



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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企业微信二维码



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## Product Summary

$V_{(BR)DSS}$	$R_{DS(ON)}$ Max	$I_D$ Max $T_A = +25^{\circ}C$
-20V	0.9Ω @ $V_{GS} = -4.5V$	-0.53A
	1.4Ω @ $V_{GS} = -2.5V$	-0.44A

## Features

- Dual P-Channel MOSFET
- Low On-Resistance
- Very Low Gate Threshold Voltage  $V_{GS(TH)} < 1V$
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- ESD Protected Gate

## Description

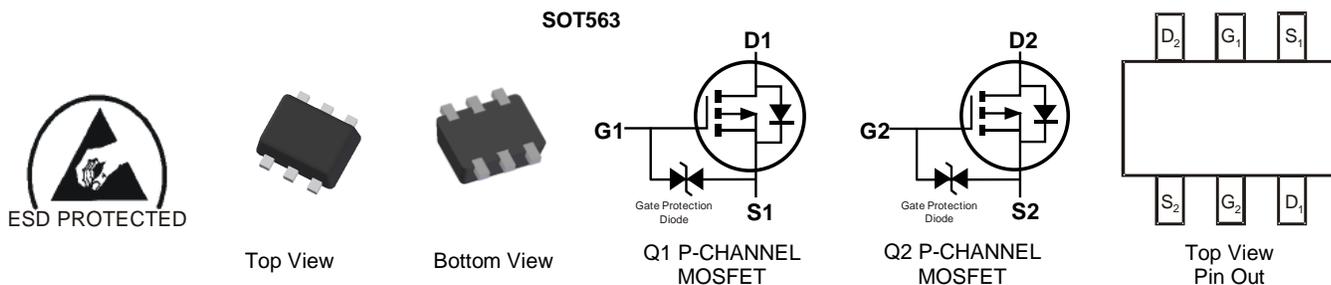
This MOSFET is designed to minimize the on-state resistance ( $R_{DS(ON)}$ ) and yet maintain superior switching performance, making it ideal for high-efficiency power management applications.

## Applications

- Battery Charging
- Power Management Functions
- DC-DC Converters
- Portable Power Adaptors

## Mechanical Data

- Case: SOT563
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 
- Weight: 0.006 grams (Approximate)



**Maximum Ratings** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic			Symbol	Value	Units
Drain-Source Voltage			$V_{DSS}$	-20	V
Gate-Source Voltage			$V_{GSS}$	$\pm 8$	V
Continuous Drain Current (Note 5) $V_{GS} = -4.5\text{V}$	Steady State	$T_A = +25^\circ\text{C}$	$I_D$	-0.53	A
		$T_A = +70^\circ\text{C}$		-0.44	
Continuous Drain Current (Note 5) $V_{GS} = -2.5\text{V}$	Steady State	$T_A = +25^\circ\text{C}$	$I_D$	-0.44	A
		$T_A = +70^\circ\text{C}$		-0.35	
Pulsed Drain Current (Note 6)			$I_{DM}$	-1.8	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 5)	$P_D$	400	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	312	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ\text{C}$

**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 7)</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	-20	—	—	V	$V_{GS} = 0\text{V}, I_D = -250\mu\text{A}$
Zero Gate Voltage Drain Current	$I_{DSS}$	—	—	-1.0	$\mu\text{A}$	$V_{DS} = -20\text{V}, V_{GS} = 0\text{V}$
Gate-Source Leakage	$I_{GSS}$	—	—	$\pm 1.0$	$\mu\text{A}$	$V_{GS} = \pm 4.5\text{V}, V_{DS} = 0\text{V}$
<b>ON CHARACTERISTICS (Note 7)</b>						
Gate Threshold Voltage	$V_{GS(th)}$	-0.5	—	-1.0	V	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	0.7	0.9	$\Omega$	$V_{GS} = -4.5\text{V}, I_D = -430\text{mA}$
			1.1	1.4		$V_{GS} = -2.5\text{V}, I_D = -300\text{mA}$
			1.7	2.0		$V_{GS} = -1.8\text{V}, I_D = -150\text{mA}$
Forward Transfer Admittance	$ Y_{fs} $	200	—	—	mS	$V_{DS} = -10\text{V}, I_D = -0.2\text{A}$
Diode Forward Voltage (Note 5)	$V_{SD}$	-0.5	—	-1.2	V	$V_{GS} = 0\text{V}, I_S = 115\text{mA}$
<b>DYNAMIC CHARACTERISTICS (Note 8)</b>						
Input Capacitance	$C_{iss}$	—	—	175	pF	$V_{DS} = -16\text{V}, V_{GS} = 0\text{V}$ $f = 1.0\text{MHz}$
Output Capacitance	$C_{oss}$	—	—	30	pF	
Reverse Transfer Capacitance	$C_{rss}$	—	—	20	pF	

- Notes:
- Device mounted on FR-4 PCB, with minimum recommended pad layout.
  - Device mounted on minimum recommended pad layout test board, 10 $\mu\text{s}$  pulse duty cycle = 1%.
  - Short duration pulse test used to minimize self-heating effect.
  - Guaranteed by design. Not subject to product testing.

