



BSS138BX

N-Channel and N-Channel Complementary MOSFET

Product Summary

V_{DS}	50V
I_D	300mA
$R_{DS(ON)}$ (at $V_{GS}=10V$)	1100m
$R_{DS(ON)}$ (at $V_{GS}=4.5V$)	1200m

General Description

Trench Power MV MOSFET technology
Voltage controlled small signal switch
Low input Capacitance
Fast Switching Speed
Low Input / Output Leakage
Moisture Sensitivity Level 1
Epoxy Meets UL 94 V-0 Flammability Rating
Halogen Free

Applications

Battery operated systems
Solid-state relays
Direct logic-level interface TTL/CMOS

Absolute Maximum Ratings ($T_A=25$ unless otherwise noted)

Parameter	
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Electrical Characteristics ($T_J=25$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	50	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=50V, V_{GS}=0V$	-	-	1	μA
		$V_{DS}=50V, V_{GS}=0V, T_J=150$	-	-	100	
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.8	1.2	1.6	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=300mA$	-	640		



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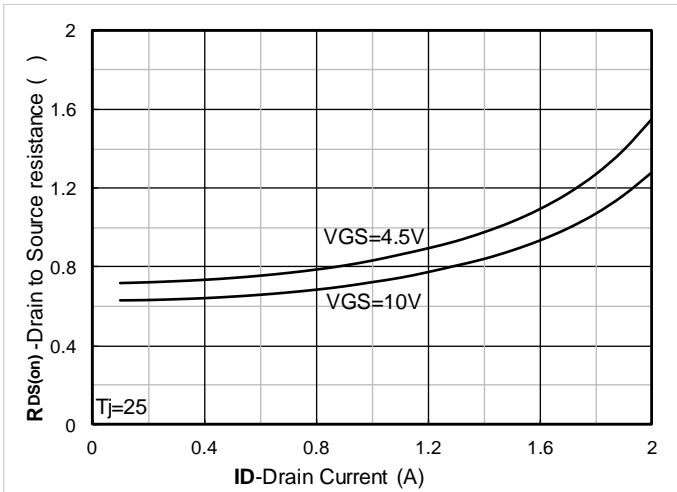


