N-Channel MOSFET

Primary characteristics			
Symbol	**Parameter**	**Value**	**Unit**
I_D	Continuous drain current (@T_C=25°C)	220	A
V_{DS}	Drain source voltage	50	V
R_{DSON}-max(@V_{GS}=4.5V)	Static drain-source on-resistance	1.7	Ω

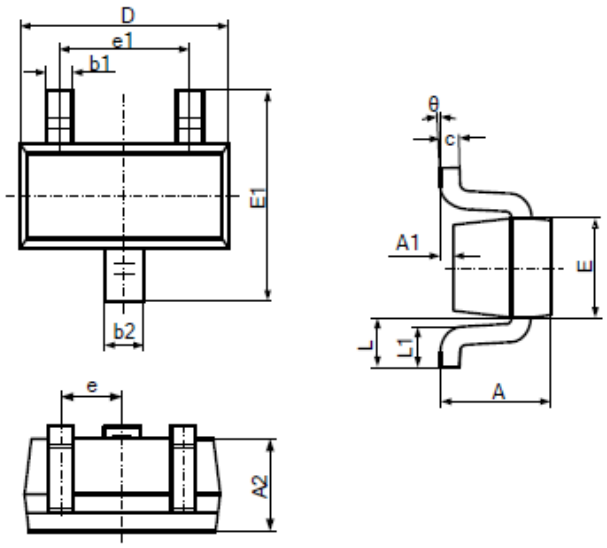
Features

- **SOT-523** case for easy automatic insertion
- Pb-free and **RoHS** compliant
- High density cell design for Low RDS(on)
- ESD protection for high speed data lines to IEC61000-4-2
- ESD contact discharge typical 8KV, max 15KV
- ESD air discharge typical 15KV. max 25KV

Application

- Switching

Case dimensions



SOT-523

Unit	A	A1	A2	b1	b2	c	D
mm	0.700-0.900	0.000-0.100	0.700-0.800	0.150-0.250	0.250-0.350	0.100-0.200	1.500-1.700
Unit	**E**	**E1**	**e**	**e1**	**L**	**L1**	**θ**
mm	0.700-0.900	1.450-1.750	0.500	0.900-1.100	0.400	0.026-0.460	0-8°

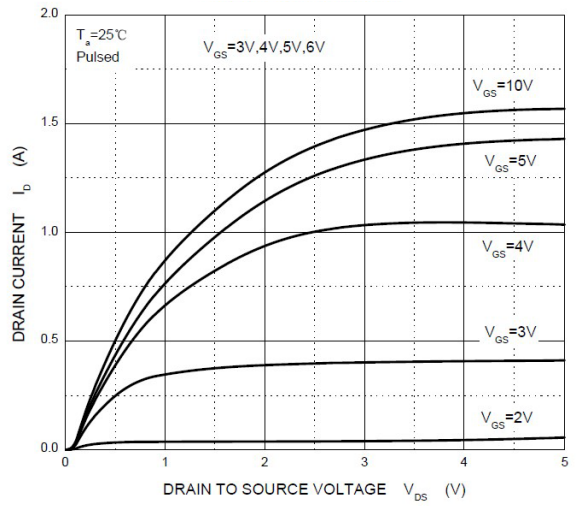
Maximum ratings (T_C = 25°C)			
Characteristics	**Symbol**	**Value**	**Unit**
Drain-source voltage	V_{DS}	50	V
Gate-source voltage	V_{GS}	±20	V
Continuous drain current @T_C=25°C	I_D	220	mA
Power Dissipation @T_C=25°C	P_D	350	mW
Operating junction temperature range	T_J, T_{STG}	-55 ~ 150	°C
Thermal resistance junction-ambient	$R_{\theta JA}$	357	°C/W