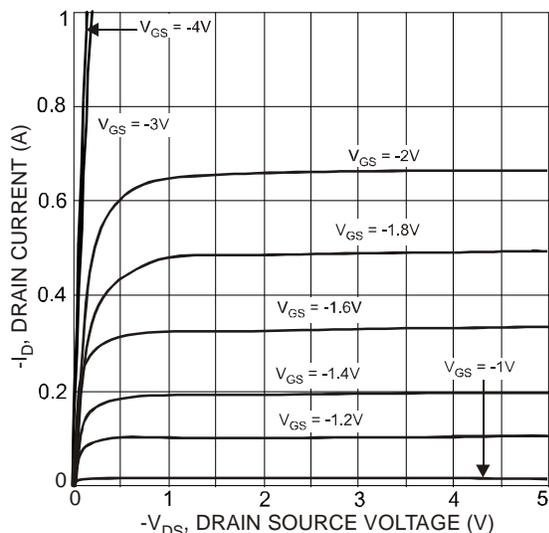


Fig. 1 Typical Output Characteristics

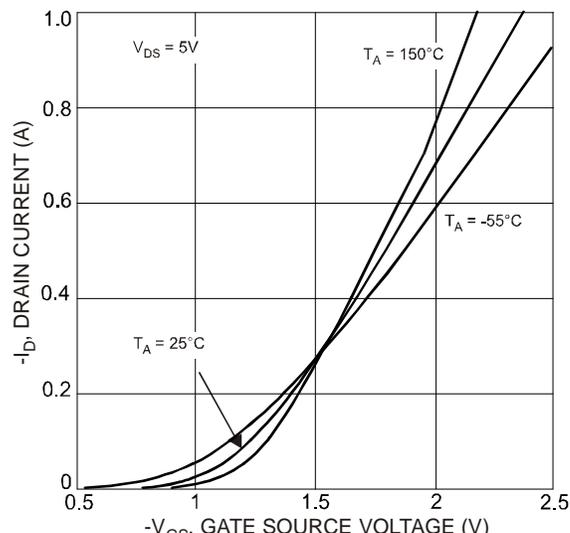


Fig. 2 Typical Transfer Characteristics

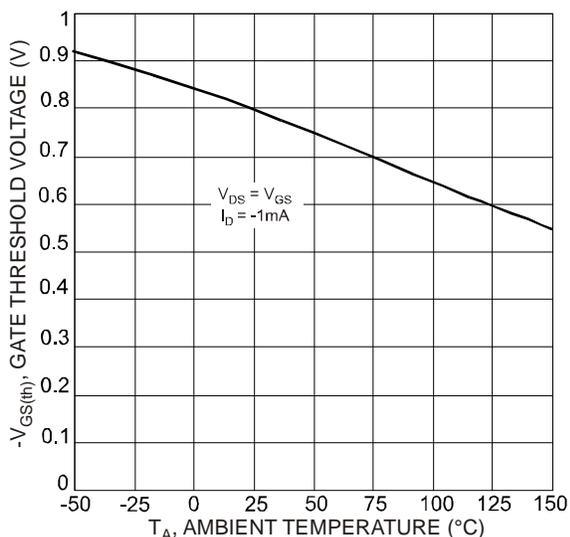


Fig. 3 Gate Threshold Voltage vs. Ambient Temperature

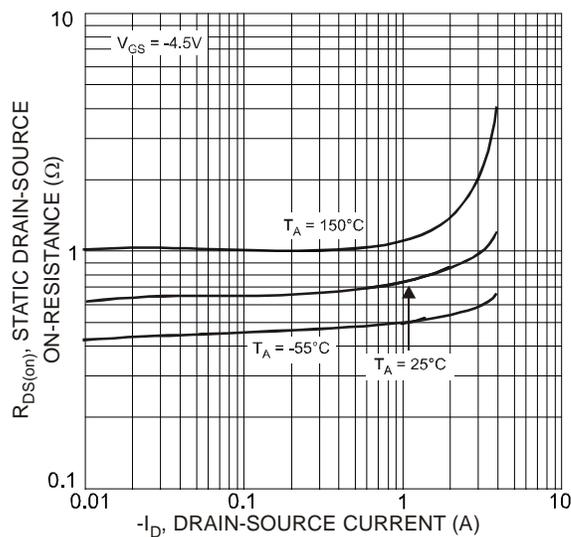


Fig. 4 Static Drain-Source On-Resistance vs. Drain Current

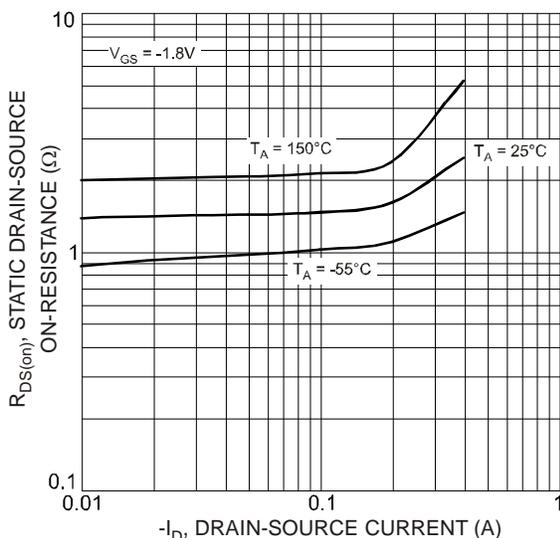


Fig. 5 Static Drain-Source On-Resistance vs. Drain Current

