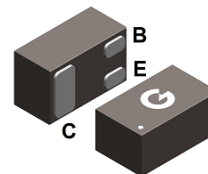
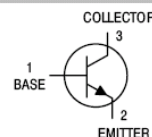


Features

- Low current
- Low voltage
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards

HF



DFN1006-3

Mechanical Data

- Case: DFN1006-3
- 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
TBC847AL	DFN1006-3	10000 pcs / Tape & Reel	1E
TBC847BL	DFN1006-3	10000 pcs / Tape & Reel	1F
TBC847CL	DFN1006-3	10000 pcs / Tape & Reel	1G

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

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	50	V
Collector-Emitter Voltage	V _{CEO}	45	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 _{θJA}	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 (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	50	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$	45	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	6	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = 30\text{V}, I_E = 0$	-	-	15	nA
Collector-emitter Cut-off Current	I_{CEO}	$V_{CE} = 30\text{V}, I_B = 0$	-	-	1	mA
Emitter-base Cut-off Current	I_{EBO}	$V_{EB} = 5\text{V}, I_C = 0$	-	-	100	nA
DC Current Gain	TBC847AL	$V_{CE} = 5\text{V}, I_C = 10\mu\text{A}$	-	170	-	-
DC Current Gain	TBC847BL		-	280	-	-
DC Current Gain	TBC847CL		-	420	-	-
DC Current Gain	TBC847AL	$V_{CE} = 5\text{V}, I_C = 2\text{mA}$	110	-	220	-
DC Current Gain	TBC847BL		200	-	450	-
DC Current Gain	TBC847CL		420	-	800	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$	-	-	0.20	V
		$I_C = 100\text{mA}, I_B = 5\text{mA}$	-	-	0.40	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$	-	-	0.90	V
		$I_C = 100\text{mA}, I_B = 5\text{mA}$	-	-	1.10	V
Base-Emitter Voltage	$V_{BE(ON)}$	$V_{CE} = 5\text{V}, I_C = 2\text{mA}$	0.58	-	0.70	V
		$V_{CE} = 5\text{V}, I_C = 10\text{mA}$	-	-	0.77	V
Transition Frequency	f_T	$V_{CE} = 5\text{V}, I_C = 10\text{mA}$ $f = 100\text{MHz}$	100	-	-	MHz
Collector Capacitance	C_C	$V_{CB} = 10\text{V}, I_E = I_C = 0$ $f = 1\text{MHz}$	-	1.5	-	pF
Emitter Capacitance	C_e	$V_{EB} = 0.5\text{V}, I_C = I_E = 0$ $f = 1\text{MHz}$	-	11	-	pF

Ratings and Characteristic Curves-TBC847AL (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

