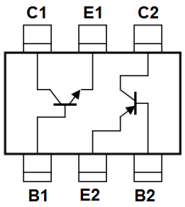
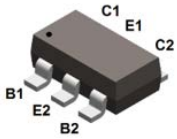
BL6902

Dual Bipolar Transistor(NPN+PNP)

Features

- Low collector-emitter saturation voltage
- Two internal isolated NPN/PNP transistors in one package
- High-speed switching





SOT-23-6L

Mechanical Data

- Case: SOT-23-6L
- Molding compo und: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208

Maximum Ratings (@ T_A = 25℃ unless otherwise specified)

Parameter	Symbol	NPN	PNP	Unit
Collector-Base Voltage	V_{CBO}	60	-60	V
Collector-Emitter Voltage	V_{CEO}	30	-30	V
Emitter-Base Voltage	V_{EBO}	7	-7	V
Continuous Collector Current	I_C	2	-2	A
Peak Collector Current	I_{CM}	4	-4	A
Base Current	I_B	0.5	-0.5	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Collector Power Dissipation(Single-device operation) *1	P_C	0.7	W
Collector Power Dissipation(Single-device value at dual operation) *1	P_C	0.6	
Thermal Resistance Junction-to-Air *2	$R_{\theta JA}$	150	°C/W
Thermal Resistance Junction-to-Case *2	$R_{\theta JC}$	60	°C/W
Thermal Resistance Junction-to-Lead *2	$R_{\theta JL}$	50	°C/W
Operating Junction Temperature	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Notes:

1、 Mounted on an FR4 board (glass epoxy, 1.6 mm thick, Cu area: 645 mm^2)

2、 The data tested by surface mounted on a 25.4mm * 25.4mm * 1mm FR4-epoxy P.C.B

Electrical Characteristics of NPN Transistor (@ T_A = 25℃ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 10μA, I_E = 0	60	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 1mA, I_B = 0	30	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 10μA, I_C = 0	7	-	-	V
Collector Cut-off Current	I_{CBO}	V_{CB} = 60V, I_E = 0	-	-	0.1	μA
Collector Cut-off Current	I_{CEO}	V_{CE} = 50V, I_B = 0	-	-	5	μA
Emitter Cut-off Current	I_{EBO}	V_{EB} = 7V, I_C = 0	-	-	0.1	μA
DC Current Gain	h_{FE}	V_{CE} = 2V, I_C = 0.2A	200	-	500	-
		V_{CE} = 2V, I_C = 0.6A	125	-	-	-
		V_{CE} = 2V, I_C = 2A	50	-	-	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 600mA, I_B = 20mA	-	-	0.14	V
Base-emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 600mA, I_B = 20mA	-	-	1.1	V
Base-emitter Voltage	$V_{BE(on)}$	I_C = 1A, V_{CE} = 2V	-	-	1.2	V
Transition Frequency	f_T	V_{CE} = 5V, I_C = 100mA f = 100MHz	100	-	-	MHz
Output Capacitance	C_{ob}	V_{CB} = 10V, I_E = I_e = 0 f = 1MHz	-	-	25	pF

Electrical Characteristics of PNP Transistor (@ T_A = 25℃ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = -10μA, I_E = 0	-60	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = -1mA, I_B = 0	-30	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = -10μA, I_C = 0	-7	-	-	V
Collector Cut-off Current	I_{CBO}	V_{CB} = -60V, I_E = 0	-	-	-0.1	μA
Collector Cut-off Current	I_{CEO}	V_{CE} = -50V, I_B = 0	-	-	-5	μA
Emitter Cut-off Current	I_{EBO}	V_{EB} = -7V, I_C = 0	-	-	-0.1	μA
DC Current Gain	h_{FE}	V_{CE} = -2V, I_C = -200mA	200	-	500	-
		V_{CE} = -2V, I_C = -600mA	125	-	-	-
		V_{CE} = -2V, I_C = -1A	60	-	-	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	I_C = -600mA, I_B = -20mA	-	-	-0.2	V
Base-emitter Saturation Voltage	$V_{BE(sat)}$	I_C = -600mA, I_B = -20mA	-	-	-1.1	V
Base-emitter Voltage	$V_{BE(on)}$	I_C = -1A, V_{CE} = -2V	-1.2	-	-	V
Transition Frequency	f_T	V_{CE} = -5V, I_C = -100mA f = 100MHz	100	-	-	MHz
Output Capacitance	C_{ob}	V_{CB} = -10V, I_E = I_e = 0 f = 1MHz	-	-	35	pF

Ratings and Characteristic Curves-NPN (@ T_A = 25℃ unless otherwise specified)

