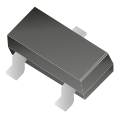
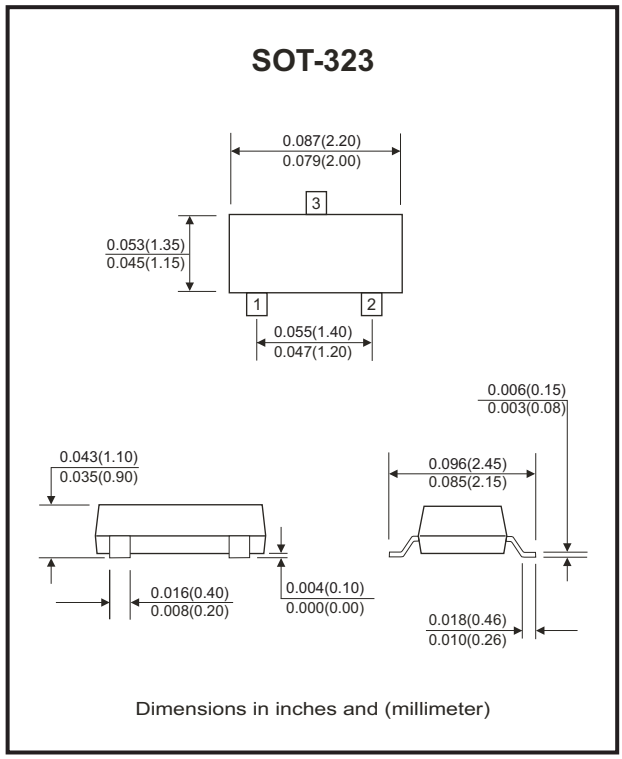
BC846W-G Thru. BC848W-G (NPN)

RoHS Device



Features

- Power dissipation
  PCM: 0.15W (@TA=25°C)
- Collector current
  ICM: 0.1A
- Collector-base voltage
  VCBO: BC846W=80V
  BC847W=50V
  BC848W=30V

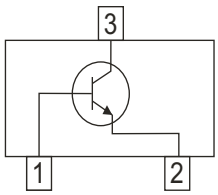


Mechanical data

- Case: SOT-323, molded plastic.
- Terminals: solderable per MIL-STD-750, method 2026.
- Approx. weight: 0.008 grams

Circuit diagram

- 1.BASE
- 2.EMITTER
- 3.COLLECTOR



Maximum Ratings (at TA=25°C unless otherwise noted)

Parameter		Symbol	Value	Units
Collector-Base voltage	BC846W-G BC847W-G BC848W-G	VCBO	80 50 30	V
Collector-Emitter voltage	BC846W-G BC847W-G BC848W-G	VCEO	65 45 30	V
Emitter-Base voltage	BC846W-G / BC847W-G BC848W-G	VEBO	6 5	V
Collector current -continuous		IC	0.1	A
Collector power dissipation		PC	150	mW
Thermal resistance from junction to ambient		RΘJA	833	°C/W
Junction temperature range		TJ	150	°C
Storage temperature range		TSTG	-55 to +150	°C

Electrical Characteristics (at T_A=25°C unless otherwise noted)