Maximum ratings (T_C = 25°C)						
Characteristics	**Test condition**	**Symbol**	**Value**			**Unit**
			Min.	**Typ.**	**Max.**	
Drain-source breakdown voltage	V_{GS}=0V, I_D=250μA	BV_{DSS}	50	-	-	V
Static drain-source on-resistance[1]	V_{GS}=10V, I_D=0.22A	$R_{DS(ON)}$	-	-	1.3	Ω
	V_{GS}=4.5V, I_D=0.22A		-	-	1.7	
	V_{GS}=2.2V, I_D=0.22A		-	1.75	2.0	
Gate-threshold voltage[1]	V_{DS}=V_{GS}, I_D=1mA	$V_{GS(th)}$	-	-	1.5	V
Drain-source leakage current	V_{DS}=50V, V_{GS}=0V, T_J=25°C	I_{DSS}	-	-	0.5	μA
Gate-source leakage current	V_{GS}=±20V, V_{DS}=0V	I_{GSS}	-	-	±100	nA
Forward transconductance[1]	V_{DS}=10V, I_D=0.22A	g_{FS}	-	120	-	mS
Turn-on delay time	V_{DD}=30V V_{GS}=10V R_G=6Ω I_D=0.29A	$T_{d(on)}$	-	-	5	ns
Rise time		T_r	-	-	18	
Turn-off delay time		$t_{d(OFF)}$	-	-	36	
Fall time		t_f	-	-	14	
Input capacitance	V_{DS}=25V V_{GS}=0V f=1.0MHz	C_{iss}	-	27	-	pF
Output capacitance		C_{oss}	-	13	-	
Reverse transfer capacitance		C_{rss}	-	6	-	
Diode forward voltage[1]	V_{GS}=0V, I_S=0.44A,	V_{SD}	-	-	1.4	V

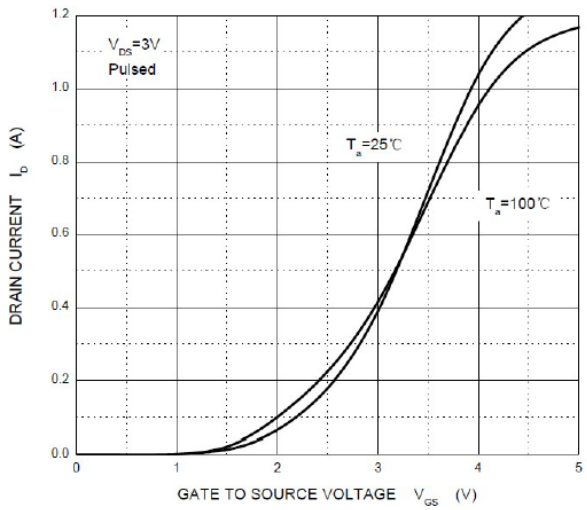
Notes:
1. Pulse Test ;Pulse Width ≤300us,Duty Cycle ≤2%.

