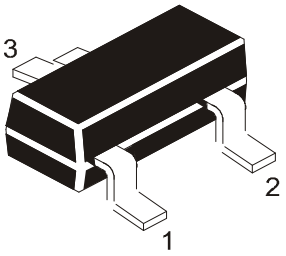
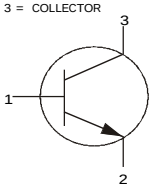
NPN SILICON PLANAR EPITAXIAL TRANSISTORS

BC846, BC847, BC848



PIN CONFIGURATION (NPN)
1 = BASE
2 = EMITTER
3 = COLLECTOR



SOT-23
Formed SMD Package
For Lead Free Parts, Device Part # will be Prefixed with "T"

Marking
BC846 =1D
BC846A=1A
BC846B=1B
BC847 =1H
BC847A=1E
BC847B=1F
BC847C=1G
BC848 =1M
BC848A=1J
BC848B=1K
BC848C=1L

For use in Driver Stages of Audio Amplifier in Thick and Thin-film Hybrid Circuits

ABSOLUTE MAXIMUM RATINGS (T_a=25ºC unless specified otherwise)

DESCRIPTION	SYMBOL	BC846	BC847	BC848	UNITS
Collector Base Voltage	V_{CBO}	80	50	30	V
Collector Emitter Voltage (V_{BE}=0V)	V_{CES}	80	50	30	V
Collector Emitter Voltage	V_{CEO}	65	45	30	V
Emitter Base Voltage	V_{EBO}	6	6	5	V
Collector Current (DC)	I_C	100			mA
Collector Current - Peak	I_{CM}	200			
Emitter Current - Peak	$-I_{EM}$	200			mA
Base Current - Peak	I_{BM}	200			mA
Power Dissipation upto T_{amb}=25ºC	P_{tot}*	250			mW
Storage Temperature	T_{stg}	- 55 to +150			ºC
Junction Temperature	T_j	150			ºC

THERMAL RESISTANCE

From junction to ambient	$R_{th(j-a)}$ *	500	K/W

****Mounted on a ceramic substrate of 8mm x 10 mm x 0.7mm**

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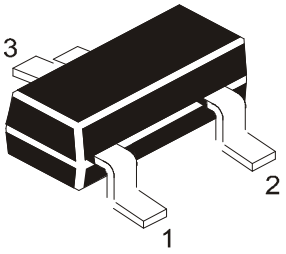
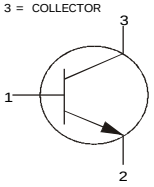


PIN CONFIGURATION (NPN)
1 = BASE
2 = EMITTER
3 = COLLECTOR



SOT-23
Formed SMD Package
For Lead Free Parts, Device Part # will be Prefixed with "T"

ABSOLUTE MAXIMUM RATINGS (T_a=25ºC unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Collector Cut off Current	I_{CBO}	V_{CB}=30V, I_E=0			15	nA
		V_{CB}=30V, I_E=0, T_j=150 ºC			5	µA
Base Emitter on Voltage	$V_{BE(on)}$ *	I_C=2mA, V_{CE}=5V	0.58		0.70	V
		I_C=10mA, V_{CE}=5V			0.77	
Collector Emitter Saturation Voltage	$V_{CE(Sat)}$	I_C=10mA, I_B=0.5mA			0.25	V
		I_C=100mA, I_B=5mA			0.60	
Base Emitter Saturation Voltage	$V_{BE(Sat)}$***	I_C=10mA, I_B=0.5mA		0.7		V
		I_C=100mA, I_B=5mA		0.9		
DC Current Gain	h_{FE}	I_C=10µA, V_{CE}=5V				
		BC846A/BC847A/BC848A		90		
		BC846B/BC847B/BC848B		150		
		BC847C/BC848C		270		
		I_C=2mA, V_{CE}=5V				
		BC846	110		450	
		BC847/BC848	110		800	
		BC846A/BC847A/BC848A	110		220	
		BC846B/BC847B/BC848B	200		450	
		BC847C/BC848C	420		800	
Collector Capacitance	C_c	I_E=ie=0, V_{CB}=10V, f=1MHz		2.5		pF
Transition Frequency	f_T	I_C=10mA, V_{CE}=5V,f=100MHz	100			MHz
Noise Figure	NF	I_C=0.2mA, V_{CE}=5V			10	dB
		R_s=2kΩ, f=1KHz, B=200Hz				

***$V_{BE (on)}$ decreases by about 2mV/K with increasing temperature.**
****$V_{BE(sat)}$ decreases by about 1.7mV/K with increasing temperature.**

