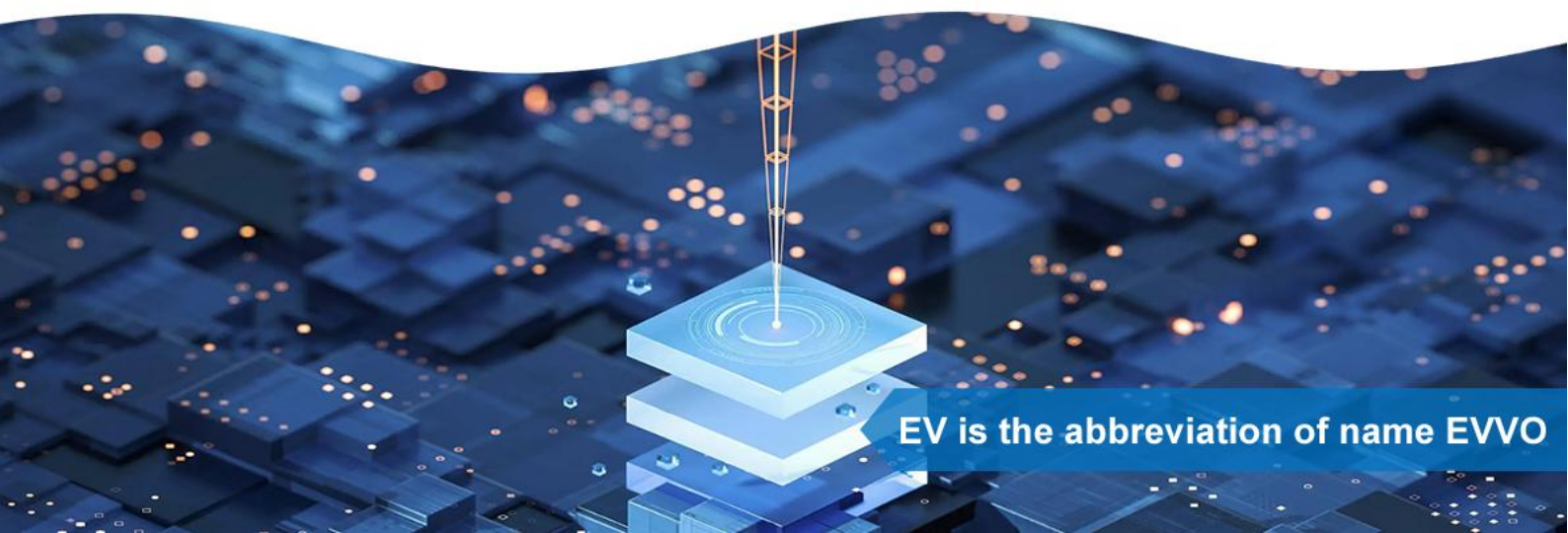
EVVOSEMI®
THINK CHANGE DO

ESD TVS MOS LDO Diode Sensor DC-DC

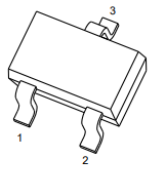
Product Specification

Domestic Part Number	BSS138W
Overseas Part Number	BSS138W
Equivalent Part Number	BSS138W



■ N-Channel MOSFET

SOT-323



1. GATE
2. SOURCE
3. DRAIN

■ Simplified outline(SOT-323)

■ Features

- $V_{DS\ (V)}$ = 50V
- I_D = 200 mA (V_{GS} = 10V)
- $R_{DS(ON)}$ < 3.5Ω (V_{GS} = 10V)
- Fast Switching Speed
- Low On-Resistance

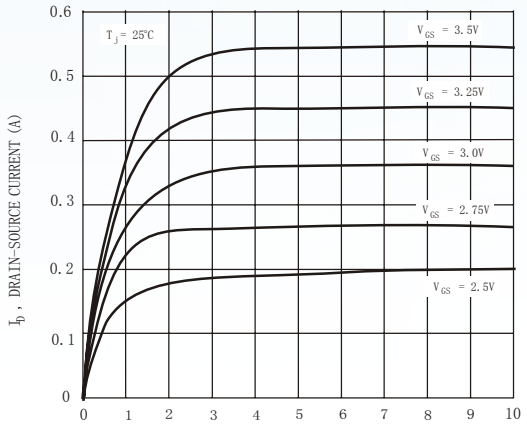
■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	50	V
Drain-Gate Voltage R_{GS}≤ 20KΩ	V_{DG}	50	
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current	I_D	200	mA
Power Dissipation	P_D	300	mW
Thermal Resistance.Junction- to-Ambient	R_{thJA}	417	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	-55 to 150	

