

BSS138W

N-CHANNEL MOSFET

VOLTAGE 50 Volt **CURRENT** 0.22 Ampere

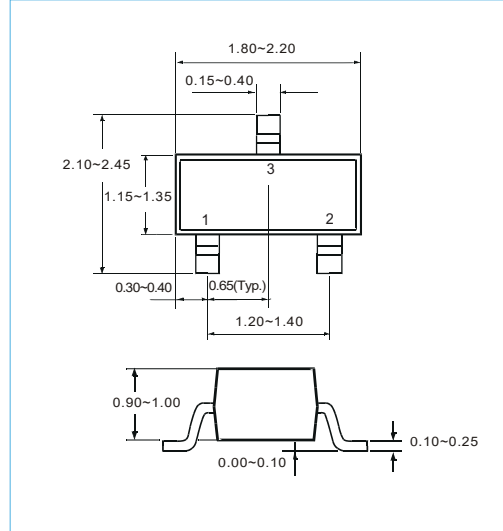
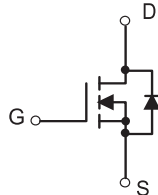
SOT-323 Unit:mm

FEATURES

- High density cell design for extremely low $R_{DS(on)}$
- Rugged and Reliable
- Lead free in compliance with EU RoHS

MECHANICAL DATA

- Case Material: Molded Plastic.
- UL Flammability Classification Rating 94V-0



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS($T_A = 25^\circ\text{C}$ unless otherwise noted)

SYMBOL	PARAMETER	VALUE	UNIT
V_{DS}	Drain-Source Voltage	50	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current	220	mA
P_D	Power Dissipation	300	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	417	$^\circ\text{C/W}$
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	$^\circ\text{C}$

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ELECTRICAL CHARACTERISTICS (T_A =25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
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} =±20V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} =50V, V _{GS} =0V			0.5	μA
		V _{DS} =30V, V _{GS} =0V			100	nA
On characteristics						
Gate-threshold voltage (note 1)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =1mA	0.80		1.50	V
Static drain-source on-resistance (note 1)	R _{DS(on)}	V _{GS} =10V, I _D =0.22A			3.50	Ω
		V _{GS} =4.5V, I _D =0.22A			6	
Forward transconductance (note 1)	g _{FS}	V _{DS} =10V, I _D =0.22A	0.12			S
Dynamic characteristics (note 2)						
Input capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHz		27		pF
Output capacitance	C _{oss}			13		
Reverse transfer capacitance	C _{rss}			6		
Switching characteristics						
Turn-on delay time (note 1,2)	t _{d(on)}	V _{DD} =30V, V _{DS} =10V, I _D =0.29A, R _{GEN} =6Ω			5	ns
Rise time (note 1,2)	t _r				18	
Turn-off delay time (note 1,2)	t _{d(off)}				36	
Fall time (note 1,2)	t _f				14	
Drain-source body diode characteristics						
Body diode forward voltage (note 1)	V _{SD}	I _S =0.44A, V _{GS} = 0V			1.4	V

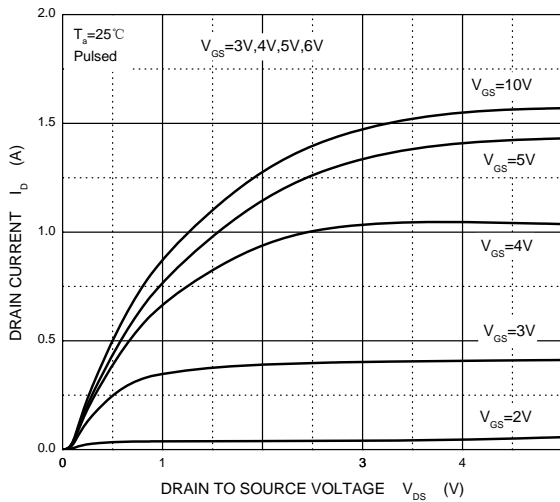
Notes:

1. Pulse Test ; Pulse Width ≤300μs, Duty Cycle ≤2%.
2. These parameters have no way to verify.

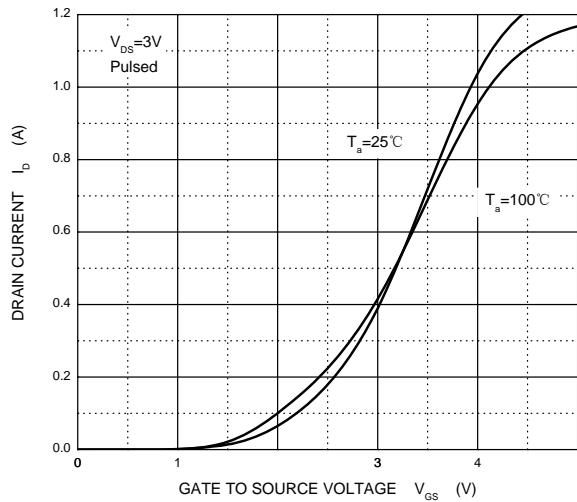
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Typical Characteristics

