

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D	$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
20V	380mΩ@4.5V	0.75A	-20V	750mΩ@-4.5V	-0.66A
	450mΩ@2.5V			1000mΩ@-2.5V	

Feature

- Trench Technology
- High Density Cell Design For Ultra Low On-Resistance
- ESD Protected : 2KV

Application

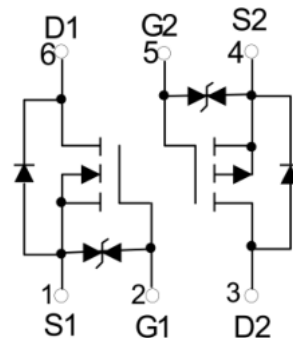
- Driver: Relays, Solenoids, Lamps, Hammers
- Power supply converters circuit
- Load/Power Switching for potable device

Package

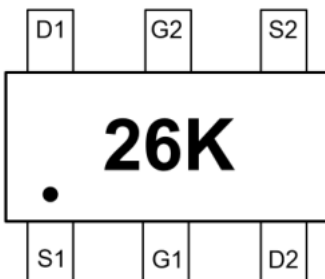


SOT-563

Circuit diagram



Marking



Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	N-Channel	p-Channel	Unit
Drain-Source Voltage	V_{DS}	20	-20	V
Gate-Source Voltage	V_{GS}	± 12	± 12	V
Continuous Drain Current	I_D	0.75	-0.66	A
Power Dissipation	P_D	0.15	0.15	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	833	833	$^{\circ}C/W$
Junction Temperature	T_J	150	150	$^{\circ}C$
Storage Temperature	T_{STG}	-55 ~ +150	-55 ~ +150	$^{\circ}C$

N-CH Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 16V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 10V, V_{DS} = 0V$			± 10	μA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.35		1.00	V
Drain-source on-resistance ¹⁾	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 0.5A$			380	m Ω
		$V_{GS} = 2.5V, I_D = 0.2A$			450	
Dynamic characteristics²⁾						
Input Capacitance	C_{iss}	$V_{DS} = 16V, V_{GS} = 0V, f = 1MHz$		79		pF
Output Capacitance	C_{oss}			13		
Reverse Transfer Capacitance	C_{rss}			9		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 10V, V_{GS} = 4.5V$ $I_D = 0.5A, R_{GEN} = 10\Omega$		6.7		nS
Turn-on rise time	t_r			4.8		
Turn-off delay time	$t_{d(off)}$			17.3		
Turn-off fall time	t_f			7.4		
Source-Drain Diode characteristics						
Diode Forward voltage	V_{DS}	$V_{GS} = 0V, I_S = 0.5A$			1.3	V

