优尚

YOUSHANG SEMICONDUCTOR

设计研发新型功率器件

各类小信号开关

中低压及高压大电流等场效应管

0755-83047638
ysbdt@szyoushang.cn
www.szyoushang.cn

企业微信二维码

企业QQ二维码

Product Summary

BV_{DSS}	**$R_{DS(on)}$**	**I_D** **T_A = +25°C**
-60V	5Ω @ V_{GS}= -10V	-450mA

Description and Applications

This MOSFET is designed to minimize the on-state resistance yet maintain superior switching performance, making it ideal for high-efficiency power management applications.

- Load switches
- DC-DC converters

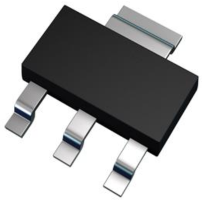
Features and Benefits

- Low On-Resistance
- Fast Switching Speed

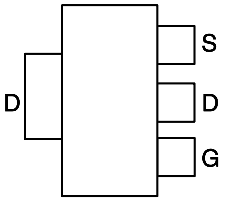
Mechanical Data

- Package: SOT223
- Package Material: Molded Plastic, “Green” Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.112 grams (Approximate)

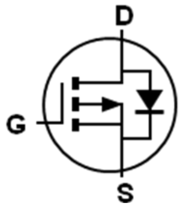
SOT223 (Type DN)



Top View



Top View
Pin Out



Equivalent Circuit

Maximum Ratings (@ T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	-60	V
Gate Source Voltage	V_{GSS}	±20	V
Continuous Drain Current	I_D	-450	mA
Pulsed Drain Current	I_{DM}	-4	A

Thermal Characteristics (@ T_A = +25°C, unless otherwise specified.)

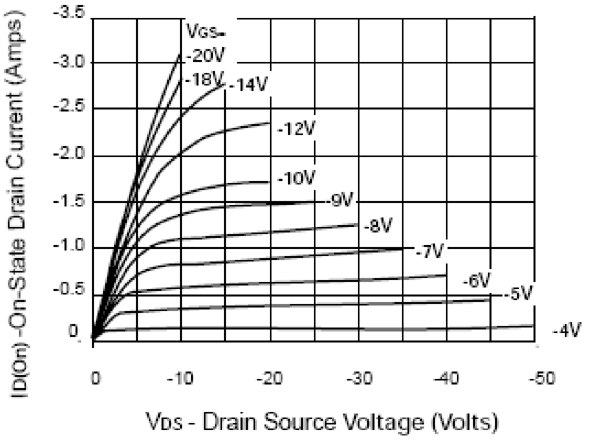
Characteristic	Symbol	Value	Units
Power Dissipation	P_{TOT}	2	W
Storage Temperature Range	T_{STG}	-55 to +150	°C

Electrical Characteristics (@ T_A = +25°C, unless otherwise specified.)

