

Features

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

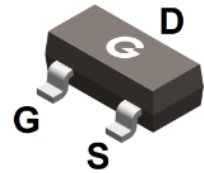
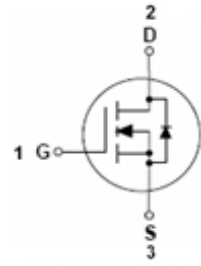
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Typical Applications

- 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



SOT-23

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BSS130	SOT-23	3000 pcs / Tape & Reel	130

Maximum Ratings (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DS}	240	V
Gate-to-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_A = 25^\circ\text{C}$)	I_D	0.09	A
Continuous Drain Current ($T_A = 70^\circ\text{C}$)	I_D	0.07	A
Pulsed Drain Current ($t_p = 10\mu\text{s}$, $T_A = 25^\circ\text{C}$)	I_{DM}	0.6	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	0.35	W
Thermal Resistance Junction-to-Air ^{*1}	$R_{\theta JA}$	220	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_J	$-55 \sim +150$	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	$-55 \sim +150$	$^\circ\text{C}$

Note 1: Surface-mounted on 1 inch² FR-4 board with 2OZ copper

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ 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 = 50mA	-	26	28	Ω	
		V _{GS} = 5V, I _D = 50mA	-	28	40	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	-	26	-	pF	
C _{OSS}	Output Capacitance	V _{DS} = 25V	-	9	-		
C _{RSS}	Reverse Transfer Capacitance	f = 1MHz	-	3	-		
Q _G	Total Gate-Charge	V _{DD} = 192V	-	4.8	-	nC	
Q _{GS}	Gate to Source Charge		V _{GS} = 10V	-	1.1		-
Q _{GD}	Gate to Drain (Miller) Charge		I _D = 0.2A	-	1.5		-
Source-Drain Diode Characteristics							
V _{SD}	Diode Forward Voltage	I _{SD} = 100mA, V _{GS} = 0V	-	0.8	1.5	V	

Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

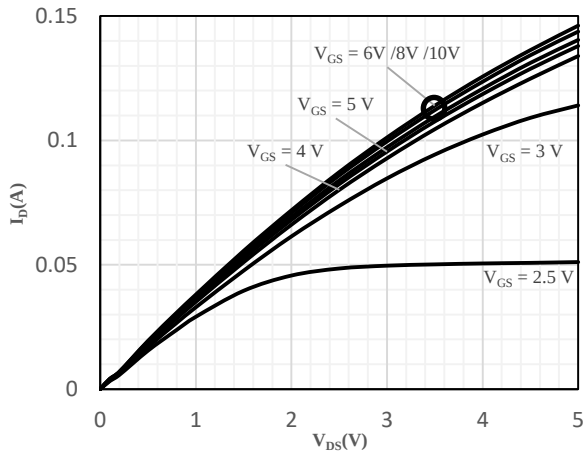


Fig 1 Typical Output Characteristics

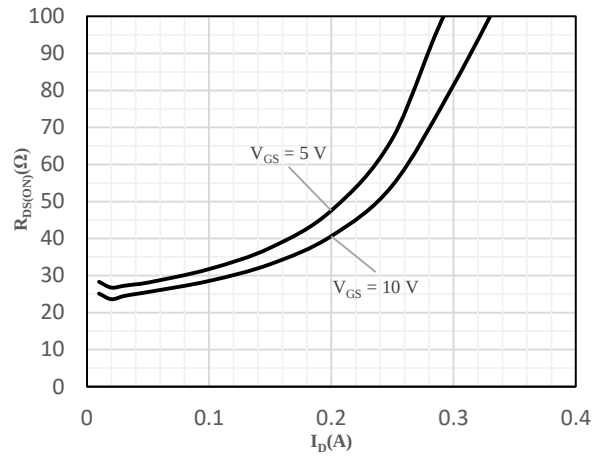


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

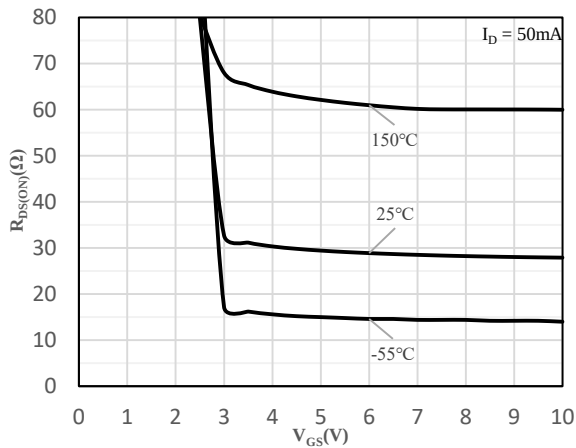


Fig 3 On-Resistance vs. Gate-Source Voltage

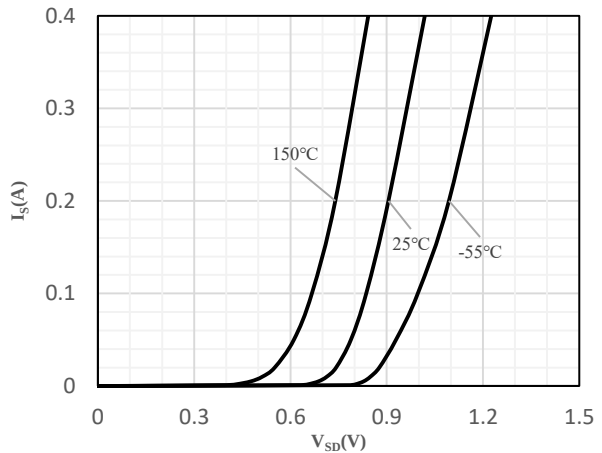


Fig 4 Body-Diode Characteristics

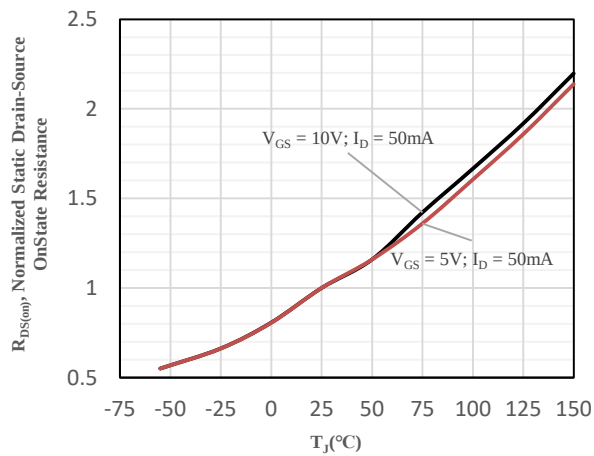


Fig 5 Normalized On-Resistance vs. Junction Temperature

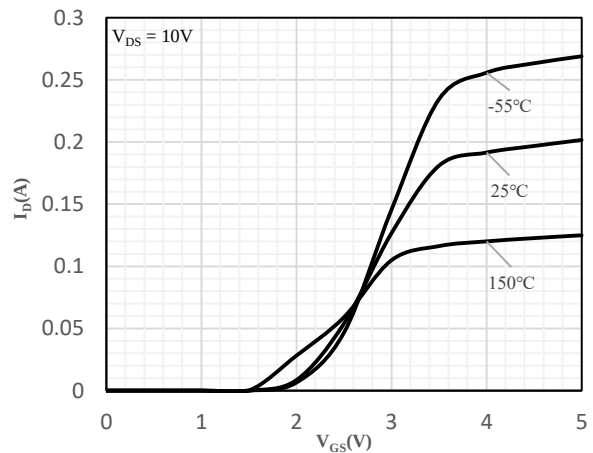


Fig 6 Transfer Characteristics