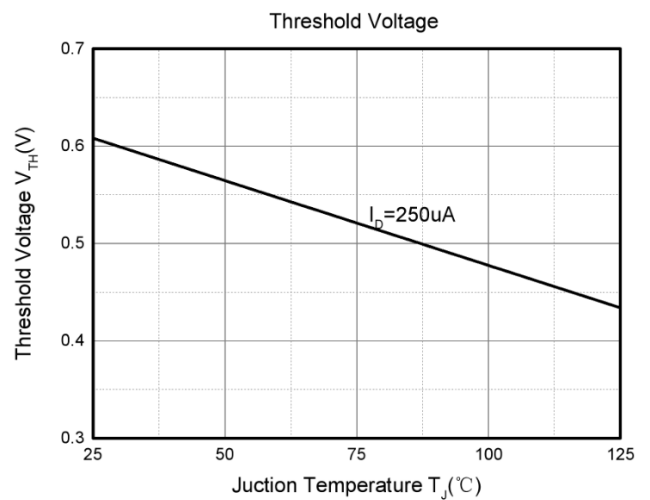
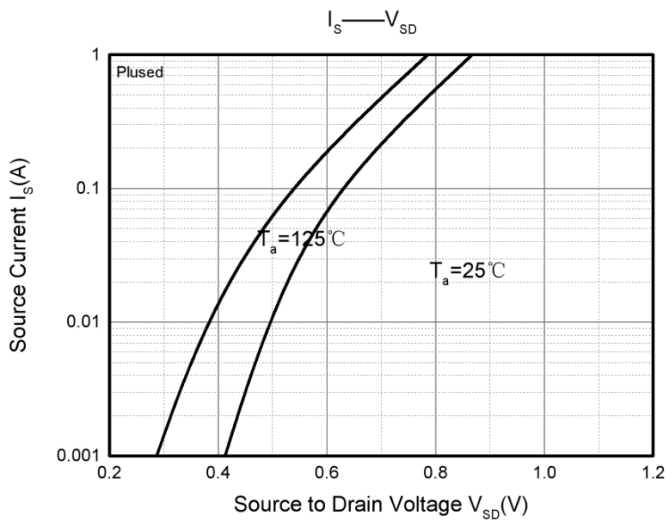
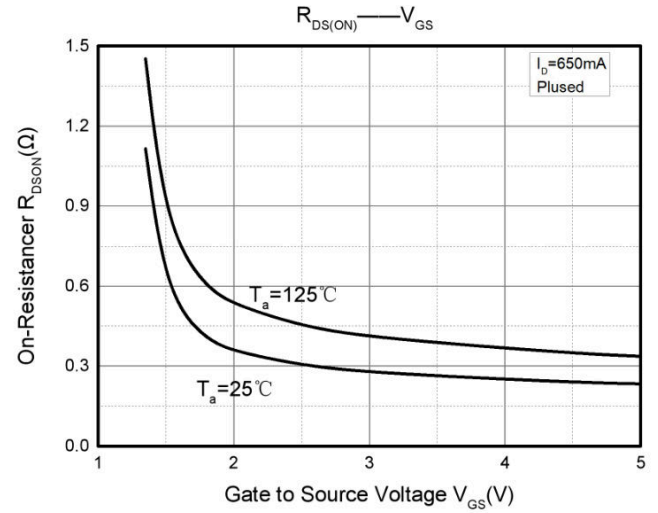
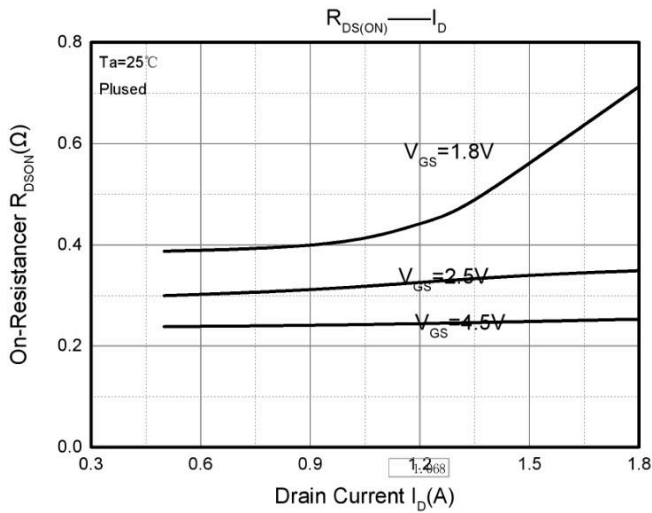
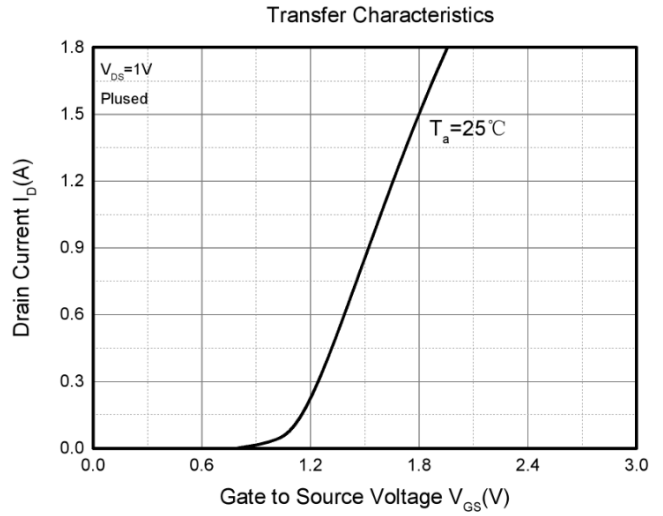
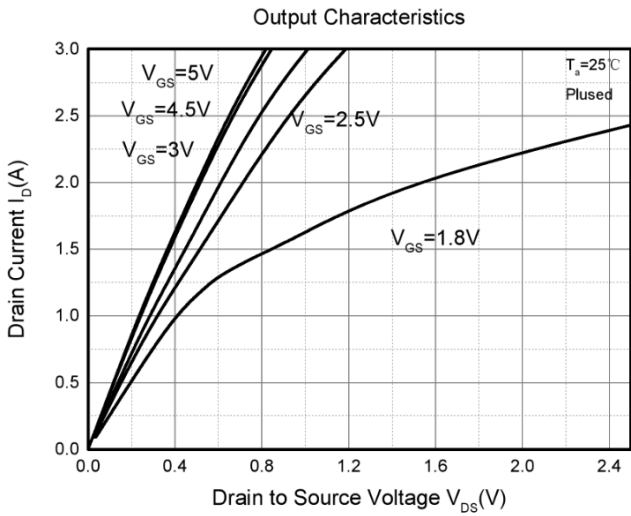
P-CH Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±10V, V _{DS} = 0V			±10	μA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.35		-1.00	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} = -4.5V, I _D = -0.5A			750	mΩ
		V _{GS} = -2.5V, I _D = -0.2A			1000	
Dynamic characteristics²⁾						
Input Capacitance	C _{iss}	V _{DS} = -16V, V _{GS} = 0V, f = 1MHz		113		pF
Output Capacitance	C _{oss}			15		
Reverse Transfer Capacitance	C _{rss}			9		
Turn-on delay time	t _{d(on)}	V _{DD} = -10V, V _{GS} = -4.5V I _D = -0.2A, R _{GEN} = 10Ω		9		nS
Turn-on rise time	t _r			5.7		
Turn-off delay time	t _{d(off)}			32.6		
Turn-off fall time	t _f			20.3		
Source-Drain Diode characteristics						
Diode Forward voltage	V _{DS}	V _{GS} = 0V, I _S = -0.5A			-1.2	V

