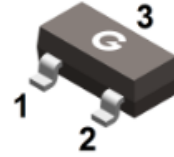
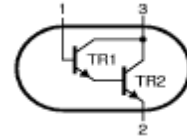


Features

- Complimentary to TBCV26,TBCV46
- High collector current
- High current gain
- For general AF applications
- 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
TBCV27	SOT-23	3000 pcs / Tape & Reel	FF
TBCV47	SOT-23	3000 pcs / Tape & Reel	FG

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

Parameter	Symbol	TBCV27	TBCV47	Unit
Collector-Base Breakdown Voltage	V _{CBO}	40	80	V
Collector-Emitter Breakdown Voltage	V _{CEO}	30	60	V
Emitter-Base Breakdown Voltage	V _{EBO}	10	10	V
Continuous Collector Current	I _C	0.5		A
Peak Collector Current (t _p ≤ 1ms)	I _{CM}	0.8		A
Continuous Base Current	I _B	0.1		A
Peak Base Current (t _p ≤ 1ms)	I _{BM}	0.2		A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T _A = 25°C)	P _D	350	mW
Thermal Resistance Junction-to-Air ^{*1}	R _{θJA}	357	°C/W
Thermal Resistance Junction-to-Case ^{*1}	R _{θJC}	200	°C/W
Thermal Resistance Junction-to-Lead ^{*1}	R _{θJL}	170	°C/W
Operating junction Temperature	T _J	-65 ~ +150	°C
Storage Temperature Range	T _{STG}	-65 ~ +150	°C

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

Parameter		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage		$V_{(BR)CBO}$	$I_C = 100\mu\text{A}, I_E = 0, \text{TBCV27}$	40	-	-	V
			$I_C = 100\mu\text{A}, I_E = 0, \text{TBCV47}$	80	-	-	V
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0, \text{TBCV27}$	30	-	-	V
			$I_C = 10\text{mA}, I_B = 0, \text{TBCV47}$	60	-	-	V
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0, \text{TBCV27}$	10	-	-	V
			$I_E = 10\mu\text{A}, I_C = 0, \text{TBCV47}$	10	-	-	V
Collector Cut-off Current		I_{CBO}	$V_{CB} = 30\text{V}, I_E = 0, \text{TBCV27}$	-	-	100	nA
			$V_{CB} = 60\text{V}, I_E = 0, \text{TBCV47}$	-	-	100	nA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = 4\text{V}, I_C = 0, \text{TBCV27}$	-	-	100	nA
			$V_{EB} = 4\text{V}, I_C = 0, \text{TBCV47}$	-	-	100	nA
DC Current Gain	TBCV27	h_{FE}	$V_{CE} = 1\text{V}, I_C = 100\mu\text{A}$	4000	-	-	-
	TBCV47			2000	-	-	-
	TBCV27		$V_{CE} = 5\text{V}, I_C = 10\text{mA}$	10k	-	-	-
	TBCV47			4000	-	-	-
	TBCV27		$V_{CE} = 5\text{V}, I_C = 0.1\text{A}$	20k	-	-	-
	TBCV47			10k	-	-	-
	TBCV27		$V_{CE} = 5\text{V}, I_C = 0.5\text{A}$	4000	-	-	-
	TBCV47			2000	-	-	-
Collector-emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 100\text{mA}, I_B = 0.1\text{mA}$	-	-	1	V
Base-emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = 100\text{mA}, I_B = 0.1\text{mA}$	-	-	1.5	V
Transition Frequency		f_T	$I_C = 50\text{mA}, V_{CE} = 5\text{V}$ $f = 100\text{MHZ}$	-	170	-	MHz
Collector Output Capacitance		C_{OBO}	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHZ}$	-	3.5	-	pF

Note 1: The data tested by surface mounted on a 15mm * 15mm * 1mm FR4-epoxy P.C.B

