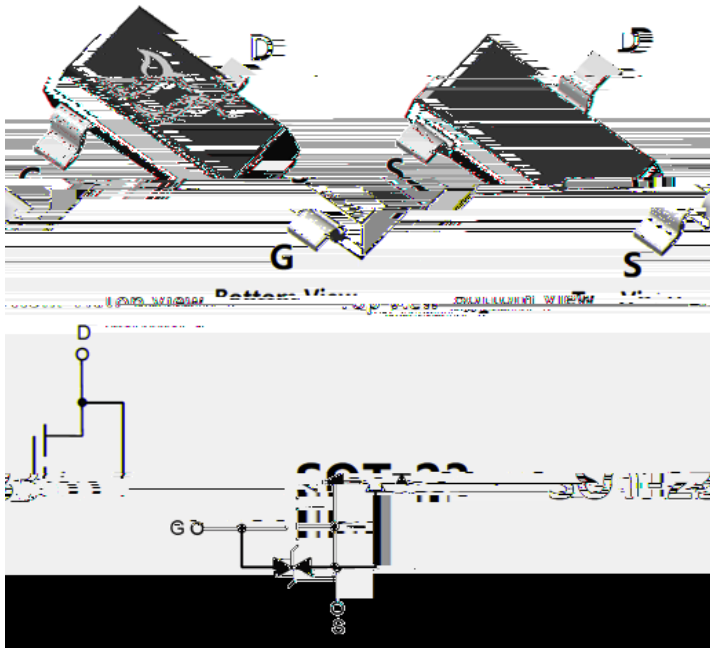




N-Channel Enhancement Mode Field Effect Transistor



Product Summary

V_{DS}	60V
I_D	0.6A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	1.5
$R_{DS(ON)}$ (at $V_{GS}=4.5V$)	1.8
$R_{DS(ON)}$ (at $V_{GS}=2.5V$)	3.7
$R_{DS(ON)}$ (at $V_{GS}=1.8V$)	8.5
Gate-Source ESD Rating Up to 2KV (HBM)	

General Description

- Trench Power MV MOSFET technology
- Voltage controlled small signal switch
- Low input Capacitance
- Fast Switching Speed
- 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	Symbol	Limit	Unit	
Drain-source Voltage	V_{DS}	60	V	
Gate-source Voltage	V_{GS}	± 20	V	
Drain Current	I_D	$T_A=25$	0.6	A
		$T_A=100$	0.38	
Pulsed Drain Current ^A	I_{DM}	1.5	A	
Total Power Dissipation ^B	P_D	$T_A=25$	0.8	W
		$T_A=100$	0.3	
Junction and Storage Temperature Range	T_J, T_{STG}	-55 +150		

Thermal resistance

Parameter	Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient ^C	R_{JA}	120	150	$^{\circ}W$

Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
BSS138KJ	F2	BK	3000	30000	120000	7" reel



BSS138KJ

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$ $V_{DS}=60V, V_{GS}=0V, T_J=150$	-	-	1	μA