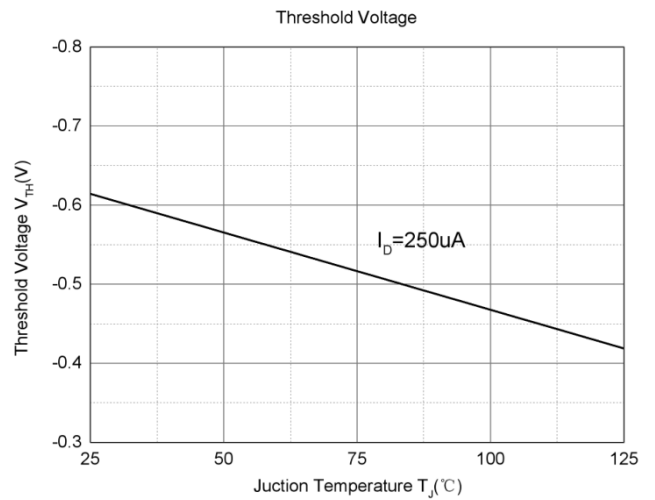
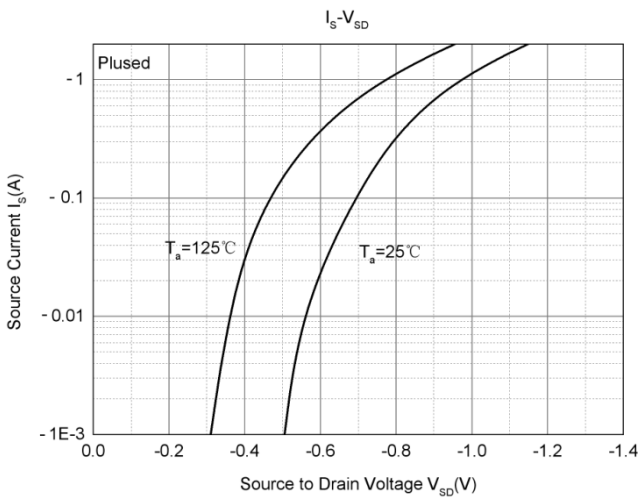
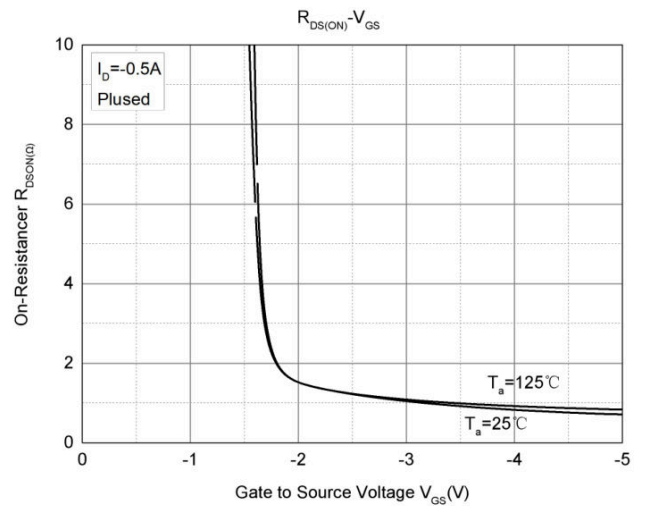
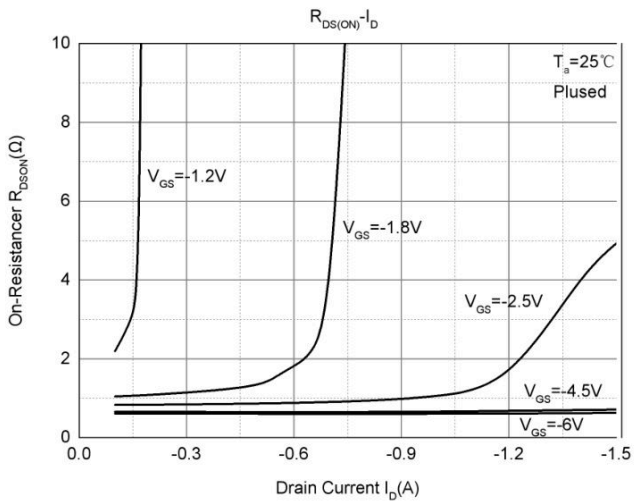
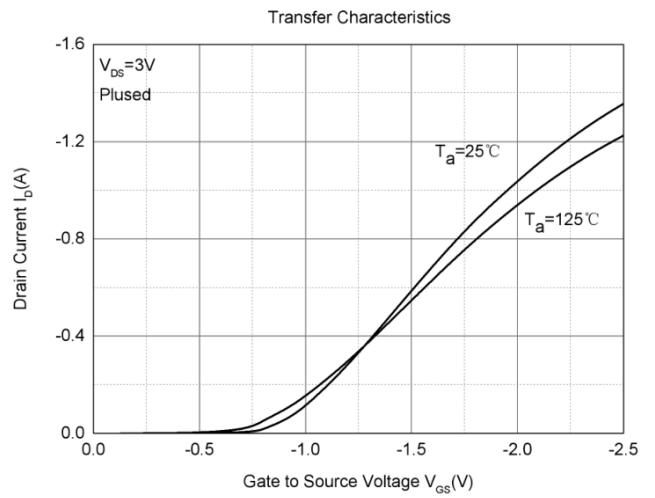
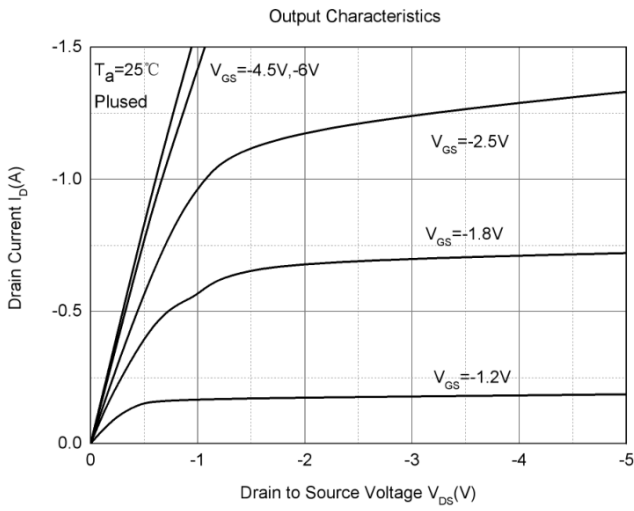
Notes:

