EVVOSEMI®
THINK CHANGE DO

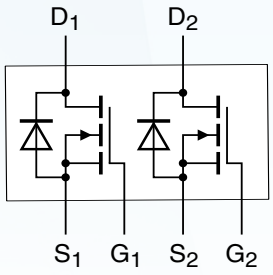
ESD TVS MOS LDO Diode Sensor DC-DC

Product Specification

Domestic Part Number	BSS138PS
Overseas Part Number	BSS138PS
Equivalent Part Number	BSS138PS

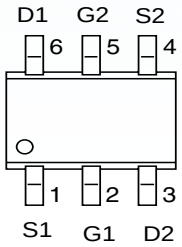
Features

- $V_{DS\ (V)}$ = 60V
- $R_{DS(ON)}$ < 2 Ω (V_{GS} = 10V)
- $R_{DS(ON)}$ < 2.2Ω (V_{GS} = 4.5V)



Application

- Notebook
- Load Switch
- Networking
- Hand-held Instruments



Absolute Maximum Ratings T_A = 25°C unless otherwise noted

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{OS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current (T, =150°C)	TA =25 °C	I_D	0.3	A
	TA =100°C		0.19	
Drain Current-Pulsed		I_{DM}	0.8	A
Maximum Power Dissipation		P_D	0.35	W
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55To150	°C
Thermal Resistance,Junction-to-Ambient		$R_{\theta JA}$	350	°C /W

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS=0V I D=250 μA	60			V
Zero Gate Voltage Drain Current	I_{DSS}	VD S=60V,V GS=0V			1	μA
Gate-Body Leakage Current	I_{GSS}	V GS=±10V,VD S=0V			±1	μA
		V GS=±20V,VD S=0V			±10	μA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	VDS=VGS,ID=250μA	1	1.6		
Drain-Source On-State Resistance	$R_{DS(ON)}$	VGS=10V,ID=0.3A			2	Ω
		VGS=4.5V,ID=0.2A			2.2	Ω
Forward Transconductance	g_{FS}	VGS=10V,ID=0.2A	0.1			S
Dynamic Characteristics						
Input Capacitance	C_{iss}	VDS=30V,VGS=0V, F=1.0MHz		27		PF
Output Capacitance	C_{oss}			18		PF
Reverse Transfer Capacitance	C_{rss}			2		PF
Switching Characteristics						
Turn-on Delay Time	$t_{D(on)}$	VDD=30V,ID=0.2A VGS=10V,RGEN=10Ω		10		nS
Turn-on Rise Time	t_r			50		nS
Turn-Off Delay Time	$t_{D(off)}$			17		nS
Turn-Off Fall Time	t_f			10		nS
Total Gate Charge	Q_g			1.7	3	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	VSD	VGS=0V,Is=0.2A			1.2	V
Diode Forward Current	Is				0.3	A

Typical Electrical Characteristics

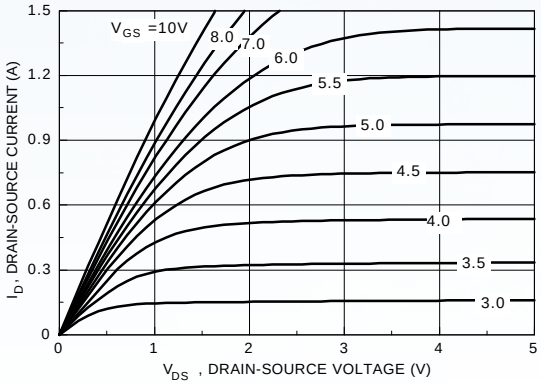


Figure 1. On-Region Characteristics.

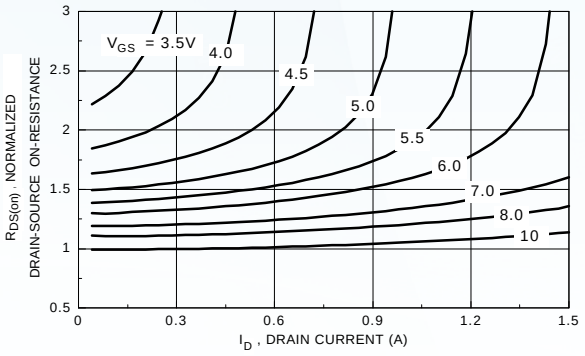


Figure 2. On-Resistance Variation with Gate Voltage and Drain Current.

