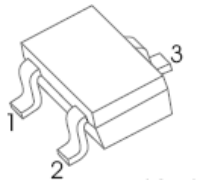
N-Channel MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
20V	380 mΩ@4.5V	0.75A
	450 mΩ@2.5V	
	800 mΩ@1.8V	

SOT-323



1. GATE
2. SOURCE
3. DRAIN

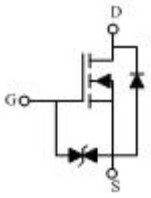
FEATURE

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

APPLICATION

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

Equivalent Circuit



Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source voltage	V_{DSS}	20	V
Typical Gate-Source Voltage	V_{GS}	±12	
Drain Current-Continuous	I_D	0.75	A
Drain Current -Pulsed(note1)	I_{DM}	3	
Power Dissipation (note 2)	P_D	200	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	625	℃/W
Storage Temperature	T_j	150	℃
Junction Temperature	T_{stg}	-55 ~+150	

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

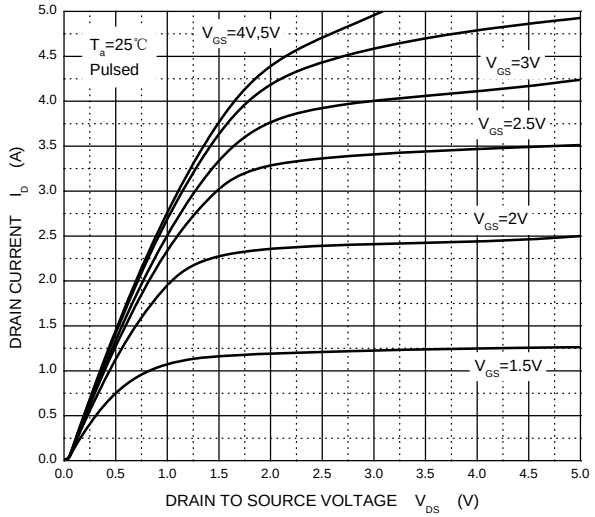
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
On/Off States						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	20			V
Gate-Threshold Voltage(note 3)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.35		1.1	
Gate-Body Leakage Current	I_{GSS}	V_{DS} =0V, V_{GS} =±10V			±20	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =20V, V_{GS} =0V			1	μA
Drain-Source On-State Resistance(note 3)	$R_{DS(on)}$	V_{GS} =4.5V, I_D =650mA			380	mΩ
		V_{GS} =2.5V, I_D =550mA			450	
		V_{GS} =1.8V, I_D =450mA			800	
Forward Transconductance	g_{FS}	V_{DS} =10V, I_D =800mA	1			S
Dynamic Characteristics(note 4)						
Input Capacitance	C_{iss}	V_{DS} =16V,V_{GS} =0V,f =1MHz			120	pF
Output Capacitance	C_{oss}				20	
Reverse Transfer Capacitance	C_{rss}				15	
Switching Times (note 4)						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=10V,I_D=500mA, V_{GS}=4.5V,R_G=10Ω		6.7		ns
Rise Time	t_r			4.8		
Turn-Off Delay Time	$t_{d(off)}$			17.3		
Fall Time	t_f			7.4		
Drain-Source Diode Characteristics						
Drain-Source Diode Forward Voltage (note 3)	V_{SD}	I_S=0.15A, V_{GS} = 0V			1.2	V

Notes:

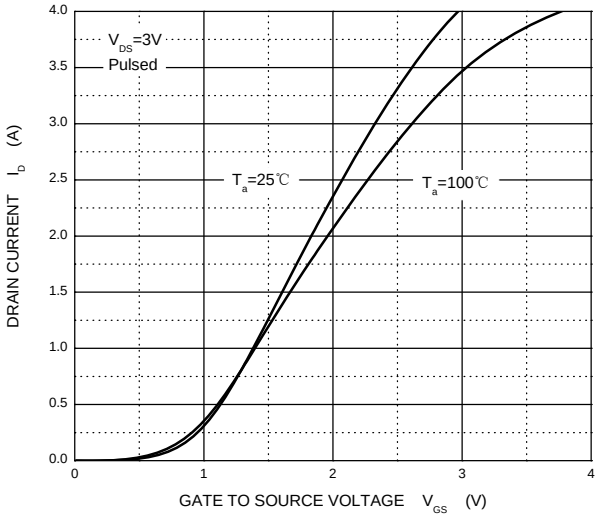
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. This test is performed with no heat sink at T_a=25℃.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle≤0.5%.
4. These parameters have no way to verify.