Parameter		Symbol	Test Conditions	MIN	TYP	MAX	Unit
Collector-base breakdown voltage	BC846W-G BC847W-G BC848W-G	V_{CBO}	I_C = 10μA , I_E = 0	80 50 30			V
Collector-emitter breakdown voltage	BC846W-G BC847W-G BC848W-G	V_{CEO}	I_C = 10mA , I_B = 0	65 45 30			V
Emitter-base break voltage	BC846W-G, BC847W-G BC848W-G	V_{EBO}	I_E = 1μA , I_C = 0	6 5			V
Collector cutoff current		I_{CBO}	V_{CB} = 30V			15	nA
DC current gain	BC846AW-G, 847AW-G, 848AW-G BC846BW-G, 847BW-G, 848BW-G BC847CW-G, 848CW-G	h_{FE}	V_{CE} = 5V , I_C = 10μA	 	90 150 270	 	
	BC846AW-G, 847AW-G, 848AW-G BC846BW-G, 847BW-G, 848BW-G BC847CW-G, 848CW-G		V_{CE} = 5V , I_C = 2mA	110 200 420		220 450 800	
Collector-emitter saturation voltage		$V_{CE(sat)}$	I_C = 10mA , I_B = 0.5mA I_C = 100mA ,I_B = 5mA			0.25 0.60	V
Base-emitter saturation voltage		$V_{BE(sat)}$	I_C = 10mA , I_B = 0.5mA I_C = 100mA , I_B = 5mA		0.7 0.9		V
Base-emitter voltage		$V_{BE(on)}$	V_{CE} = 5V , I_C = 2mA V_{CE} = 5V , I_C = 10mA	580	660	700 770	mV
Transition frequency		f_T	V_{CE} = 5V , I_C = 10mA f = 100MHz	100			MHz
Collector output capacitance		C_{ob}	V_{CB} = 10V , f = 1MHz			4.5	pF
Noise figure	BC846AW-G, 847AW-G, 848AW-G BC846BW-G, 847BW-G, 848BW-G BC847CW-G, 848CW-G	NF	V_{CE} = 5V , I_C = 0.2mA f = 1KHz , R_S = 2KΩ BW = 200Hz			10 10 4	dB

Electrical Characteristic Curves (BC846W-G Thru. BC848W-G)