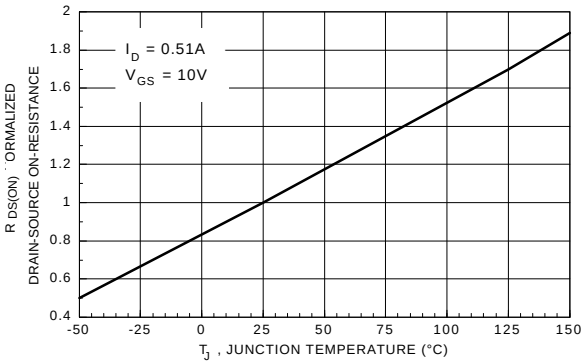


Figure 3. On-Resistance Variation with Temperature.

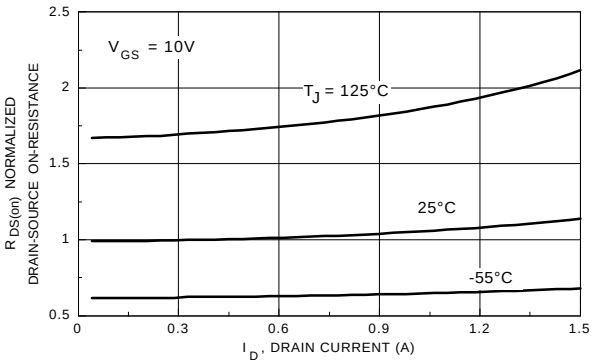


Figure 4. On-Resistance Variation with Drain Current and Temperature.

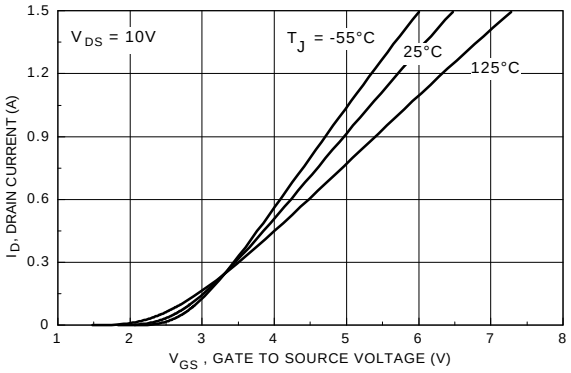


Figure 5. Transfer Characteristics.

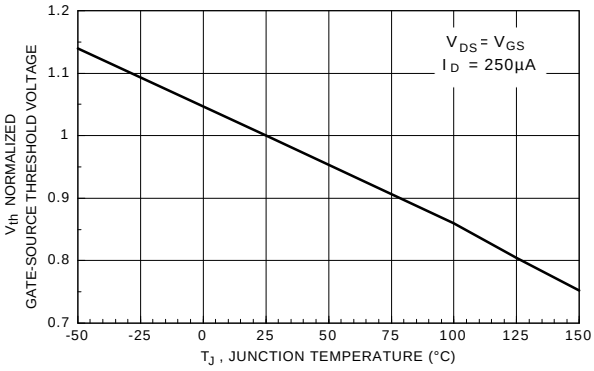


Figure 6. Gate Threshold Variation with Temperature.

Typical Electrical Characteristics (continued)

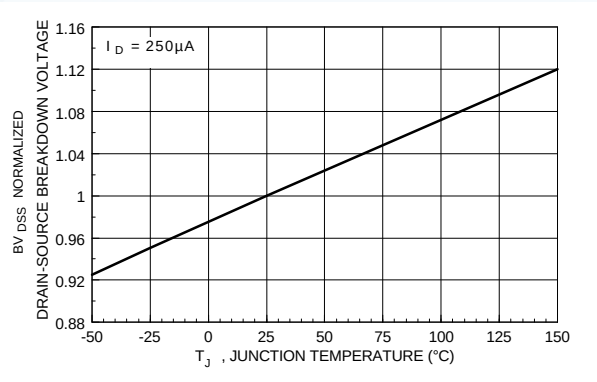


Figure 7. Breakdown Voltage Variation with Temperature.

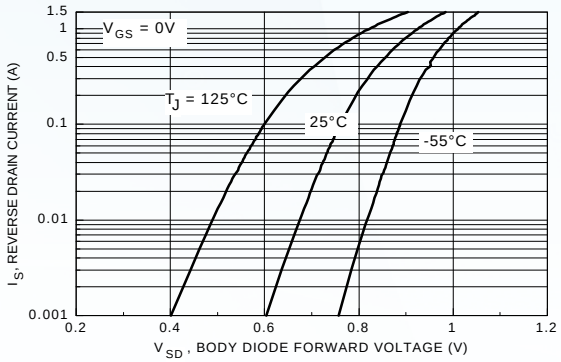


Figure 8. Body Diode Forward Voltage Variation with Current and Temperature.

