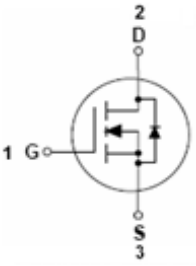
N-Channel Enhancement Mode MOSFET

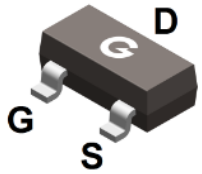
BSS131

Features

- Low input capacitance
- High V_{DSS} rating for power application
- Low input / output leakage

HF





SOT-23

Typical Applications

- Motor control
- DC-DC converters
- Power management functions

Mechanical Data

- Case: SOT-23
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matted-Tin plated; Solderable Per MIL-STD-202, Method 208

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BSS131	SOT-23	3000 pcs / Tape & Reel	131

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	240	V
Gate-to-Source Voltage	V_{GSS}	±20	V
Continuous Drain Current (T_A = 25°C)	I_D	0.11	A
Continuous Drain Current (T_A = 70°C)	I_D	0.09	A
Pulsed Drain Current (tp = 10μs, T_A = 25°C)	I_{DM}	0.8	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	0.35	W
Thermal Resistance Junction-to-Air *1	$R_{\theta JA}$	310	°C/W
Operating Junction Temperature Range	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Note 1: Surface−mounted on 1 inch^2 FR-4 board with 2OZ copper

Electrical Characteristics (@ T_A = 25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
V_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	240	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 240V, V_{GS} = 0V	-	-	1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS} = ±20V, V_{DS} = 0V	-	-	±100	nA
On Characteristics						
$R_{DS(ON)}$	Static Drain-Source On-resistance	V_{GS} = 10V, I_D = 100mA	-	13	15	Ω
		V_{GS} = 5V, I_D = 100mA	-	15	20	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	1	1.6	2	V
C_{ISS}	Input Capacitance	V_{GS} = 0V V_{DS} = 25V f = 1MHz	-	50	-	pF
C_{OSS}	Output Capacitance		-	19	-	
C_{RSS}	Reverse Transfer Capacitance		-	8	-	
Q_G	Total Gate-Charge	V_{DD} = 192V V_{GS} = 10V I_D = 0.2A	-	5.6	-	nC
Q_{GS}	Gate to Source Charge		-	0.8	-	
Q_{GD}	Gate to Drain (Miller) Charge		-	1.9	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage	I_{SD} = 100mA, V_{GS} = 0V	-	0.8	1.5	V

Ratings and Characteristics Curves (@ T_A = 25°C unless otherwise specified)

