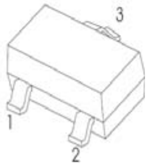
SOT-23 Plastic-Encapsulate MOSFETS

BSS138 N-Channel 50-V(D-S) MOSFET

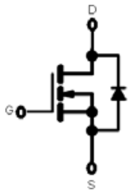
SOT-23

1. GATE
2. SOURCE
3. DRAI



FEATURE

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



Maximum ratings (T_a=25℃ 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	$R_{\theta JA}$	357	℃/W
Operating 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
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.