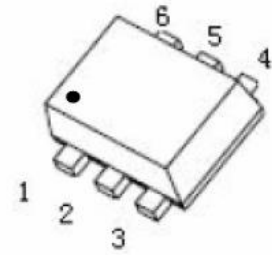


### Features

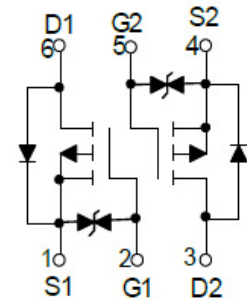
- High-Side Switching
- Low On-Resistance
- Low Threshold
- Fast Switching Speed



Package: SOT-563

### Applications

- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories
- Battery Operated Systems
- Power Supply Converter Circuits
- Load/Power Switching Cell Phones



Schematic Diagram

### Absolute Maximum Ratings

( $T_A=25^{\circ}\text{C}$  unless otherwise specified)

Parameter	Symbol	Value	Units
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	
Drain Current-Continuous	$I_{D(DC)}$	-0.66	A
Drain Current -Pulsed(note1)	$I_{DM(PULSE)}$	-2.64	A
Power Dissipation (note 2)	$P_D$	150	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	833	$^{\circ}\text{C/W}$
Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55 to +150	

### Electrical Characteristics

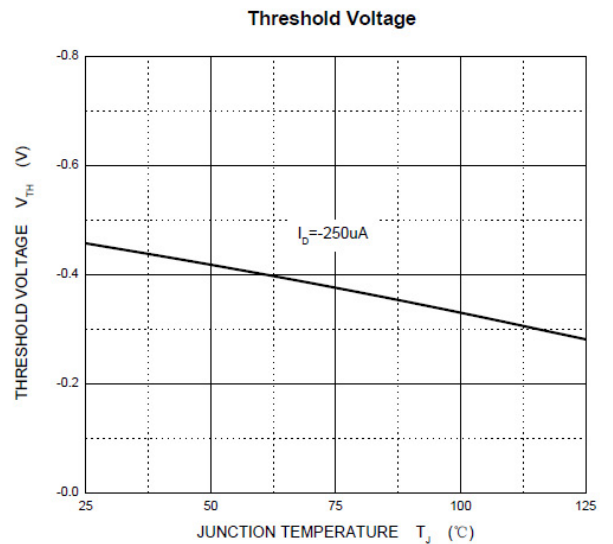
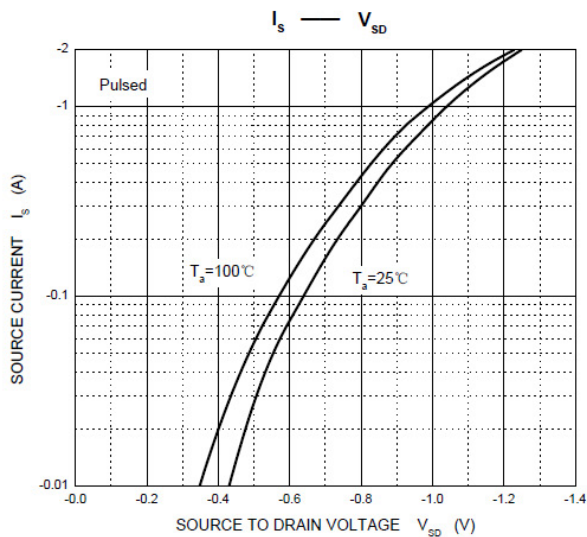
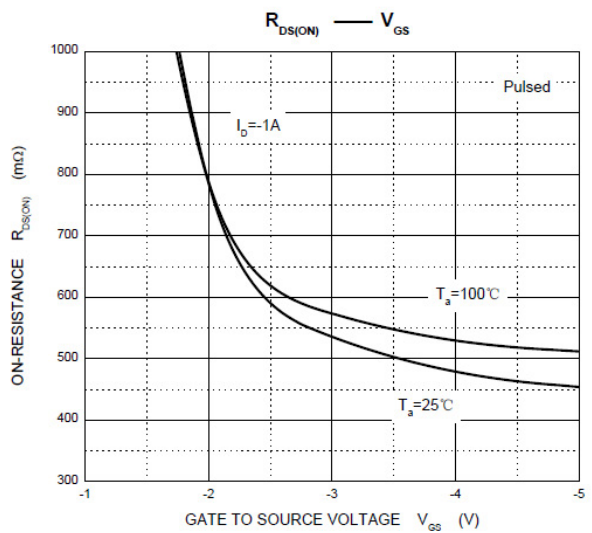
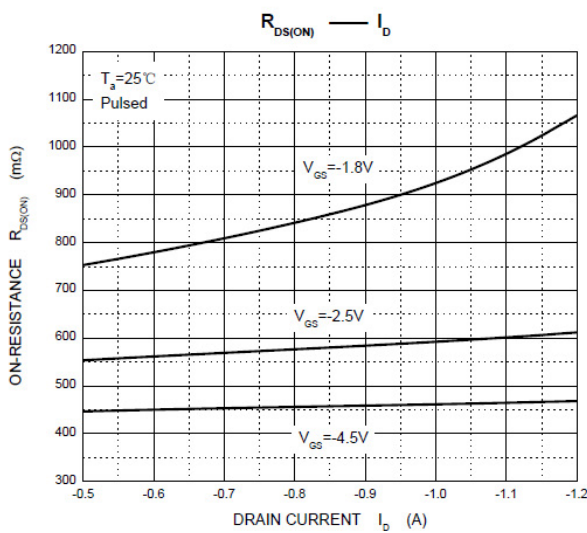
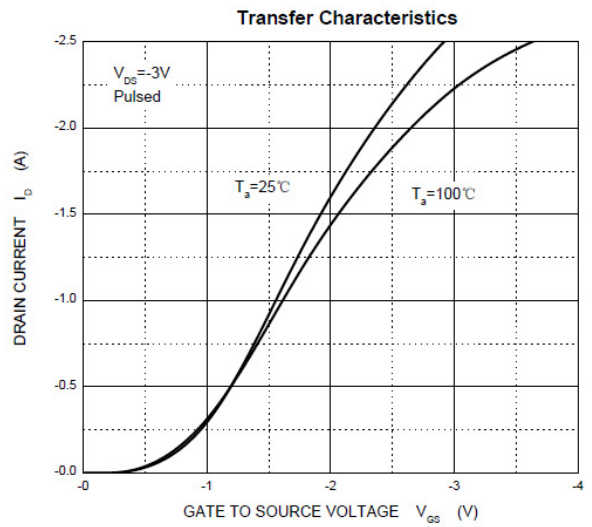
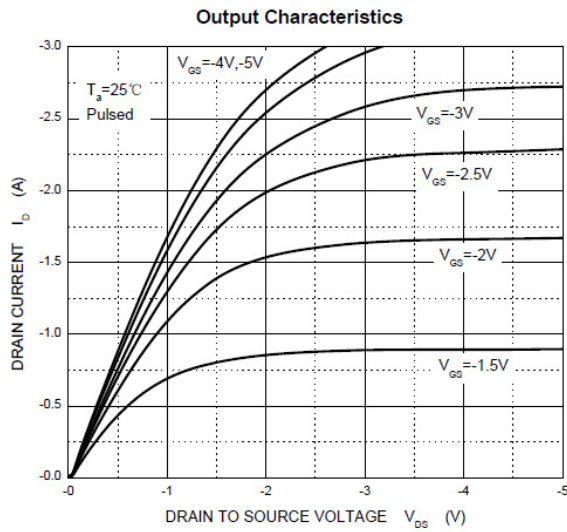
(T<sub>A</sub>=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Value			Unit
			Min	Typ.	Max	
