



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

BV_{DSS}	$R_{DS(on)}$	I_D $T_A = +25^\circ\text{C}$
-20V	0.75Ω @ $V_{GS} = -4.5\text{V}$	-1.03A
	1.05Ω @ $V_{GS} = -2.5\text{V}$	-0.7A

Features and Benefits

- Dual P-Channel MOSFET
- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed

Description and Applications

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

- DC-DC Converters
- Load Switch
- Power Management Functions

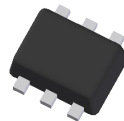
Mechanical Data

- 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 Below
- Terminals: Finish—Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.006 grams (Approximate)

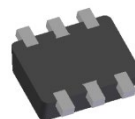


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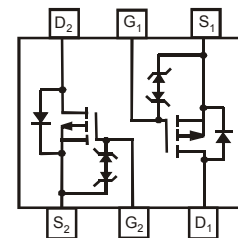
SOT563



Top View



Bottom View



Top View

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

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V_{DSS}	-20	V
Gate-Source Voltage			V_{GSS}	± 6	V
Continuous Drain Current (Note 5) $V_{GS} = -4.5\text{V}$	Steady State	$T_A = +25^\circ\text{C}$	I_D	-1.03	A
		$T_A = +70^\circ\text{C}$		-0.68	
Pulsed Drain Current (10 μs Pulse, Duty Cycle = 1%)			I_{DM}	-3	A