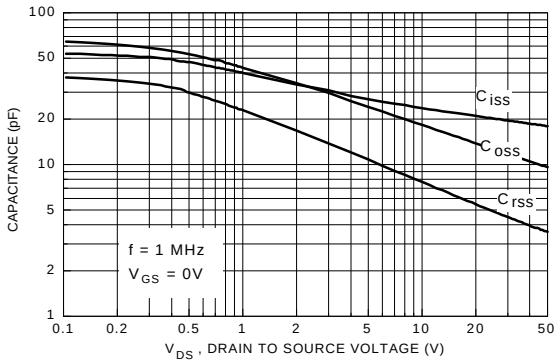


Figure 9. Capacitance Characteristics.

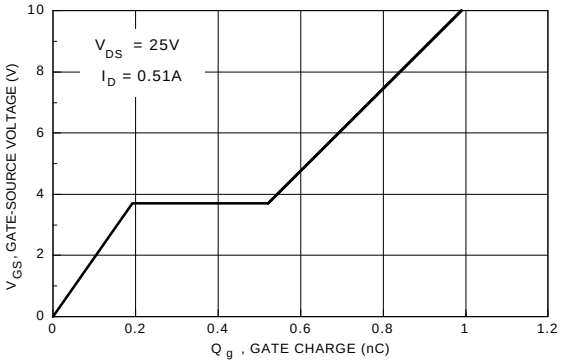


Figure 10. Gate Charge Characteristics.

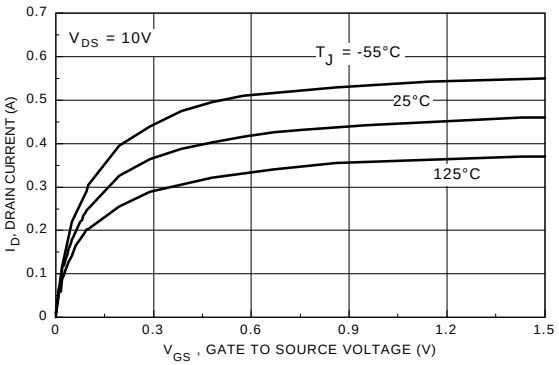


Figure 11. Transconductance Variation with Drain Current and Temperature.

Typical Thermal Characteristics

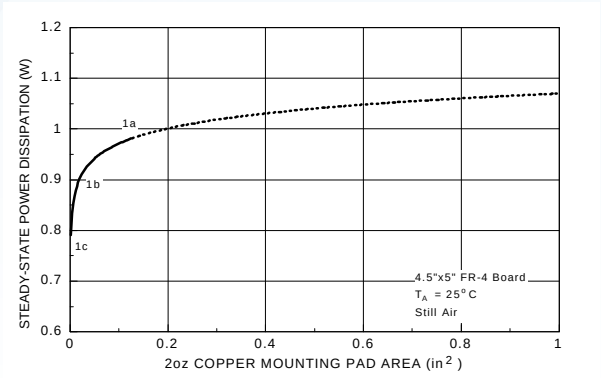


Figure 12. SOT23-6 Dual Package Maximum Steady-State Power Dissipation versus Copper Mounting Pad Area.

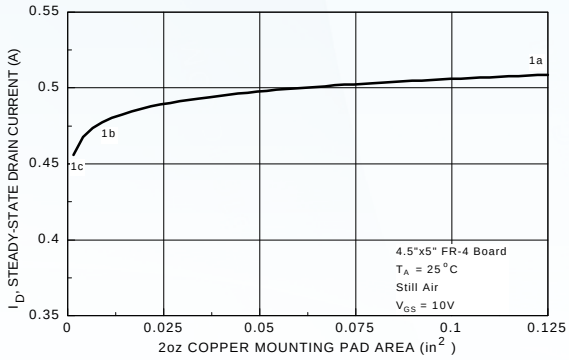


Figure 13. Maximum Steady-State Drain Current versus Copper Mounting Pad Area.