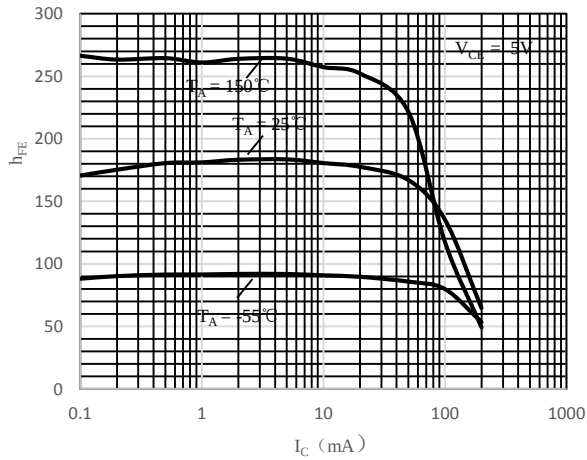


Fig 1 h_{FE} vs. I_C

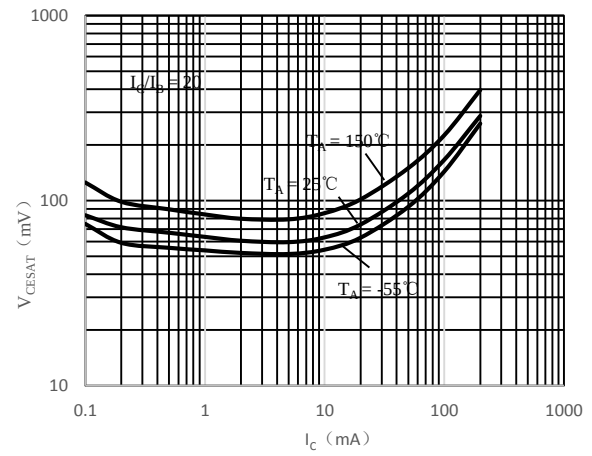


Fig 2 $V_{CE(sat)}$ vs. I_C

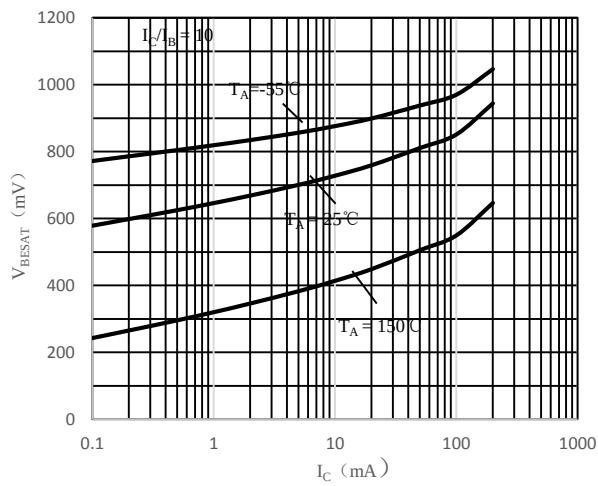


Fig 3 $V_{BE(sat)}$ vs. I_C

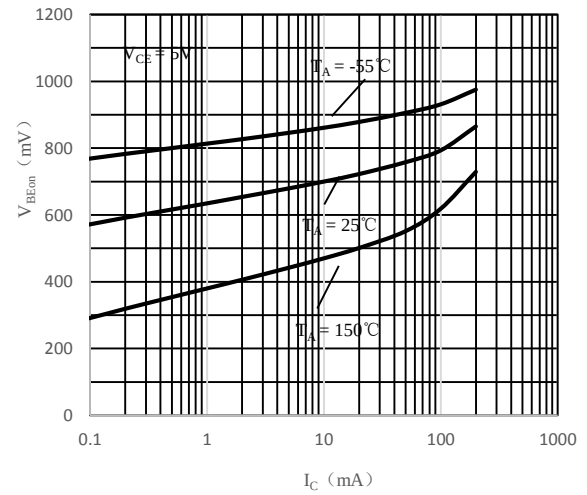


Fig 4 $V_{BE(on)}$ vs. I_C

Ratings and Characteristic Curves-TBC847BL (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