■ Electrical Characteristics Ta = 25℃

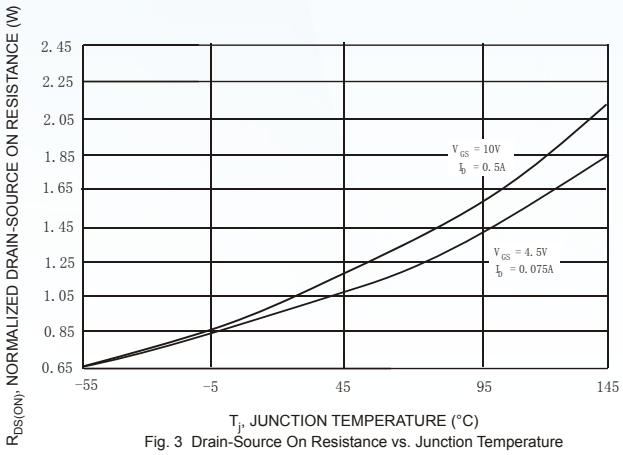
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	50			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=50V, V_{GS}=0V			0.5	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=250μA	0.5		1.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=220mA			3.5	Ω
Forward Transconductance	g_{FS}	V_{DS}=25V, I_D=0.2A,f=1KHz	100			mS
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=10V, f=1MHz			50	pF
Output Capacitance	C_{oss}				25	
Reverse Transfer Capacitance	C_{rss}				8	
Turn-On DelayTime	$t_{d(on)}$	V_{DS}=30V, I_D=0.2A,R_G=50Ω			20	ns
Turn-Off DelayTime	$t_{d(off)}$				20	

■ Typical Characterisitics



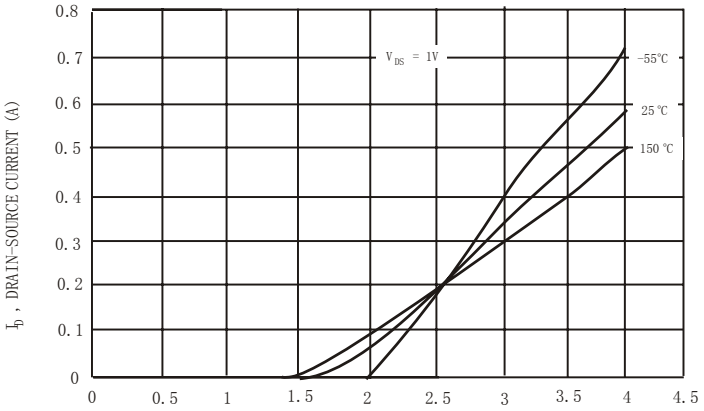
V_{DS}, DRAIN-SOURCE VOLTAGE (V)

Fig. 1 Drain-Source Current vs. Drain-Source Voltage



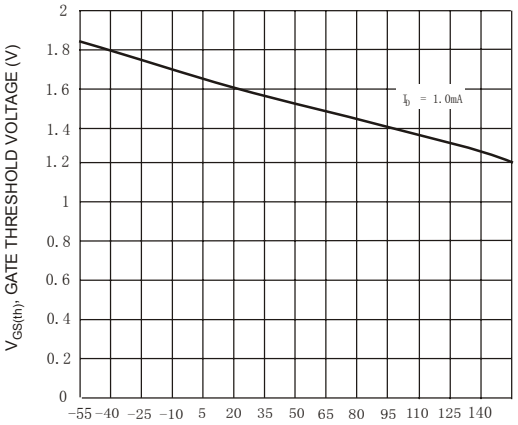
T_j, JUNCTION TEMPERATURE (°C)