- 1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.
- 2) Guaranteed by design, not subject to production testing.

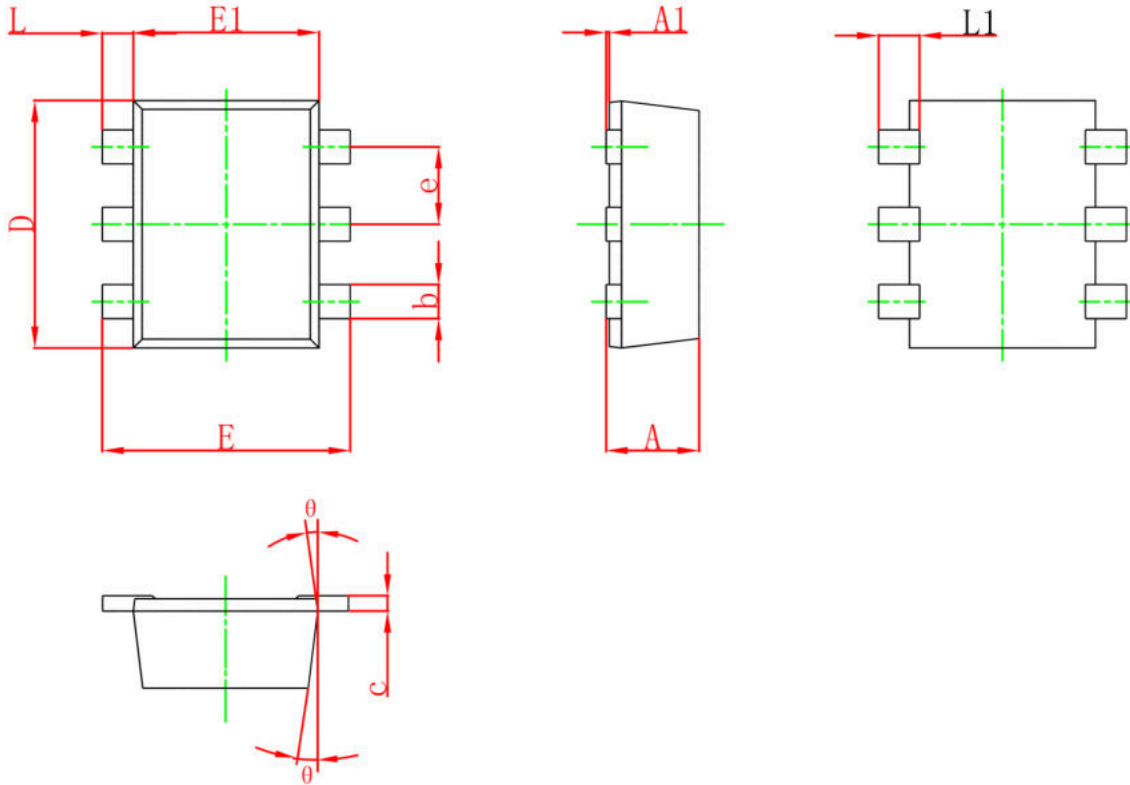
N- Channel Typical Electrical and Thermal Characteristics (Curves)



P- Channel Typical Electrical and Thermal Characteristics (Curves)



SOT-563 Package Information



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.	