



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 $T_A = +25^\circ C$
100V	4Ω @ $V_{GS} = 10V$	500mA

Features and Benefits

- 6A Pulse Drain Current
- Fast Switching Speed

Description and Applications

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

- DC-DC Converters
- Solenoids / Relay Driver for Automotive

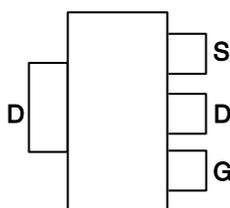
Mechanical Data

- 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
- Weight: 0.112 grams (Approximate) 

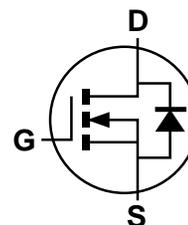
SOT223 (Type DN)



Top View



Pin Out - Top View



Equivalent Circuit

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

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V _{DSS}	100	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current	I _D	500	mA
Pulsed Drain Current	I _{DM}	6	A
Power Dissipation	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 stated.)

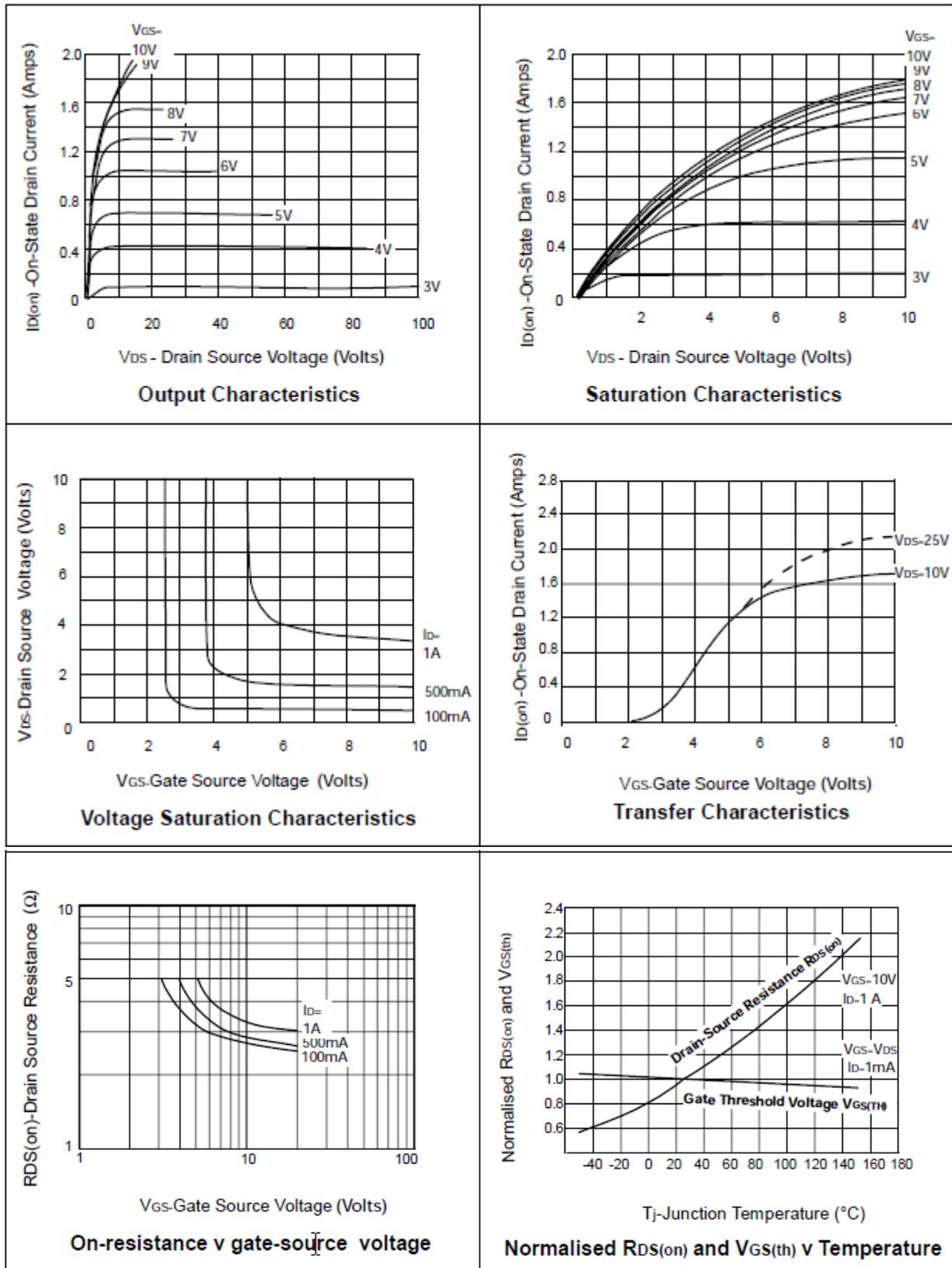
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	100	-	-	V	V _{GS} = 0V, I _D = 1mA