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

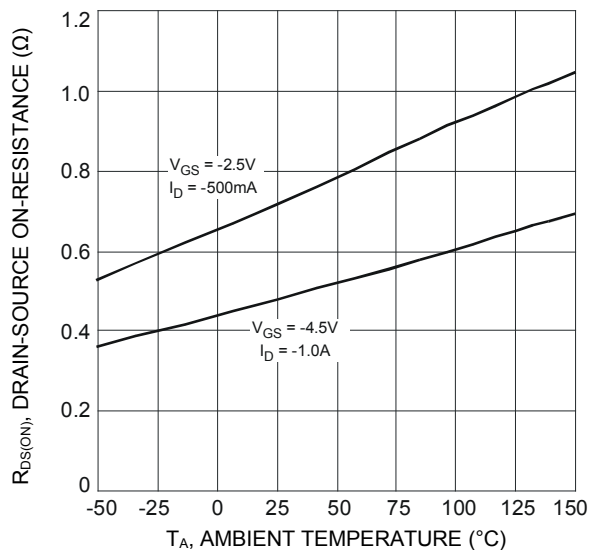
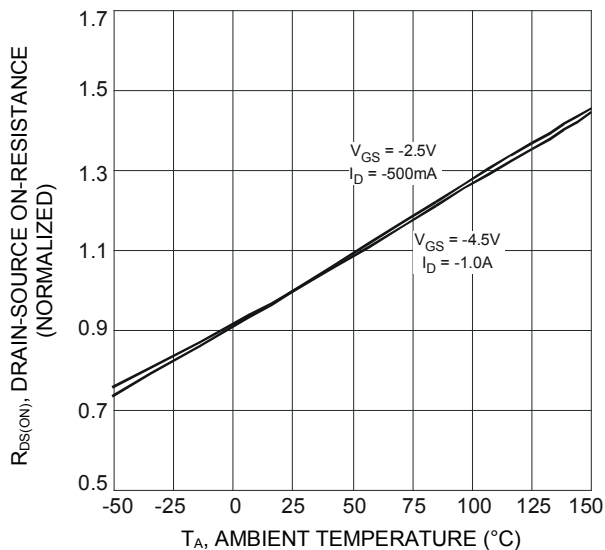
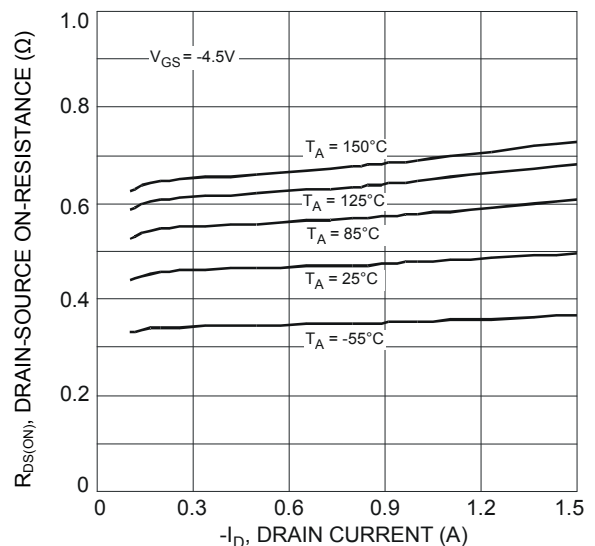
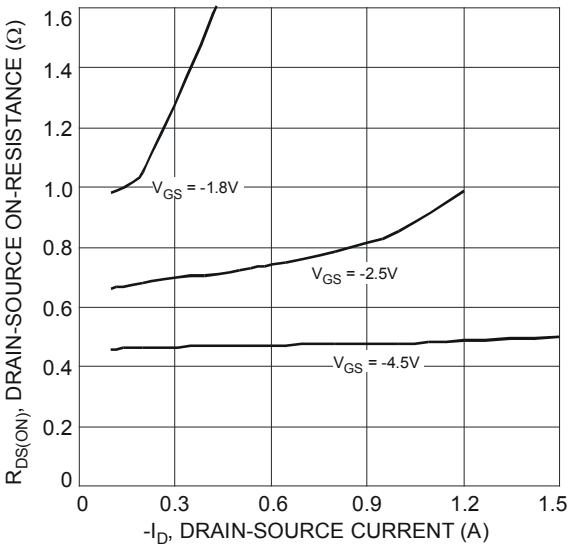
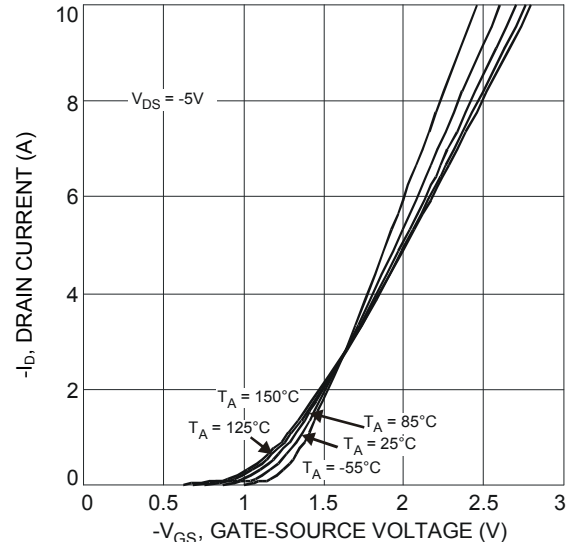
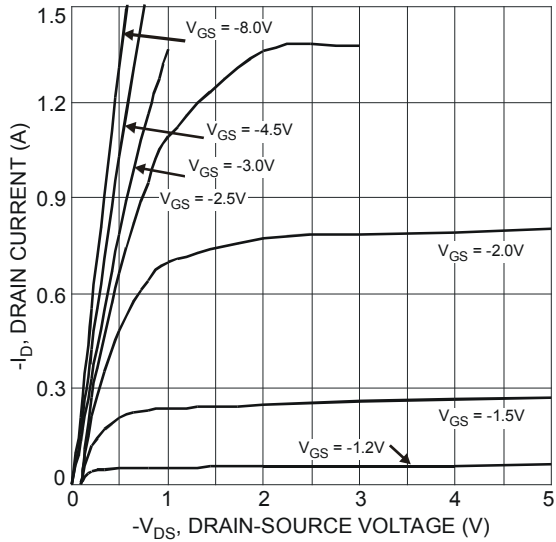
Characteristic		Symbol	Value	Unit
Total Power Dissipation (Note 5)	Steady State	P_D	0.53	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	$R_{\theta JA}$	235	$^\circ\text{C/W}$
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Note: 5. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 6)						
Drain-Source Breakdown Voltage	BV_{DSS}	-20	—	—	V	$V_{GS} = 0V, I_D = -250\mu A$
Zero Gate Voltage Drain Current $T_J = +25^\circ\text{C}$	I_{DSS}	—	—	-100	nA	$V_{DS} = -20V, V_{GS} = 0V$
Gate-Source Leakage	I_{GSS}	—	—	± 2.0	μA	$V_{GS} = \pm 4.5V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 6)						
Gate Threshold Voltage	$V_{GS(th)}$	-0.5	—	-1.0	V	$V_{DS} = V_{GS}, I_D = -250\mu A$