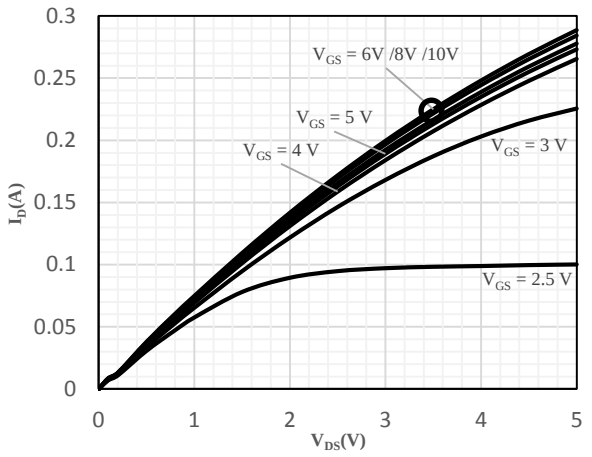


Fig 1 Typical Output Characteristics

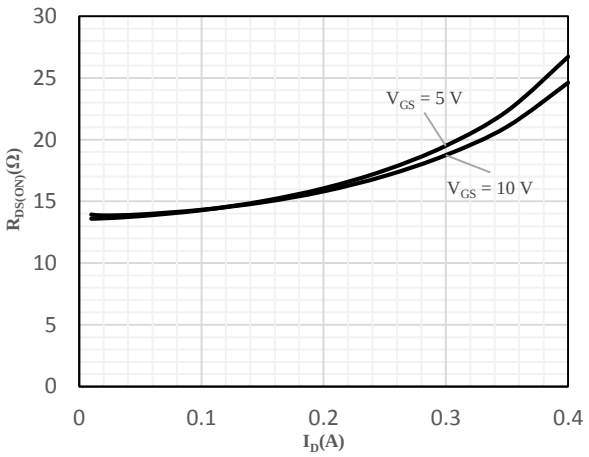


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

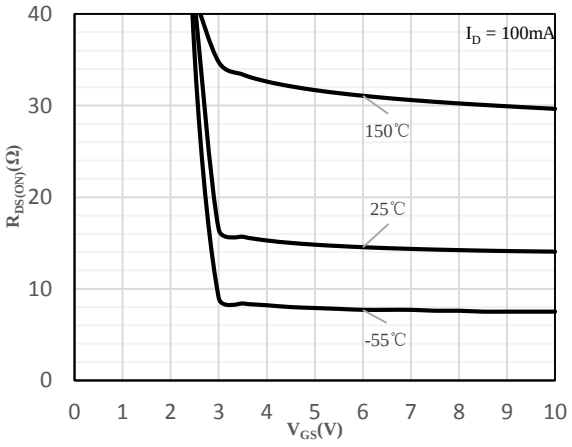


Fig 3 On-Resistance vs. Gate-Source Voltage

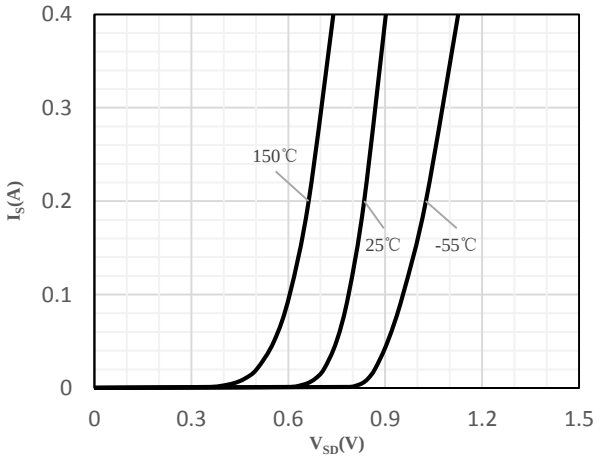


Fig 4 Body-Diode Characteristics

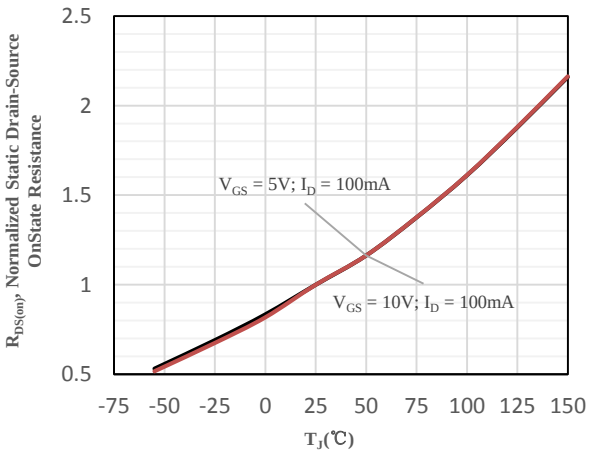


Fig 5 Normalized On-Resistance vs. Junction Temperature