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

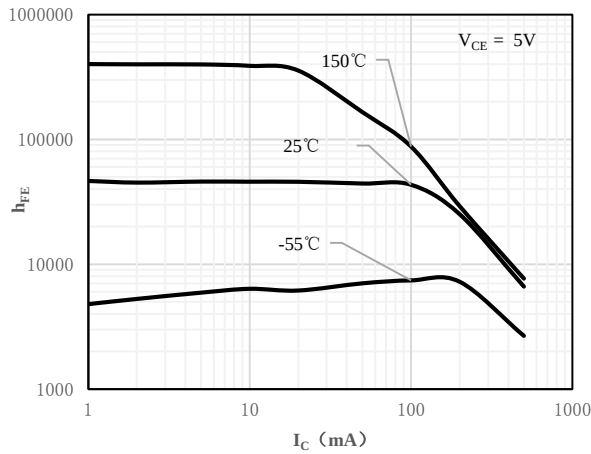


Fig 1 h_{FE} vs. I_C

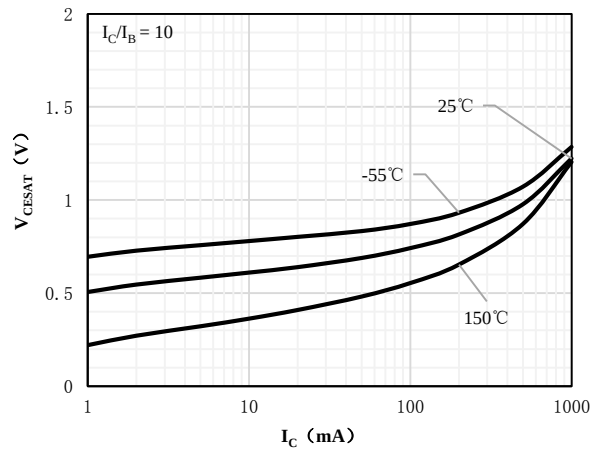


Fig 2 $V_{CE(sat)}$ vs. I_C

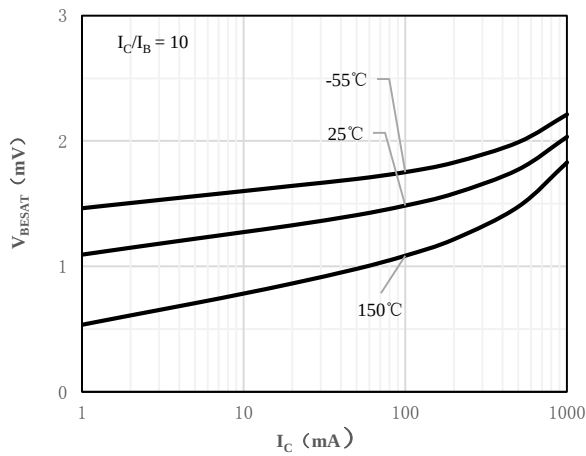


Fig 3 $V_{BE(sat)}$ vs. I_C

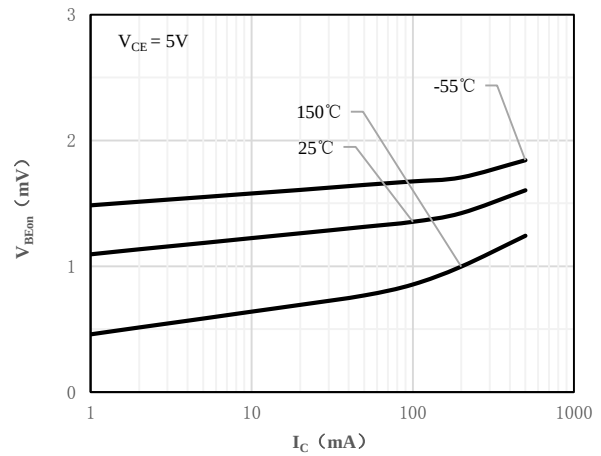


Fig 4 $V_{BE(on)}$ vs. I_C

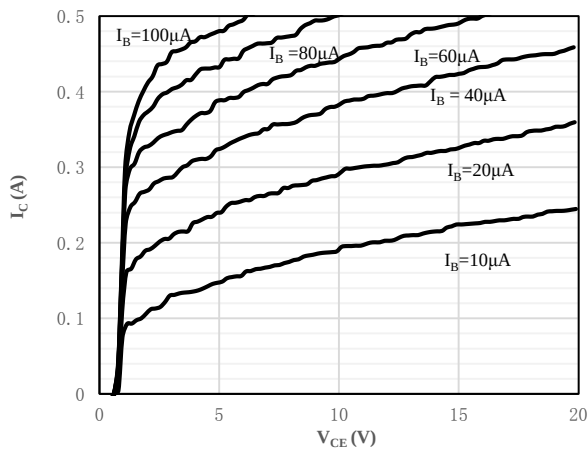


