N-Channel Enhancement Mode MOSFET

BL8810 BL8810-3L

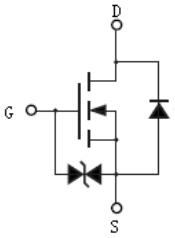
Features

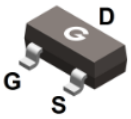
HF

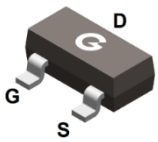
- Low on-resistance
- Low threshold
- Fast switching speed
- Low gate drive
- HBM: JESD22-A114-B: 2
- RoHS compliant with Halogen-free

Mechanical Data

- Case: SOT-23, SOT-23-3L
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208







BL8810 SOT-23

BL8810-3L SOT-23-3L

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BL8810	SOT-23	3000 pcs / Tape & Reel	8810
BL8810-3L	SOT-23-3L	3000 pcs / Tape & Reel	8810

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

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	20	V
Gate-to-Source Voltage	V_{GSS}	±10	V
Continuous Drain Current	I_D	7	A
Pulsed Drain Current	I_{DM}	30	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T_A = 25°C) *1	P_D	0.2	W
Thermal Resistance Junction-to-Air *1	$R_{\theta JA}$	625	°C/W
Power Dissipation (T_A = 25°C) *2	P_D	1.4	W
Thermal Resistance Junction-to-Air *2	$R_{\theta JA}$	90	°C/W
Operating Junction Temperature Range	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Notes:

1. The data tested by surface mounted on a minimum recommended FR-4 board
2. The data tested by surface mounted on a 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	20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 20V, V_{GS} = 0V	-	-	1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS} = ±10V, V_{DS} = 0V	-	-	±10	μA
On Characteristics						
$R_{DS(ON)}$	Static Drain-Source On-resistance	V_{GS} = 4.5V,I_D = 6A	-	19	21	mΩ
		V_{GS} = 2.5V,I_D = 5A	-	24	27	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	0.45	0.73	1	V
g_{FS}	Forward Transconductance	V_{DS} = 5V, I_D = 7A	-	29	-	S
R_G	Gate Resistance	V_{DS} = V_{GS} = 0V, f = 1MHz	-	3.7	-	Ω
Dynamic Characteristics						
C_{ISS}	Input Capacitance	V_{GS} = 0V V_{DS} = 10V f = 1.0MHz	-	697	-	pF
C_{OSS}	Output Capacitance		-	110	-	
C_{RSS}	Reverse Transfer Capacitance		-	101	-	
Switching Characteristics						
$t_{d(ON)}$	Turn-on Delay Time	V_{DD} = 10V V_{GS} = 5V R_G = 3Ω I_D = 7A	-	6.2	-	ns
t_r	Turn-on Rise Time		-	12.7	-	
$t_{d(OFF)}$	Turn-Off Delay Time		-	51.7	-	
t_f	Turn-Off Fall Time		-	16	-	
Q_G	Total Gate-Charge	V_{DD} = 10V V_{GS} = 4.5V I_D = 7A	-	11.2	-	nC
Q_{GS}	Gate to Source Charge		-	1.6	-	
Q_{GD}	Gate to Drain (Miller) Charge		-	3.2	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage	I_{SD} = 1A, V_{GS} = 0V	-	0.57	1	V

