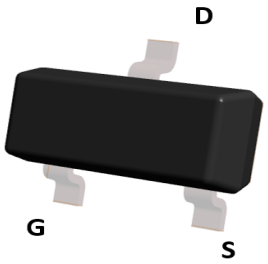
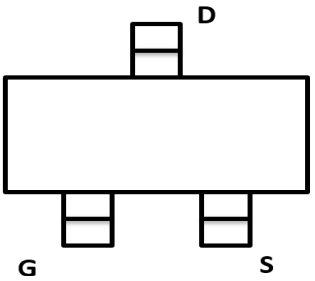
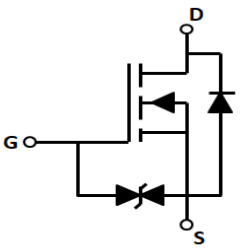
N-Channel Enhancement Mode Field Effect Transistor



Top View





SOT-523

Product Summary

- V_{DS} 20V
- I_D 0.75A
- $R_{DS(ON)}$(at V_{GS}=4.5V) ＜350 mohm
- $R_{DS(ON)}$(at V_{GS}=2.5V) ＜500 mohm
- ESD Protected Up to 3.0KV (HBM)

General Description

- Trench Power LV MOSFET technology
- High Power and current handing capability

Applications

- Load/Power Switching
- Interfacing Switching
- Logic Level Shift

■ **Absolute Maximum Ratings** (T_A=25℃unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	20	V
Gate-source Voltage		V_{GS}	±10	V
Drain Current	T_A=25℃ @ Steady State	I_D	0.75	A
	T_A=70℃ @ Steady State		0.6	
Pulsed Drain Current [A]		I_{DM}	3.0	A
Total Power Dissipation @ T_A=25℃		P_D	0.15	W
Thermal Resistance Junction-to-Ambient @ Steady State		$R_{\theta JA}$	833	℃/ W
Junction and Storage Temperature Range		T_J ,T_{STG}	-55～+150	℃

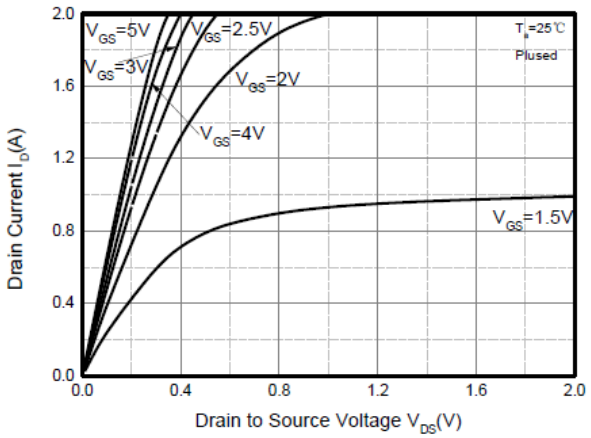
■ Electrical Characteristics (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{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	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=250μA	0.35	0.75	1.1	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= 4.5V, I_D=0.65A		135	350	mΩ
		V_{GS}= 2.5V, I_D=0.3A		190	500	
Diode Forward Voltage [C]	V_{SD}	I_S=0.5A,V_{GS}=0V			1.2	V
Maximum Body-Diode Continuous Current	I_S				0.75	A
Dynamic Parameters [B]						
Input Capacitance	C_{iss}	V_{DS}=10V,V_{GS}=0V,f=1MHZ			110	pF
Output Capacitance	C_{oss}				18	
Reverse Transfer Capacitance	C_{rss}				15	
Switching Parameters [B]						
Total Gate Charge	Q_g	V_{GS}=4.5V,V_{DS}=10V,I_D=0.5A		1.1		nC
Gate Source Charge	Q_{gs}			0.19		
Gate Drain Charge	Q_{gd}			0.27		
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=4.5V,V_{DD}=10V,R_G=10Ω,I_D=0.5A		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		

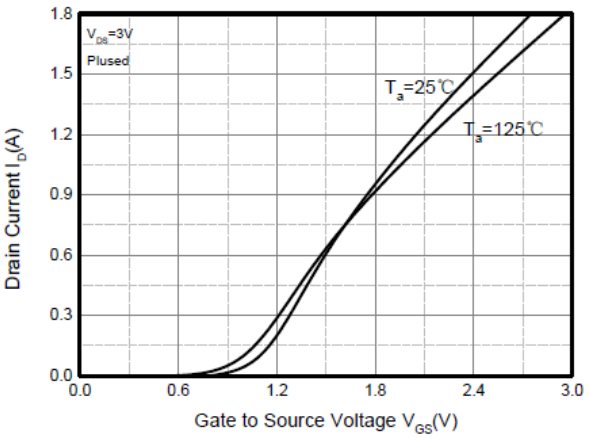
A. Repetitive Rating: Pulse width limited by maximum junction temperature.
B. These parameters have no way to verify.
C. Pulse Test: Pulse Width≤300us, Duty Cycle≤0.5%.