Zero Gate Voltage Drain Current	I _{DSS}	-	-	1 100	μA μA	V _{DS} = 100V, V _{GS} = 0V V _{DS} = 80V, V _{GS} = 0V, T = +125°C(6)
Gate-Body Leakage	I _{GSS}	-	0.1	20	nA	V _{GS} = ±20V, V _{DS} = 0V
On-State Drain Current (Note 5)	I _{D(ON)}	1.5	2	-	A	V _{GS} = 10V, V _{DS} = 25V
ON CHARACTERISTICS						
Gate-Source Threshold Voltage	V _{GS(TH)}	0.8	-	2.4	V	V _{DS} = V _{GS} , I _D = 1mA
Static Drain-Source On-State Resistance (Note 5)	R _{DS(ON)}	-	-	4	Ω	V _{GS} = 10V, I _D = 1A
Forward Transconductance (Notes 5 & 6)	g _{fs}	250	350	-	mS	V _{DS} = 25V, I _D = 1A
DYNAMIC CHARACTERISTICS						
Input Capacitance (Note 6)	C _{iss}	-	59	75	pF	V _{DS} = 25V, V _{GS} = 0V, f = 1.0MHz
Common Source Output Capacitance (Note 6)	C _{oss}	-	16	25	pF	
Reverse Transfer Capacitance (Note 6)	C _{rss}	-	4	8	pF	
Turn-On Delay Time (Notes 6 & 7)	t _{D(ON)}	-	4	7	ns	V _{DD} = 25V, I _D = 1A
Rise Time (Notes 6 & 7)	t _R	-	4	8	ns	
Turn-Off Delay Time (Notes 6 & 7)	t _{D(OFF)}	-	8	13	ns	
Fall Time (Notes 6 & 7)	t _F	-	8	13	ns	