Typical Characteristics

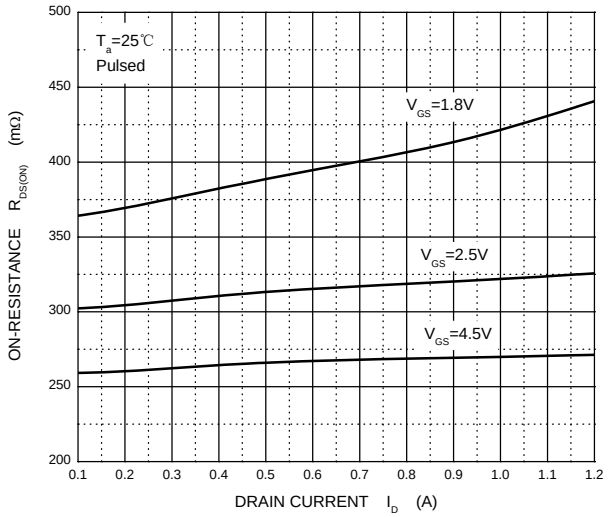
Output Characteristics



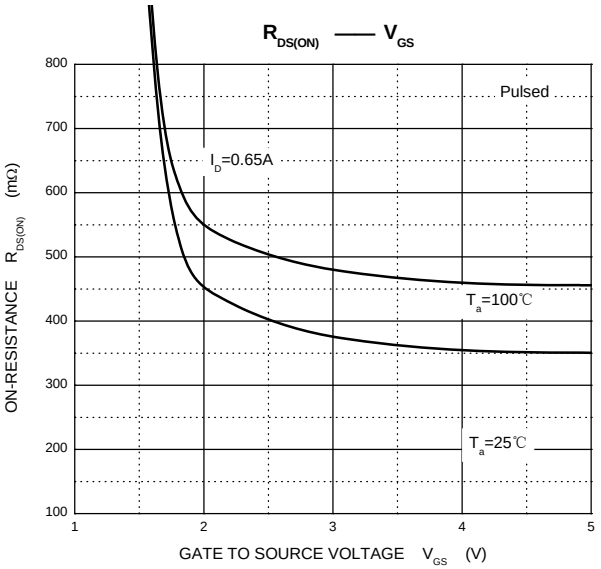
Transfer Characteristics



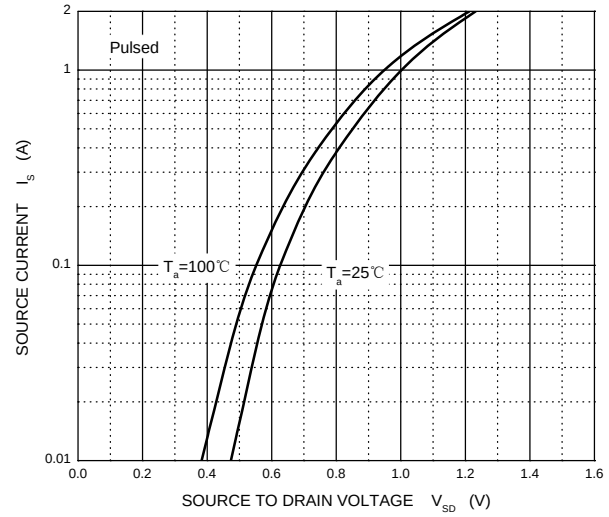
$R_{DS(ON)}$ —— I_D



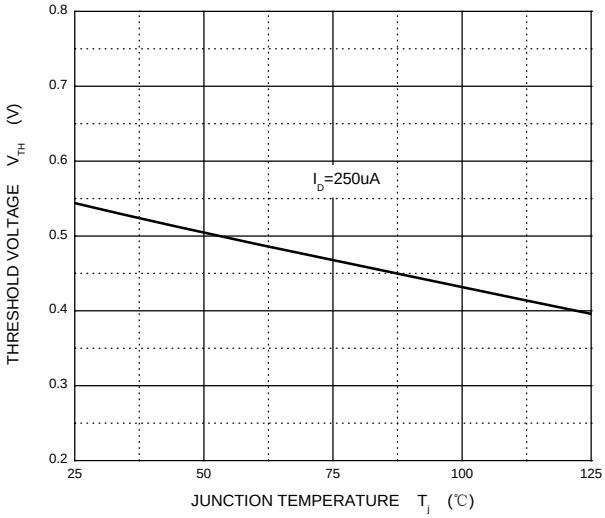
$R_{DS(ON)}$ —— V_{GS}



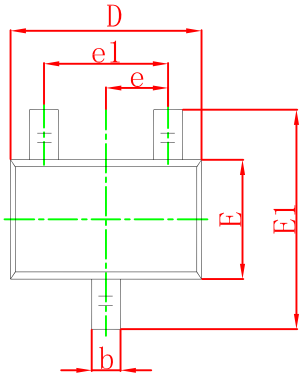
I_S —— V_{SD}

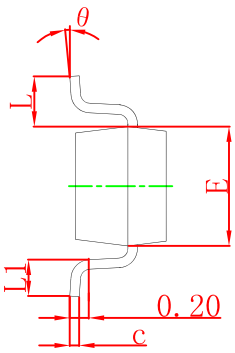


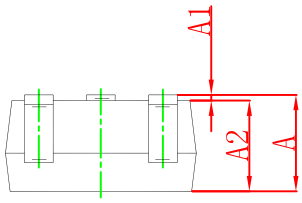
Threshold Voltage



SOT-323 Package Outline Dimensions

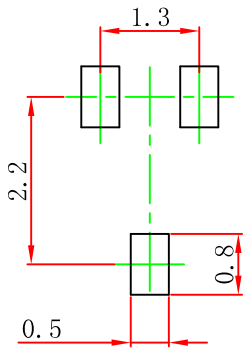






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-323 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.