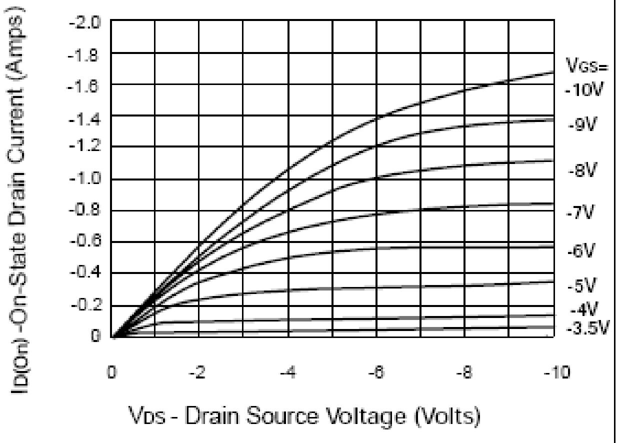
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	-60	—	—	V	I_D = -1mA, V_{GS} = 0V
Gate-Source Threshold Voltage	$V_{GS(th)}$	-1.5	—	-3.5	V	I_D = -1mA, V_{DS} = V_{GS}
Gate-Body Leakage	I_{GSS}	—	—	20	nA	V_{GS} = ±20V, V_{DS} = 0V
Zero Gate Voltage Drain Current	I_{DSS}	—	—	-0.5	µA	V_{DS} = -60V, V_{GS} = 0V
				-100	µA	V_{DS} = -48V, V_{GS} = 0V, T = +125°C (Note 6)
On-State Drain Current (Note 5)	$I_{D(on)}$	-1	—	—	A	V_{DS} = -18V, V_{GS} = -10V
Static Drain-Source On-State Resistance (Note 5)	$R_{DS(on)}$	—	—	5	Ω	V_{GS} = -10V, I_D = -500mA
Forward Transconductance (Notes 5 & 6)	g_{fS}	150	—	—	mS	V_{DS} = -18V, I_D = -500mA
Dynamic Characteristics (Note 6)						
Input Capacitance	C_{iss}	—	—	100	pF	V_{DS} = -18V, V_{GS} = 0V, f = 1MHz
Common Source Output Capacitance	C_{oss}	—	—	60		
Reverse Transfer Capacitance	C_{rss}	—	—	20		
Turn-On Delay Time (Note 7)	$t_{d(on)}$	—	—	7	ns	V_{DD} = -18V, I_D = -500mA
Rise Time (Note 7)	t_r	—	—	5		
Turn-Off Delay Time (Note 7)	$t_{d(off)}$	—	—	12		
Fall Time (Note 7)	f_f	—	—	15		

Notes:
5. Measured under pulsed conditions. Width = 300µs. Duty cycle ≦ 2%.
6. Sample Test.
7. Switching times measured with 50Ω source impedance and < 5ns rise time on a pulse generator.