Typical characteristics

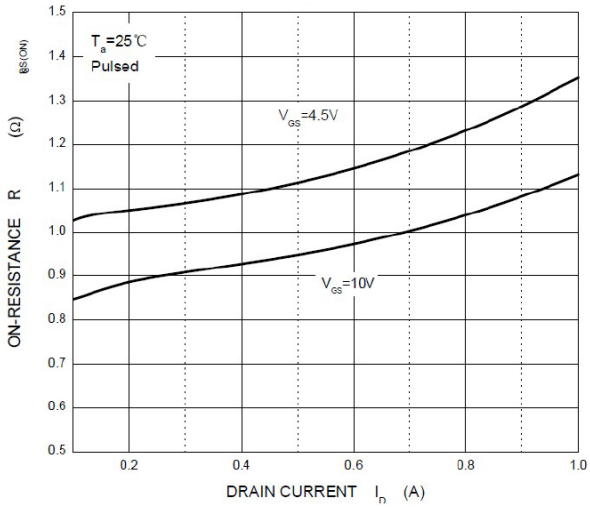
Typical output characteristics



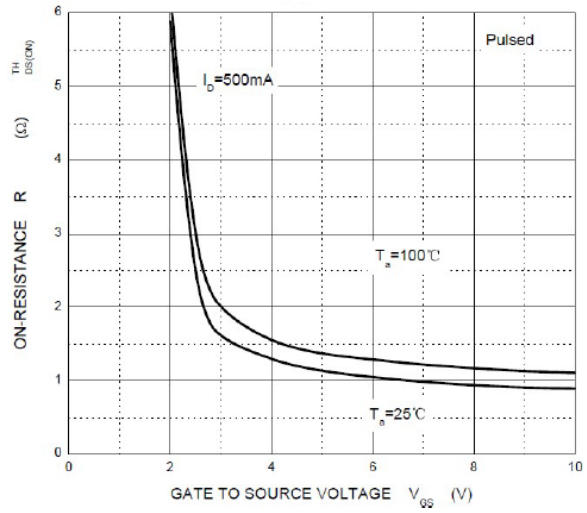
Transfer Characteristics



R_{DSON} vs. I_D

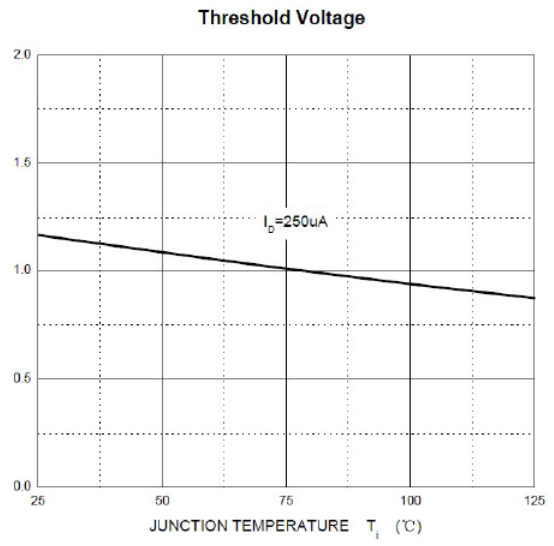


R_{DSON} vs. V_{gs}

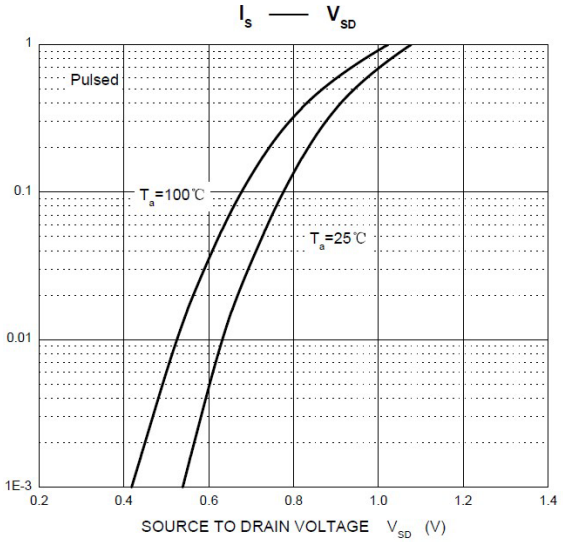


Typical characteristics

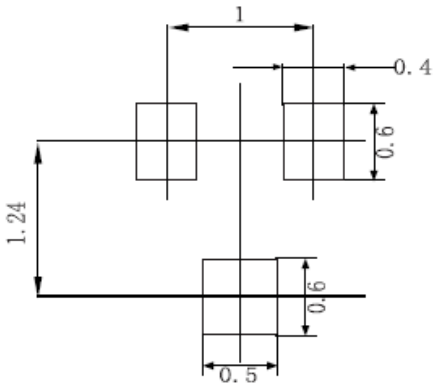
Normalized Threshold Voltage



I_S vs. V_{SD}



Pad dimensions



Ordering information			
Part Number	**Package**	**Shipping Quantity**	**Dimensions**
BSS138T	SOT-523	**3000 pcs / reel**	---

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