Drain-source Diode Characteristics

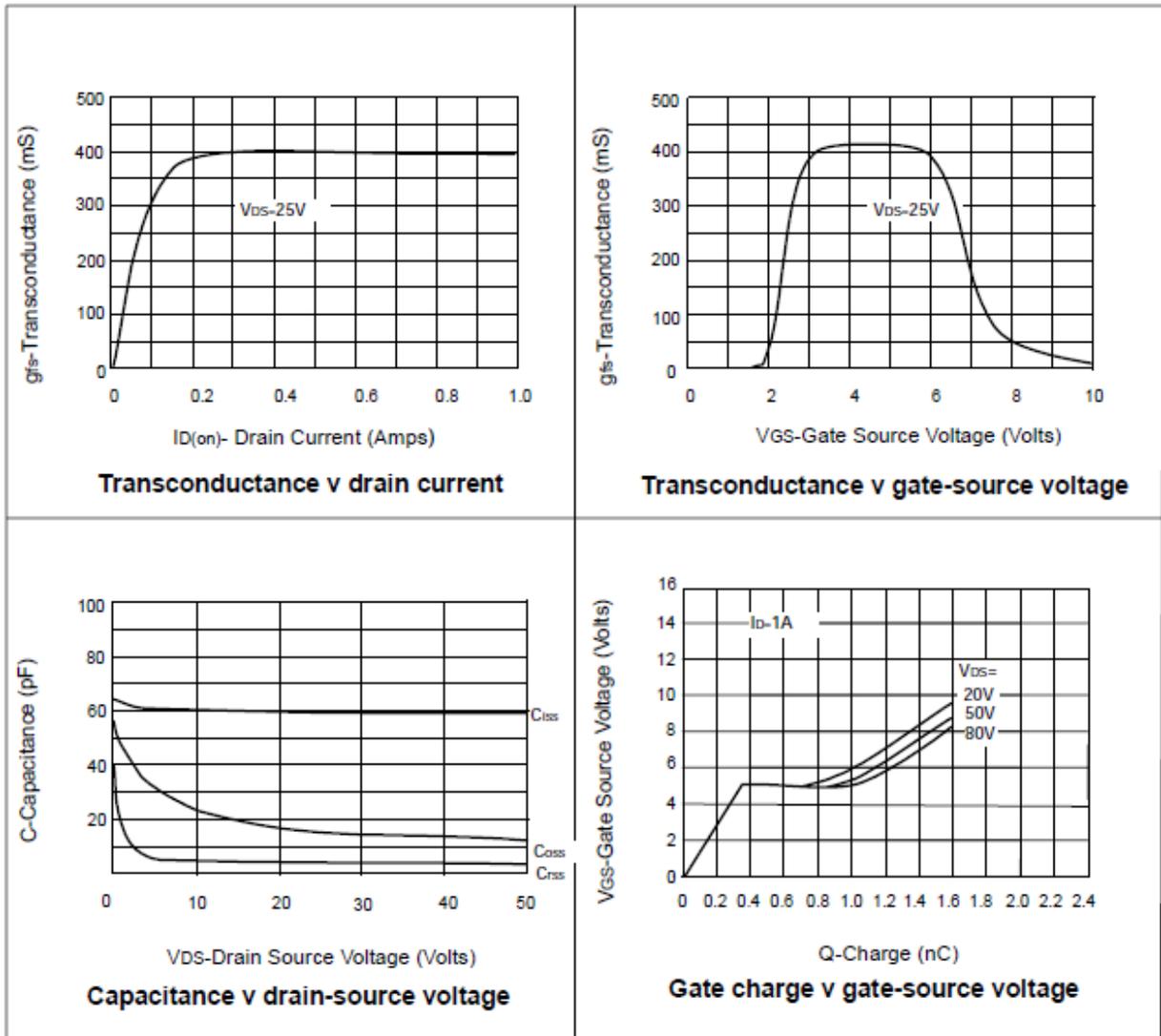
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Diode Forward Voltage (Note 5)	V _{SD}	-	0.82	-	V	I _S =0.32A, V _{GS} =0
Reverse Recovery Time	T _{RR}	-	112	-	ns	I _F =0.32A, V _{GS} =0, I _R =0.1A

- 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.

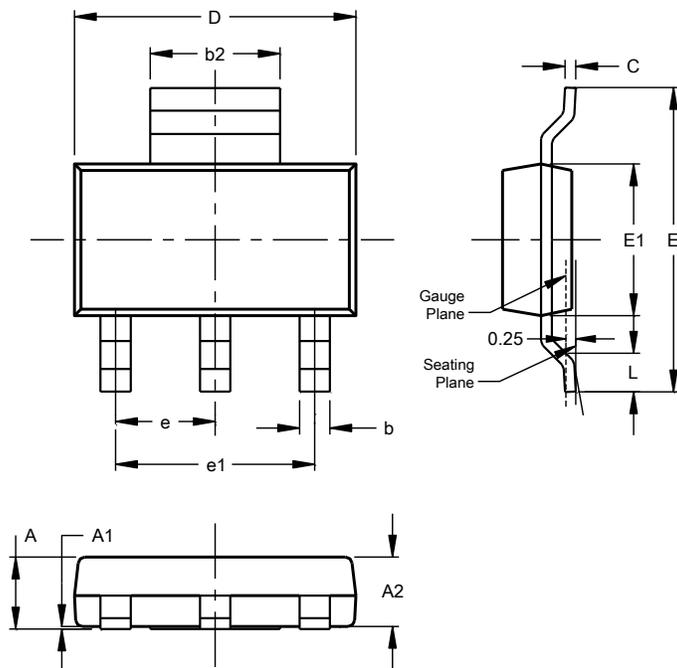
TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS

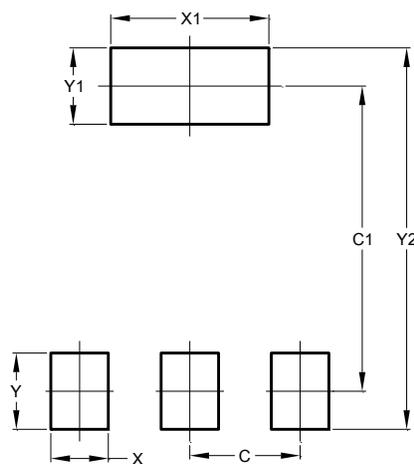


Package Outline Dimensions



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



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