<b>On/Off States</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	-20			V
Gate-Threshold Voltage(note 3)	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-0.35		-1.1	
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±12V			±20	μA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -20V, V <sub>GS</sub> = 0V			-1	
Drain-Source On-State Resistance (note 3)	R <sub>DS(on)</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -1A			520	mΩ
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -800mA			700	
		V <sub>GS</sub> = -1.8V, I <sub>D</sub> = -500mA			950	
Forward Trans-Conductance	g <sub>fs</sub>	V <sub>DS</sub> = -10V, I <sub>D</sub> = -540mA	0.8			S
<b>Dynamic Characteristics(note 4)</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -16V, V <sub>GS</sub> = 0V, f = 1MHz			170	pF
Output Capacitance	C <sub>oss</sub>				25	
Reverse Transfer Capacitance	C <sub>rss</sub>				15	
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> = -0.5A, V <sub>GS</sub> = 0V			-1.2	V
<b>Switching Times (note 4)</b>						
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = -10V, I <sub>D</sub> = -200mA, V <sub>GS</sub> = -4.5V, R <sub>G</sub> = 10 Ω		9		nS
Rise Time	t <sub>r</sub>			5.8		
Turn-Off Delay Time	t <sub>d(off)</sub>			32.7		
Fall Time	t <sub>f</sub>			20.3		

