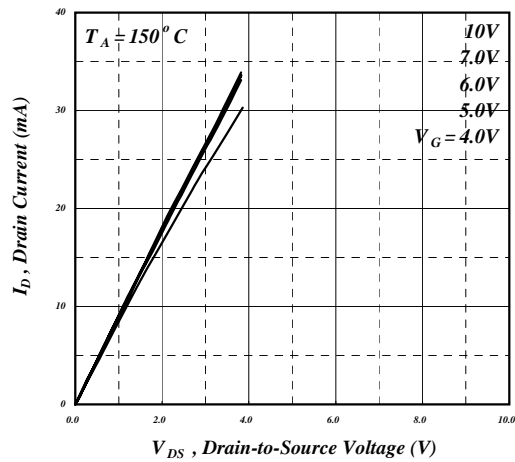


Fig 2. Typical Output Characteristics

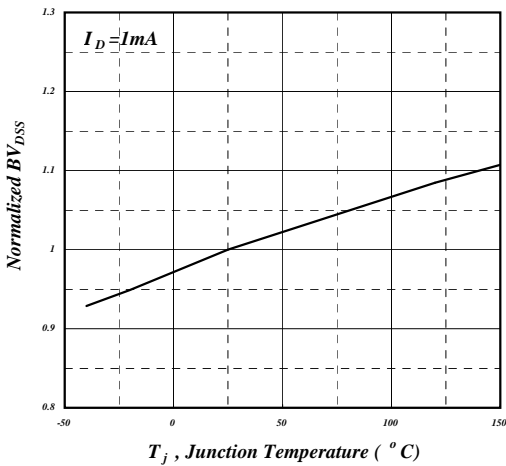


Fig 3. Normalized BV_{DSS} v.s. Junction Temperature

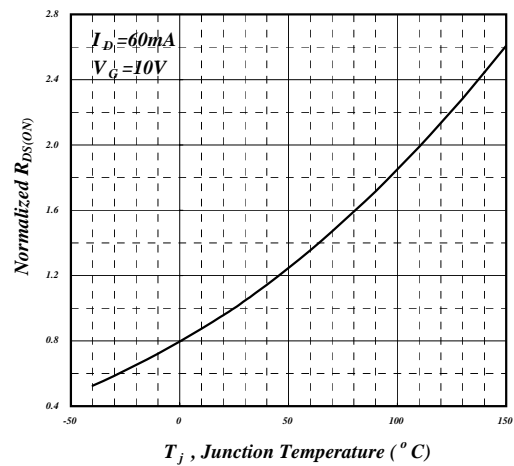


Fig 4. Normalized On-Resistance v.s. Junction Temperature

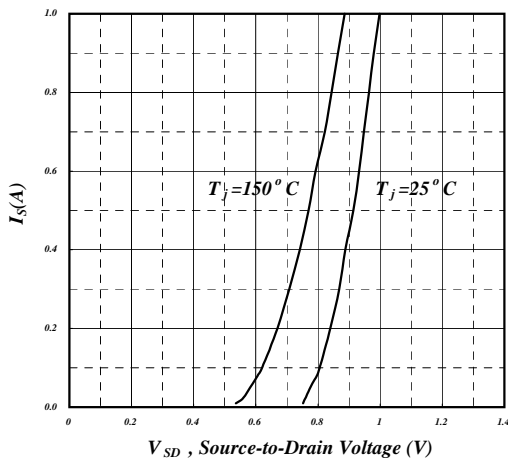


Fig 5. Forward Characteristic of Reverse Diode

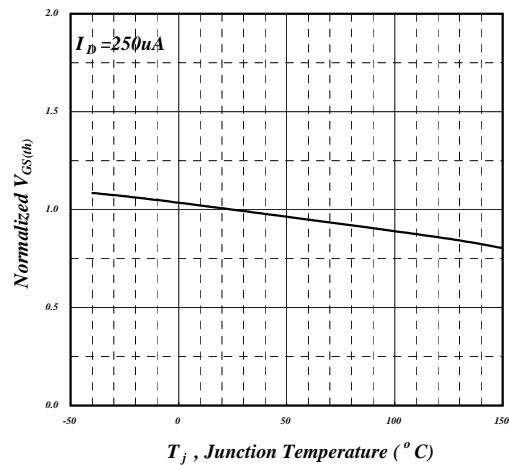


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

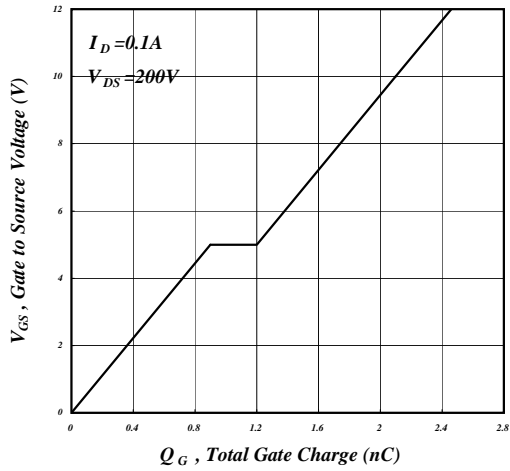


Fig 7. Gate Charge Characteristics

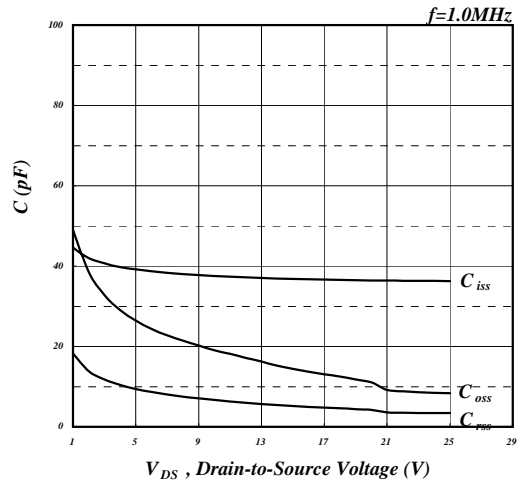