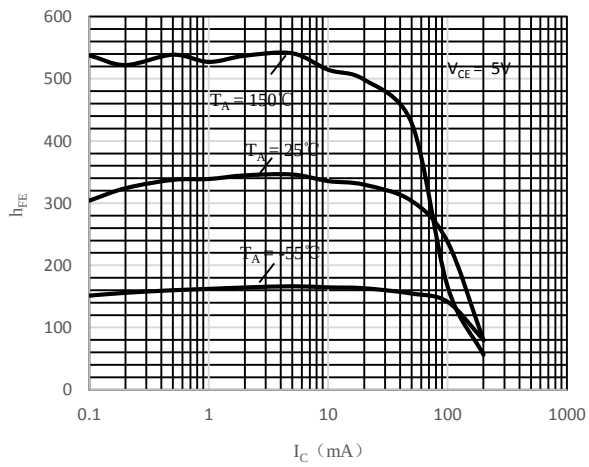


Fig 1 h_{FE} vs. I_C

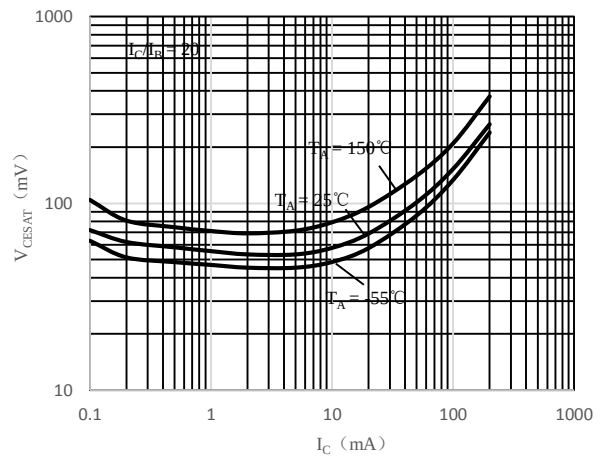


Fig 2 $V_{CE(sat)}$ vs. I_C

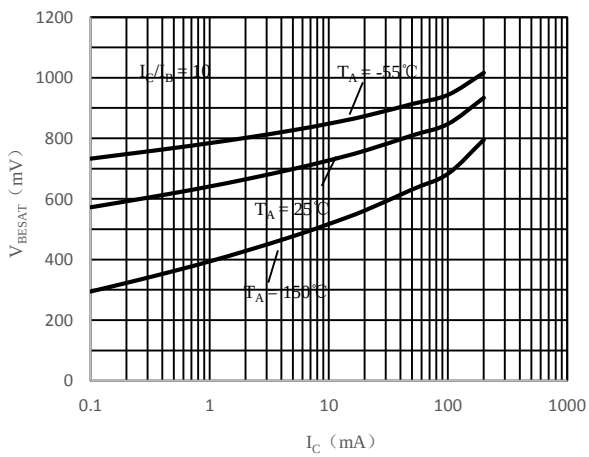


Fig 3 $V_{BE(sat)}$ vs. I_C

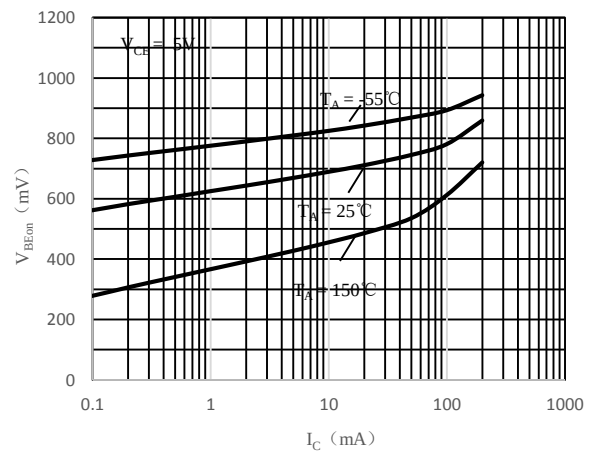


Fig 4 $V_{BE(on)}$ vs. I_C

Ratings and Characteristic Curves-TBC847CL (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

