

BC817-16W-Q1/25W-Q1/40W-Q1

List

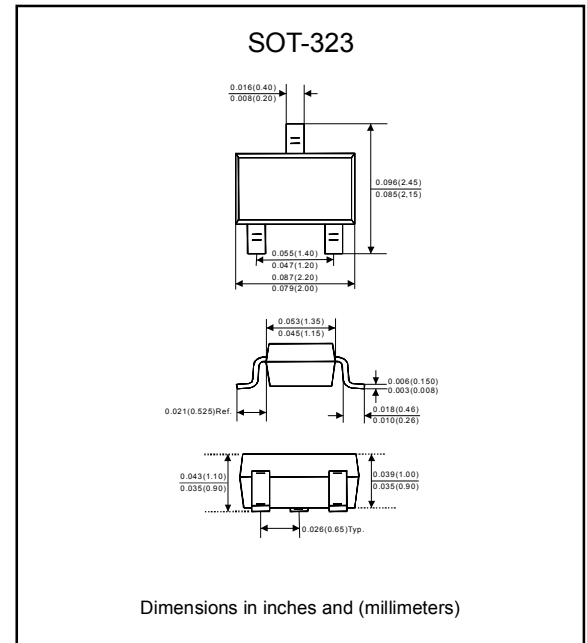
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BC817-16W-Q1/25W-Q1/40W-Q1**500mA, 45V NPN Plastic-Encapsulate Transistor****Features**

- For general AF applications .
- High collector current.
- High current gain
- Low collector-emitter saturation voltage.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-323
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.006 gram

Package outline**Maximum ratings** (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector to base voltage	V_{CBO}	50	V
Collector to Emitter Voltage	V_{CEO}	45	V
Emitter to base voltage	V_{EBO}	5	V
Collector current	I_C	500	mA
Total power dissipation	P_C	200	mW
Junction temperature	T_j	+150	$^{\circ}\text{C}$
Storage temperature	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$
Thermal resistance form junction to ambient	$R_{\theta JA}$	625	$^{\circ}\text{C/W}$