Fig.1 - Static Characteristic

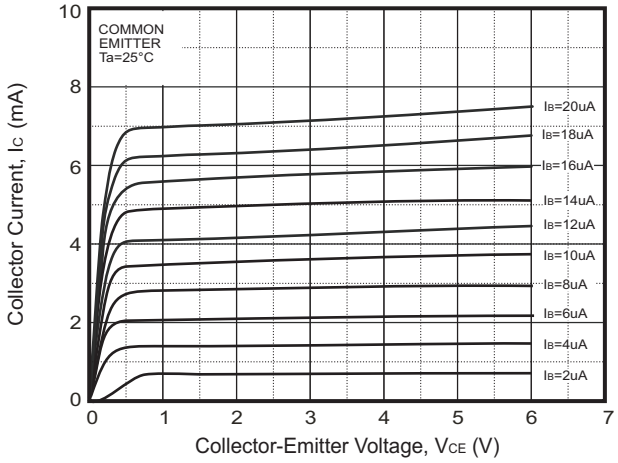


Fig.2 - h_{FE} — I_C

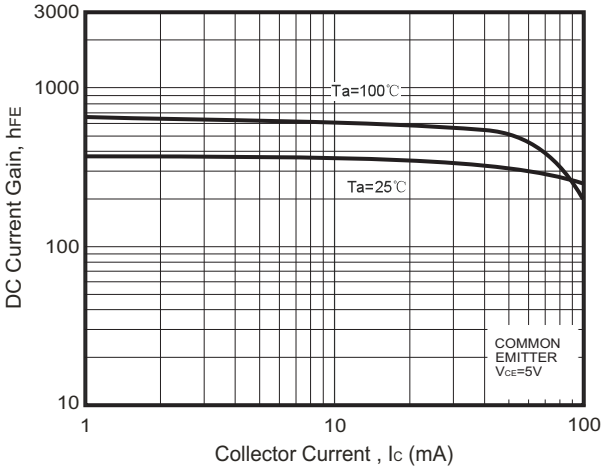


Fig.3 - V_{BEsat} — I_C

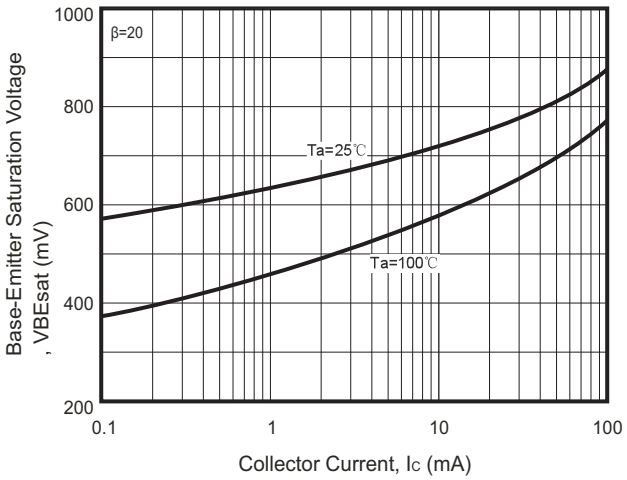


Fig.4 - V_{CEsat} — I_C

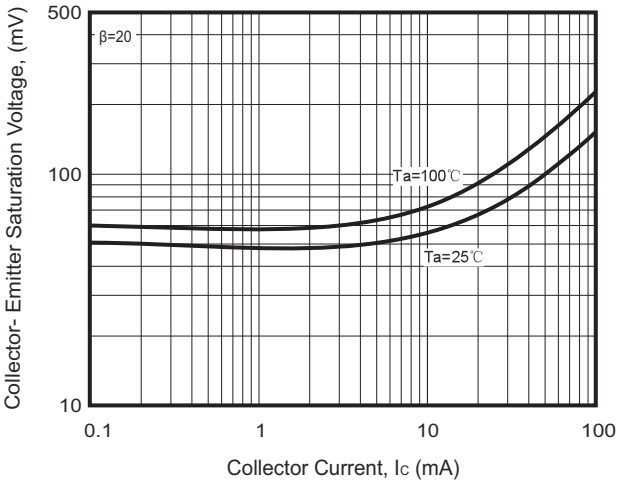


Fig.5 - I_C — V_{BE}

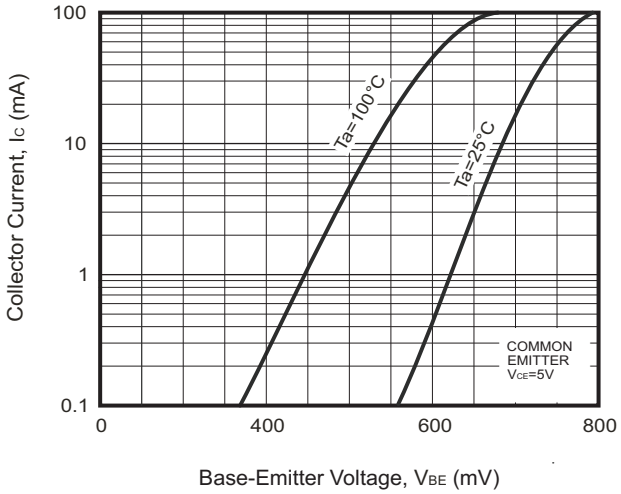
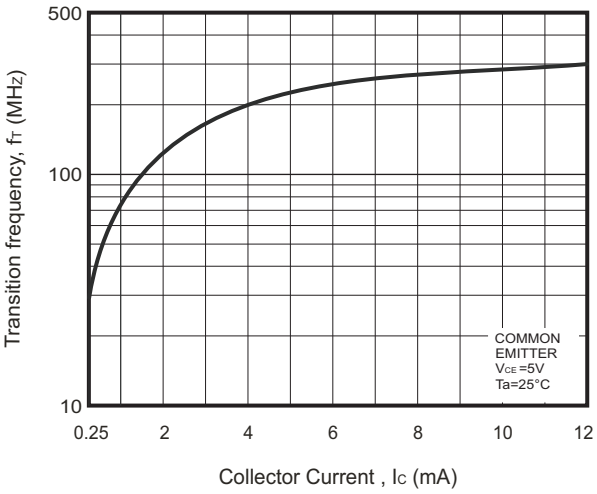


Fig.6 - F_T — I_C



Electrical Characteristic Curves (BC846W-G Thru. BC848W-G)