Static Drain-Source On-Resistance	$R_{DS(on)}$	—	0.5	0.75	Ω	$V_{GS} = -4.5V, I_D = -430mA$
			0.7	1.05		$V_{GS} = -2.5V, I_D = -300mA$
			1.0	1.5		$V_{GS} = -1.8V, I_D = -150mA$
			—	20		$V_{GS} = -1.7V, I_D = -100mA$
			—	25		$V_{GS} = -1.5V, I_D = -100mA$
Diode Forward Voltage	V_{SD}	—	-0.8	-1.2	V	$V_{GS} = 0V, I_S = -150mA$
DYNAMIC CHARACTERISTICS (Note 7)						
Input Capacitance	C_{iss}	—	59	—	pF	$V_{DS} = -16V, V_{GS} = 0V,$ $f = 1.0MHz$
Output Capacitance	C_{oss}	—	12	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	6.4	—	pF	
Total Gate Charge	Q_g	—	622	—	pC	$V_{GS} = -4.5V, V_{DS} = -10V,$ $I_D = -250mA$
Gate-Source Charge	Q_{gs}	—	100	—	pC	
Gate-Drain Charge	Q_{gd}	—	132	—	pC	
Turn-On Delay Time	$t_{D(on)}$	—	5.1	—	ns	$V_{DD} = -10V, V_{GS} = -4.5V,$ $R_L = 47\Omega, R_G = 10\Omega,$ $I_D = -200mA$
Turn-On Rise Time	t_R	—	8.1	—	ns	
Turn-Off Delay Time	$t_{D(off)}$	—	28.4	—	ns	
Turn-Off Fall Time	t_F	—	20.7	—	ns	