BSS138KJ

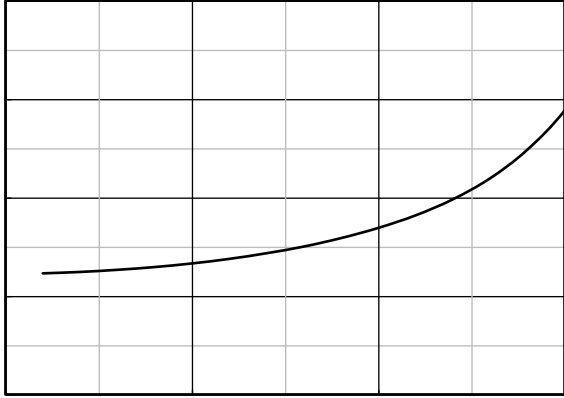


Figure 7. $R_{DS(on)}$ VS Drain Current

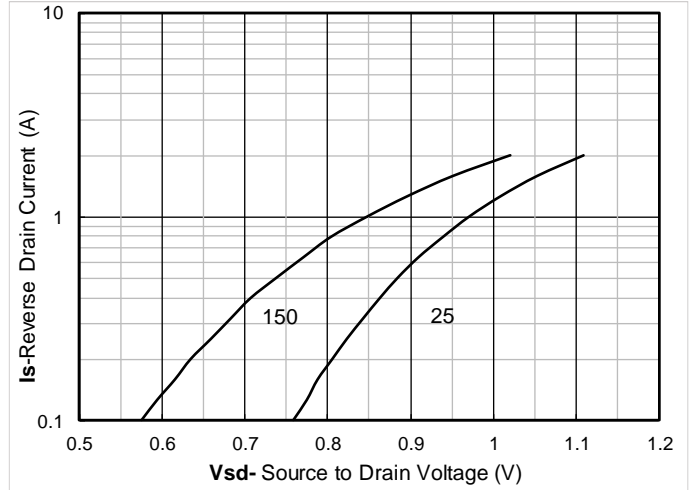


Figure 8. Forward characteristics of reverse diode

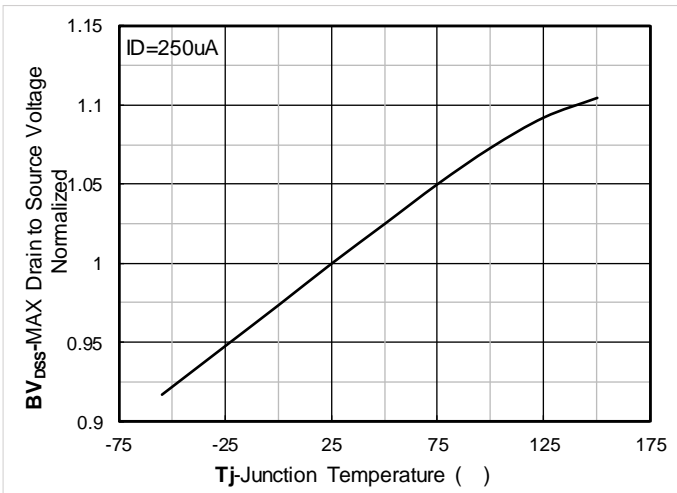


Figure 9. Normalized breakdown voltage



Figure 10. Normalized Threshold voltage

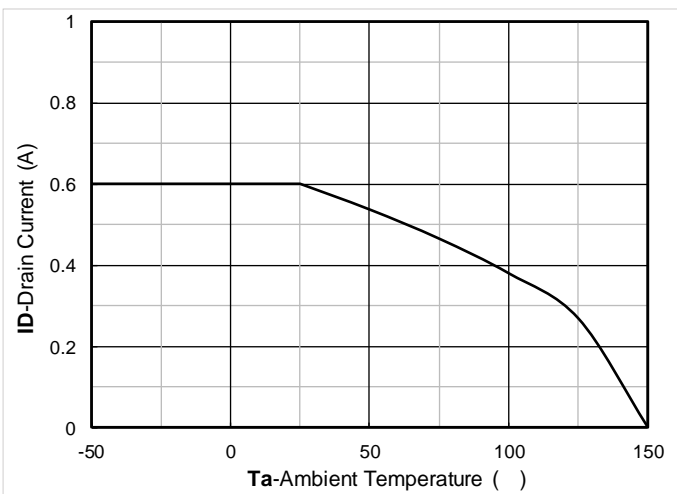


Figure 11. Current dissipation

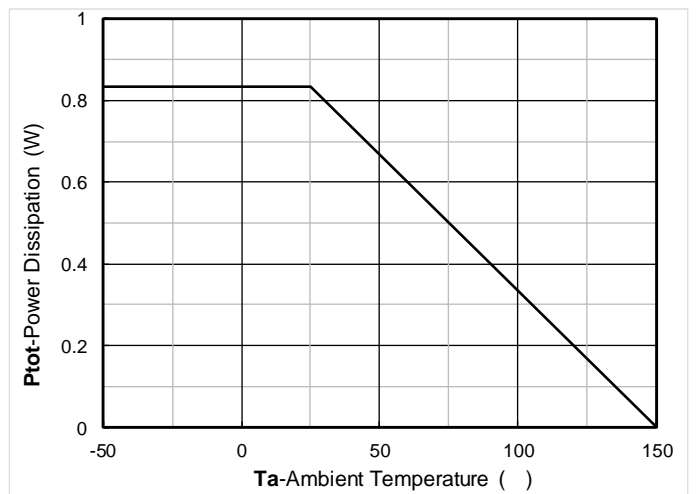


Figure 12. Power dissipation

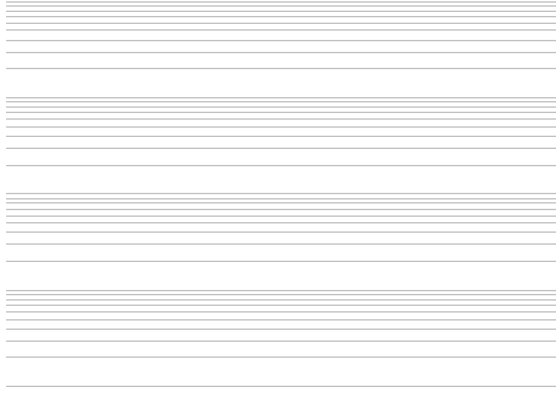


Figure 13. Maximum Transient Thermal Impedance

