NPN Small Signal Surface Mount Transistor

BC846AL BC846BL

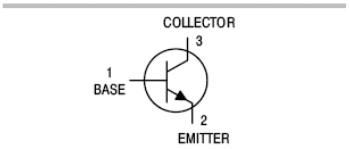
Features

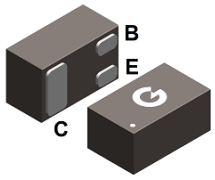
HF

- Low current
- Low voltage
- RoHS compliant with Halogen-free

Mechanical Data

- Case: DFN1006-3
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208





DFN1006-3

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BC846AL	DFN1006-3	10000 pcs / Tape & Reel	1A
BC846BL	DFN1006-3	10000 pcs / Tape & Reel	1B

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

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	65	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current (Continuous)	I_C	100	mA
Collector Current (Peak)	I_{CM}	200	mA

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T_A = 25°C) *1	P_D	250	mW
Thermal Resistance Junction-to-Air *1	$R_{\theta JA}$	500	°C/W
Operating Junction Temperature	T_J	-65 ~ +150	°C
Storage Temperature Range	T_{STG}	-65 ~ +150	°C

Note 1: The data tested by surface mounted on an FR4 PCB with 60 μm copper strip line, standard footprint

Electrical Characteristics (@ 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	80	-	-	V
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	I_C = 10mA, I_B = 0	65	-	-	V
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	I_E = 10μA, I_C = 0	6	-	-	V
Collector Cut-off Current		I_{CBO}	V_{CB} = 30V, I_E = 0	-	-	15	nA
Collector-emitter Cut-off Current		I_{CEO}	V_{CE}= 30V, I_B = 0	-	-	1	mA
Emitter-base Cut-off Current		I_{EBO}	V_{EB} = 5V, I_C = 0	-	-	100	nA
DC Current Gain	BC846AL	h_{FE}	V_{CE} = 5V, I_C = 2mA	110	-	220	-
DC Current Gain	BC846BL			200	-	450	-
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	I_C = 10mA, I_B = 0.5mA	-	-	0.25	V
			I_C = 100mA, I_B = 5mA	-	-	0.60	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	I_C = 10mA, I_B = 0.5mA	-	-	0.90	V
			I_C = 100mA, I_B = 5mA	-	-	1.10	V
Base-Emitter Voltage		$V_{BE(ON)}$	V_{CE} = 5V, I_C= 2mA	0.58	-	0.70	V
			V_{CE} = 5V, I_C= 10mA	-	-	0.77	V
Transition Frequency		f_T	V_{CE} = 5V, I_C= 10mA f = 100MHz	100	-	-	MHz
Collector Capacitance		C_C	V_{CB} = 10V, I_E = I_e = 0 f = 1MHz	-	2.5	-	pF

Ratings and Characteristic Curves-BC846AL (@ T_A = 25℃ unless otherwise specified)