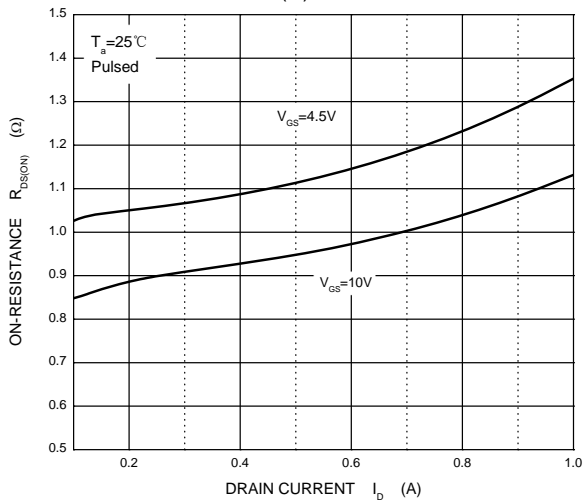
Output Characteristics



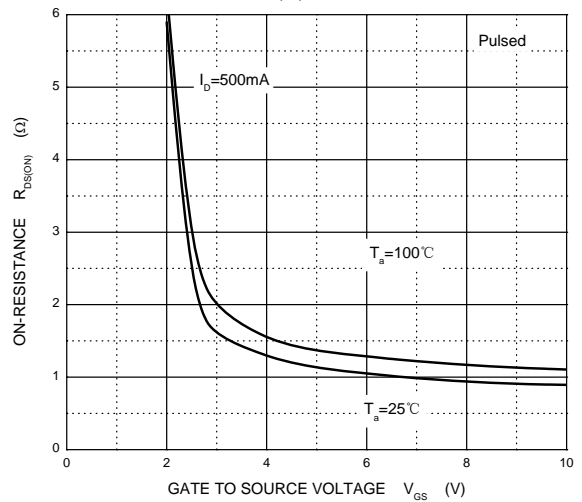
Transfer Characteristics



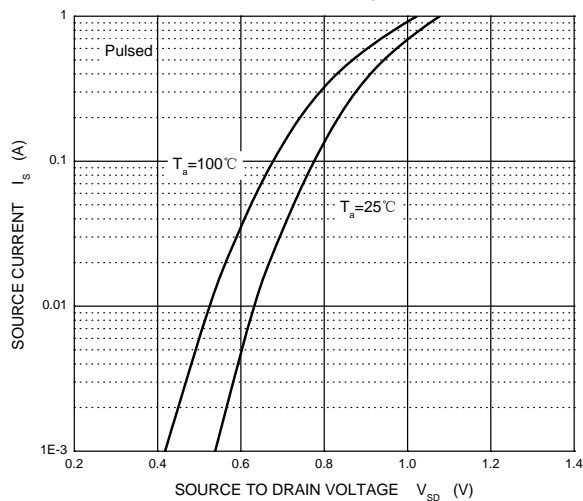
$R_{DS(ON)}$ — I_D



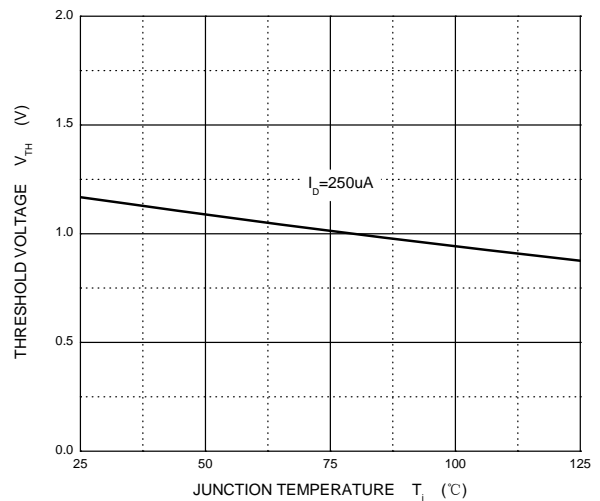
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage

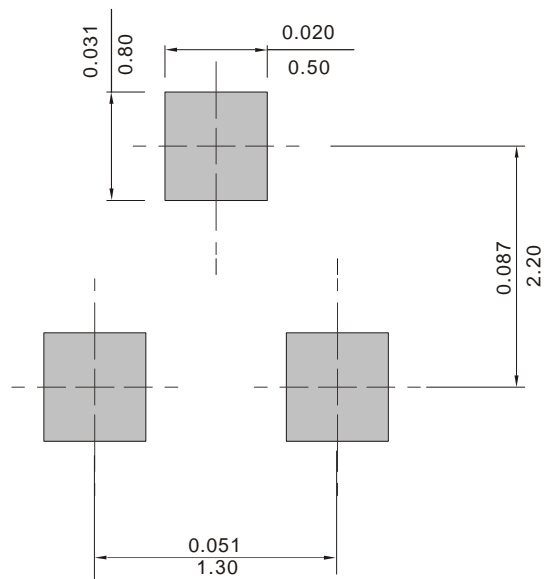


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MOUNTING PAD LAYOUT

SOT-323

Unit:Inch(mm)



ORDER INFORMATION

- Packing information

Part Number	Case	Reel Size	QUANTITY
BSS138W	SOT-323	7 Inch	3000