

FEATURES

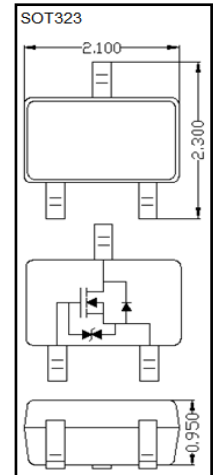
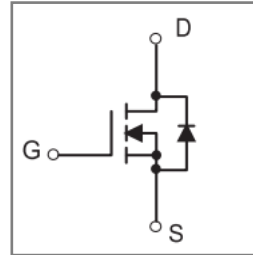
- Epoxy meets UL 94 V-0 flammability rating
- High density cell design for low $R_{DS(ON)}$
- Voltage controlled small signal switch
- Rugged and reliable

Device Marking Code

BSS138W

SS

Equivalent Circuit



MAXIMUM RATINGS(Ta = 25 °C)

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source Voltage	50	V
V_{GS}	Continuous Gate-Source-Voltage	± 20	V
I_D	Continuous Drain Current	0.22	A
P_D	Total Power Dissipation	0.3	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-55 to 150	°C
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	417	°C/W

ELECTRICAL CHARACTERISTICS(Ta = 25 °C)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
$V_{(BR)DSS}$	Drain-source Voltage Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	50			V
$V_{GS(th)}$	Gate-Threshold Voltage (note 1)	$V_{DS}=V_{GS}, I_D=1mA$	0.8		1.5	V
I_{GSS}	Gate -body Leakage	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=50V, V_{GS}=0V$ $V_{DS}=30V, V_{GS}=0V$			500 100	nA
$R_{DS(ON)}$	Drain-source On-resistance (note 1)	$V_{GS}=10V, I_D=0.22A$ $V_{GS}=4.5V, I_D=0.22A$			3.5 6	Ω
V_{SD}	Diode Forward Voltage (note 1)	$V_{GS}=0V, I_S=0.44A$			1.4	V
g_{FS}	Forward Transconductance (note 1)	$V_{GS}=10V, I_S=200mA$	120			ms



Dynamic characteristics (note 1)

C_{iss}	Input Capacitance	$V_{DS}=25V$		27	pF
C_{oss}	Output Capacitance		$V_{GS}=0V$		
C_{rss}	Reverse Transfer Capacitance	$f=1MHz$		6	