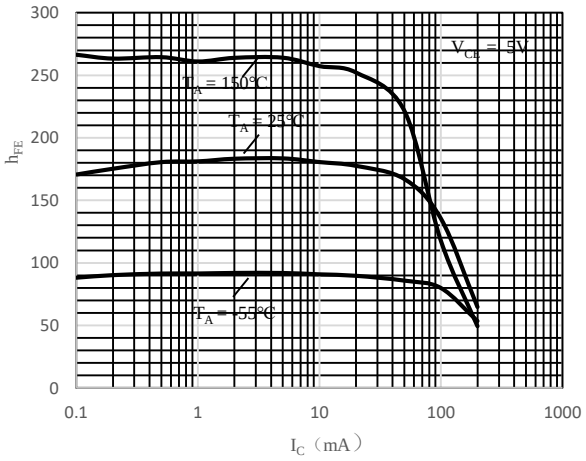


Fig 1 h_{FE} vs. I_C

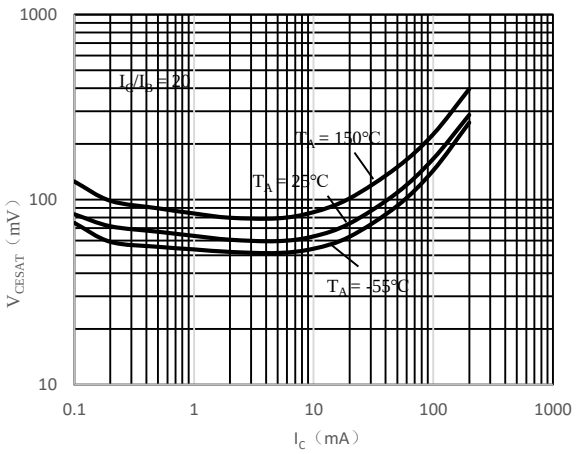


Fig 2 $V_{CE(sat)}$ vs. I_C

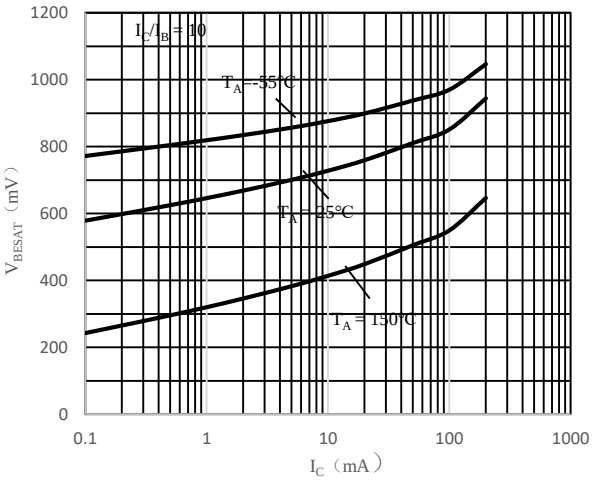


Fig 3 $V_{BE(sat)}$ vs. I_C

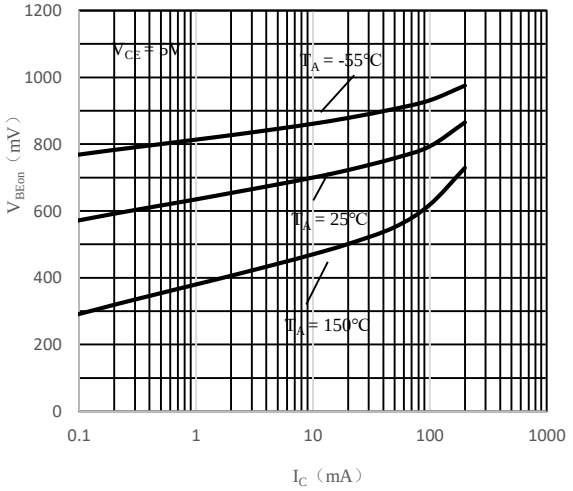


Fig 4 $V_{BE(ON)}$ vs. I_C

Ratings and Characteristic Curves-BC846BL (@ T_A = 25℃ unless otherwise specified)

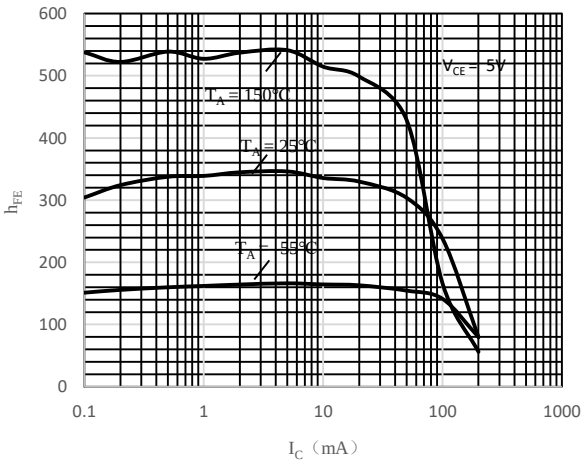


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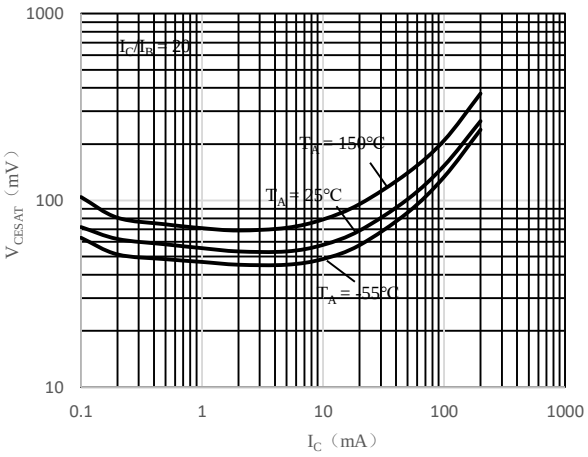