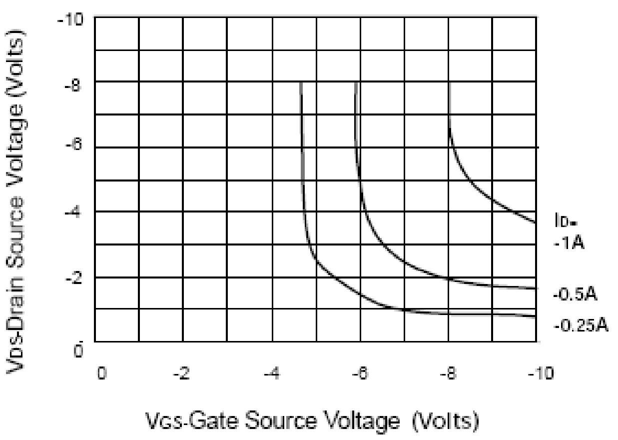
Typical Characteristics



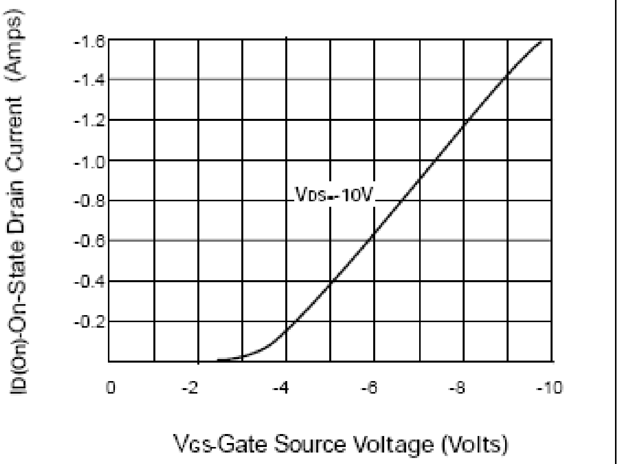
Output Characteristics



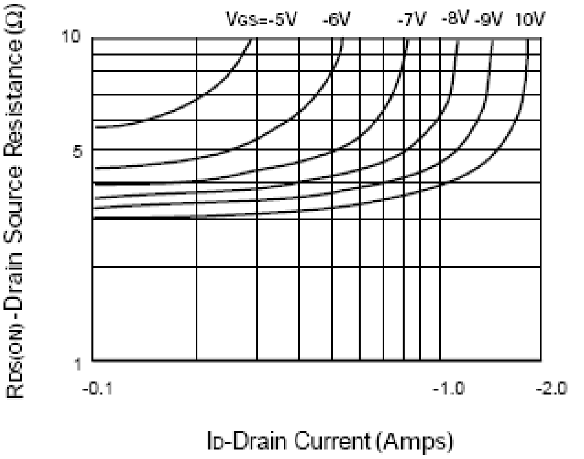
Saturation Characteristics



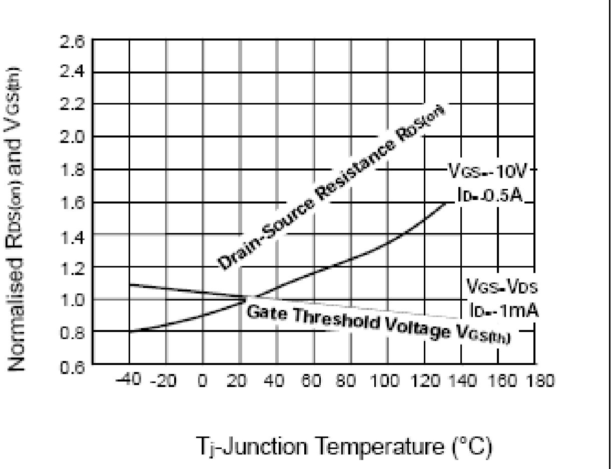
Voltage Saturation Characteristics



Transfer Characteristics

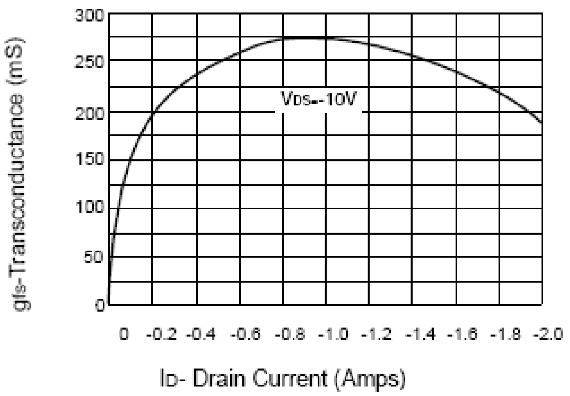


On-resistance v drain current

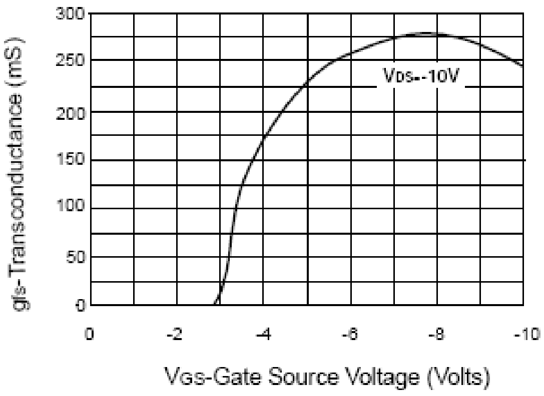


Normalised $R_{DS(on)}$ and $V_{GS(th)}$ vs Temperature

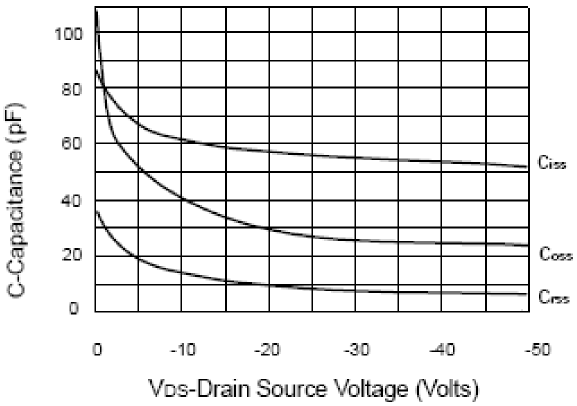
Typical Characteristics (continued)



