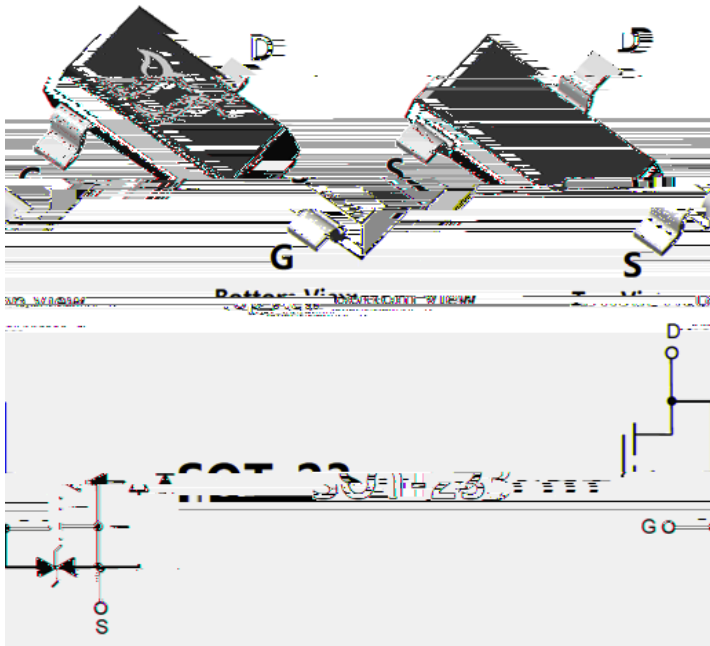




BSS138KJ

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	$T_A=25$	I_D	0.6	A
	$T_A=100$		0.38	
Pulsed Drain Current ^A		I_{DM}	1.5	A
Total Power Dissipation ^B	$T_A=25$	P_D	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	Steady-State	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