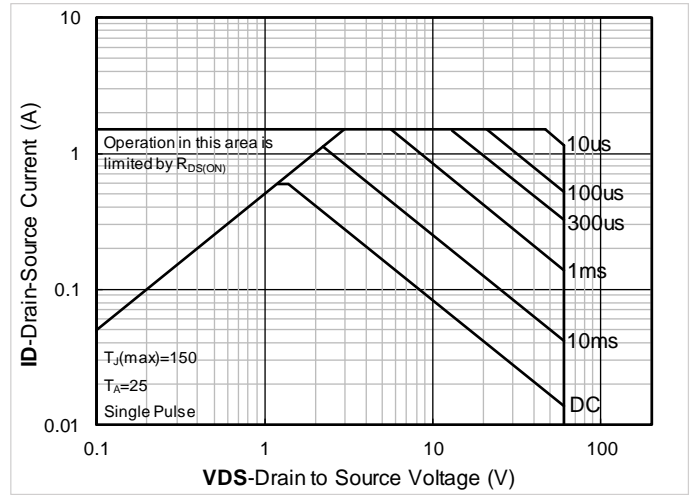


Figure 14. Safe Operation Area

Test Circuits & Waveforms

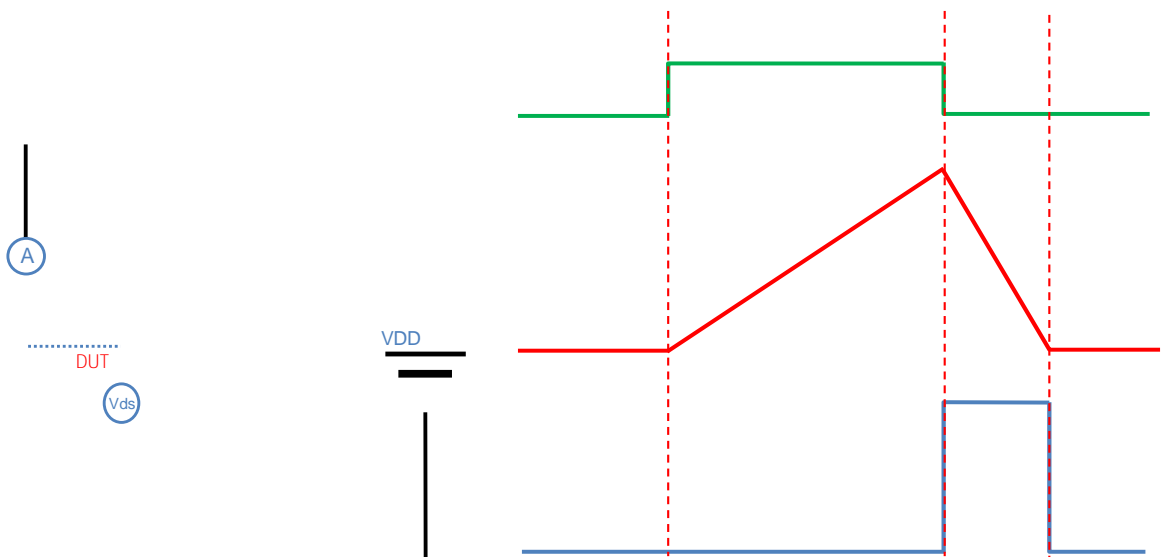


Figure A. Unclamped Inductive Switching (UIS) Test Circuit & Waveform

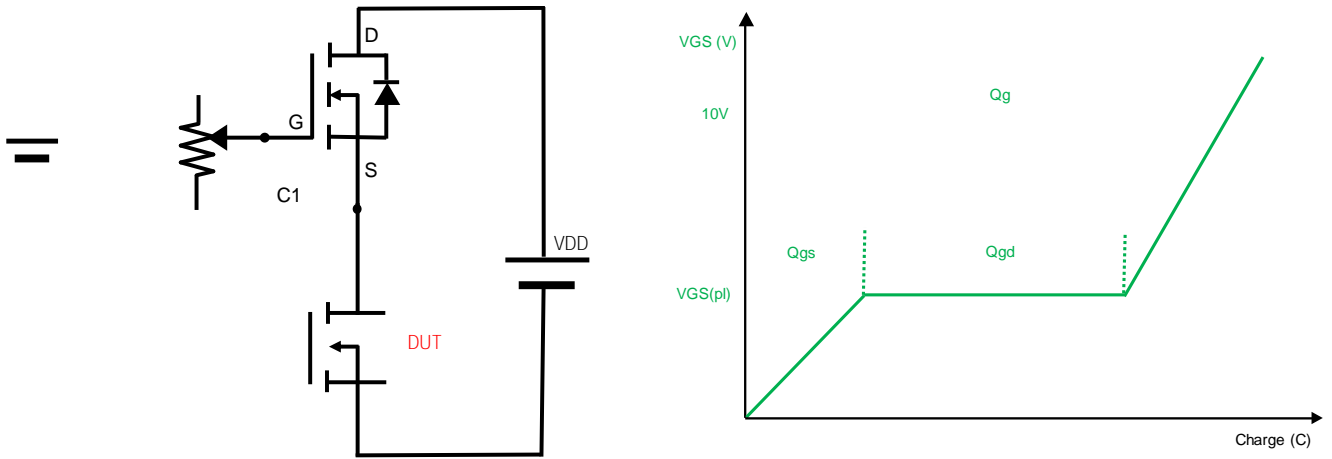


Figure B. Gate Charge Test Circuit & Waveform



Figure C. Resistive Switching Test Circuit & Waveform

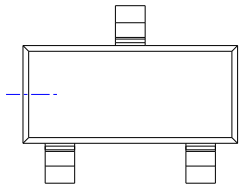


Figure D. Diode Recovery Test Circuit & Waveform



BSS138KJ

SOT-23 Package information



UNIT mm





BSS138KJ

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