Notes: 6. Short duration pulse test used to minimize self-heating effect.
 7. Guaranteed by design. Not subject to production testing.



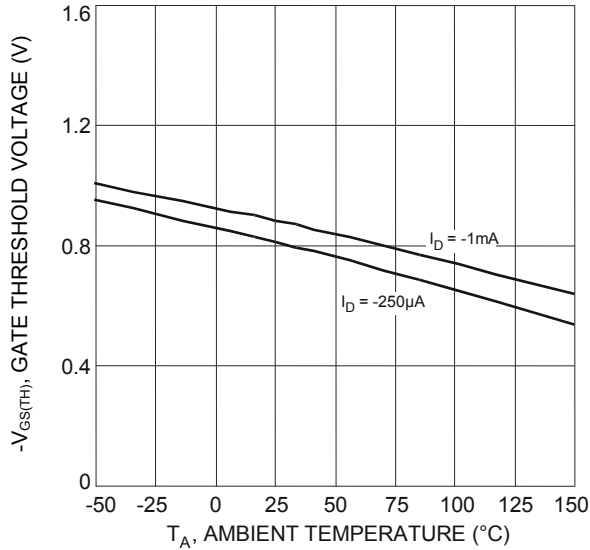


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

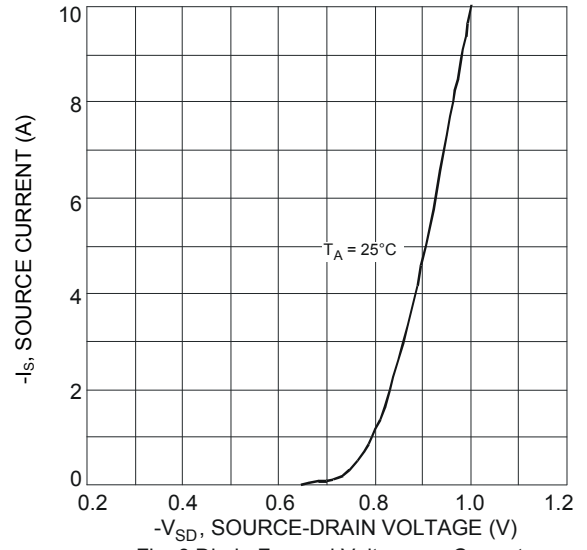


Fig. 8 Diode Forward Voltage vs. Current

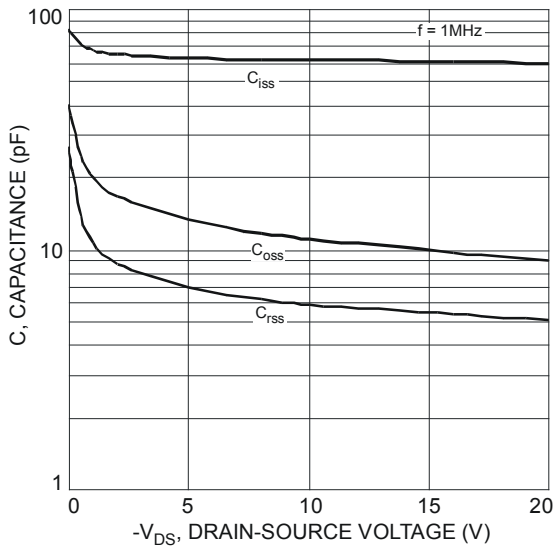


Fig. 9 Typical Total Capacitance

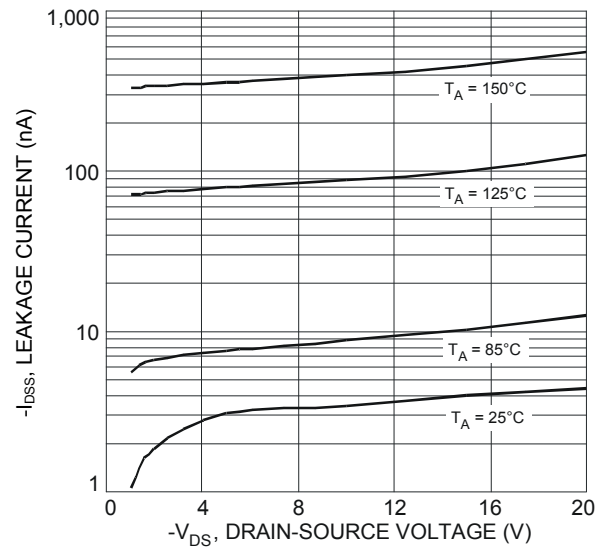


Fig. 10 Typical Leakage Current vs. Drain-Source Voltage