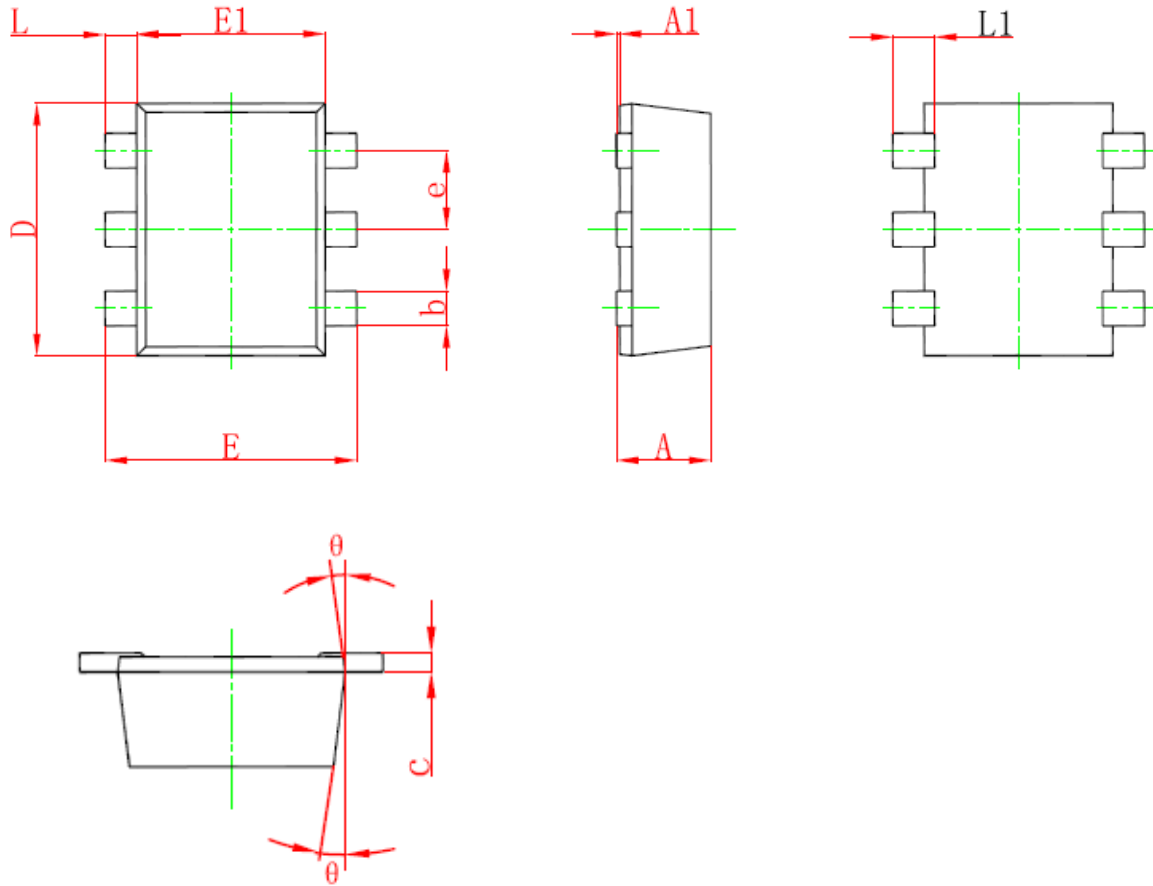
Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. This test is performed with no heat sink at T<sub>A</sub> = 25°C.
3. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 0.5%.
4. These parameters have no way to verify.

### Ratings and Characteristic Curves



## Package Outline Dimensions SOT-563



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min.	Max.	Min.	Max.
A	0.525	0.600	0.021	0.024
A1	0.000	0.050	0.000	0.002
e	0.450	0.550	0.018	0.022
c	0.090	0.160	0.004	0.006
D	1.500	1.700	0.059	0.067
b	0.170	0.270	0.007	0.011
E1	1.100	1.300	0.043	0.051
E	1.500	1.700	0.059	0.067
L	0.100	0.300	0.004	0.012
L1	0.200	0.400	0.008	0.016
θ	7° REF.		7° REF.	