Figure 7. $R_{DS(on)}$ VS Drain Current

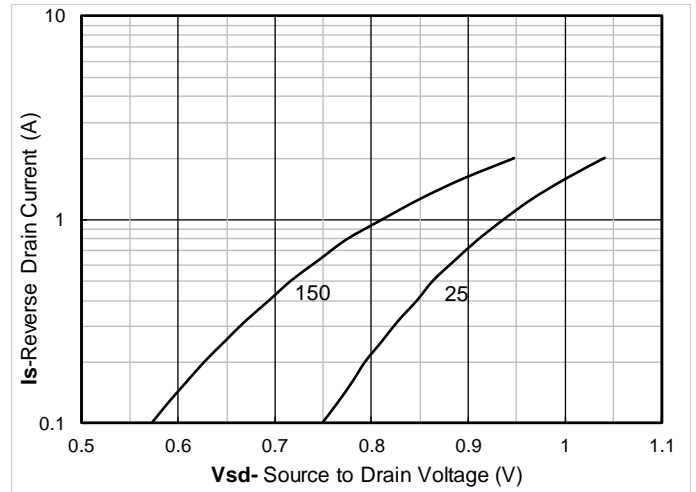


Figure 8. Forward characteristics of reverse diode

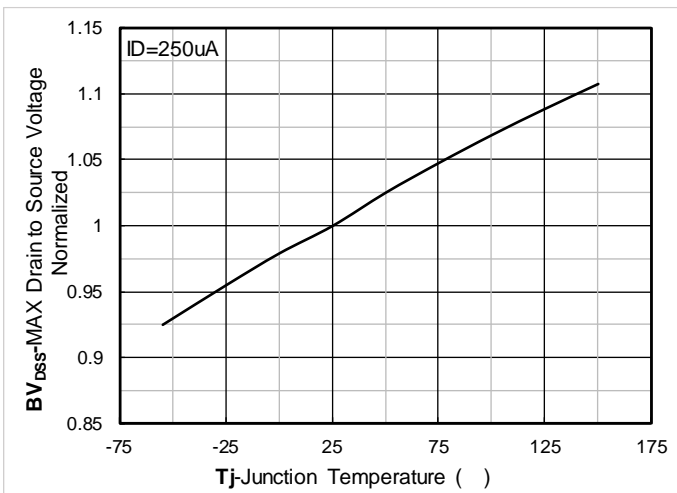


Figure 9. Normalized breakdown voltage

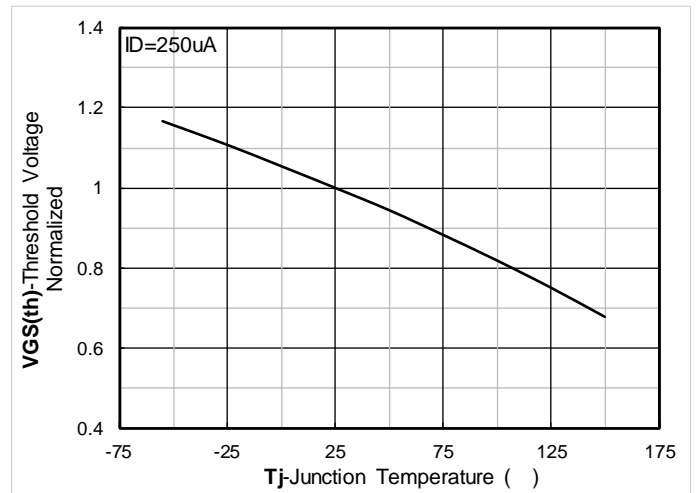


Figure 10. Normalized Threshold voltage

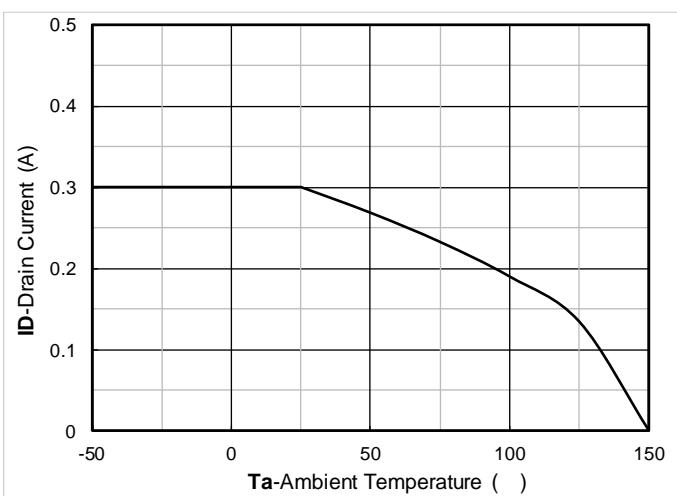


Figure 11. Current dissipation

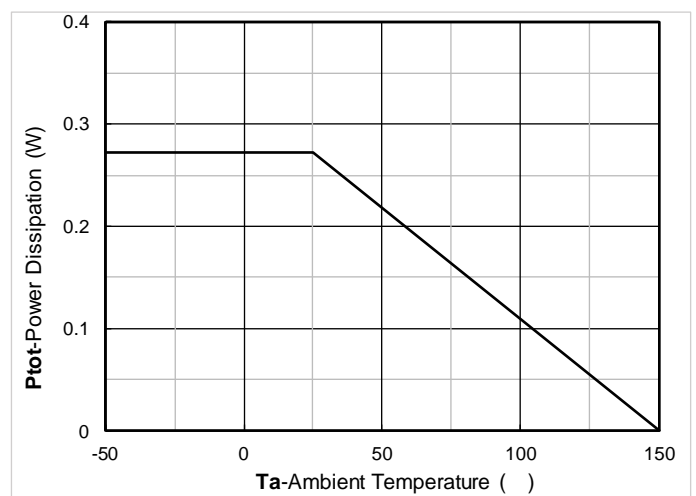


Figure 12. Power dissipation

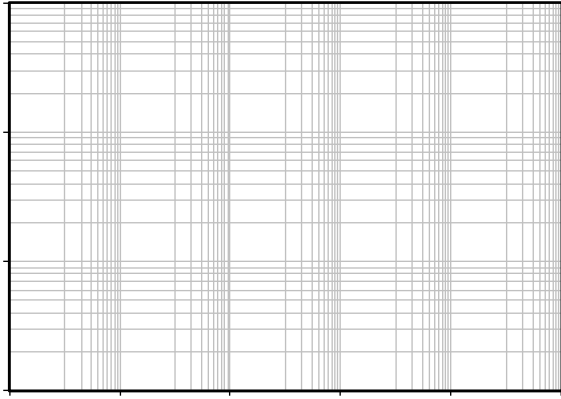


