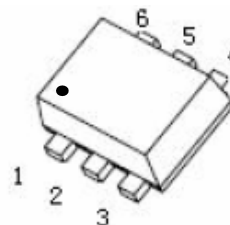


20V N-Channel Enhancement Mode MOSFET

Features:

- Surface Mount Package
- N-Channel Switch with Low $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive

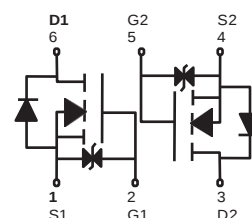


SOT-563

Applications:

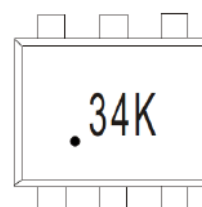
- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

Equivalent Circuit



$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
20 V	400mΩ@ 4.5V	0.75A
	500mΩ@ 2.5V	
	800mΩ@1.8V	

MARKING



ABSOLUTE MAXIMUM RATINGS ($T_a=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	20	V
Typical Gate-source voltage	V_{GS}	± 10	V
Continuous drain current ($t \leq 10s$)	I_D	0.75	A
Power dissipation(note1)	P_D	0.15	W
Thermal resistance from junction to ambient	$R_{\theta JA}$	833	$^{\circ}C/W$
Junction temperature	T_J	150	$^{\circ}C$
Storage temperature	T_{stg}	-55~ +150	$^{\circ}C$

MOSFET ELECTRICAL CHARACTERISTICS $T_a=25^\circ\text{C}$ unless otherwise specified

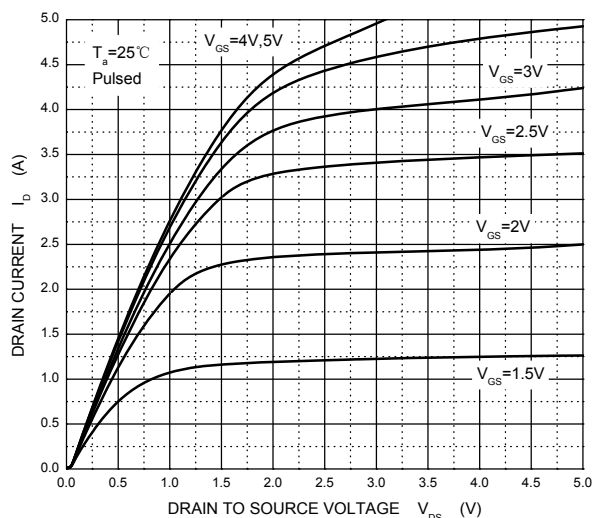
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	V _{(BR) DSS}	V _{GS} = 0V, I _D =250μA	20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =20V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±10V, V _{DS} = 0V			±20	μA
Gate threshold voltage (note 2)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.35	0.54	1	V
Drain-source on-resistance (note 2)	R _{DS(on)}	V _{GS} =4.5V, I _D =0.5A		250	400	mΩ
		V _{GS} =2.5V, I _D =0.5A		320	500	m Ω
		V _{GS} =1.8V, I _D =0.45A		390	800	m Ω
Forward tranconductance (note 2)	g _{FS}	V _{DS} =10V, I _D =0.8A		1.6		S
Diode forward voltage(note 2)	V _{SD}	I _S =0.15A, V _{GS} = 0V			1.2	V
DYNAMIC PARAMETERS (note 3)						
Input Capacitance	C _{iss}	V _{DS} =16V, V _{GS} =0V, f =1MHz		79	120	pF
Output Capacitance	C _{oss}			13	20	pF
Reverse Transfer Capacitance	C _{rss}			9	15	pF
SWITCHING PARAMETERS(note 3)						
Turn-on delay time	t _{d(on)}	V _{GS} =4.5V, V _{DS} =10V, I _D =0.5A, R _{GEN} =10Ω		6.7		ns
Turn-on rise time	t _r			4.8		ns
Turn-off delay time	t _{d(off)}			17.3		ns
Turn-off fall time	t _f			7.4		ns
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =7A		20		nC
Gate-Source Charge	Q _{gs}			1		nC
Gate-Drain Charge	Q _{gd}			4		nC

Notes :

