

Features

- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- Electrostatic sensitive devices

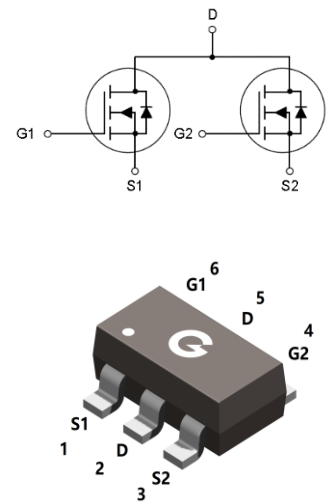
HF

Typical Applications

- Power management in note book
- Portable equipment
- DC/DC converter

Mechanical Data

- Case: SOT-23-6L
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



SOT-23-6L

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BL8205A-6L	SOT-23-6L	3000 pcs / Tape & Reel	8205A

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

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DS}	20	V
Gate-to-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ($T_A = 25^\circ\text{C}$) ^{*1}	I_D	5.3	A
Continuous Drain Current ($T_A = 70^\circ\text{C}$) ^{*1}		4.2	A
Pulsed Drain Current ($t_p = 10\mu\text{s}$, $T_A = 25^\circ\text{C}$)	I_{DM}	22	A
Power Dissipation ($T_A = 25^\circ\text{C}$) ^{*1}	P_D	1.25	W
Operating Junction Temperature Range	T_J	$-55 \sim +150$	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	$-55 \sim +150$	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance Junction-to-Air ^{*1}	$R_{\theta JA}$	-	-	100	$^\circ\text{C/W}$

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	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} = ±12V, V _{DS} = 0V	-	-	±100	nA
On Characteristics						
R _{DS(ON)}	Drain-Source On-resistance *2	V _{GS} = 4.5V, I _D = 3A	-	-	28	mΩ
		V _{GS} = 2.5V, I _D = 2.5A	-	-	38	
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	0.5	-	1.2	V
Dynamic Characteristics						
C _{ISS}	Input Capacitance	V _{GS} = 0V V _{DS} = 10V f = 1.0MHz	-	350	-	pF
C _{OSS}	Output Capacitance		-	100	-	
C _{RSS}	Reverse Transfer Capacitance		-	90	-	
Switching Characteristics						
t _{d(ON)}	Turn-on Delay Time *3	V _{GS} = 10V V _{DD} = 15V R _L = 2.6Ω R _G = 3Ω	-	4.5	-	ns
t _r	Turn-on Rise Time *3		-	2.4	-	
t _{d(OFF)}	Turn-Off Delay Time *3		-	14.8	-	
t _f	Turn-Off Fall Time *3		-	2.5	-	
Q _G	Total Gate-Charge	V _{GS} = 4.5V V _{DS} = 10V I _D = 3.6A	-	9	-	nC
Q _{GS}	Gate to Source Charge		-	2.2	-	
Q _{GD}	Gate to Drain (Miller) Charge		-	3	-	
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage *2	I _S = 3A, V _{GS} = 0 V	-	-	1.2	V

Notes:

1. The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper
2. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. Guaranteed by design, not subject to production