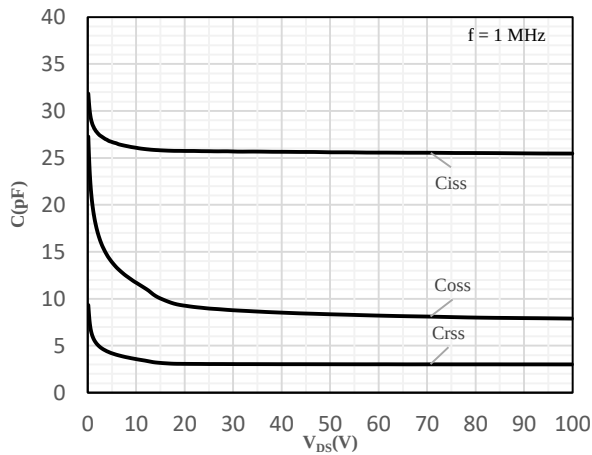


Fig 7 Capacitance Characteristics

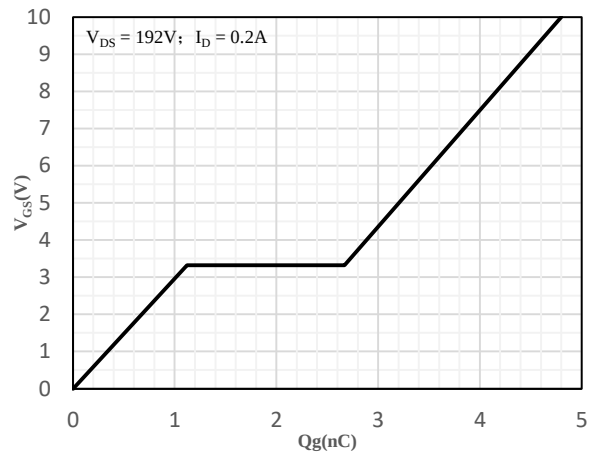


Fig 8 Gate-Charge Characteristics

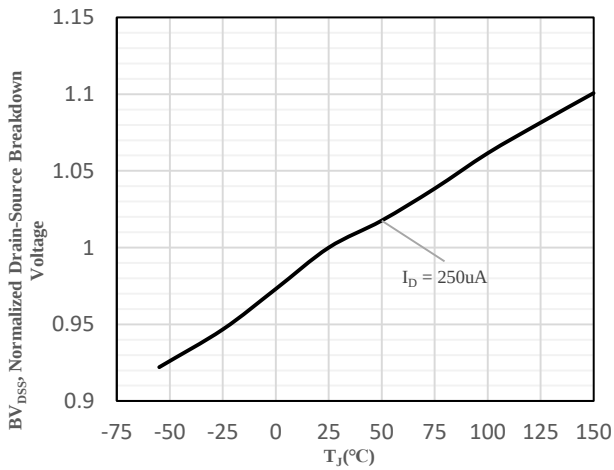


Fig 9 Normalized Breakdown Voltage vs. Junction Temperature

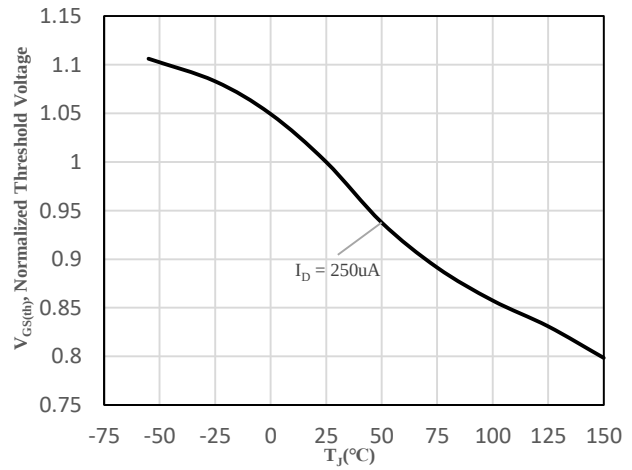


Fig 10 Normalized $V_{GS(th)}$ vs. Junction Temperature

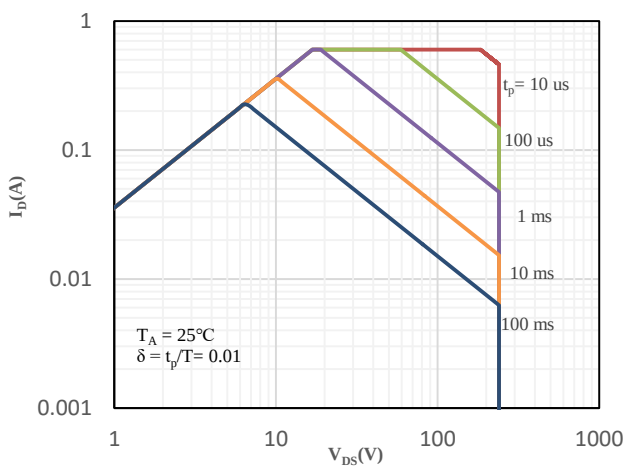


Fig 11 Safe Operation Area

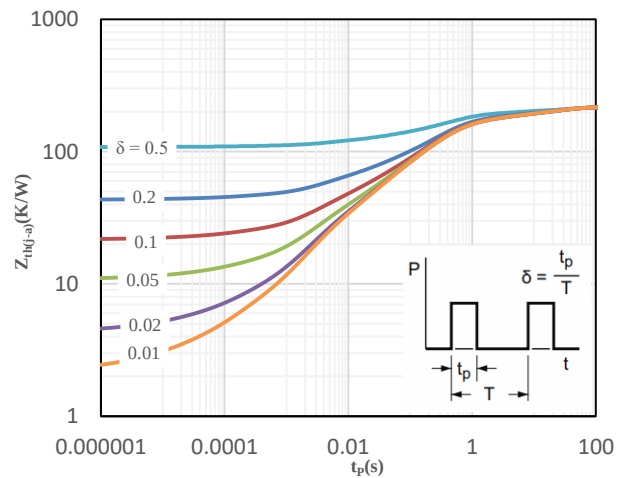
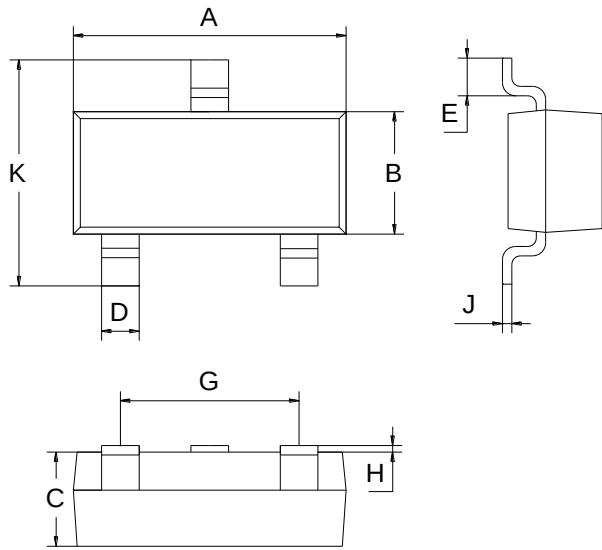


Fig 12 Maximum transient thermal impedance

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