Fig. 3 Drain-Source On Resistance vs. Junction Temperature



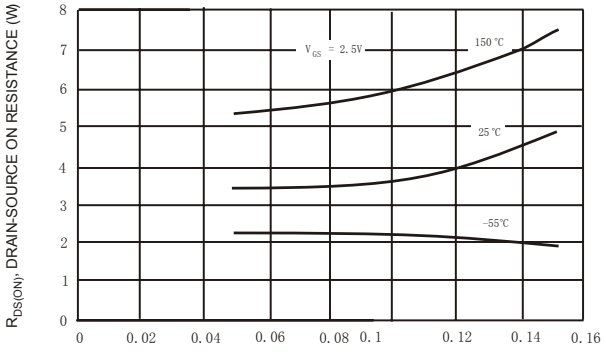
V_{GS}, GATE-SOURCE VOLTAGE (V)

Fig. 2 Transfer Characteristics



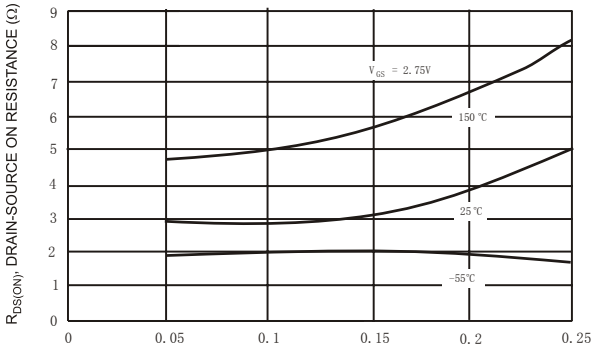
T_j, JUNCTION TEMPERATURE (°C)

Fig. 4 Gate Threshold Voltage vs. Junction Temperature



I_D, DRAIN CURRENT (A)

Fig. 5 Drain-Source On Resistance vs. Drain Current



I_D, DRAIN CURRENT (A)