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

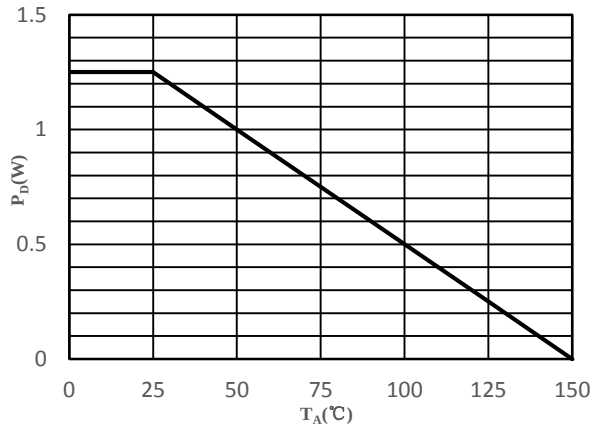


Fig 1 Power Dissipation

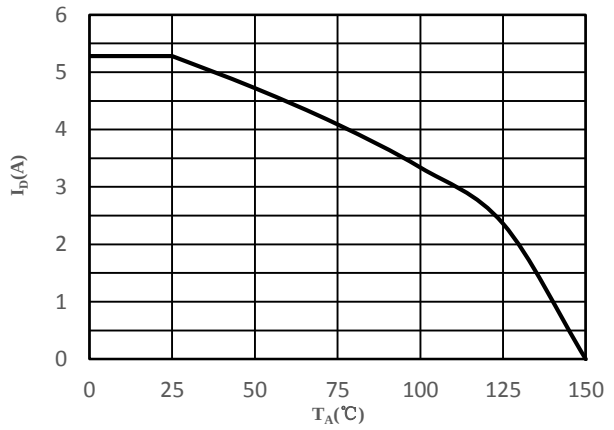


Fig 2 Drain Current

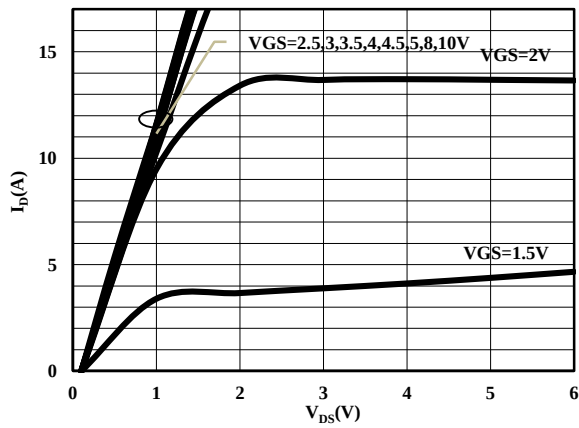


Fig 3 Output Characteristics

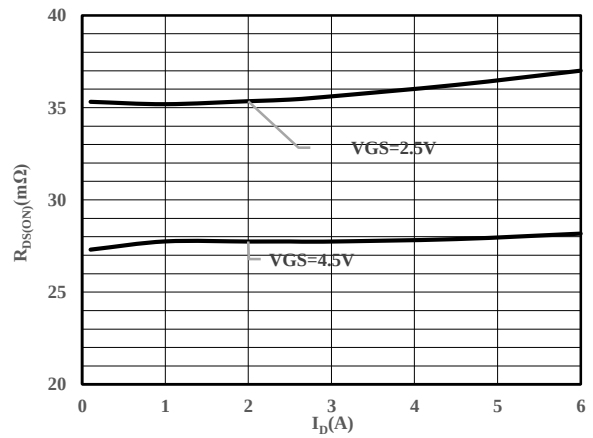


Fig 4 On-Resistance vs. Drain Current and Gate Voltage

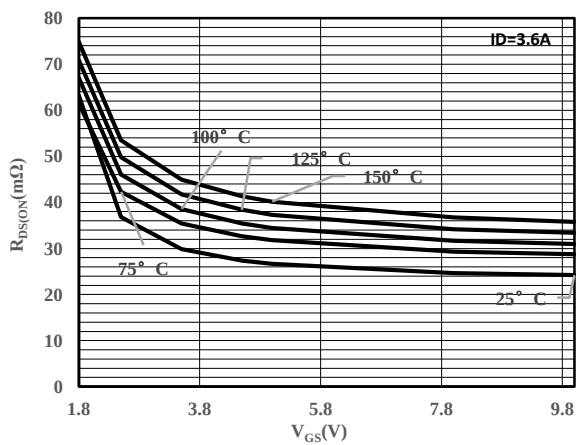


Fig 5 On-Resistance vs. Gate-Source Voltage

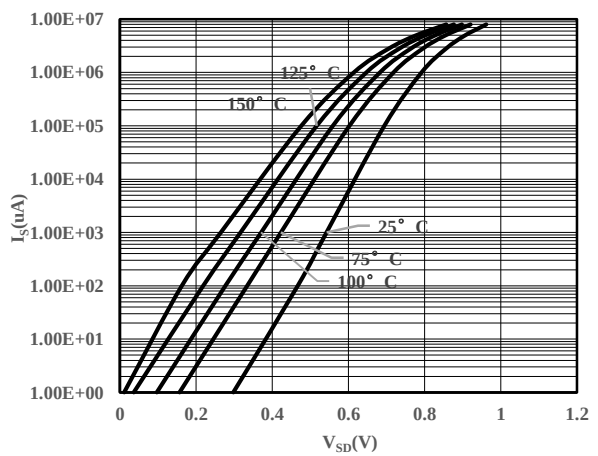


Fig 6 Body-Diode Characteristics

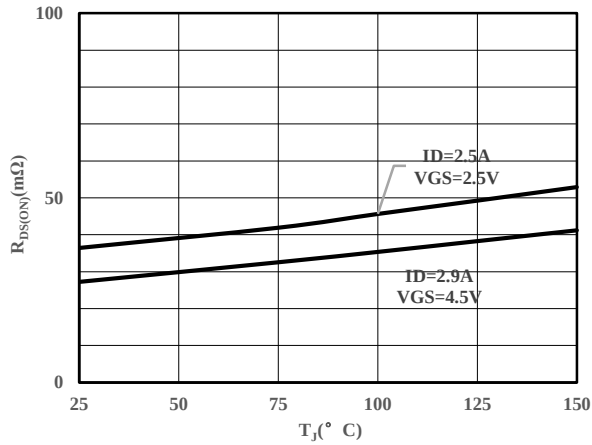


Fig 7 On-Resistance vs. Junction Temperature