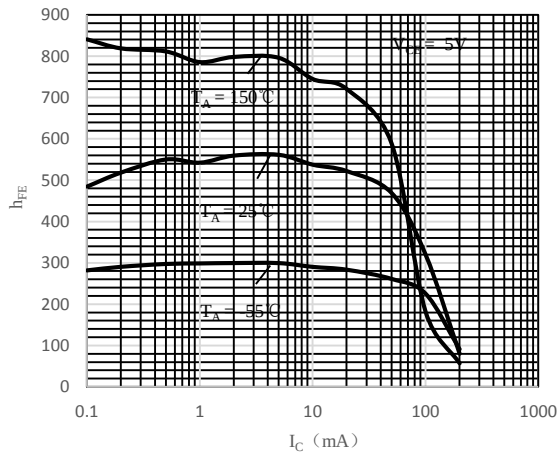


Fig 1 h_{FE} vs. I_C

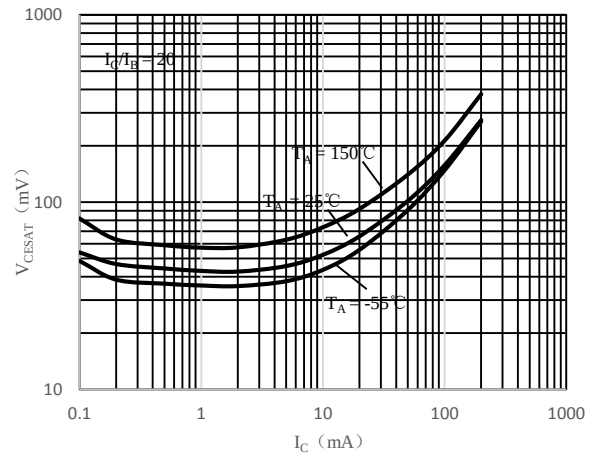


Fig 2 $V_{CE(sat)}$ vs. I_C

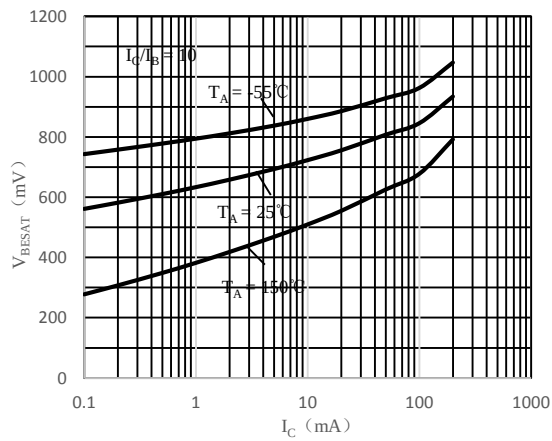


Fig 3 $V_{BE(sat)}$ vs. I_C

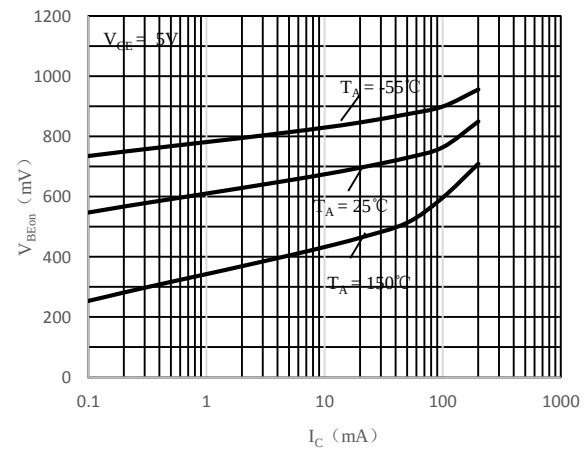
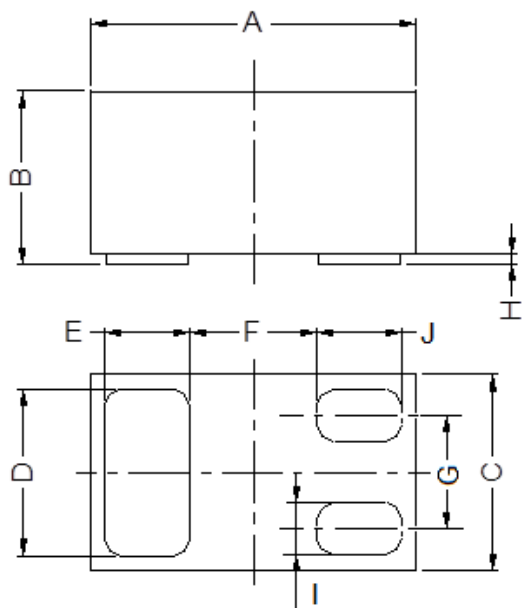


Fig 4 $V_{BE(on)}$ vs. I_C

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

