Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	250mΩ@4.5V	0.75A
	350mΩ@2.5V	

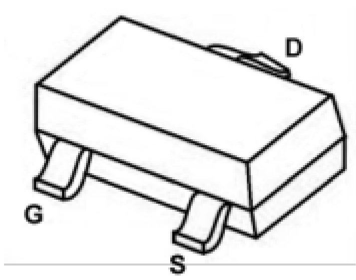
Feature

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

Application

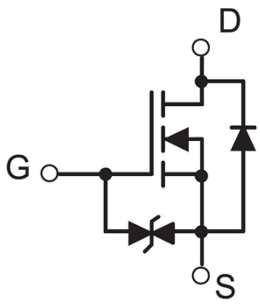
- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

Package

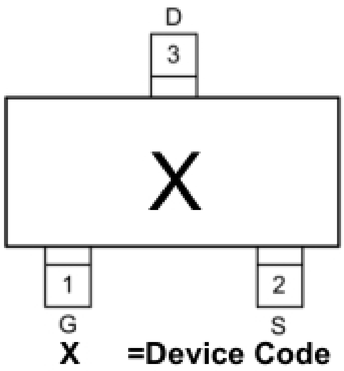


SOT-523

Circuit diagram



Marking



Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±6	V
Continuous Drain Current	I_D	0.75	A
Pulsed Drain Current	I_{DM}	3.0	A
Power Dissipation	P_D	0.15	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	833	℃/W
Junction Temperature	T_J	150	
Storage Temperature	T_{STG}	-55~ +150	℃

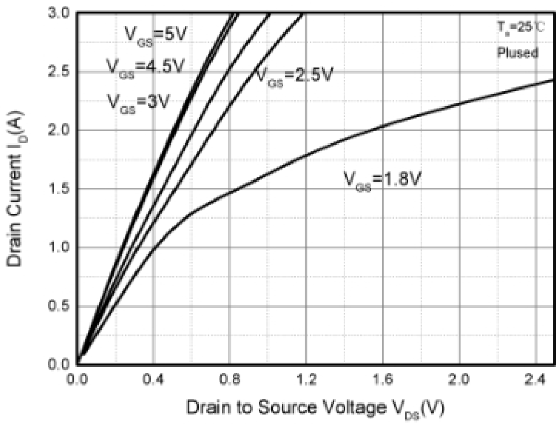
Electrical characteristics

(T_A=25℃, unless otherwise noted)

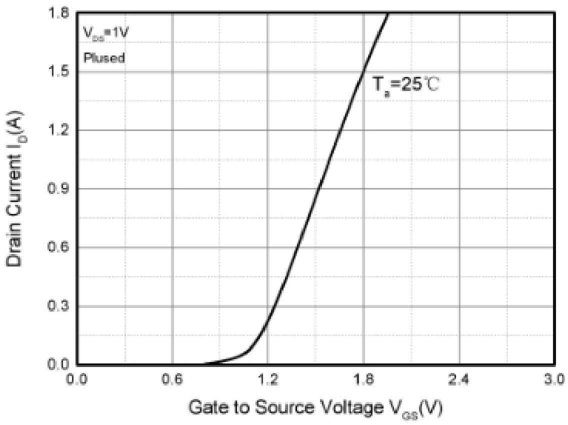
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =16V, V_{GS} = 0V			100	uA
Gate-Body Leakage Current	I_{GSS}	V_{GS} =±4.5V, V_{DS} = 0V			±1	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.45	0.65	1.1	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =4.5V, I_D =600mA		250	570	mΩ
		V_{GS} =2.5V, I_D =500mA		350	620	
		V_{GS} =1.8V, I_D =350mA		400	700	
		V_{GS} =1.5V, I_D =40mA			950	
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{DS}=16V, V_{GS}=0V, f=1MHz		79	120	pF
Output capacitance	C_{oss}			13	20	
Reverse transfer capacitance	C_{rss}			9	15	
Switching Characteristics						
Turn-on Delay Time	$T_{d(on)}$	V_{GS} =4.5V, V_{DD}=10V, I_D=500mA , R_{GEN}=10Ω		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						
Body diode voltage	V_{SD}	I_S=0.2A, V_{GS}=0V			1.2	V