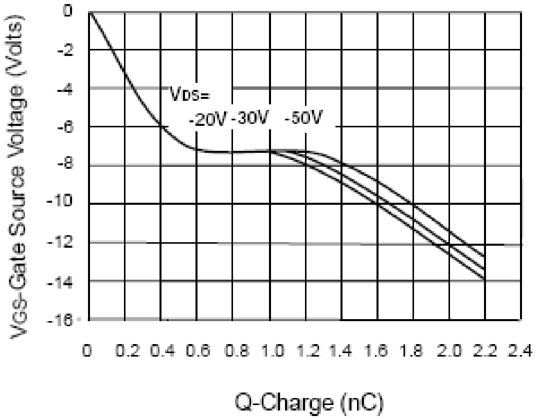
Transconductance v drain current



Transconductance v gate-source voltage



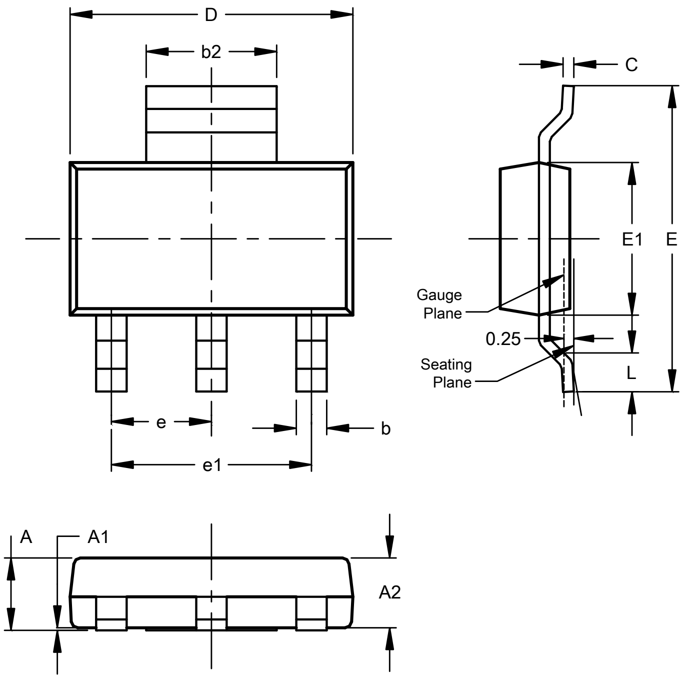
Capacitance v drain-source voltage



Gate charge v gate-source voltage

Package Outline Dimensions

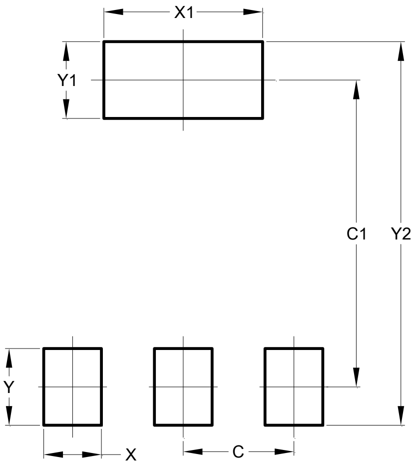
SOT223 (Type DN)



SOT223 (Type DN)			
Dim	**Min**	**Max**	**Typ**
A	--	1.70	--
A1	0.01	0.15	--
A2	1.50	1.68	1.60
b	0.60	0.80	0.70
b2	2.90	3.10	--
c	0.20	0.32	--
D	6.30	6.70	--
E	6.70	7.30	--
E1	3.30	3.70	--
e	--	--	2.30
e1	--	--	4.60
L	0.85	--	--
All Dimensions in mm			

Suggested Pad Layout

SOT223 (Type DN)



Dimensions	Value (in mm)
C	2.30
C1	6.40
X	1.20
X1	3.30
Y	1.60
Y1	1.60
Y2	8.00