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

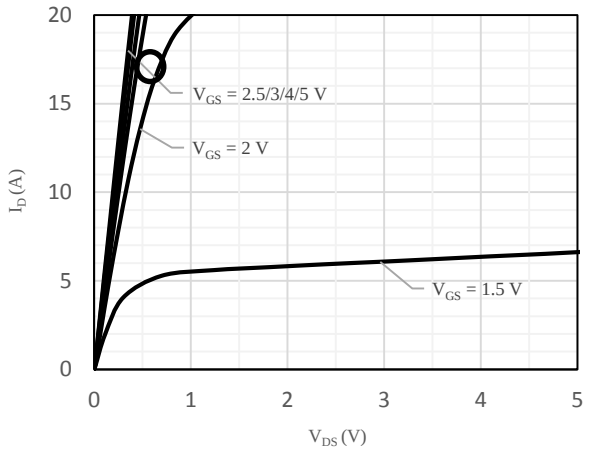


Fig 1 Typical Output Characteristics

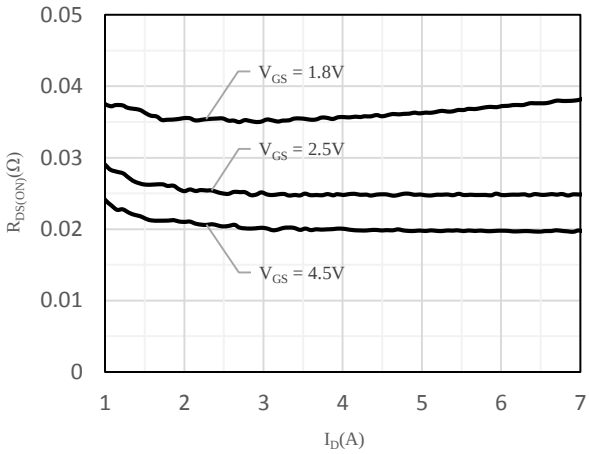


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

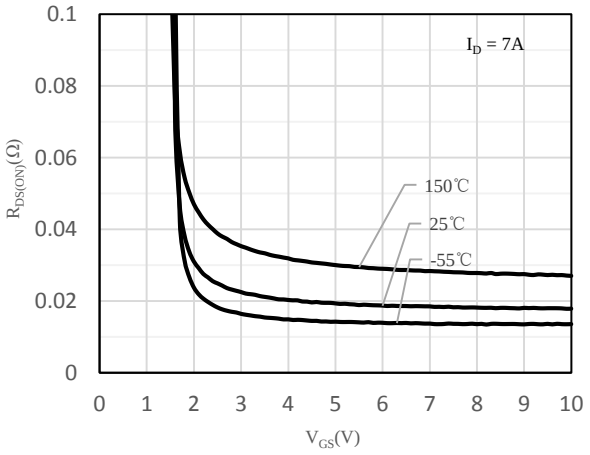


Fig 3 On-Resistance vs. Gate-Source Voltage

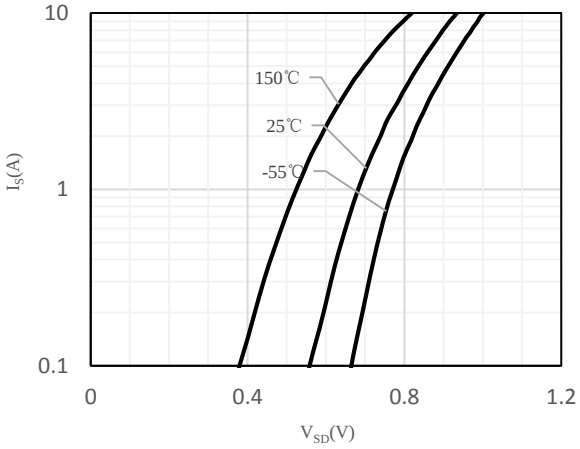


Fig 4 Body-Diode Characteristics

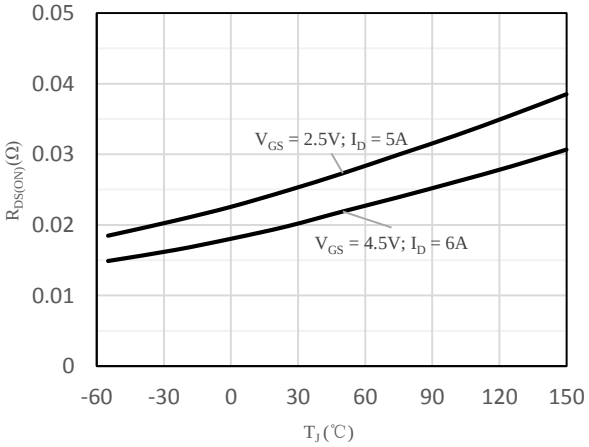