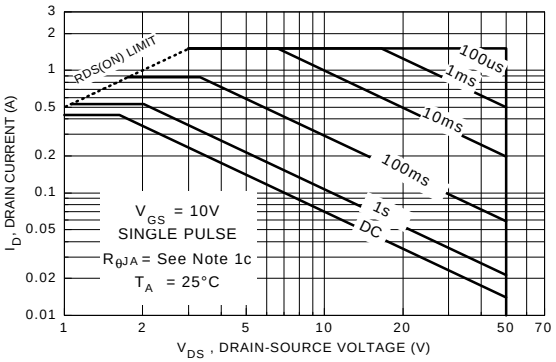
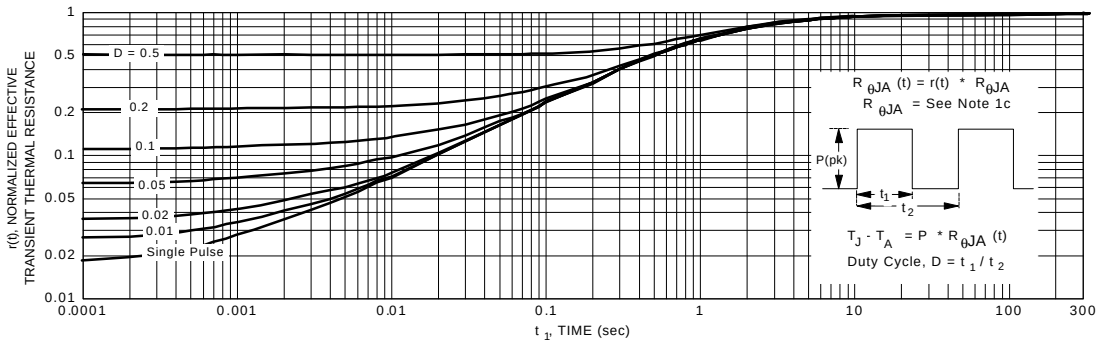
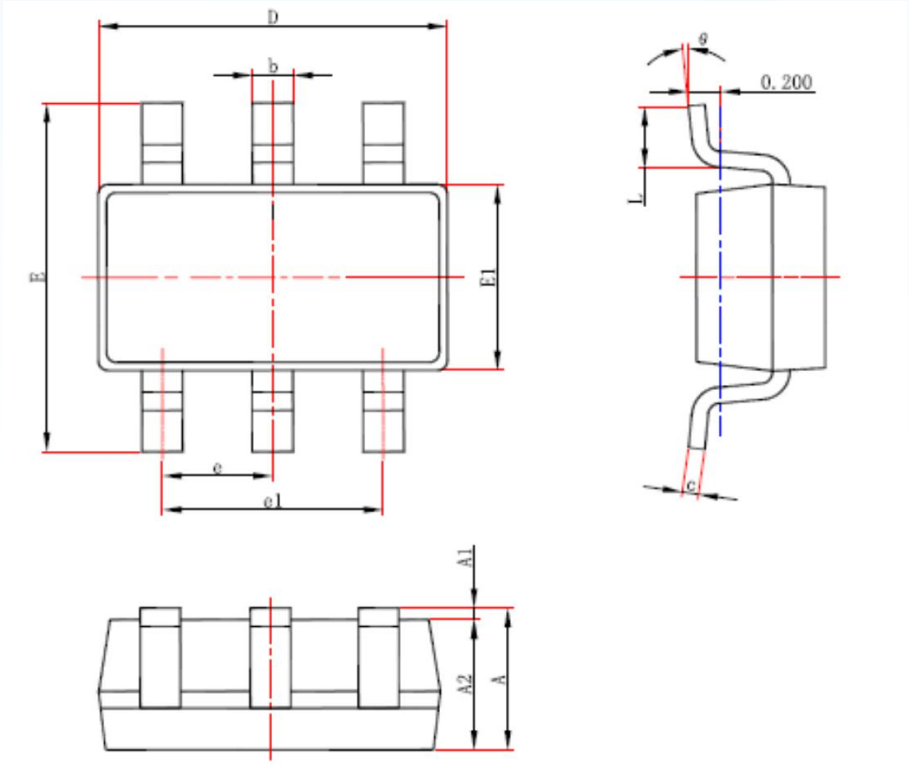


Figure 14. Maximum Safe Operating Area.

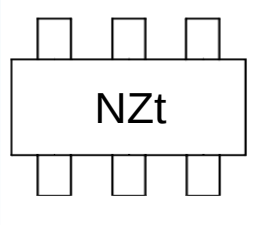


SOT23-6



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Marking



Ordering information

Order code	Package	Baseqty	Deliverymode
BSS138PS	SOT23-6	3000	Tape and reel

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