Fig 8. Typical Capacitance Characteristics

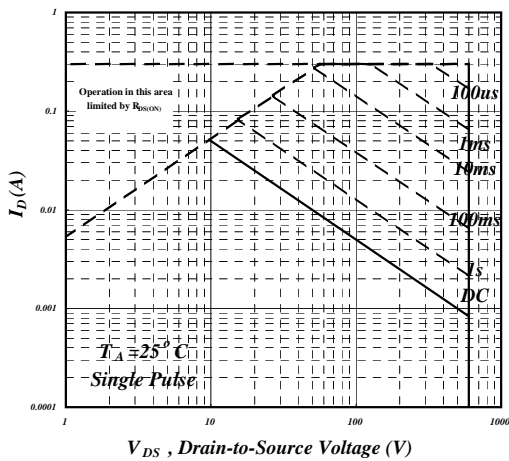


Fig 9. Maximum Safe Operating Area

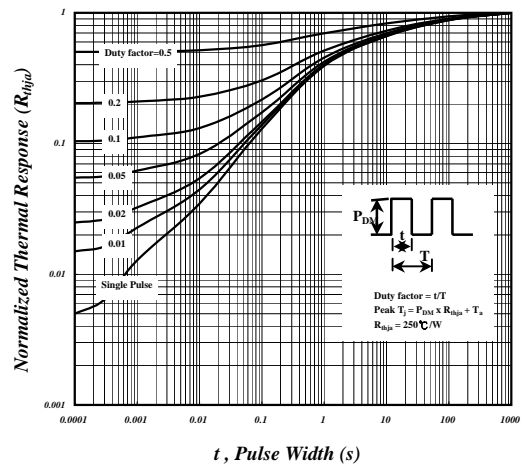


Fig 10. Effective Transient Thermal Impedance

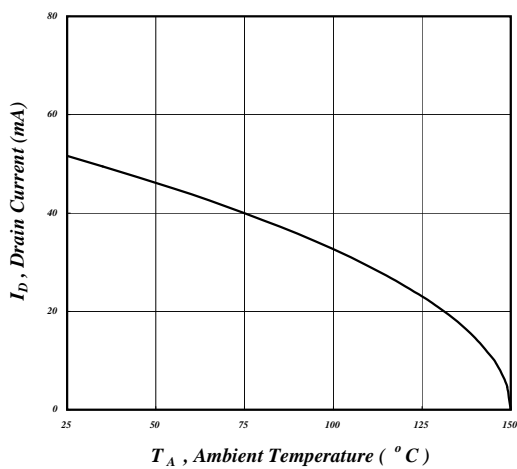


Fig 11. Drain Current v.s. Ambient Temperature

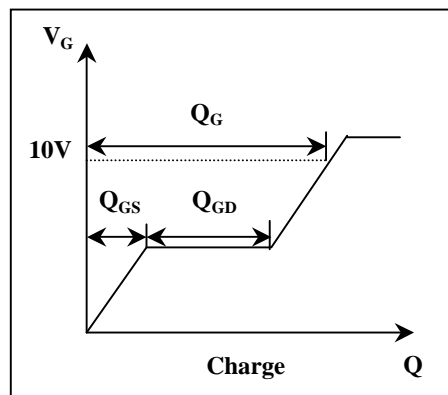
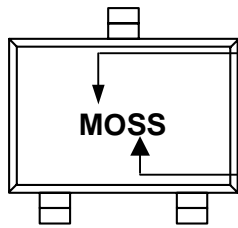


Fig 12. Gate Charge Circuit

MARKING INFORMATION



Part Number : MO

Date Code : SS

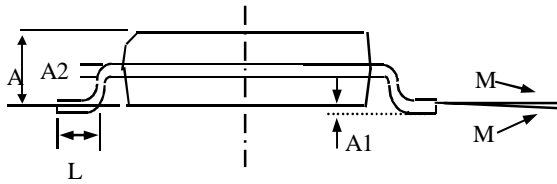
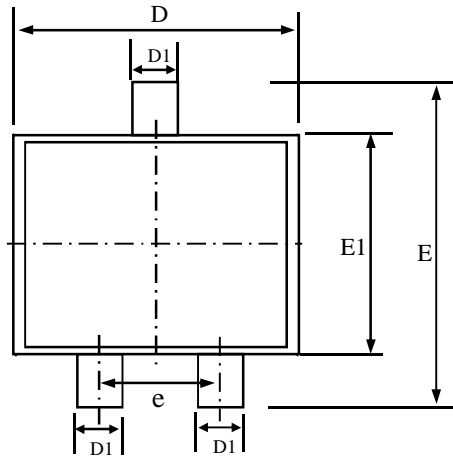