Fig 5 On-Resistance vs. Junction Temperature

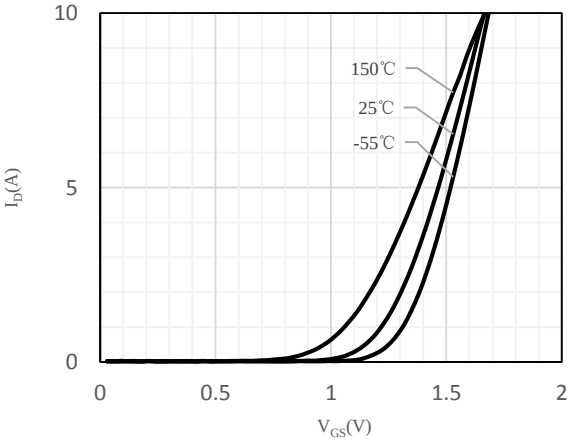


Fig 6 Transfer Characteristics

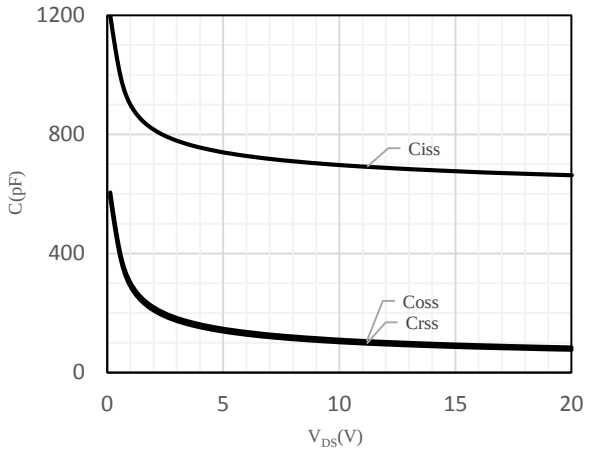


Fig 7 Capacitance Characteristics

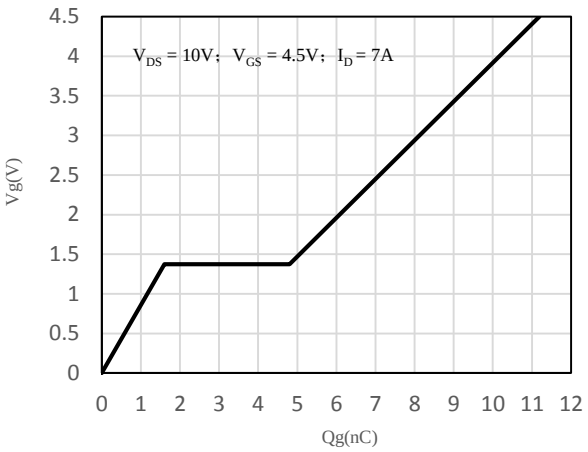


Fig 8 Gate-Charge Characteristics

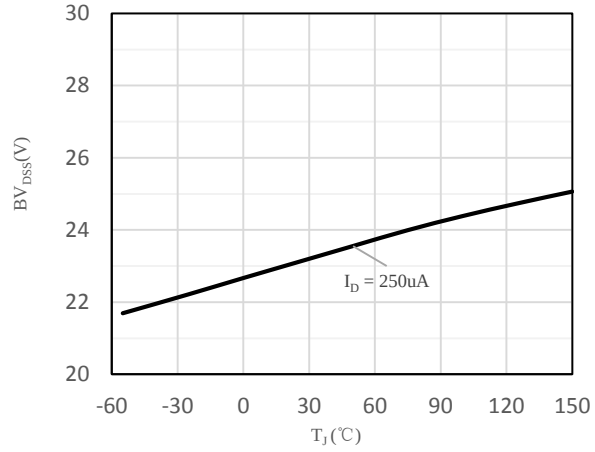


Fig 9 Breakdown Voltage vs. Junction Temperature

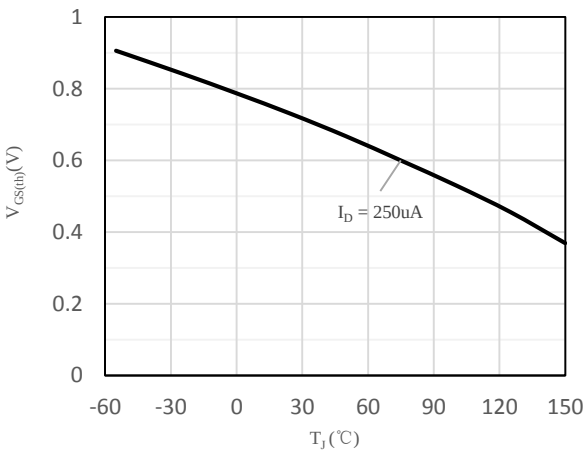
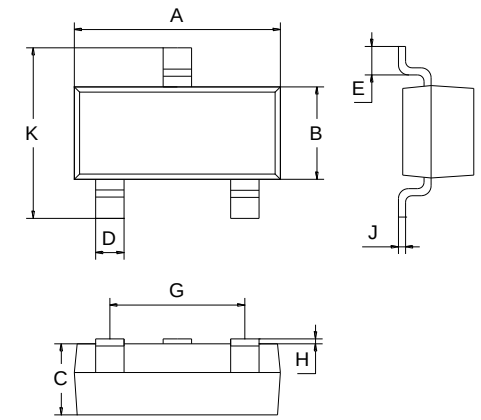