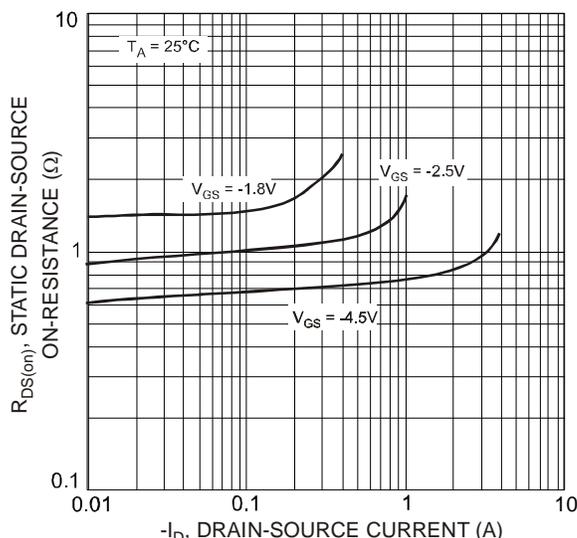


Fig. 6 Static Drain-Source On-Resistance vs. Drain-Source Current

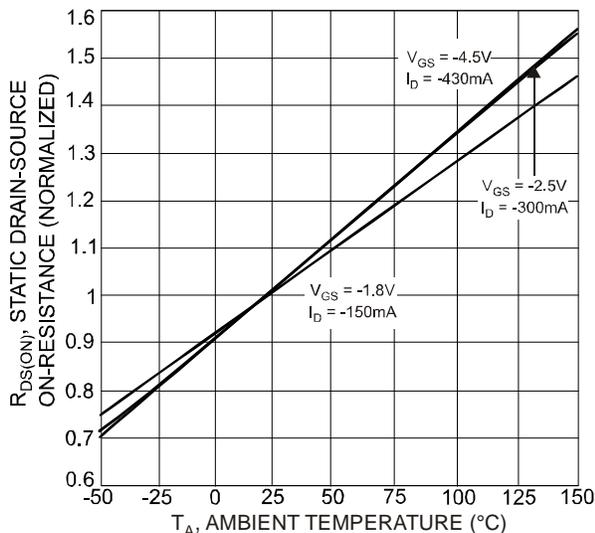


Fig. 7 Static Drain-Source On-State Resistance vs. Ambient Temperature

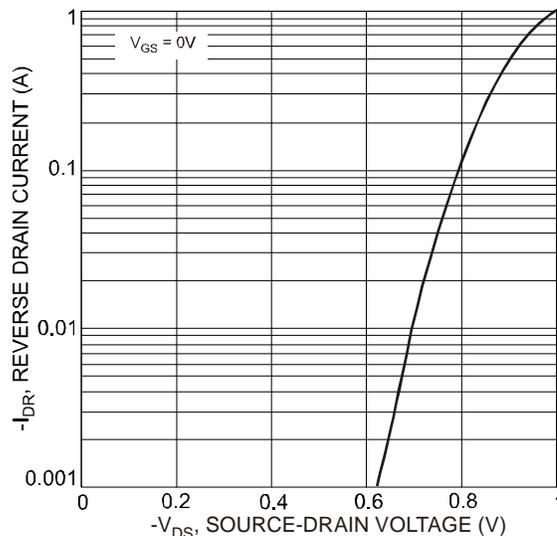


Fig. 8 Reverse Drain Current vs. Source-Drain Voltage

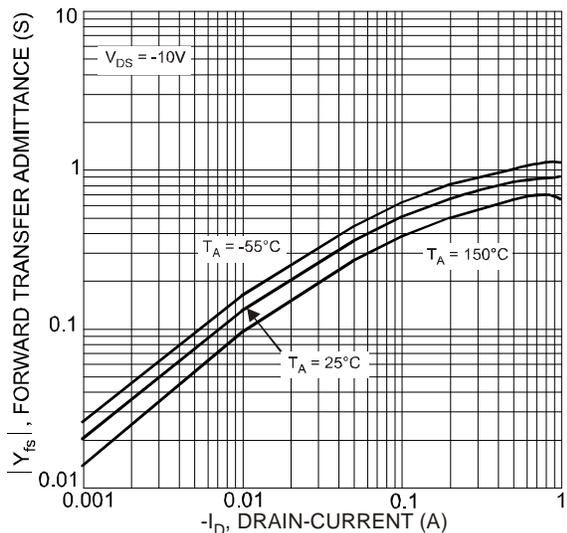


Fig. 9 Forward Transfer Admittance vs. Drain-Current

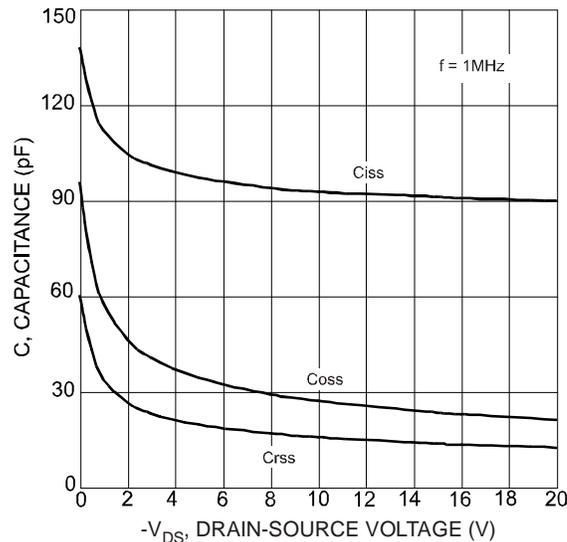