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SS:2003,2007,2011,2015,2019,2023...

SS:2002,2006,2010,2014,2018,2022...

SS:2001,2005,2009,2013,2017,2021...

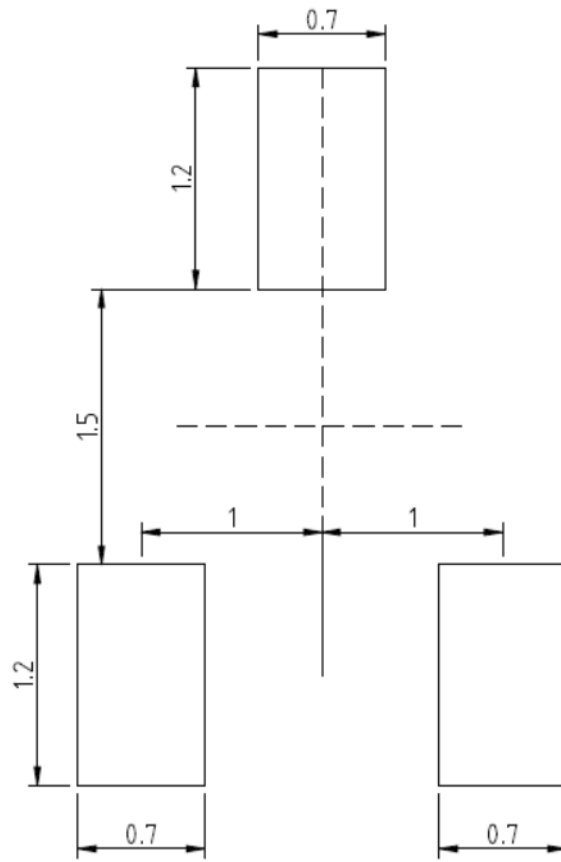
Package Outline : SOT-23



SYMBOLS	Millimeters		
	MIN	NOM	MAX
A	0.90	1.08	1.25
A1	0.00	0.08	0.15
A2	0.08	0.17	0.25
D1	0.30	0.40	0.50
e	1.70	2.00	2.30
D	2.70	2.90	3.10
E	2.40	2.70	3.00
E1	1.40	1.60	1.80
M	0°	5°	10°
L	0.30	0.45	0.60

1. All Dimension Are In Millimeters.
2. Dimension Does Not Include Mold Protrusions.
3. Does not Contain Dam Bar Dimension.

SOT-23 FOOTPRINT :



UNIT: mm