Fig 5 I_C vs. V_{CE}

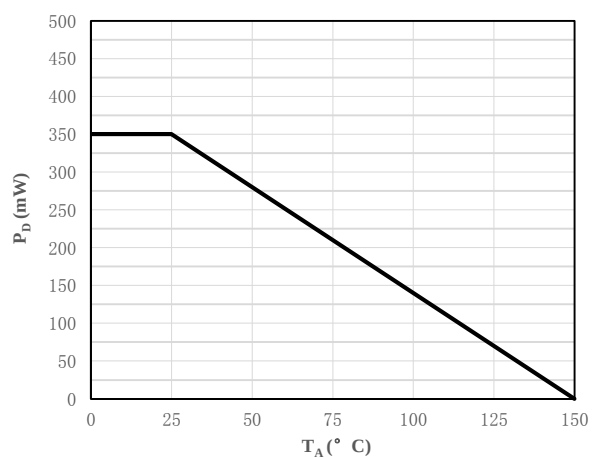


Fig 6 P_D vs. T_A

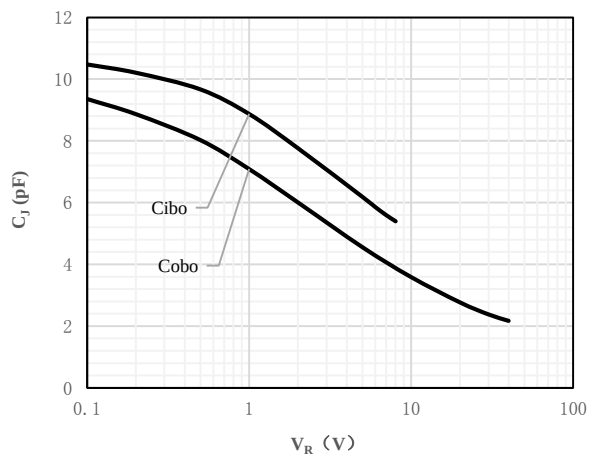
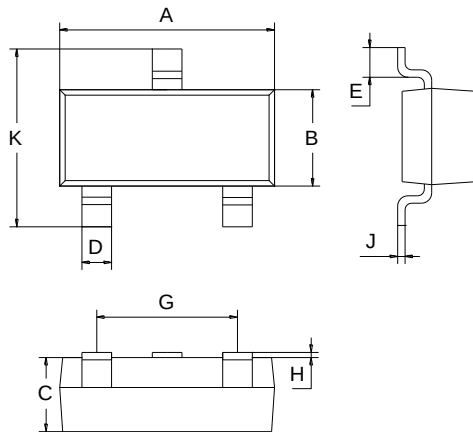


Fig 7 C_J vs. V_R

Package Outline Dimensions (Unit: mm)



SOT-23		
Dimension	Min.	Max.
A	2.70	3.10
B	1.10	1.50
C	0.9	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