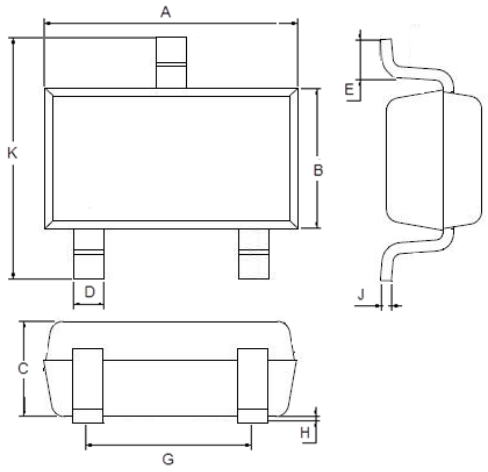


Fig 10 $V_{GS(th)}$ vs. Junction Temperature

Package Outline Dimensions (Unit: mm)



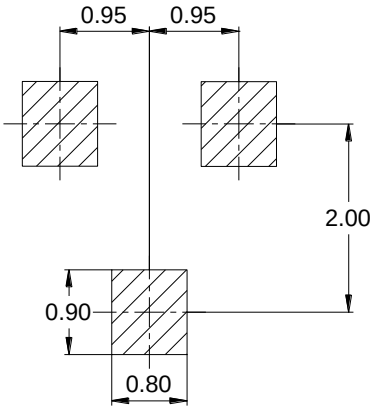
SOT-23		
Dimension	**Min.**	**Max.**
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60



SOT-23-3L		
Dimension	**Min.**	**Max.**
A	2.80	3.00
B	1.50	1.70
C	1.00	1.20
D	0.35	0.45
E	0.35	0.55
G	1.80	2.00
H	0.02	0.10
J	0.10	0.20
K	2.60	3.00

Package Outline Dimensions (Unit: mm)

SOT-23



SOT-23-3L

