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

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Product Summary

BV_{DSS}	$R_{DS(ON)}$	I_D $T_A = +25°C$
450V	50Ω @ V_{GS}= 10V	140mA

Description and Applications

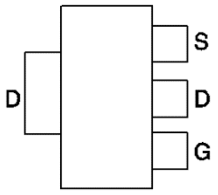
This MOSFET is designed to minimize the on-state resistance yet maintain superior switching performance, making it ideal for high-efficiency power-management applications.

Mechanical Data

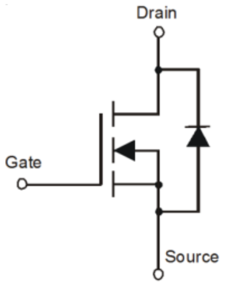
- Package: SOT223
- Package Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 ⓔ3
- Weight: 0.112 grams (Approximate)

SOT223 (Type DN)

Top View



Pinout - Top View



Equivalent Circuit

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

Characteristic		Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	450	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current V_{GS} = 10V	T_A = +25°C	I_D	140	mA
Pulsed Drain Current		I_{DM}	600	mA

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

Characteristic		Symbol	Value	Unit
Total Power Dissipation	T_A = +25°C	P_D	2	W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

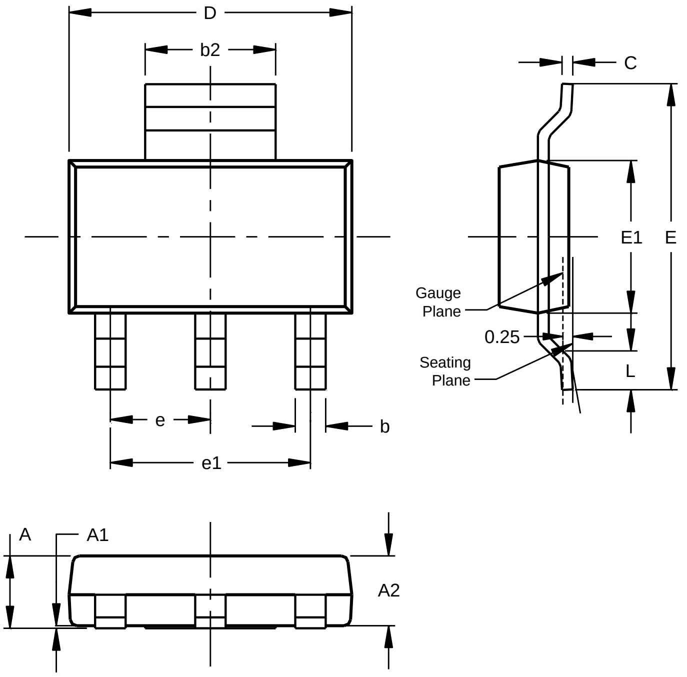
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	450	—	—	V	V_{GS} = 0V, I_D =1mA
Zero Gate Voltage Drain Current	I_{DSS}	— —	— —	10 400	µA µA	V_{DS} = 450V, V_{GS} = 0V V_{DS}=405V, V_{GS}=0V, T=+125°C (Note 6)
Gate-Source Leakage	I_{GSS}	—	—	±20	nA	V_{GS} = ±20V, V_{DS} = 0V
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	1	—	3	V	V_{DS} = V_{GS}, I_D = 1mA
Static Drain-Source On-State Resistance (Note 5)	$R_{DS(ON)}$	—	—	50	Ω	V_{GS} = 10V, I_D = 100mA
On-State Drain Current (Note 5)	$I_{D(ON)}$	150	—	—	mA	V_{DS} =25V, V_{GS} =10V
Forward Transconductance (Notes 5 and 6)	g_{fs}	100	—	—	mS	V_{DS} =25V,I_D =100mA
DYNAMIC CHARACTERISTICS (Note 6)						
Input Capacitance	C_{iss}	—	—	70	pF	V_{DS} = 25V, V_{GS} = 0V, f = 1MHz
Output Capacitance	C_{oss}	—	—	10	pF	
Reverse Transfer Capacitance	C_{rss}	—	—	4	pF	
Turn-On Delay Time (Note 7)	$t_{D(ON)}$	—	—	7	ns	V_{DD} = 25V, I_D=100mA
Turn-On Rise Time (Note 7)	t_R	—	—	7	ns	
Turn-Off Delay Time (Note 7)	$t_{D(OFF)}$	—	—	16	ns	
Turn-Off Fall Time (Note 7)	t_F	—	—	10	ns	

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.

Package Outline Dimensions

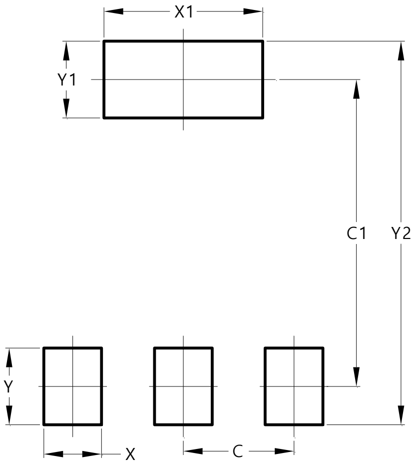
SOT223 (Type DN)



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