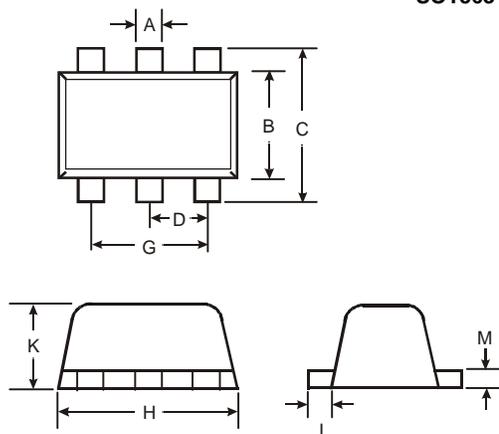


Fig. 10 Typical Capacitance

## Package Outline Dimensions

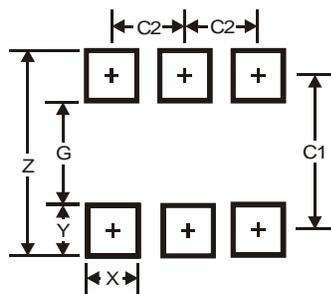
SOT563



SOT563			
Dim	Min	Max	Typ
A	0.15	0.30	0.20
B	1.10	1.25	1.20
C	1.55	1.70	1.60
D	-	-	0.50
G	0.90	1.10	1.00
H	1.50	1.70	1.60
K	0.55	0.60	0.60
L	0.10	0.30	0.20
M	0.10	0.18	0.11
All Dimensions in mm			

## Suggested Pad Layout

SOT563



Dimensions	Value (in mm)
Z	2.2
G	1.2
X	0.375
Y	0.5
C1	1.7
C2	0.5