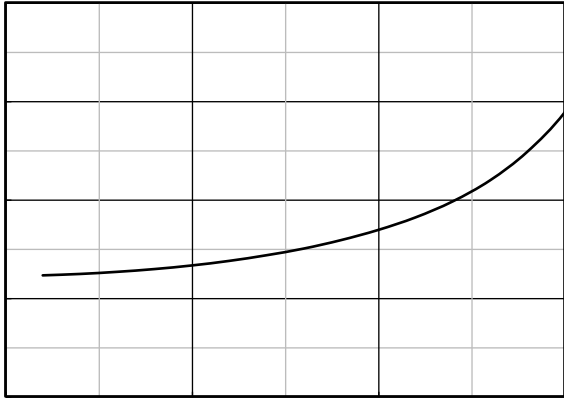


Figure 7. $R_{DS(on)}$ VS Drain Current

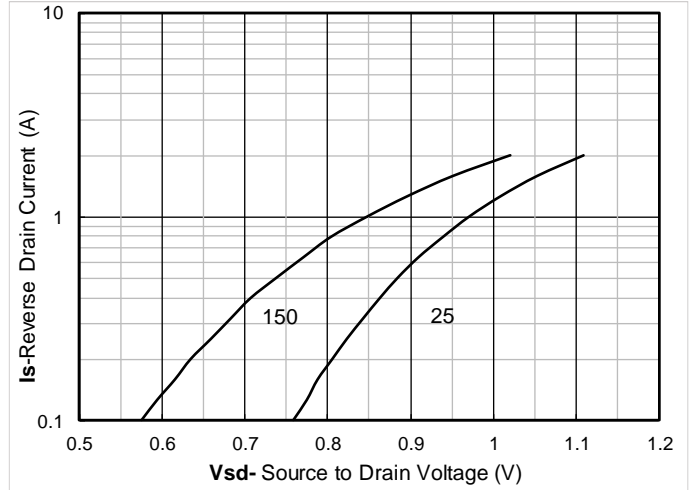


Figure 8. Forward characteristics of reverse diode

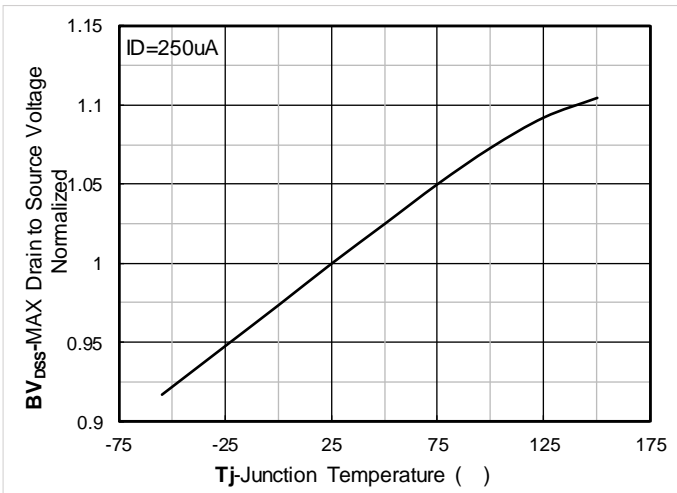


Figure 9. Normalized breakdown voltage

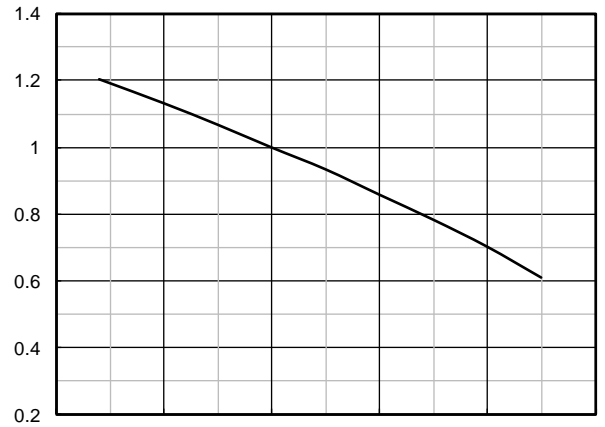


Figure 10. Normalized Threshold voltage

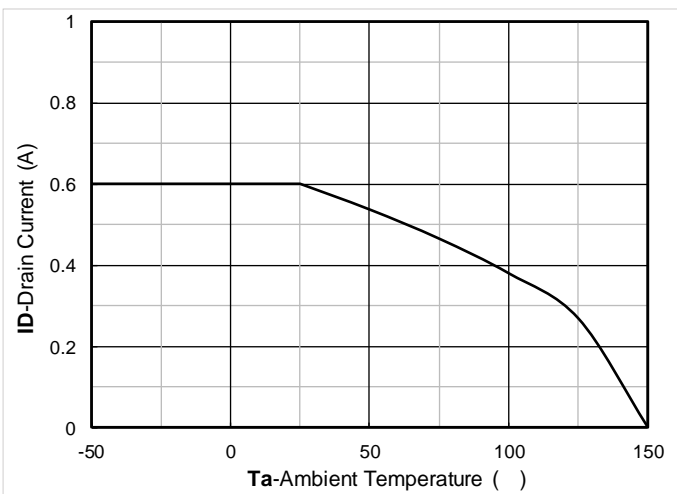


Figure 11. Current dissipation

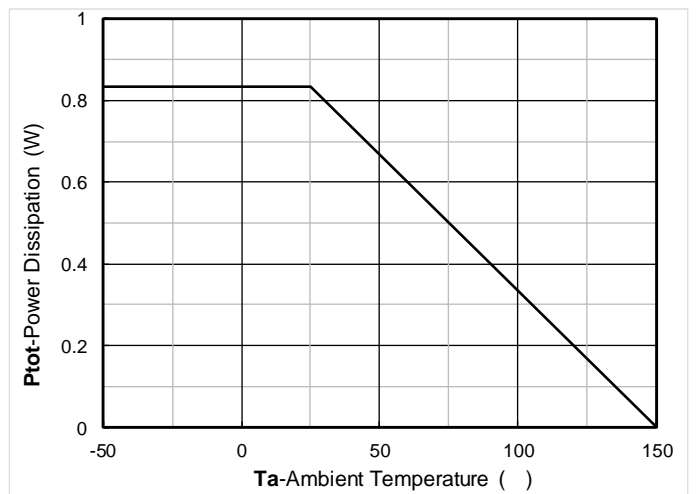


Figure 12. Power dissipation

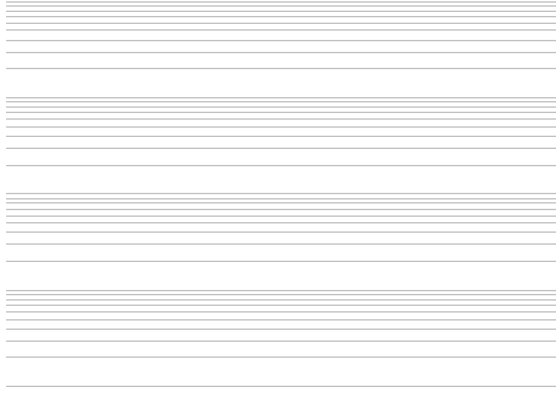


Figure 13. Maximum Transient Thermal Impedance

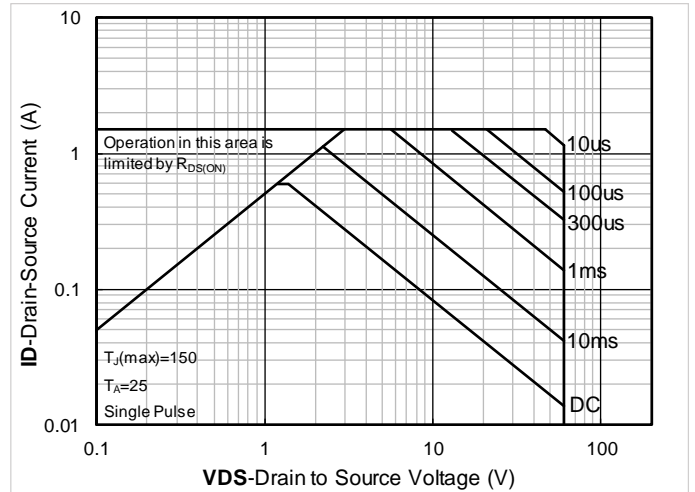


Figure 14. Safe Operation Area

Test Circuits & Waveforms



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



Figure B. Gate Charge Test Circuit & Waveform

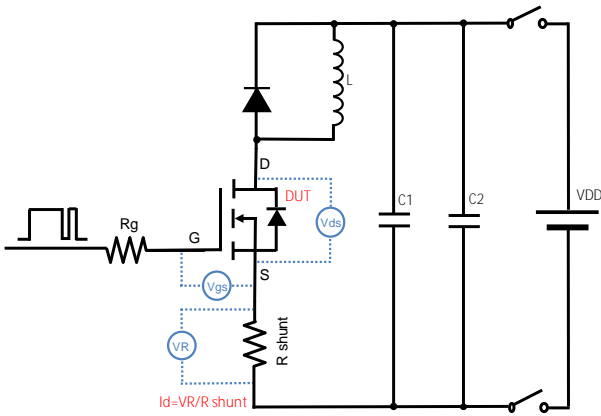


Figure C. Resistive Switching Test Circuit & Waveform

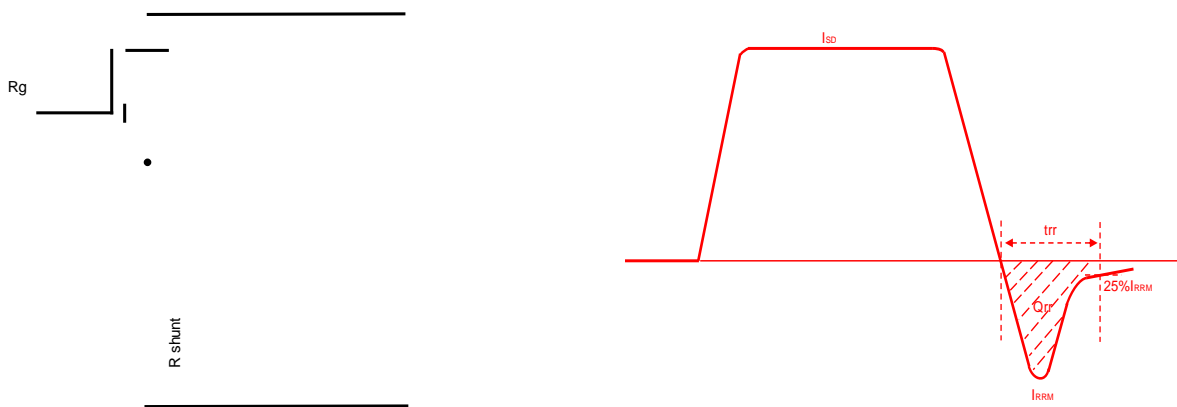
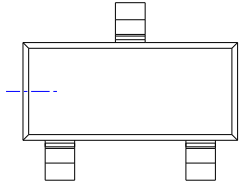


Figure D. Diode Recovery Test Circuit & Waveform



BSS138KJ

SOT-23 Package information



UNIT mm



BSS138KJ

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