Fig.7 - Cob/Cib — V_{CB}/V_{EB}

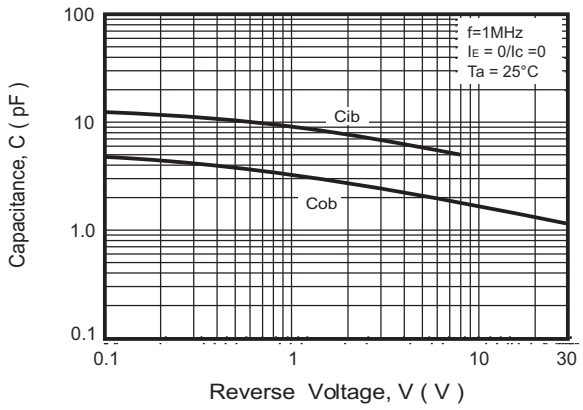
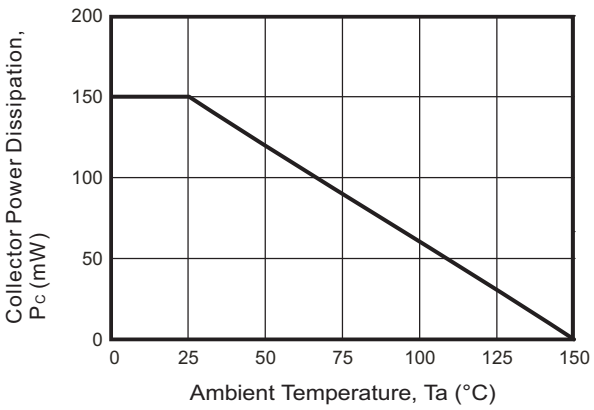
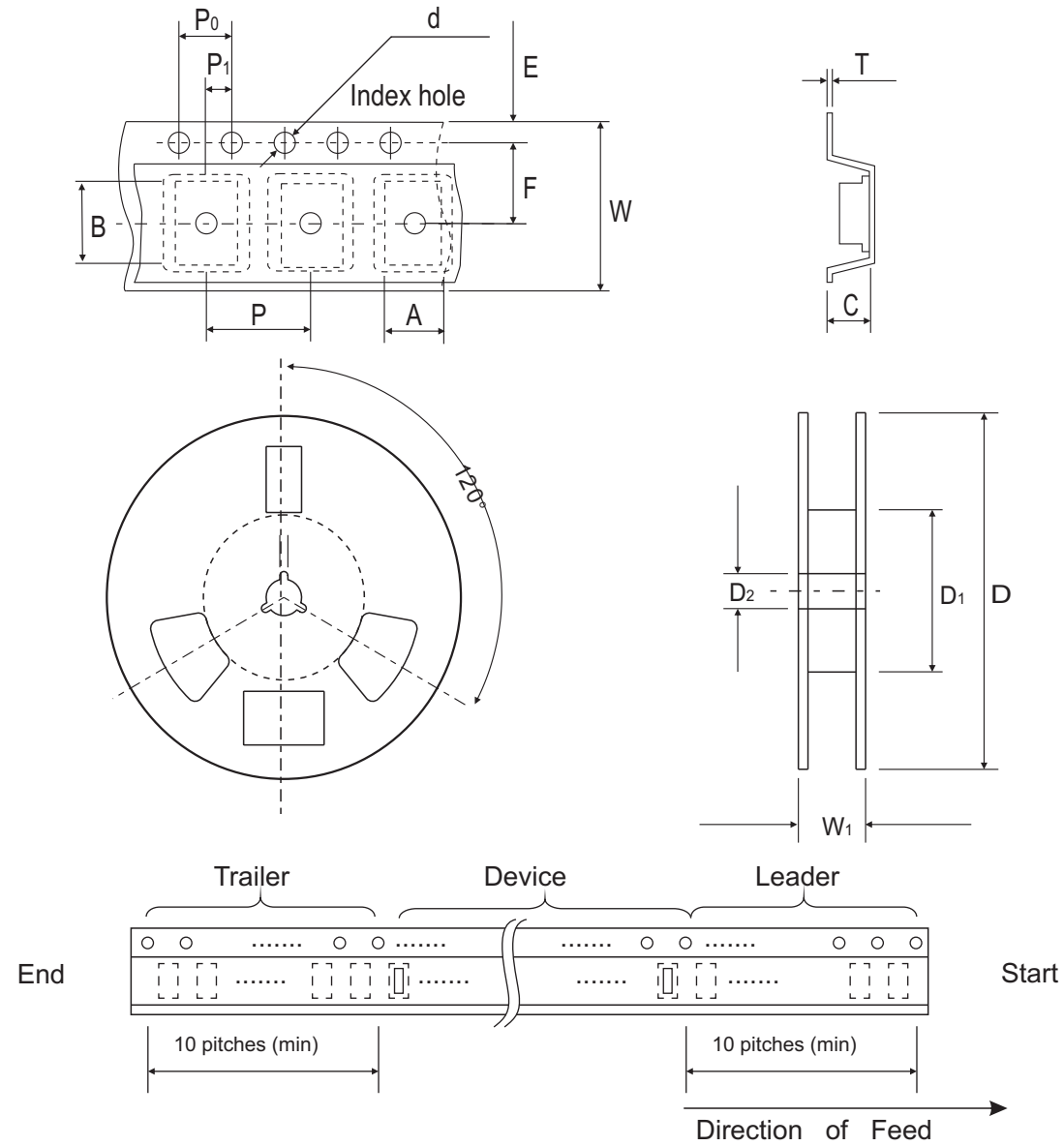