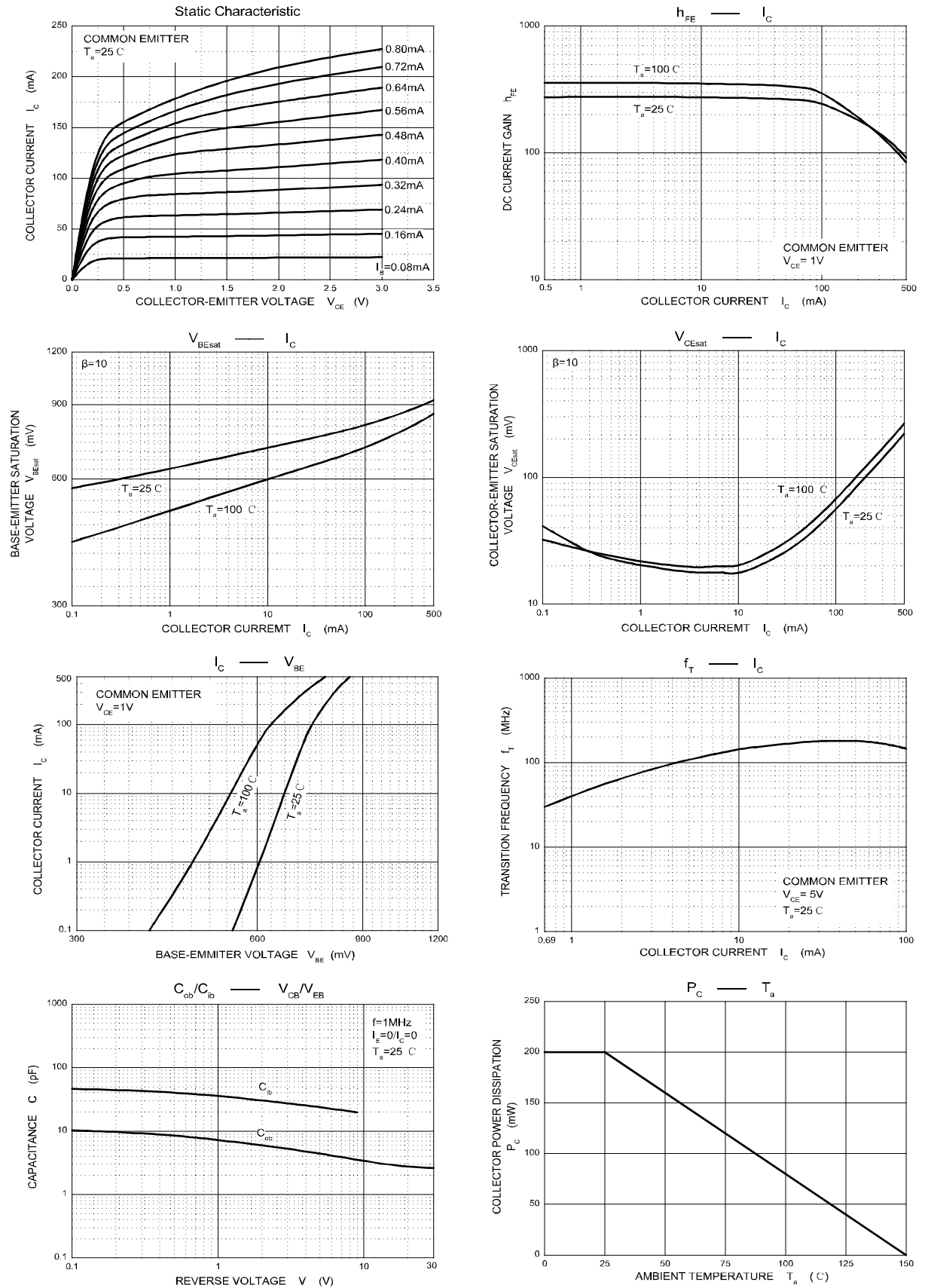
Electrical characteristics (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Collector to base breakdown voltage	$I_C=10\mu\text{A}$, $I_E=0$	BV_{CBO}	50			V
Collector to emitter breakdown voltage	$I_C=10\text{mA}$, $I_B=0$	BV_{CEO}	45			V
Emitter to base breakdown voltage	$I_E=1\mu\text{A}$, $I_C=0\text{V}$	BV_{EBO}	5			V
Collector cut-off current	$V_{CB}=20\text{V}$, $I_E=0$	I_{CBO}			0.1	μA
Emitter cut-off current	$V_{EB}=5\text{V}$, $I_C=0$	I_{EBO}			0.1	μA
DC current gain	$V_{CE}=1\text{V}$, $I_C=100\text{mA}$	h_{FE1}	100		600	
	$V_{CE}=1\text{V}$, $I_C=500\text{mA}$	h_{FE2}	40			
Collector-Emitter saturation voltage	$I_C=500\text{mA}$, $I_B=50\text{mA}$	$V_{CE(sat)}$			0.7	V
Base-emitter saturation voltage	$I_C=500\text{mA}$, $I_B=50\text{mA}$	$V_{BE(sat)}$			1.2	V
Base-emitter voltage	$V_{CE}=1\text{V}$, $I_C=500\text{mA}$	$V_{BE(ON)}$			1.2	V
Current gain bandwidth product	$V_{CE}=5\text{V}$, $I_C=10\text{mA}$, $f=100\text{MHz}$	f_T	100			MHZ
Output capacitance	$V_{CB}=10\text{V}$, $f=1\text{MHz}$	C_{ob}			5	pF

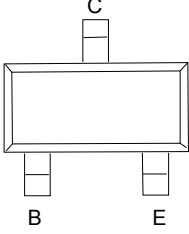
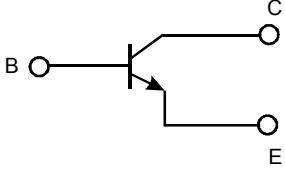
Classification of $h_{FE(1)}$

