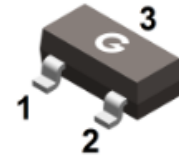
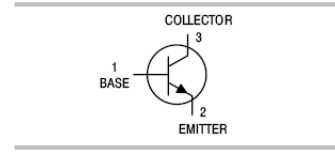


Features

- Epitaxial planar die construction
- Complimentary to TBC807
- High collector current
- High current gain
- Low collector-emitter saturation voltage
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards

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
TBC817-16	SOT-23	3000 pcs / Tape & Reel	6A
TBC817-25	SOT-23	3000 pcs / Tape & Reel	6B*
TBC817-40	SOT-23	3000 pcs / Tape & Reel	6C

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

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V _{CBO}	50	V
Collector-Emitter Breakdown Voltage	V _{CEO}	45	V
Emitter-Base Breakdown Voltage	V _{EBO}	5	V
Continuous Collector Current	I _C	0.5	A
Peak Collector Current	I _{CM}	1	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	P _D	300	mW
Thermal Resistance Junction-to-Air *1	R _{θJA}	500	°C/W
Thermal Resistance Junction-to-Air *2	R _{θJA}	398	°C/W
Thermal Resistance Junction-to-Case *2	R _{θJC}	230	°C/W
Thermal Resistance Junction-to-Lead *2	R _{θJL}	202	°C/W
Operating junction Temperature	T _J	-55 ~ +150	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

Notes:

1. The data tested by surface mounted on an FR4 Printed-Circuit-Board(PCB); single-sided copper; tin-plated and standard footprint
2. The data tested by surface mounted on a 15mm * 15mm * 1mm FR4-epoxy P.C.B

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

Parameter		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage		$V_{(BR)CBO}$	$I_C = 100\mu\text{A}, I_E = 0$	50	-	-	V
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$	45	-	-	V
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	$I_E = 100\mu\text{A}, I_C = 0$	5	-	-	V
Collector Cut-off Current		I_{CBO}	$V_{CB} = 25\text{V}, I_E = 0$	-	-	100	nA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = 4\text{V}, I_C = 0$	-	-	100	nA
DC Current Gain	TBC817-16	h_{FE}	$V_{CE} = 1\text{V}, I_C = 100\text{mA}$	100	213	250	-
	TBC817-25			160	333	400	-
	TBC817-40			250	383	600	-
	TBC817-16		$V_{CE} = 1\text{V}, I_C = 300\text{mA}$	60	-	-	-
	TBC817-25			100	-	-	-
	TBC817-40			170	-	-	-
	TBC817-40		$V_{CE} = 1\text{V}, I_C = 500\text{mA}$	40	-	-	-
Collector-emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$	-	-	0.7	V
Base-emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$	-	-	1.2	V
Transition Frequency		f_T	$I_C = 50\text{mA}, V_{CE} = 5\text{V}$	-	170	-	MHz
Collector Output Capacitance		C_{OBO}	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	-	6	-	pF

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

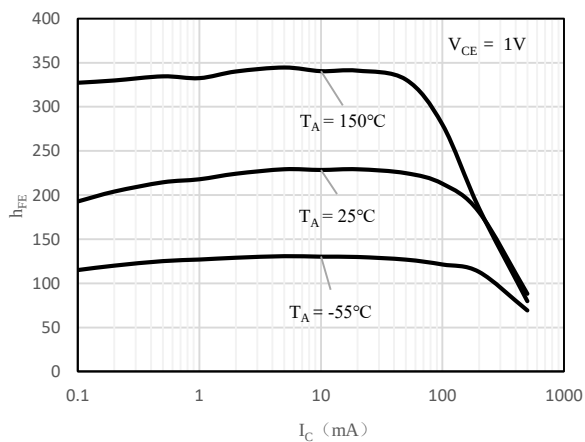


Fig 1 h_{FE} vs. I_C (TBC817-16)

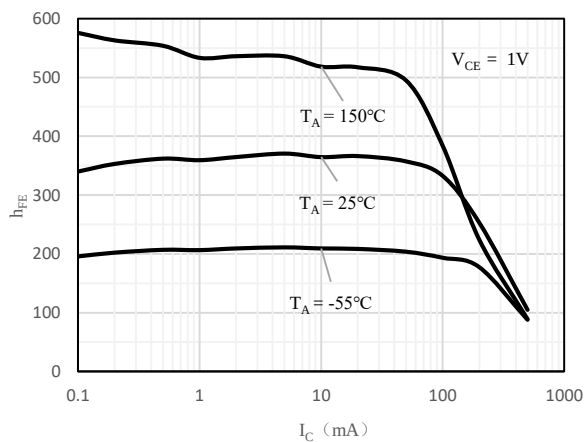


Fig 2 h_{FE} vs. I_C (TBC817-25)