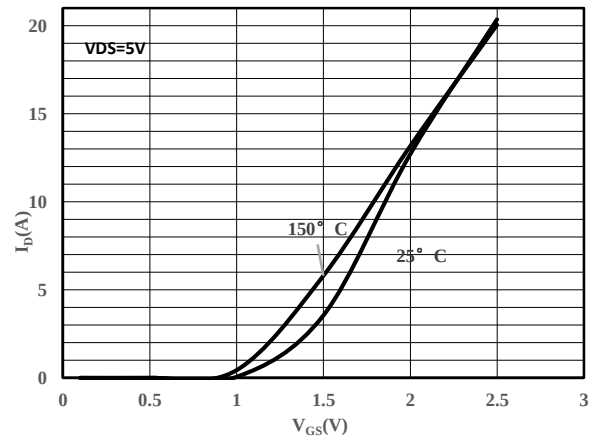


Fig 8 Transfer Characteristics

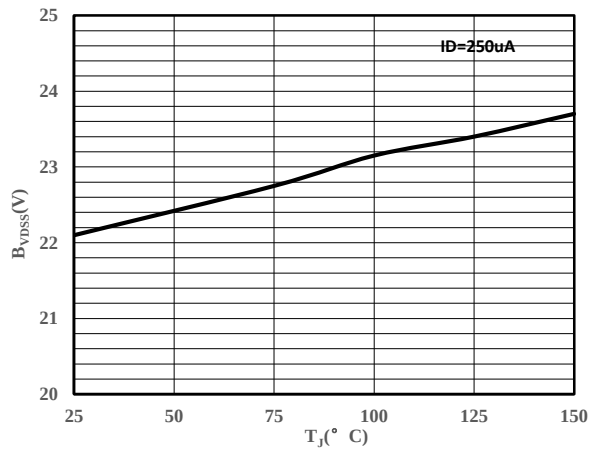


Fig 9 Drain-Source vs. Junction Temperature

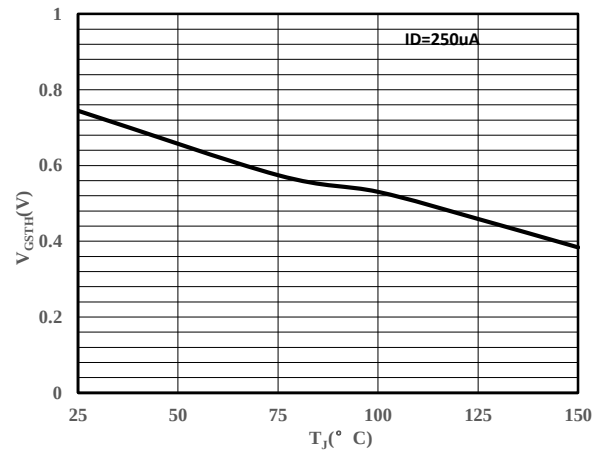
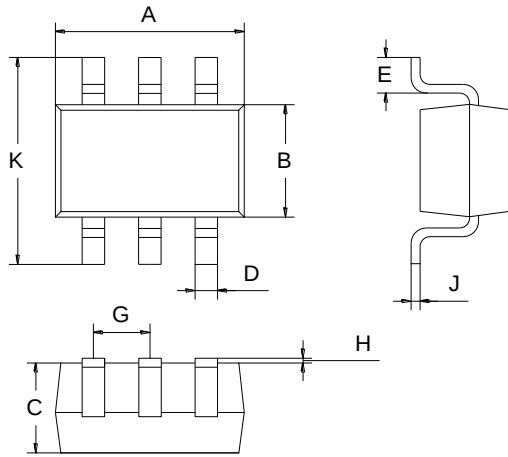


Fig 10 Gate Voltage vs. Junction Temperature

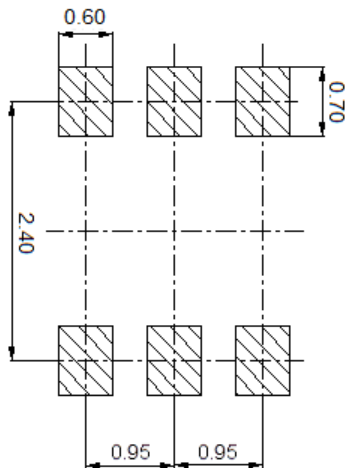
Package Outline Dimensions (Unit: mm)



SOT-23-6L		
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	0.90	1.00
H	0.02	0.10
J	0.10	0.20
K	2.60	3.00

Mounting Pad Layout (Unit: mm)

SOT-23-6L



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