Fig 2 $V_{CE(sat)}$ vs. I_C

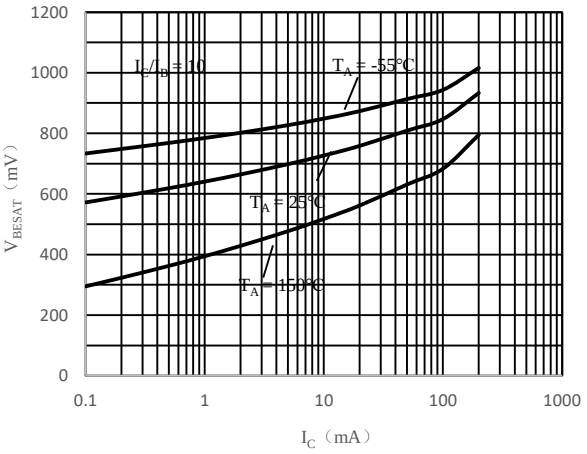


Fig 3 $V_{BE(sat)}$ vs. I_C

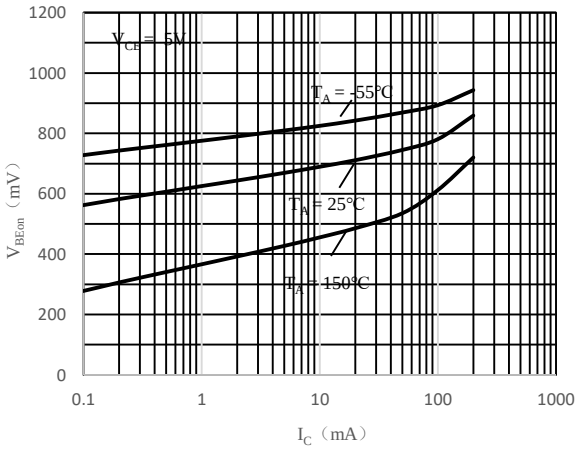
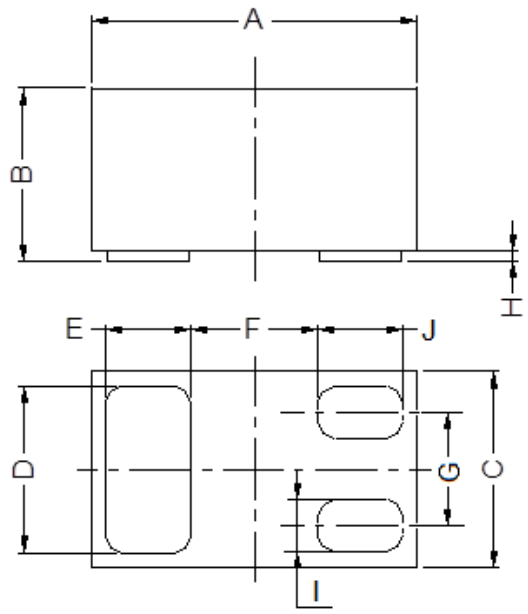


Fig 4 $V_{BE(ON)}$ vs. I_C

Package Outline Dimensions (Unit: mm)



DFN1006-3			
Dimension	**Min.**	**Typ.**	**Max.**
A	0.95	1.00	1.075
B	0.47	0.50	0.53
C	0.55	0.60	0.675
D	0.45	0.50	0.55
E/J	0.20	0.25	0.30
F	-	0.40	-
G	-	0.35	-
H	0	0.03	0.05
I	0.10	0.15	0.20

Package Outline Dimensions (Unit: mm)

DFN1006-3