Fig. 6 Drain-Source On Resistance vs. Drain Current

■ Typical Characterisitics

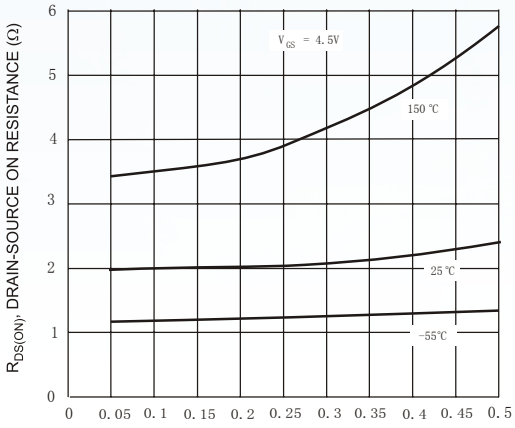


Fig. 7 Drain-Source On Resistance vs. Drain Current

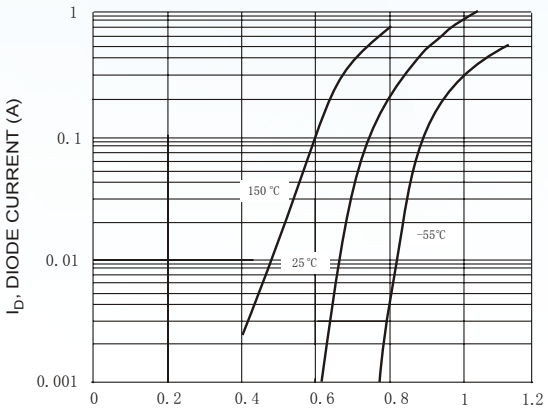


Fig. 9 Body Diode Current vs. Body Diode Voltage

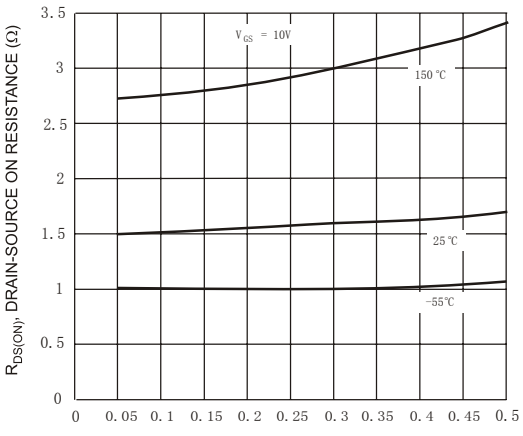


Fig. 8 Drain-Source On Resistance vs. Drain Current

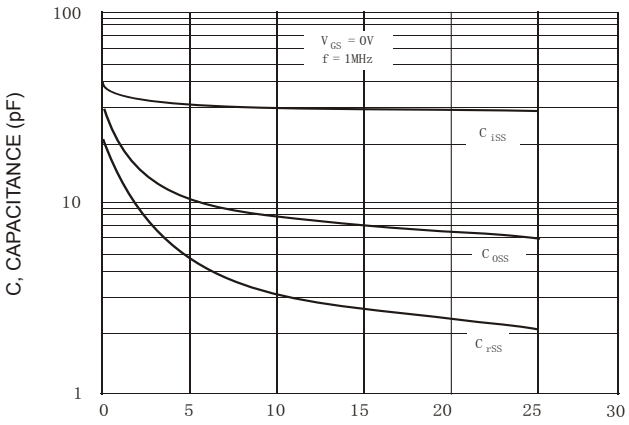
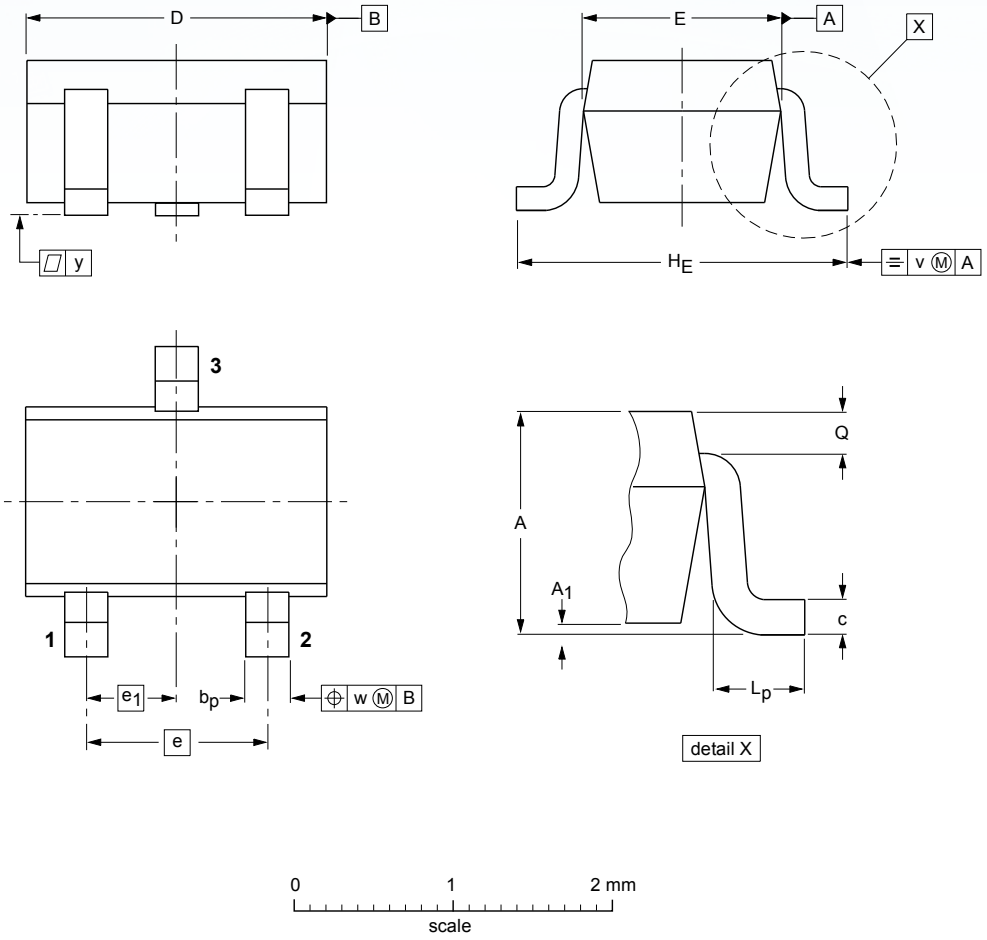


Fig. 10 Capacitance vs. Drain Source Voltage

■ SOT-323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max	b_p	c	D	E	e	e_1	H_E	L_p	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

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