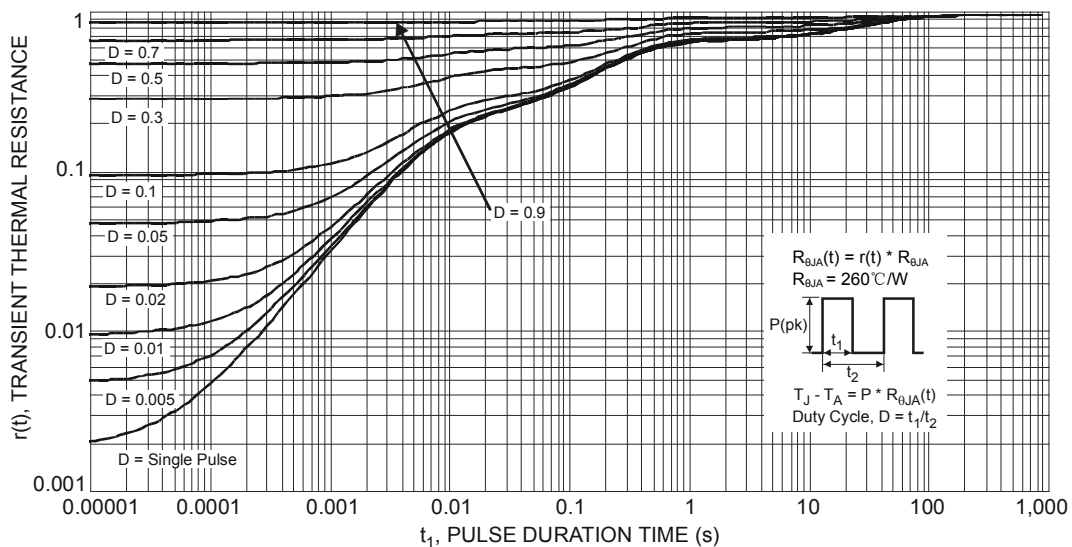
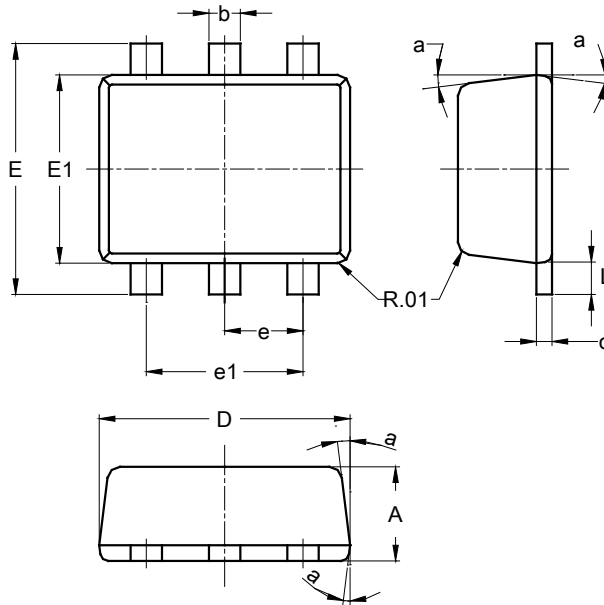


Fig. 11 Transient Thermal Response

Package Outline Dimensions

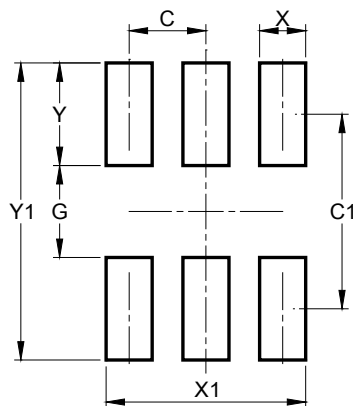
SOT563



SOT563			
Dim	Min	Max	Typ
A	0.55	0.60	--
b	0.15	0.30	0.20
c	0.10	0.18	0.11
D	1.50	1.70	1.60
E	1.55	1.70	1.60
E1	1.10	1.25	1.20
e	--	--	0.50
e1	0.90	1.10	1.00
L	0.10	0.30	0.20
a	8°	9°	7°
All Dimensions in mm			

Suggested Pad Layout

SOT563



Dimensions	Value (in mm)
C	0.500
C1	1.270
G	0.600
X	0.300
X1	1.300
Y	0.670
Y1	1.940