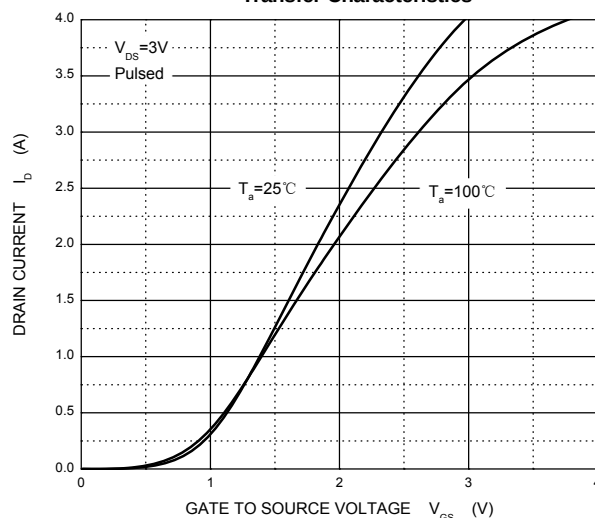
1. Repetitive rating : Pulse width limited by junction temperature.
2. Pulse Test : Pulse width $\leq 300\mu s$, duty cycle $\leq 0.5\%$.
3. Guaranteed by design, not subject to production testing.

Typical Characteristics

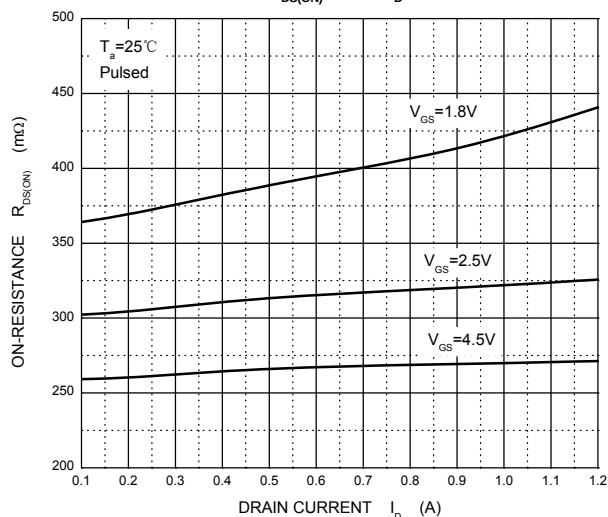
Output Characteristics



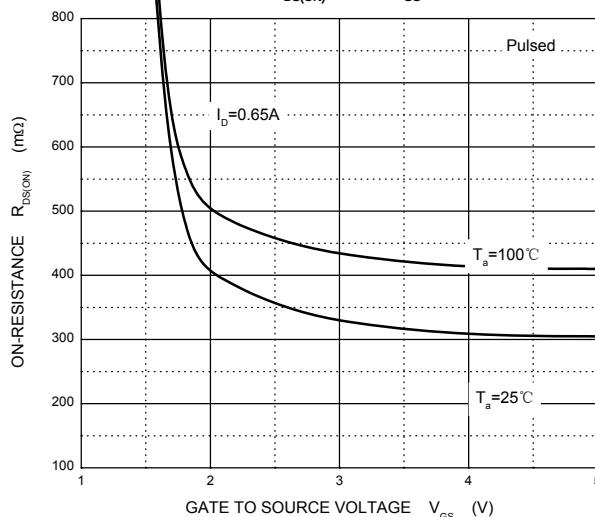
Transfer Characteristics