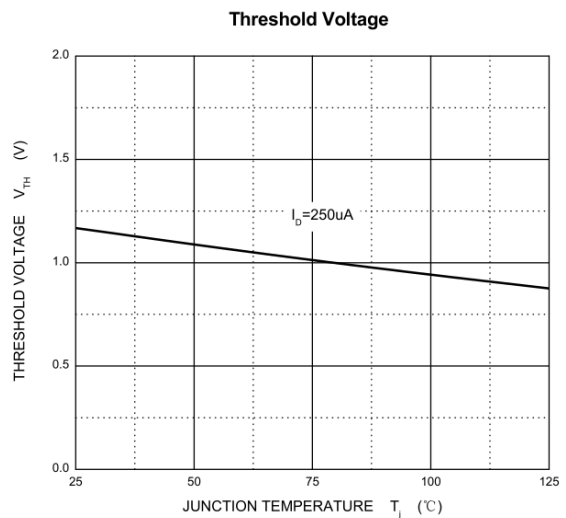
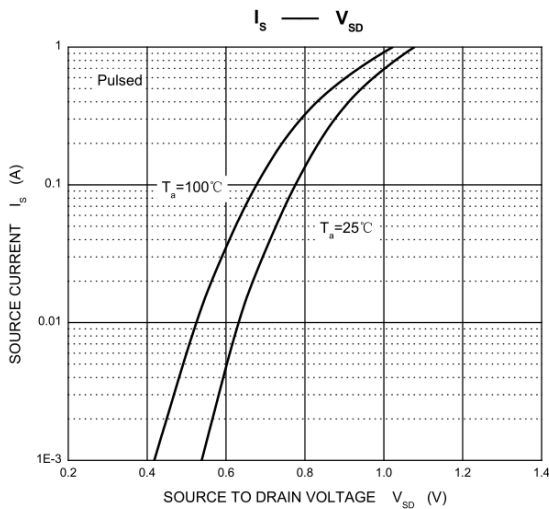
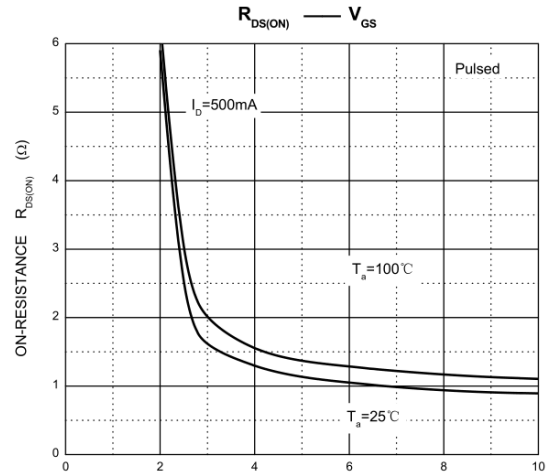
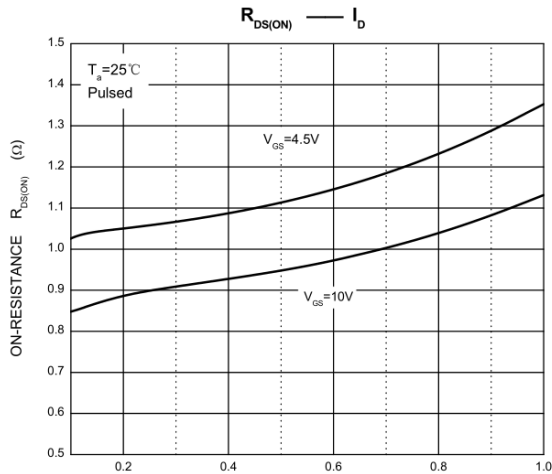
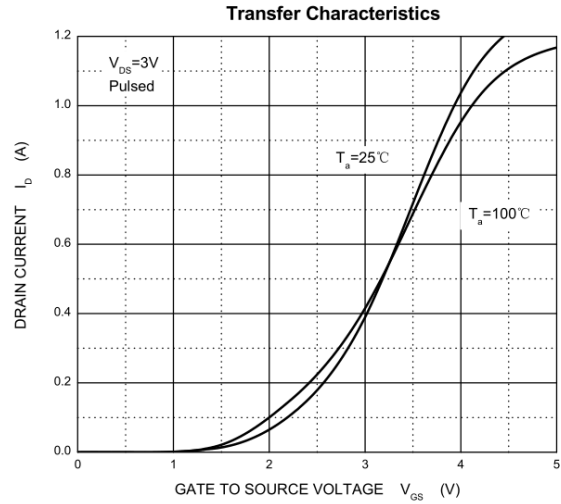
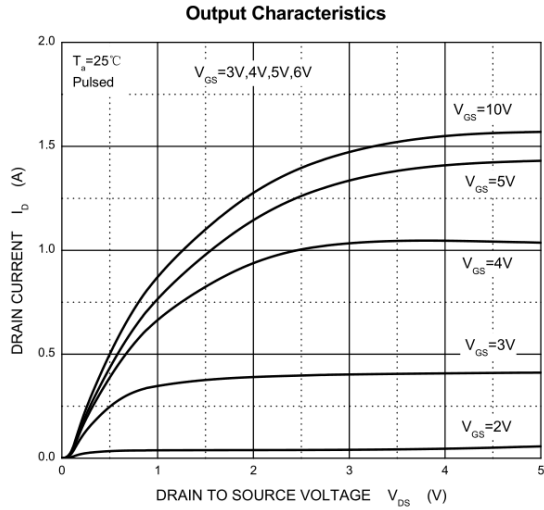
SWITCHING TIME (note 1)

$T_{d(on)}$	Turn on Delay time	$V_{DD}=30V, V_{DS}=10V,$ $I_D=0.29A, R_{GEN}=6\Omega$			5	ns
T_r	Rise time				18	
$T_{d(off)}$	Turn off Delay time				36	
T_f	Fall time				14	

Note: 1. Pulse Test: Pulse Width $\leq 300 \mu s$, Duty Cycle $\leq 2.0\%$.



TYPICAL CHARACTERISTICS



ORDERING INFORMATION

Device	Package	Shipping	Tape wide	Emboss pitch	Tape specification	Notes
BSS138W	SOT323	Tape & Reel 3000pcs /7" Reel	8mm	4mm	Conductive	

PACKAGE DIMENSIONS

Package outline : SOT323

TOP VIEW

SIDE VIEW

SYMBOL	DIMENSIONS IN MILLIMETER	
	MIN	MAX
A	0.900	1.000
A1	0.00	0.100
A2	0.900	1.000
b	0.200	0.400
c	0.080	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.450
e	0.650 TYP.	
e1	1.200	1.400
L	0.525 REF.	
L1	0.260	0.460
θ	0°	8°

FRONT VIEW

SOLDERING PATTERN

Notice:

1. Lead plating: Pb free solder
2. Lead thickness includes solder plating
3. Lead frame: CAC-5
4. Other Tolerance: ±0.05
6. Dimensions are exclusive of Burrs, Mold Flash and Tie Bar extrusions
5. Unit: mm