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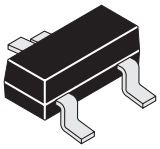
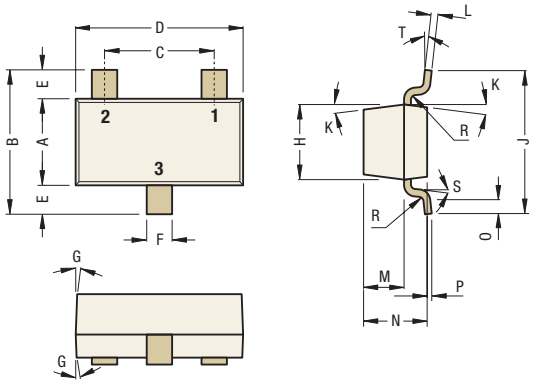
SOT-23
SMD Plastic Package



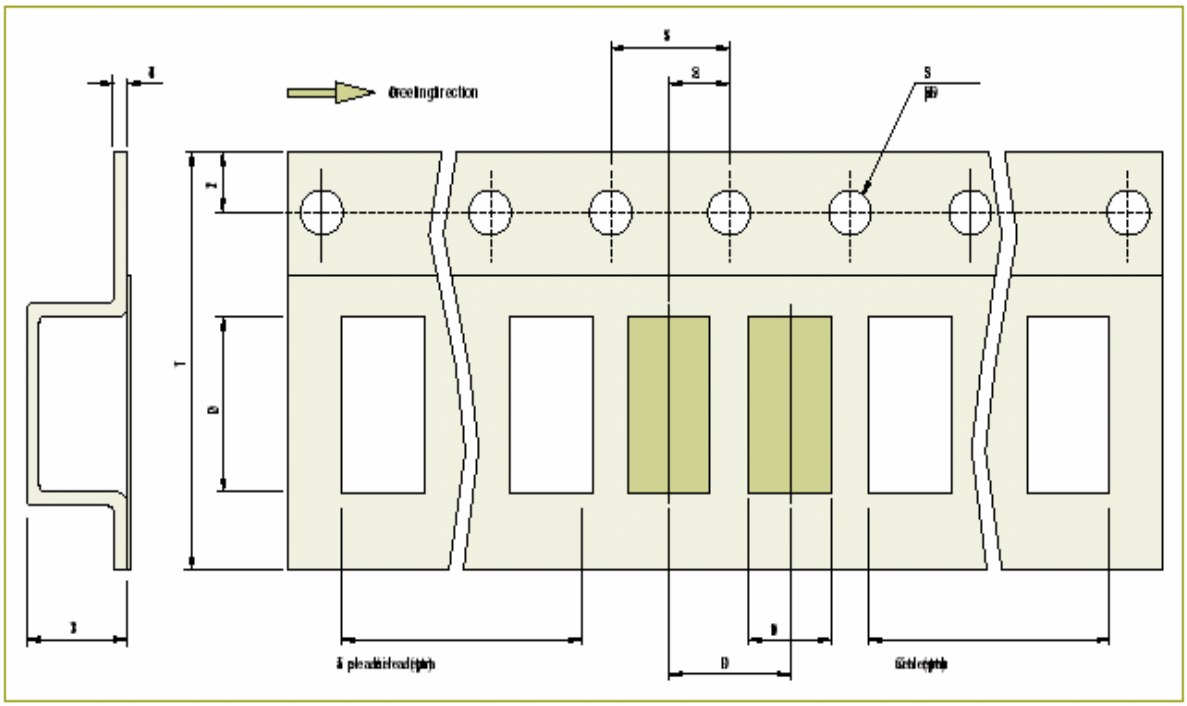


DIM	Min	Max
A	1.20	1.40
B	2.10	2.64
C	1.85	1.95
D	2.80	3.04
E	0.54	0.67
F	0.30	0.50
G	3°	
H	—	1.30
J	2.10	2.64

DIM	Min	Max
K	7°	
L	0.08	0.20
M	0.58	0.62
N	0.70	1.02
O	0.21	—
P	0.02	0.15
R	—	0.08
S	2°	8°
T	2°	10°

Pin Configuration **Pin 1: Base** **Pin 2: Emitter** **Pin 3: Collector**

Packaging Tape Specifications for SMD Packages



SMD Tape Specifications (8-12 mm)

Device	D1	D2	D3	T1	T2	T3	T4	S1	S2	S3
						Max	Max			Dia
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
SOT-23	3.2±0.1	2.8±0.1	4.0±0.1	8.0±0.2	1.75±0.1	1.60	0.35	4.0±0.1	2.0±0.1	1.5±0.1

Packaging Specifications ...