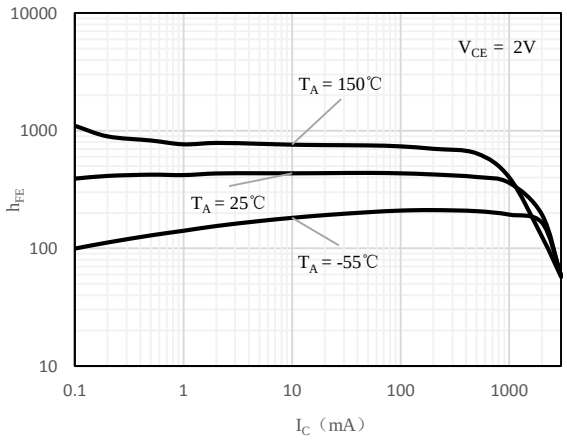


Fig 1 h_{FE} vs. I_C

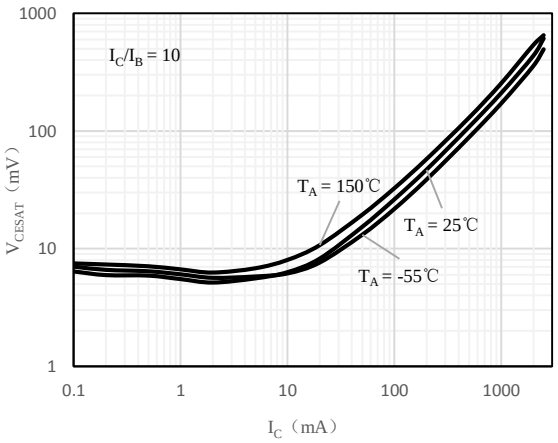


Fig 2 $V_{CE(sat)}$ vs. I_C

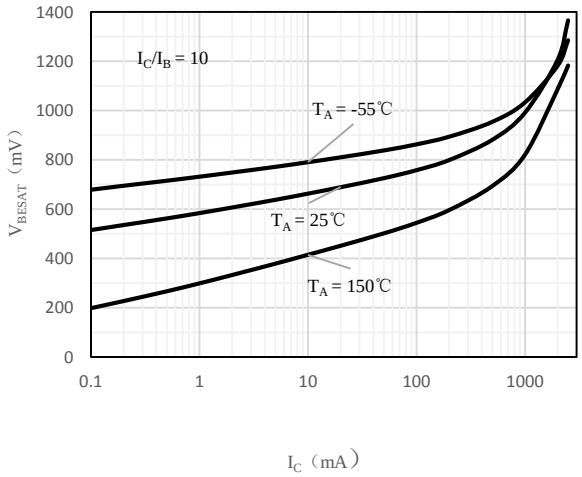


Fig 3 $V_{BE(sat)}$ vs. I_C

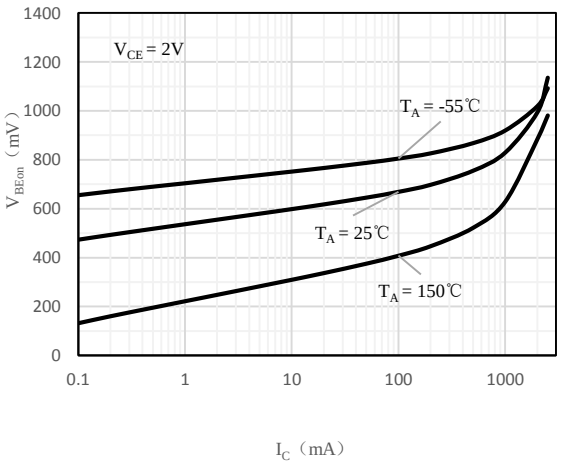


Fig 4 $V_{BE(ON)}$ vs. I_C

Ratings and Characteristic Curves-PNP (@ T_A = 25℃ unless otherwise specified)

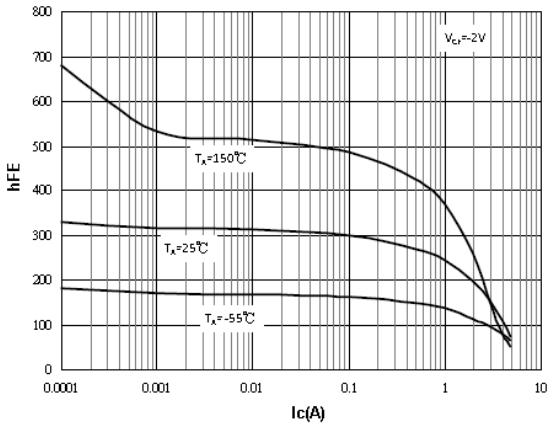


FIG.1 - DC current gain as a function of collector current

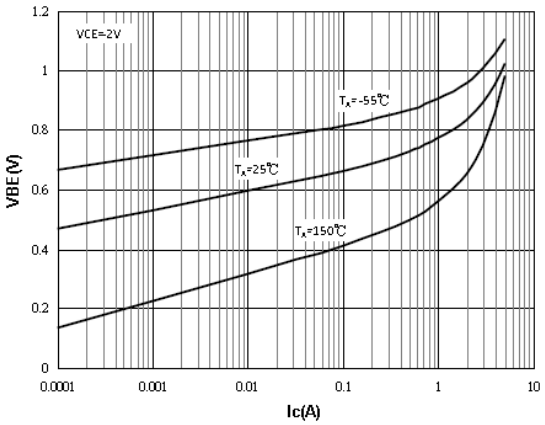


FIG.2 - Base-emitter voltage as a function of collector current

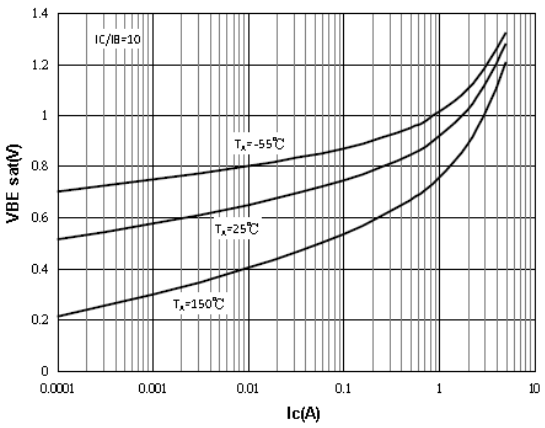


FIG.3 - Base-emitter saturation voltage as a function of collector current

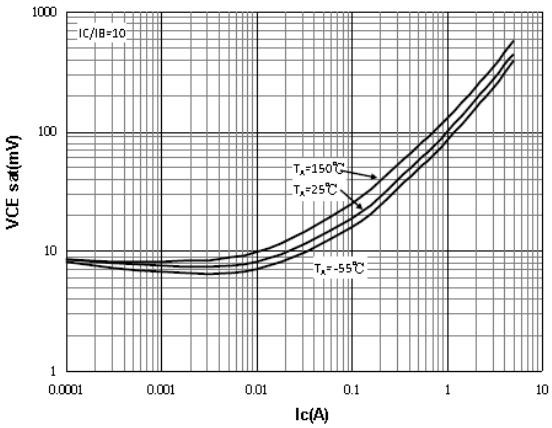


FIG.4 - Collector-emitter saturation voltage as a function of collector current

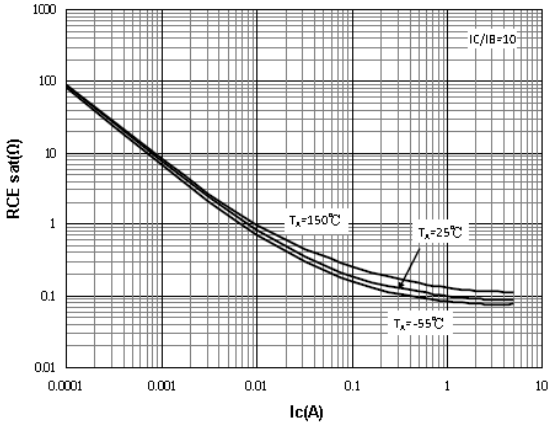


FIG.5 - Equivalent on-resistance as a function of collector current

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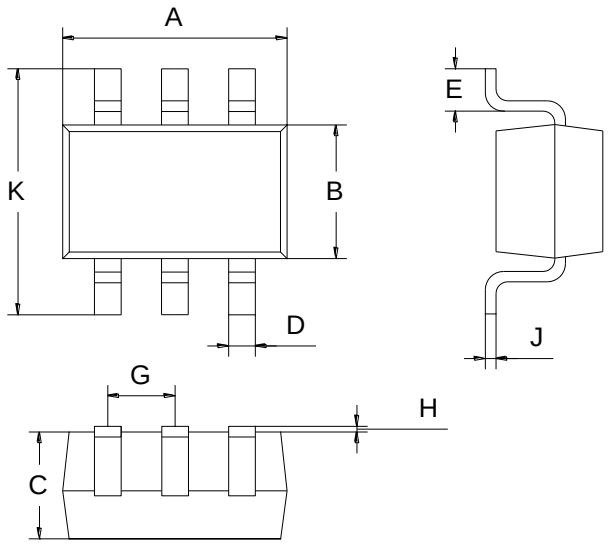
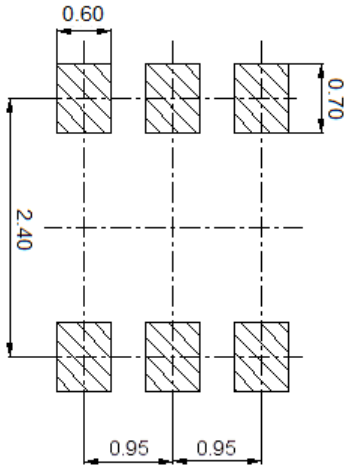
Package Outline Dimensions (Unit: mm)



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



Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BL6902	SOT-23-6L	3000 pcs / Tape & Reel	6902