Figure 13. Maximum Transient Thermal Impedance

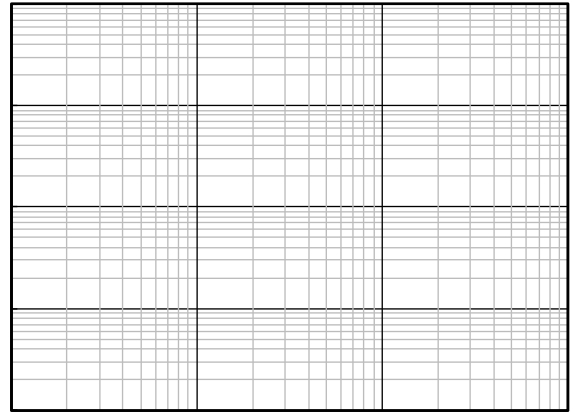


Figure 14. Safe Operation Area

Test Circuits & Waveforms

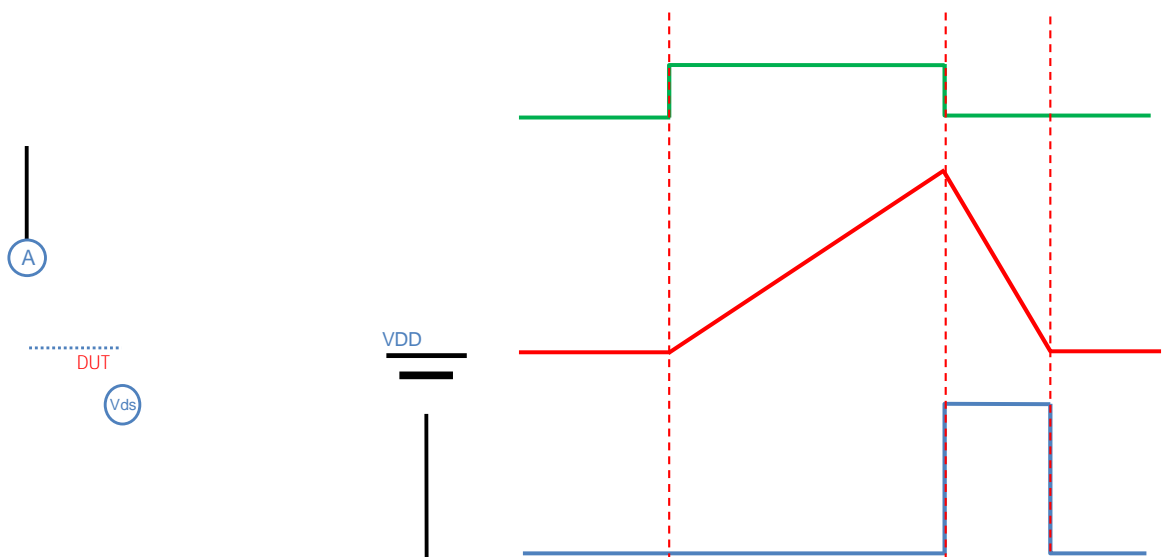


Figure A. Unclamped Inductive Switching (UIS) Test Circuit & Waveform



Figure B. Gate Charge Test Circuit & Waveform



Figure C. Resistive Switching Test Circuit & Waveform

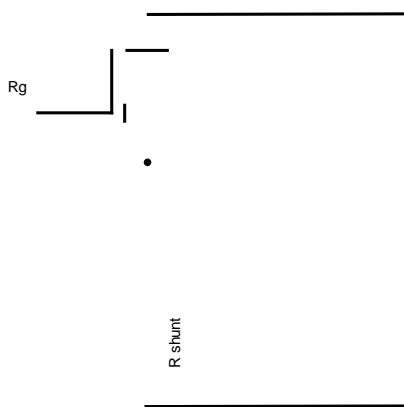


Figure D. Diode Recovery Test Circuit & Waveform

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