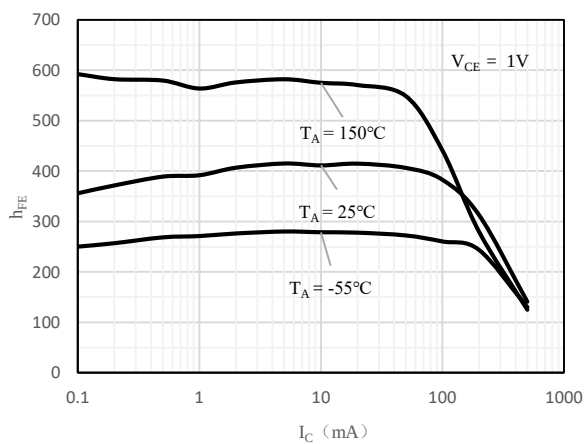


Fig 3 h_{FE} vs. I_C (TBC817-40)

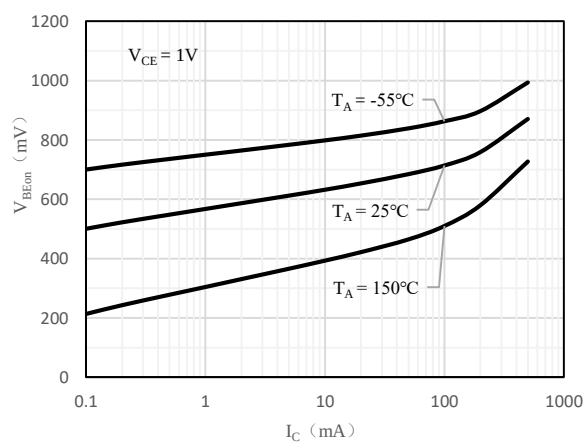


Fig 4 $V_{BE(ON)}$ vs. I_C

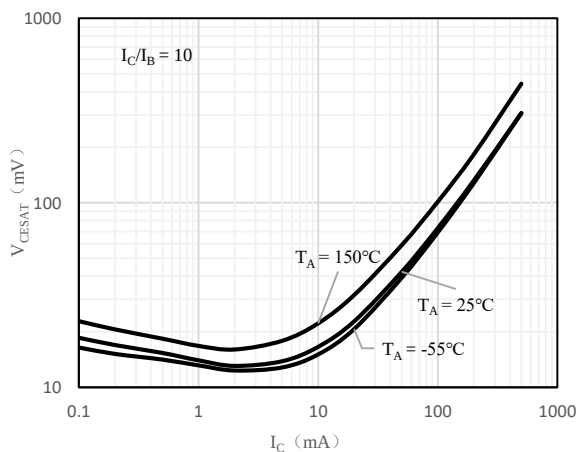


Fig 5 $V_{CE(sat)}$ vs. I_C

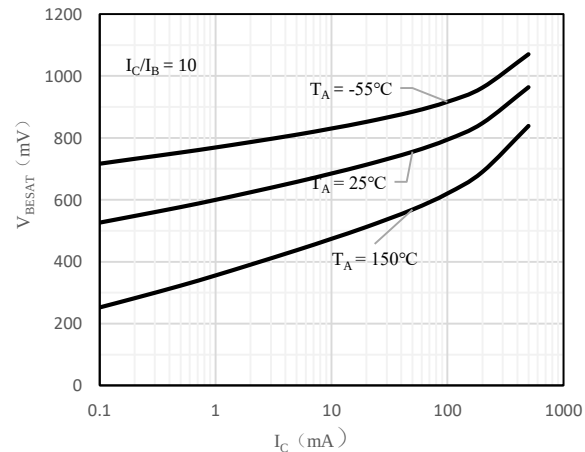
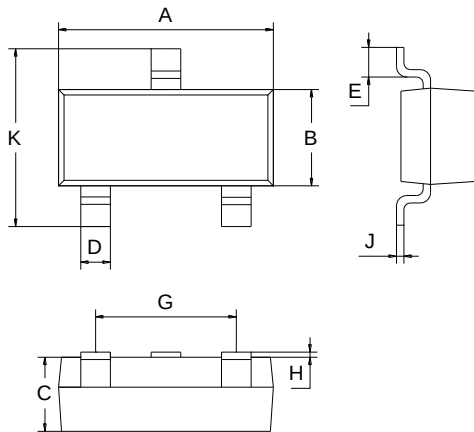


Fig 6 $V_{BE(sat)}$ vs. I_C

Package Outline Dimensions (Unit: mm)



SOT-23		
Dimension	Min.	Max.
A	2.70	3.10
B	1.10	1.50
C	0.9	1.1
D	0.3	0.5
E	0.35	0.48
G	1.80	2.00
H	0.02	0.1
J	0.05	0.15
K	2.20	2.60

Package Outline Dimensions (Unit: mm)

SOT-23