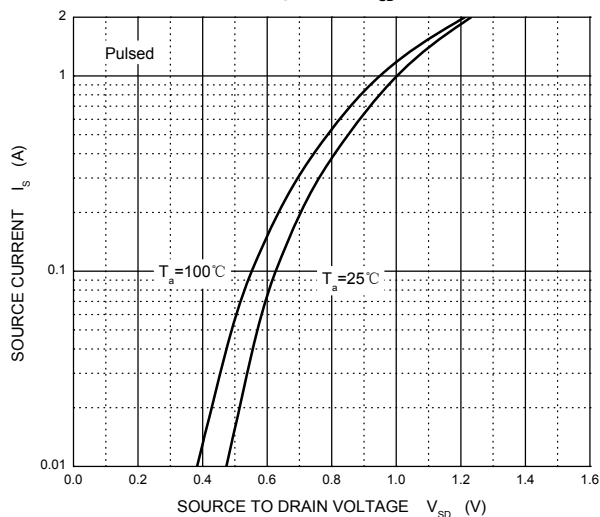
$R_{DS(ON)}$ — I_D



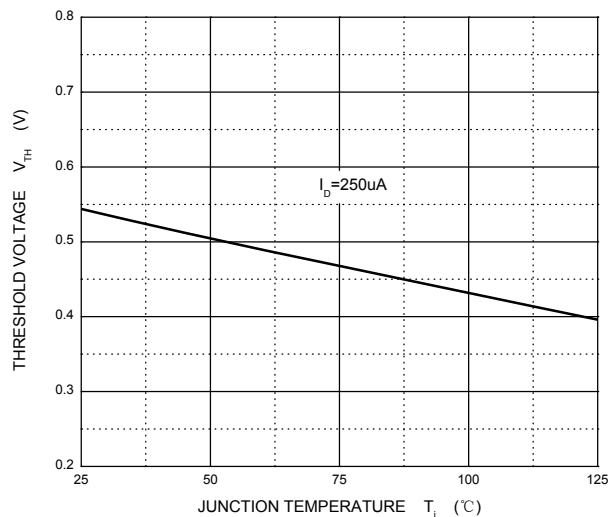
$R_{DS(ON)}$ — V_{GS}



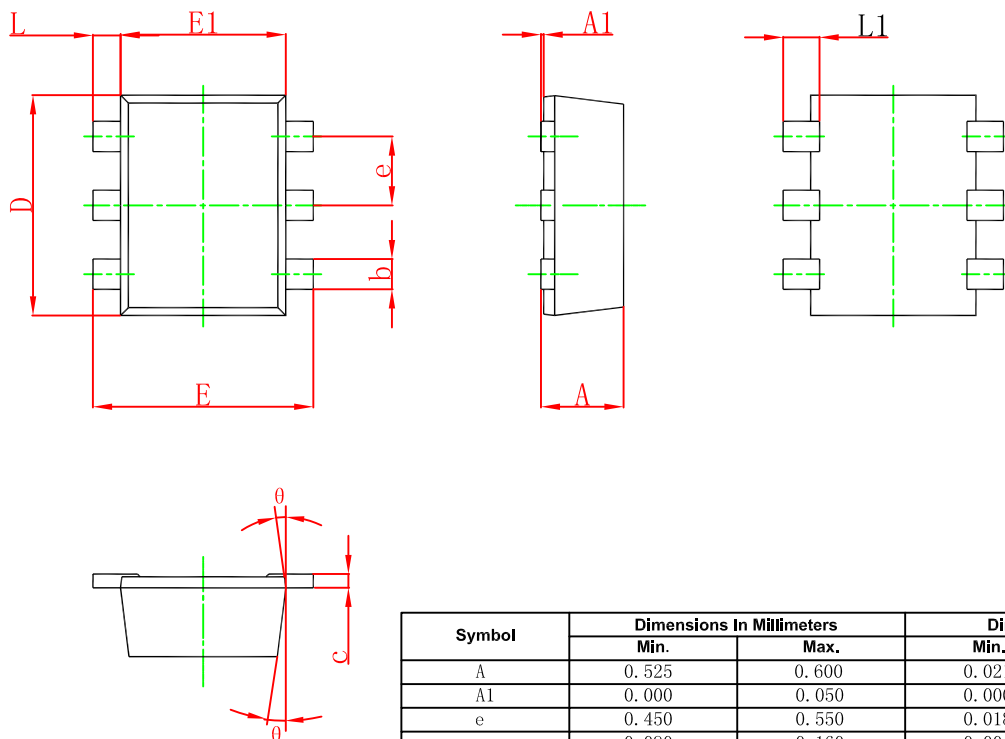
I_S — V_{SD}



Threshold Voltage

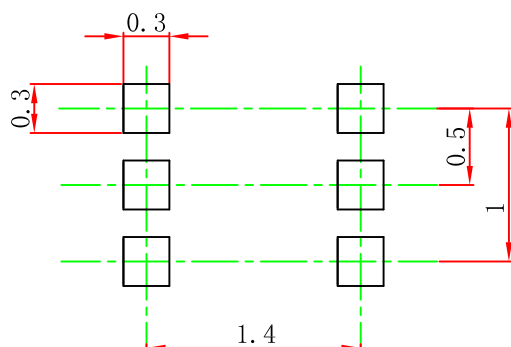


SOT-563 Package Outline Dimensions



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.	

SOT-563 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.