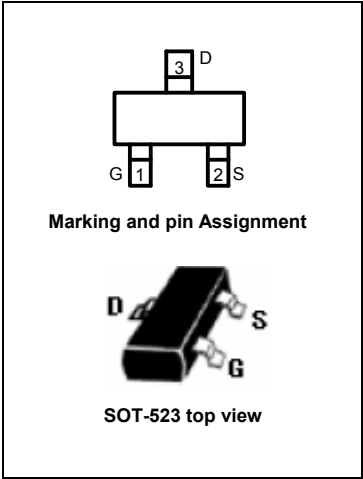
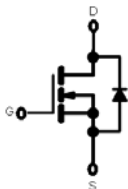


SOT-323 Plastic-Encapsulate MOSFETS

BSS138SR N-Channel 50-V(D-S) MOSFET

FEATURE

- Low On-Resistance
- Low Gate Threshold Voltage
- Fast Switching Speed
- Low Input / Output Leakage



Maximum ratings (T_a=25°C unless otherwise noted)

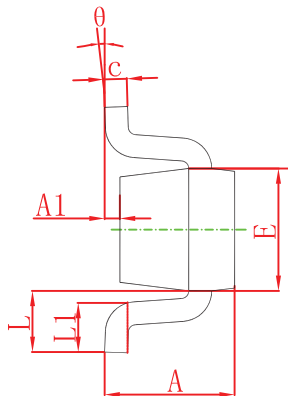
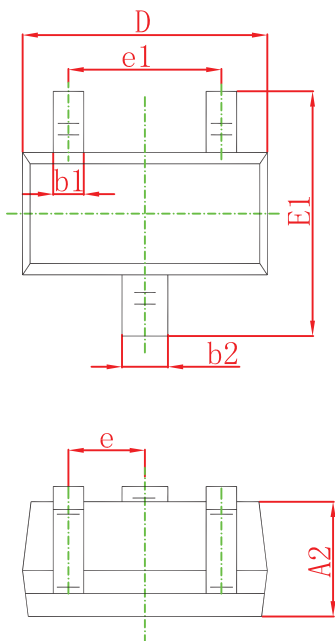
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	50	V
Continuous Gate-Source Voltage	V _{GSS}	±12	
Continuous Drain Current	I _D	0.34	A
Power Dissipation	P _D	0.35	W
Thermal Resistance from Junction to Ambient	R _{θJA}	357	°C/W
Operating Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-55 ~+150	

Electrical characteristics (T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	50			V
Gate-body leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±1	μA
		V _{DS} =0V, V _{GS} =±10V			±0.5	μA
		V _{DS} =0V, V _{GS} =±5V			±0.05	μA
Zero gate voltage drain current	I _{DSS}	V _{DS} =50V, V _{GS} =0V			0.1	μA
On characteristics						
Gate-threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =0.25mA	0.80	1.20	1.50	V
Static drain-source on-resistance	R _{DS(on)}	V _{GS} =1.8V, I _D =0.05A		1.10	2.50	Ω
		V _{GS} =2.5V, I _D =0.05A		1.20	3.0	
		V _{GS} =5V, I _D =0.05A			1.6	
Forward transconductance	g _{FS}	V _{DS} =10V, I _D =0.2A	0.20			S
Dynamic characteristics*						
Input capacitance	C _{iss}	V _{DS} =25V,V _{GS} =0V, f=1MHz		58		pF
Output capacitance	C _{oss}			9.75		
Reverse transfer capacitance	C _{rss}			5.2		
Gate resistance	R _G	V _{DS} =5V,V _{GS} =10mV, f=1MHz		281		Ω
Switching characteristics*						
Turn-on delay time	t _{d(on)}	V _{DD} =30V, V _{DS} =10V, I _D =0.29A,R _{GEN} =6Ω			5	ns
Rise time	t _r				5	
Turn-off delay time	t _{d(off)}				60	
Fall time	t _f				35	
Drain-source body diode characteristics						
Body diode forward voltage*	V _{SD}	I _S =0.115A, V _{GS} = 0V			1.2	V

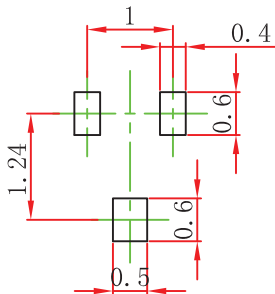
* These parameters have no way to verify.

SOT-523 Package Outline Dimensions



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°

SOT-523 Suggested Pad Layout



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