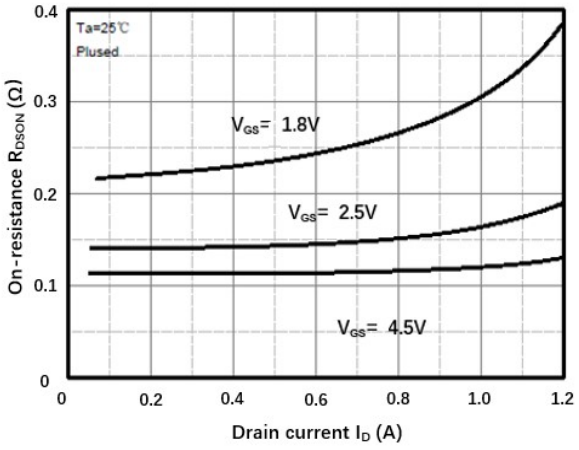
■ Typical Performance Characteristics

Output Characteristics

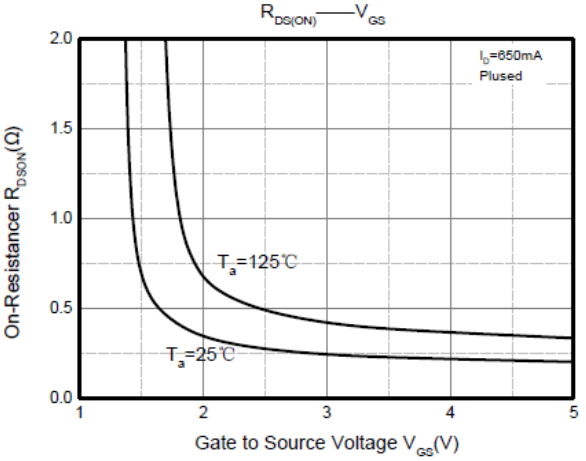


Transfer Characteristics

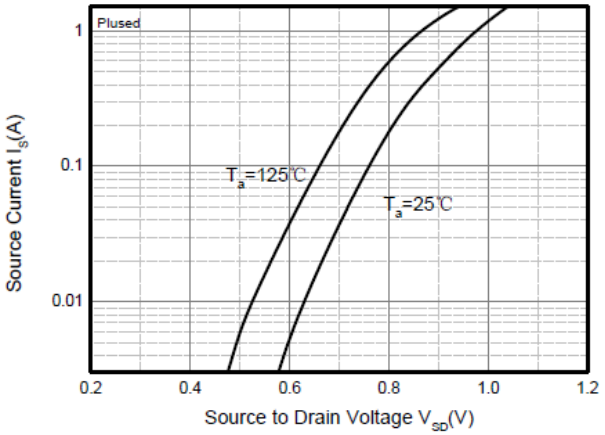




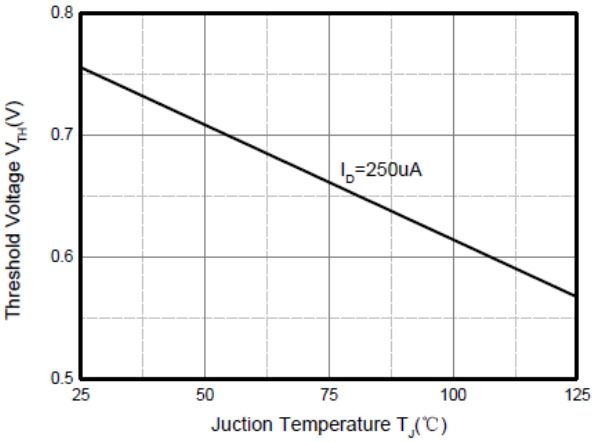
$R_{DS(ON)}$——V_{GS}



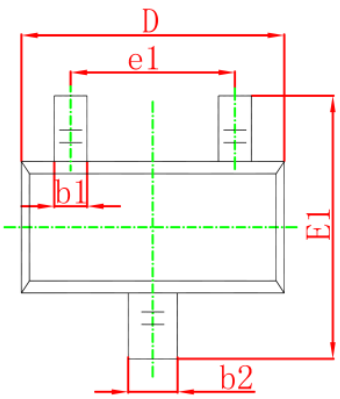
I_S——V_{SD}

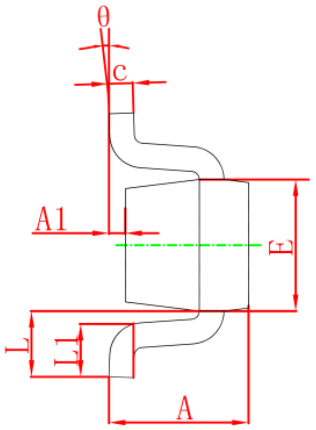


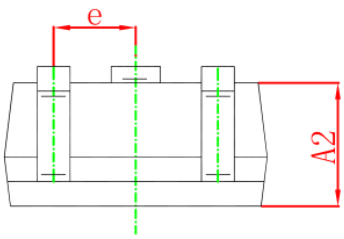
Threshold Voltage



■SOT-523 Package information







Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

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