T & A: Tape and Ammo Pack; **T & R:** Tape and Reel; **Bulk:** Loose in Poly Bags; **Tube:** Tube and Carton; **K:** 1,000

Package / Case Type	Packaging Type	Std. Packing	Inner Carton			Outer Carton		
		Qty	Qty	Size L x W x H	Gross Weight	Qty	Size L x W x H	Gross Weight
				(cm)	(Kg)		(cm)	(Kg)
SOT-23	T & R	3,000	15K	19 x 19 x 8	0.6	51K	23 x 23 x 23	2.2
	T & R	3,000	15K	19 x 19 x 8	0.6	408K	48 x 48 x 51	20.2
	T & R	10,000	50K	35.5 x 35.5 x 8.9	2.4	350K	48 x 48 x 51	19.2

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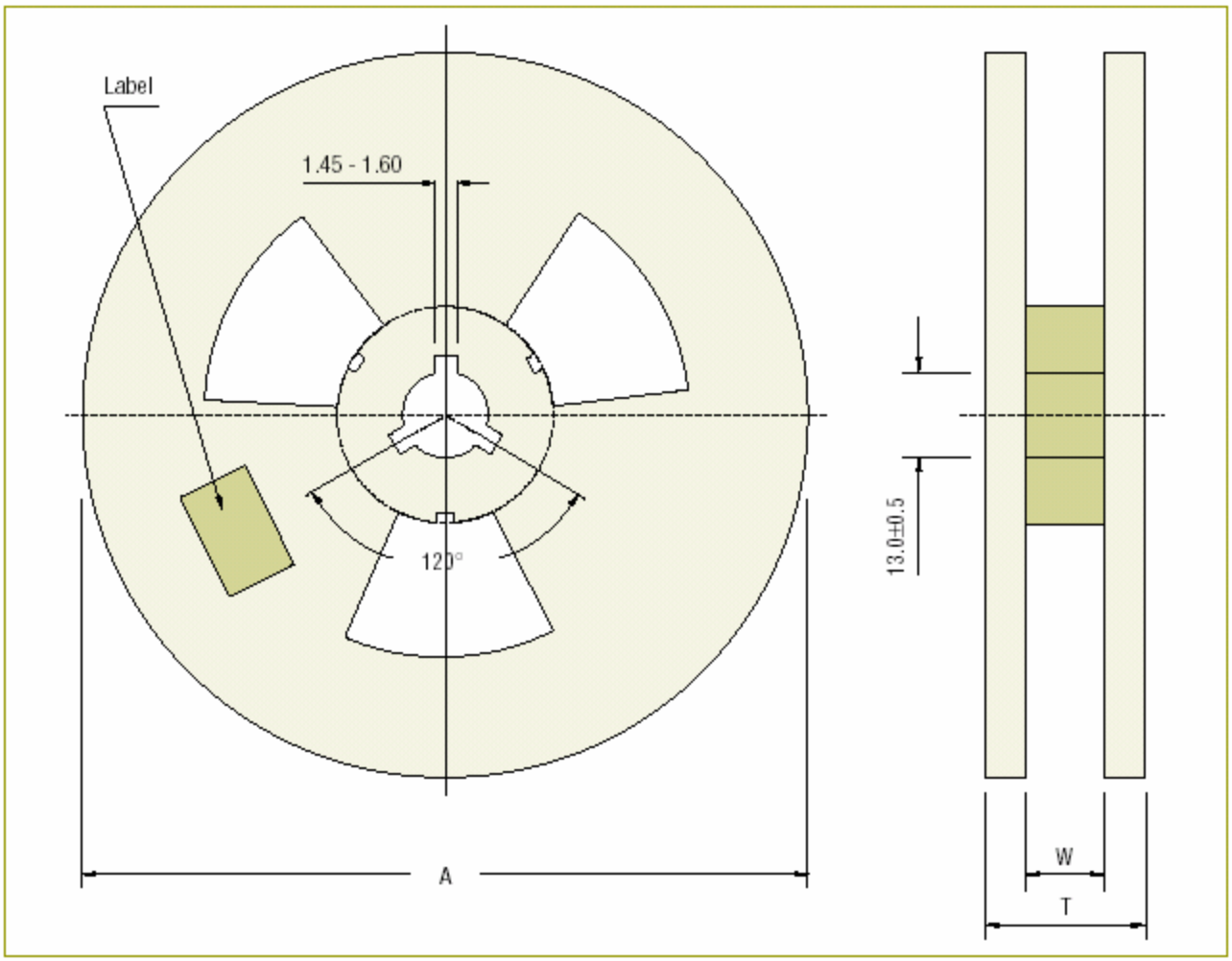
Reel Specifications for SMD Packages



Reel Specifications

Package	Tape Width	Reel Dia. A - Max	Devices per Reel and MOQ	Inside Thickness W	Reel Thickness T - Max
SOT-23	8	180	3,000	8.4±2	14.4
	8	330	10,000	8.4±2	14.4

Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

Disclaimer

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