Rank	BC817-16W-Q1	BC817-25W-Q1	BC817-40W-Q1
Range	100 ~ 250	160 ~ 400	250 ~ 600

Rating and characteristic curves (BC817-16W-Q1/25W-Q1/40W-Q1)

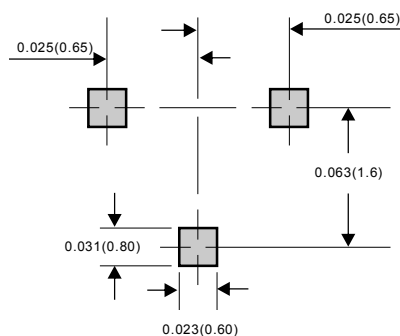


BC817-16W-Q1/25W-Q1/40W-Q1**Pinning information**

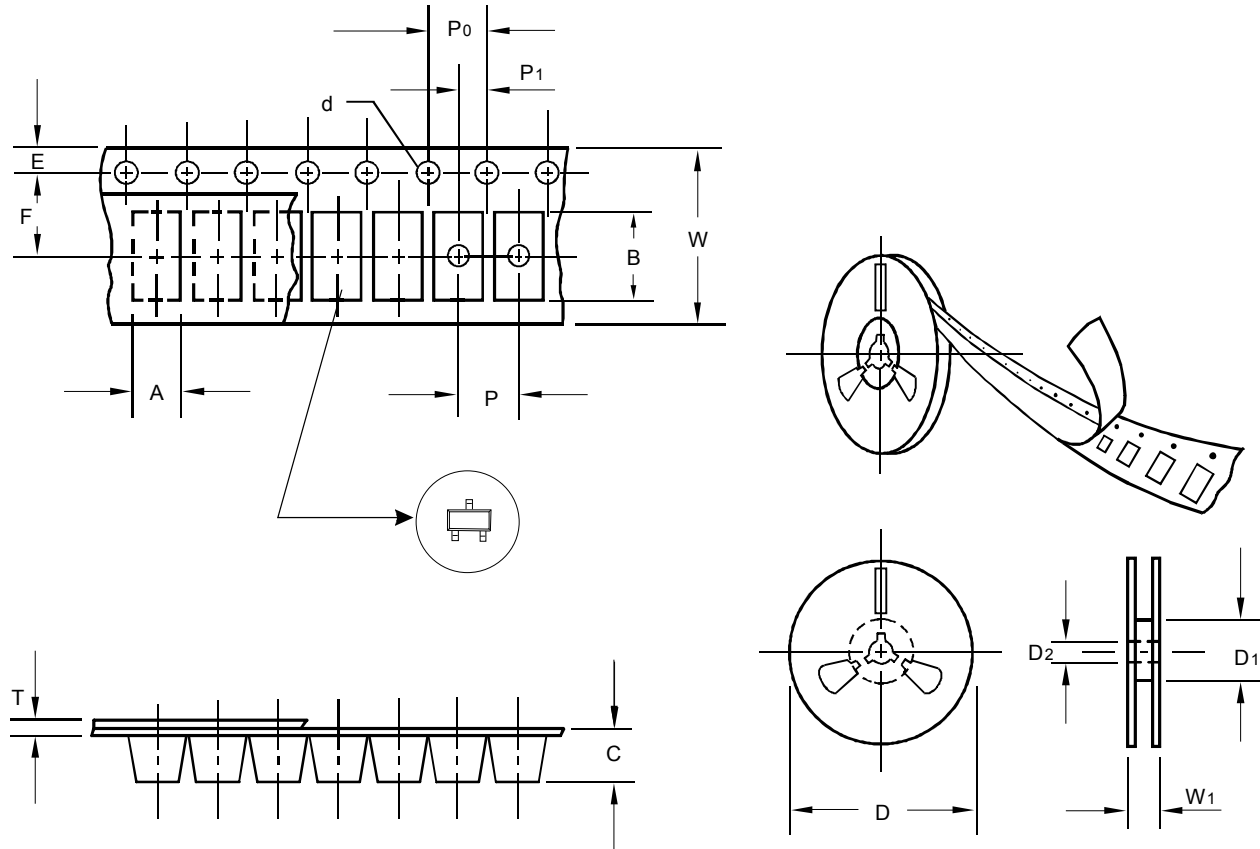
Pin	Simplified outline	Symbol
PinB Base PinC Collector PinE Emitter		