Fig.8 - P_C — Ta



Reel Taping Specification

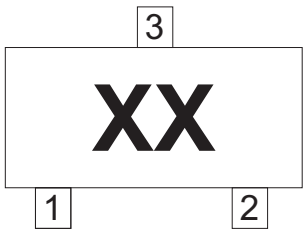


	SYMBOL	A	B	C	d	D	D_1	D_2
SOT-323	(mm)	2.25 ± 0.05	2.55 ± 0.05	1.19 ± 0.05	1.55 + 0.10	178 ± 2.00	54.40 ± 1.00	13.00 ± 1.00
	(inch)	0.089 ± 0.002	0.100 ± 0.002	0.047 ± 0.002	0.061 + 0.004	7.008 ± 0.079	2.142 ± 0.039	0.512 ± 0.039

	SYMBOL	E	F	P	P_0	P_1	W	W_1
SOT-323	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	8.00 + 0.30 - 0.10	12.30 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.158 ± 0.004	0.158 ± 0.004	0.079 ± 0.004	0.315 + 0.012 - 0.004	0.484 ± 0.039

Marking Code

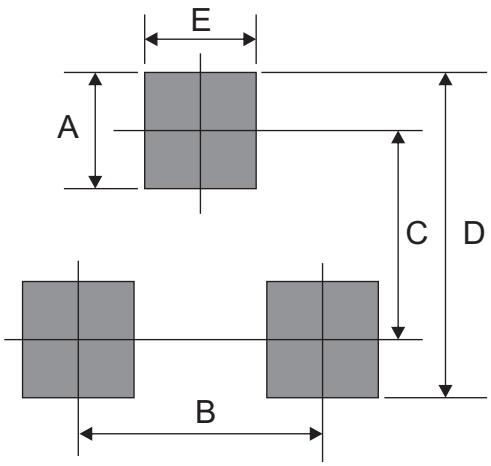
Part Number	Marking Code
BC846AW-G	1A
BC847AW-G	1E
BC848AW-G	1J
BC846BW-G	1B
BC847BW-G	1F
BC848BW-G	1K
BC847CW-G	1G
BC848CW-G	1L



xx = Product type marking code

Suggested PAD Layout

SIZE	SOT-323	
	(mm)	(inch)
A	0.80	0.031
B	1.30	0.051
C	2.20	0.087
D	3.00	0.118
E	0.50	0.020



Standard Packaging

Case Type	Qty per Reel	Reel Size
	(Pcs)	(inch)
SOT-323	3,000	7