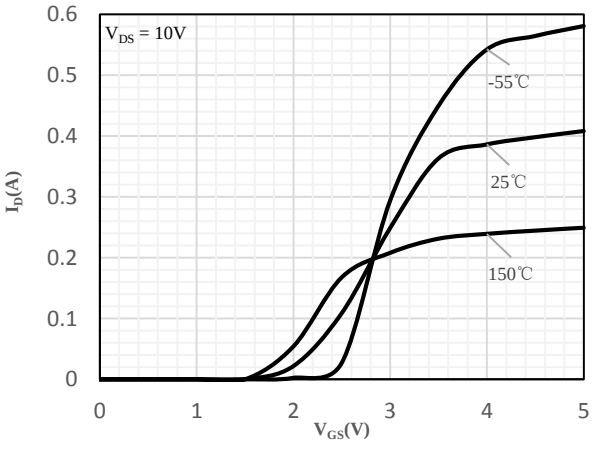


Fig 6 Transfer Characteristics

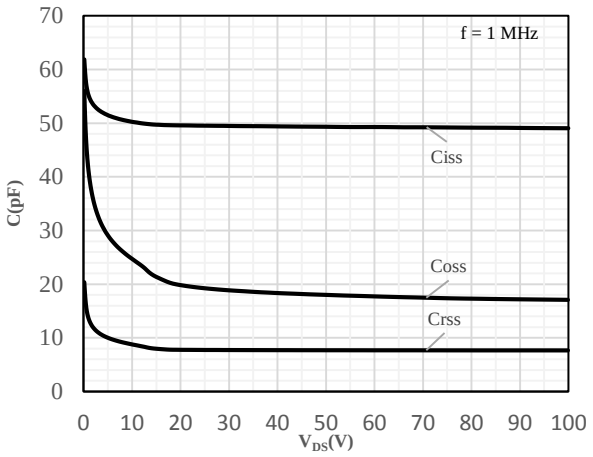


Fig 7 Capacitance Characteristics

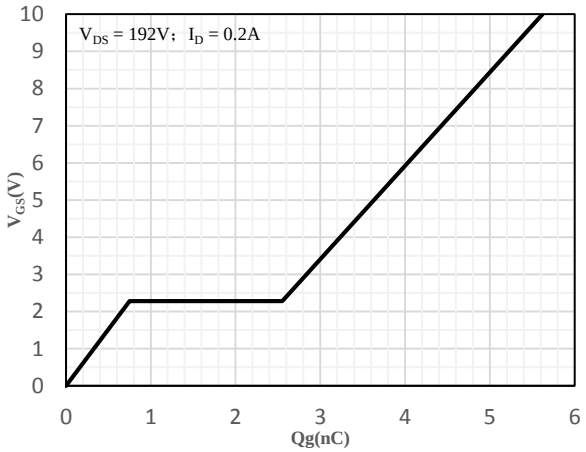


Fig 8 Gate-Charge Characteristics

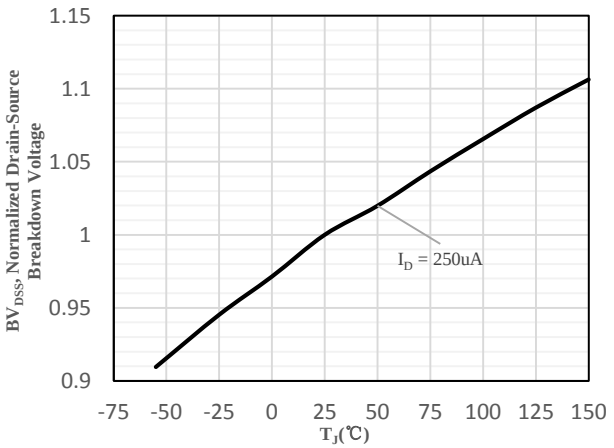


Fig 9 Normalized Breakdown Voltage vs. Junction Temperature

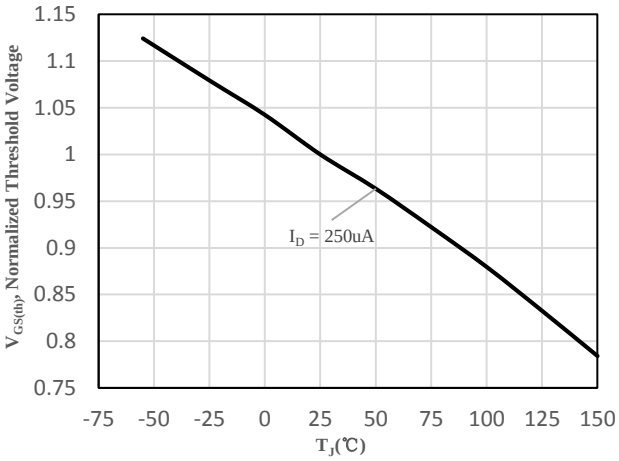


Fig 10 Normalized $V_{GS(th)}$ vs. Junction Temperature