Marking

Type Number	Marking Code
BC817-16W-Q1	6A
BC817-25W-Q1	6B
BC817-40W-Q1	6C

Suggested solder pad layout**SOT-323**

Dimensions in inches and (millimeters)

BC817-16W-Q1/25W-Q1/40W-Q1**Packing information**

unit:mm

Item	Symbol	Tolerance	SOT-323
Carrier width	A	0.1	1.47
Carrier length	B	0.1	2.95
Carrier depth	C	0.1	1.15
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	62.00
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W1	1.0	11.40

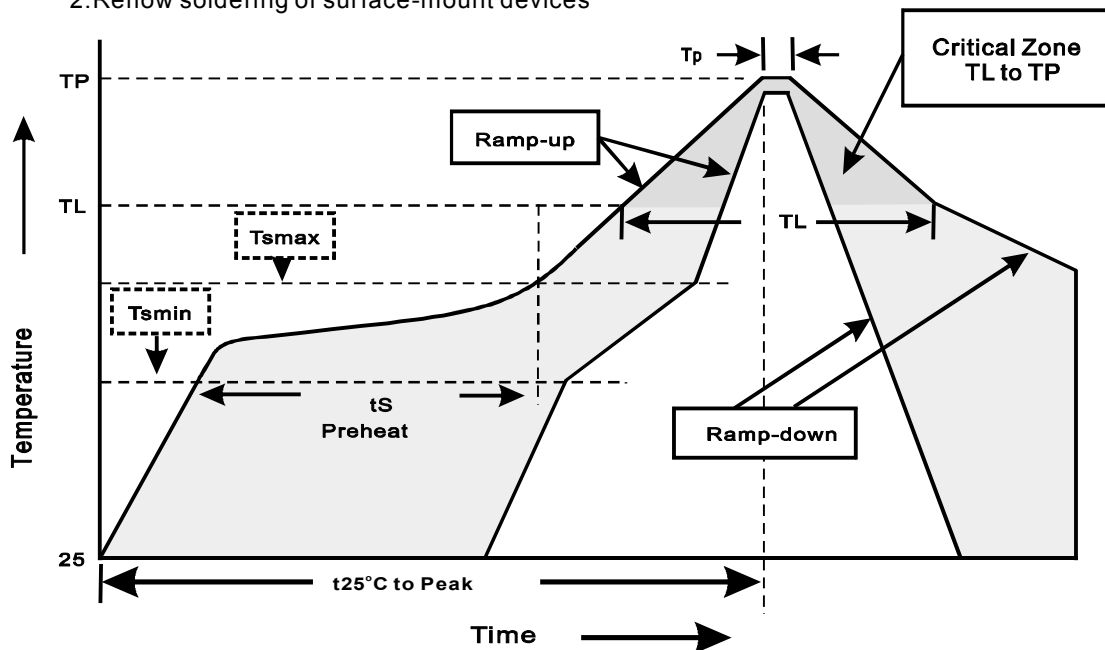
Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

BC817-16W-Q1/25W-Q1/40W-Q1**Reel packing**

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SOT-323	7"	3,000	4.0	30,000	183*183*123	178	382*262*387	240,000	9.5

Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices

**3.Reflow soldering**

Profile Feature	Soldering Condition
Average ramp-up rate(T _L to T _P)	<3°C/sec
Preheat -Temperature Min(T _{smin}) -Temperature Max(T _{smax}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smax} to T _L -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T _L) -Time(t _L)	217°C 60~260sec
Peak Temperature(T _P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t _P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes