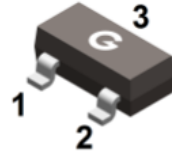
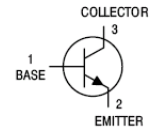


Features

- High voltage
- Low collector-emitter saturation voltage
- High collector current capability I_C and I_{CM}
- High collector current gain (h_{FE}) at high I_C
- RoHS compliant with Halogen-free

HF



SOT-23

Mechanical Data

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

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BL8118	SOT-23	3000 pcs / Tape & Reel	8118

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

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V_{CBO}	300	V
Collector-Emitter Breakdown Voltage	V_{CEO}	180	V
Emitter-Base Breakdown Voltage	V_{EBO}	6	V
Collector Current (Continuous)	I_C	1	A
Peak Pulse Current	I_{CM}	2	A
Base Current	I_B	0.2	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation ^{*1}	P_D	0.5	W
Thermal Resistance Junction-to-Air ^{*1}	$R_{\theta JA}$	250	$^\circ\text{C/W}$
Power Dissipation ($T_A = 25^\circ\text{C}$) ^{*2}	P_D	2.8	W
Thermal Resistance Junction-to-Air ^{*2}	$R_{\theta JA}$	190	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Case ^{*2}	$R_{\theta JC}$	100	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Lead ^{*2}	$R_{\theta JL}$	150	$^\circ\text{C/W}$
Junction Temperature	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

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

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}$, $I_E = 0$	300	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}$, $I_B = 0$	180	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu\text{A}$, $I_C = 0$	6	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = 144\text{V}$, $I_E = 0$	-	-	0.1	μA
Collector Cut-off Current	I_{CES}	$V_{CE} = 144\text{V}$	-	-	0.1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 6\text{V}$, $I_C = 0$	-	-	0.1	μA
DC Current Gain	h_{FE}	$V_{CE} = 10\text{V}$, $I_C = 50\text{mA}$	100	-	-	-
		$V_{CE} = 10\text{V}$, $I_C = 100\text{mA}$	100	-	-	-
		$V_{CE} = 10\text{V}$, $I_C = 500\text{mA}$	50	-	-	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 100\text{mA}$, $I_B = 10\text{mA}$	-	-	60	mV
		$I_C = 100\text{mA}$, $I_B = 20\text{mA}$	-	-	50	mV
Base-emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 500\text{mA}$, $I_B = 100\text{mA}$	-	-	1.2	V
Transition Frequency	f_T	$V_{CE} = 10\text{V}$, $I_C = 50\text{mA}$ $F = 100\text{MHz}$	100	-	-	MHz
Output Capacitance	C_{ob}	$V_{CB} = 20\text{V}$, $f = 1\text{MHz}$	-	-	10	pF

Notes:

- For a device surface mounted on 15mm × 15mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions; the device is measured when operating in a steady-state condition
- The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper

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

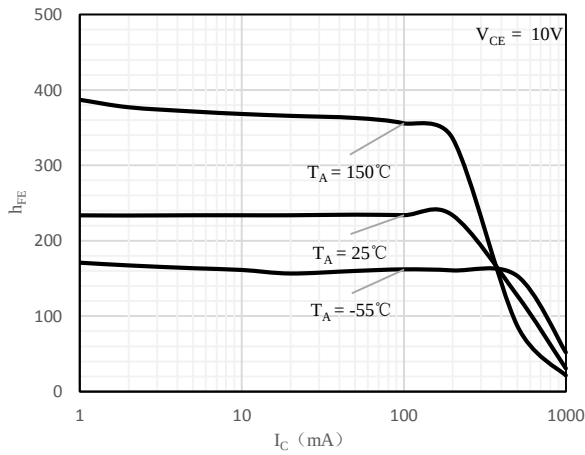


Fig 1 h_{FE} vs. I_C

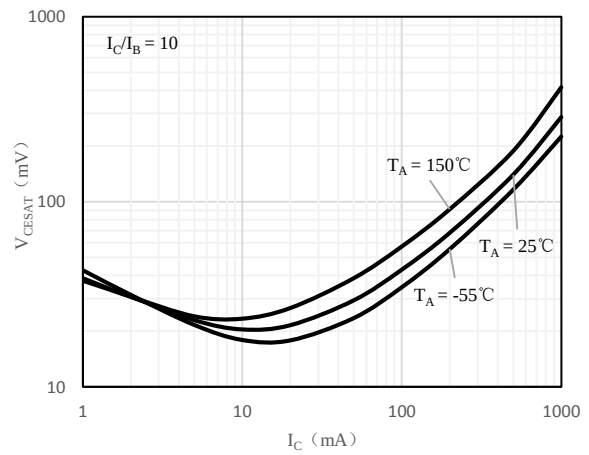


Fig 2 $V_{CE(sat)}$ vs. I_C

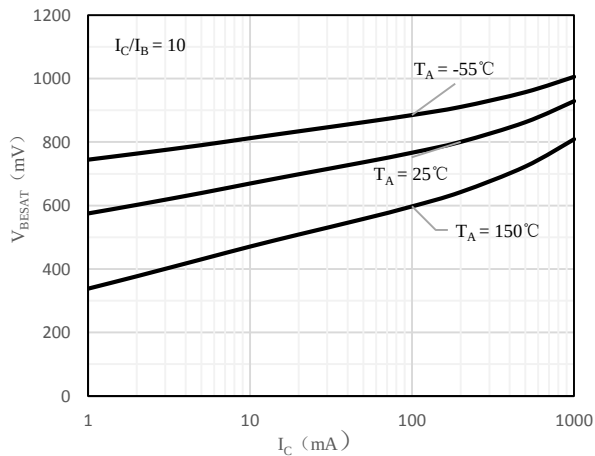


Fig 3 $V_{BE(sat)}$ vs. I_C

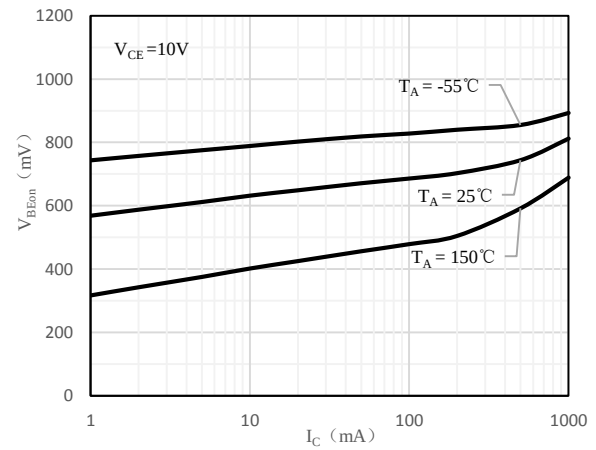


Fig 4 $V_{BE(on)}$ vs. I_C

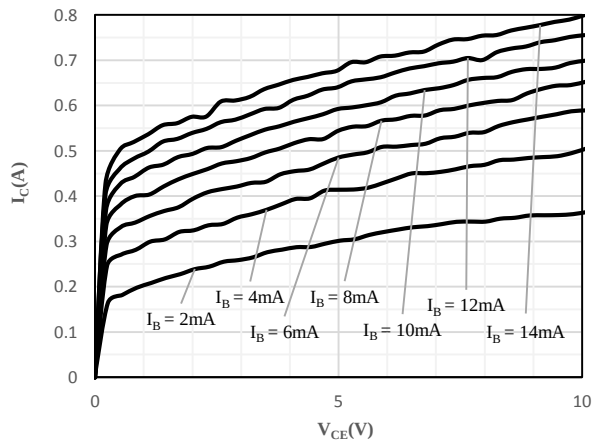


Fig 5 I_C vs. V_{CE}

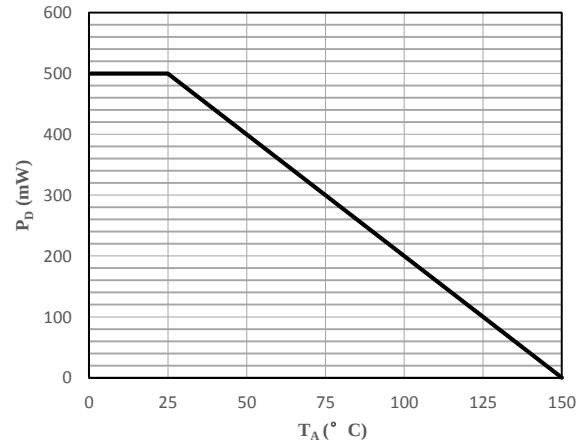


Fig 6 Steady State Power Derating

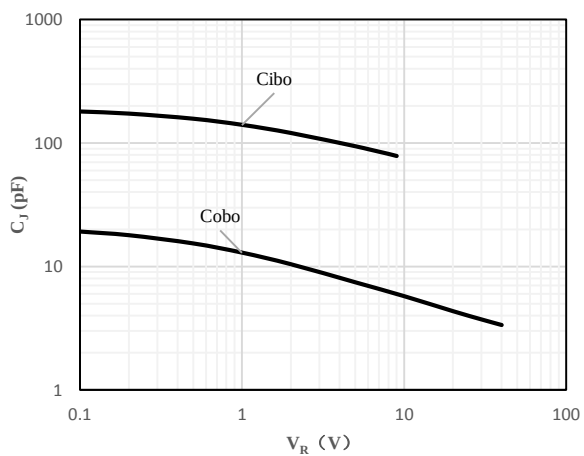
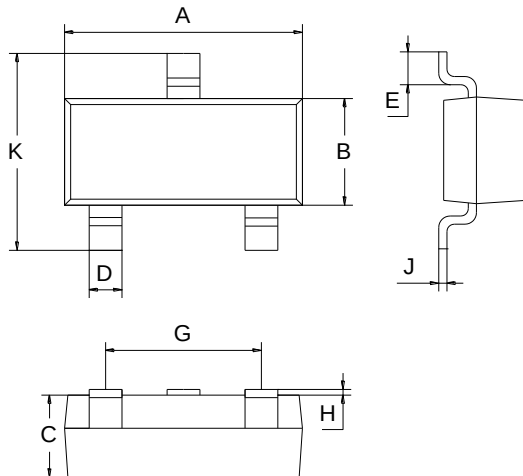


Fig 7 C_J vs. V_R

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

Package Outline Dimensions (Unit: mm)

SOT-23