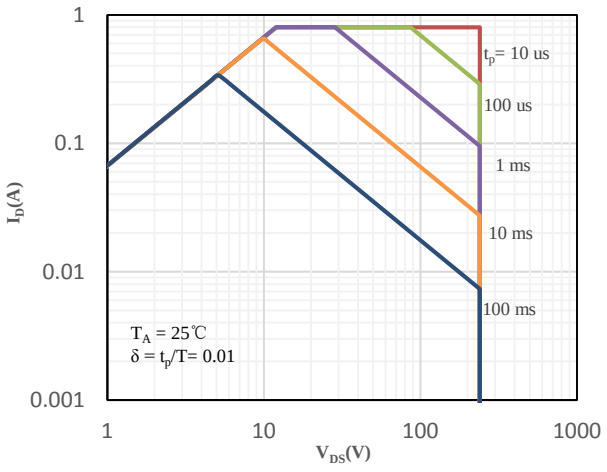


Fig 11 Safe Operation Area

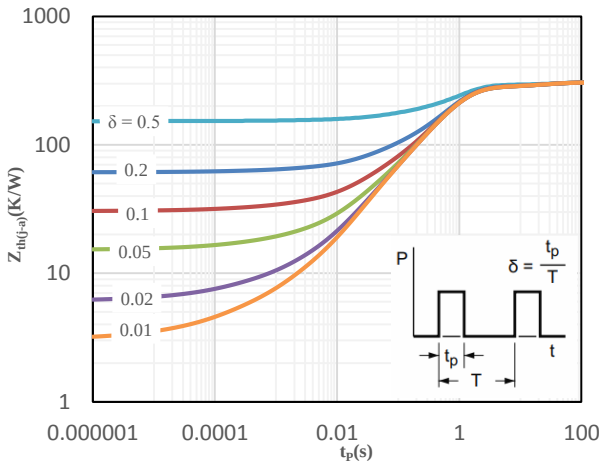
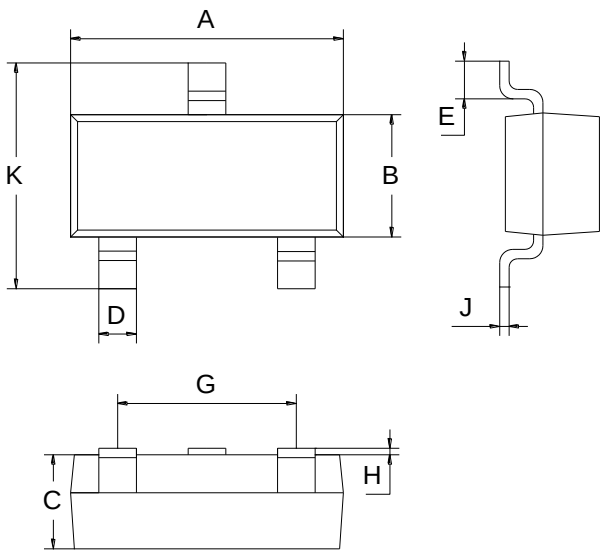


Fig 12 Maximum transient thermal impedance

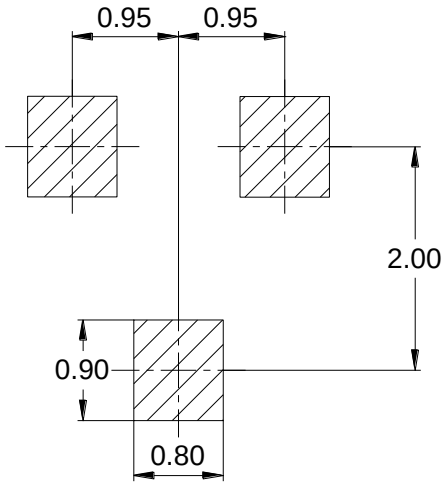
Package Outline Dimensions (Unit: mm)



SOT-23		
Dimension	**Min.**	**Max.**
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60

Mounting Pad Layout (Unit: mm)

SOT-23



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