Typical Characteristics

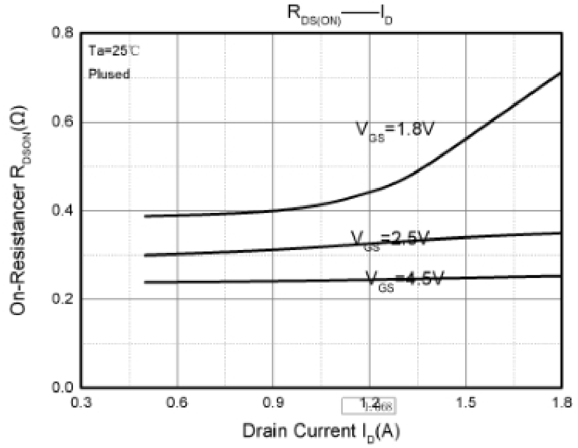
Output Characteristics



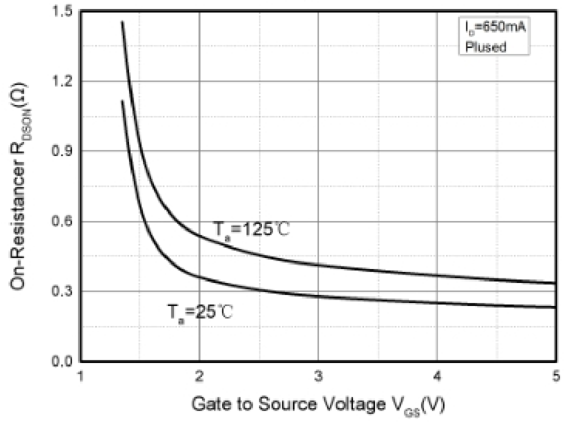
Transfer Characteristics



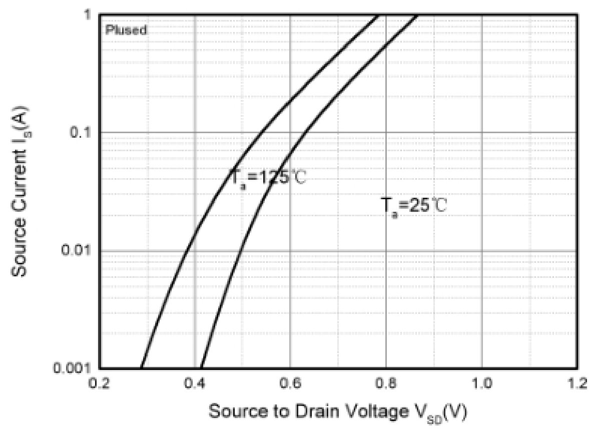
$R_{DS(ON)}$—I_D



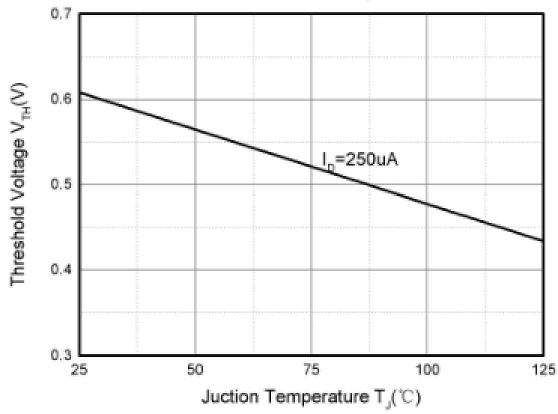
$R_{DS(ON)}$—V_{GS}



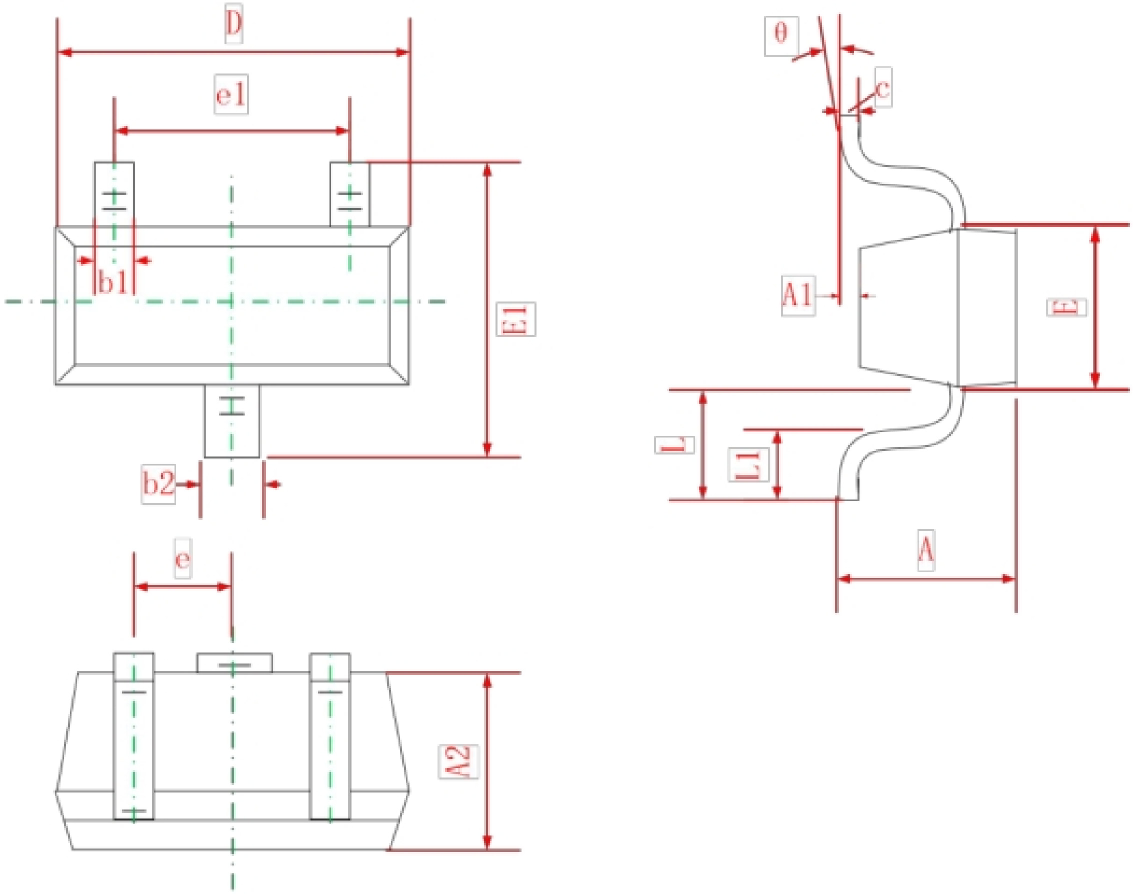
I_S—V_{SD}



Threshold Voltage



SOT-523 Package Information



Symbol	Dimensions In Millimeters	
	Min	Max
A	0.700	0.900
A1	0.000	0.100
A2	0.700	0.800
b1	0.150	0.250
b2	0.250	0.350
C	0.100	0.200
D	1.500	1.700
E	0.700	0.900
E1	1.450	1.750
e	0.500 TYP	
e1	0.900	1.100
L	0.400 REF	
L1	0.260	0.460
θ	0°	8°