

### Product Summary

- $V_{CE0}=60V, I_C=0.5A$
- $H_{FE} > 10000 @ V_{CE}=5V, I_C=100mA$

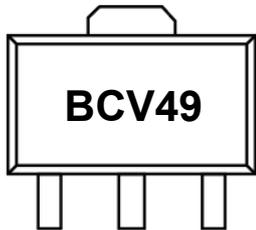
### Features

- High Collector Current
- High Current Gain
- RoHS and Reach Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 1
- Molding Compound Meets UL 94 V-0 Flammability Rating

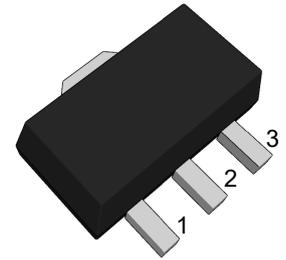
### Application

- Switching and Amplifier Applications

### Marking Code



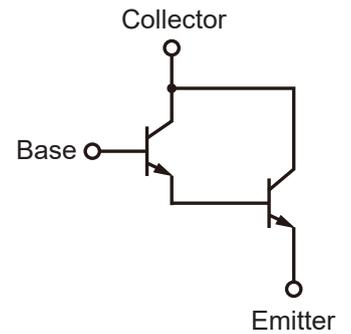
### SOT-89



(Top View)

Pin	Description
1	Base
2	Collector
3	Emitter

### Schematic Diagram



### Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CB0}$	80	V
Collector Emitter Voltage	$V_{CE0}$	60	V
Emitter Base Voltage	$V_{EBO}$	10	V
Collector Current	$I_C$	0.5	A
Peak Pulse Current	$I_{CM}$	0.8	A
Maximum Power Dissipation	$P_D$	1.1	W
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	°C

### Thermal Characteristics

Thermal Resistance, Junction-to-Ambient <sup>Note2</sup>	$R_{\theta JA}$	113	°C/W
--	-----------------	-----	------



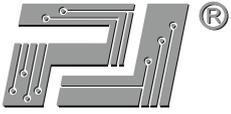
# BCV49

## NPN Darlington Transistor

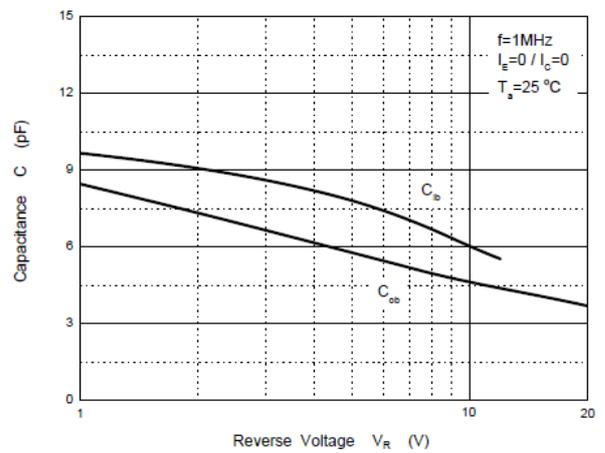
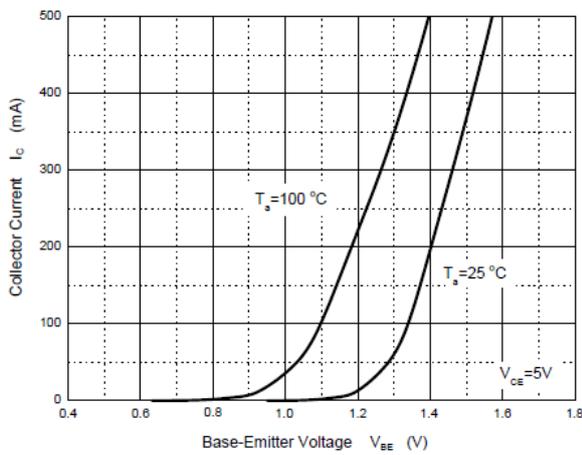
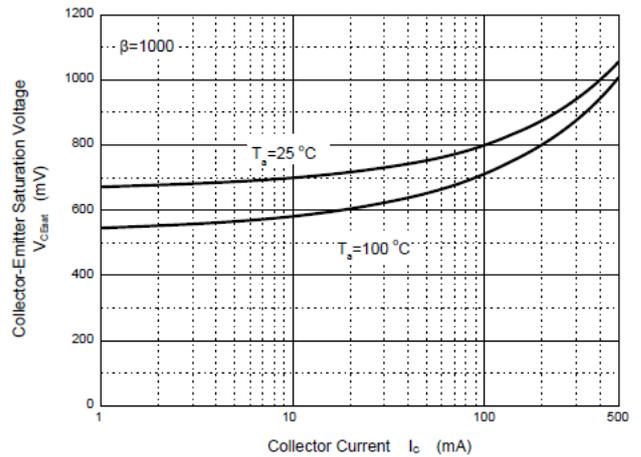
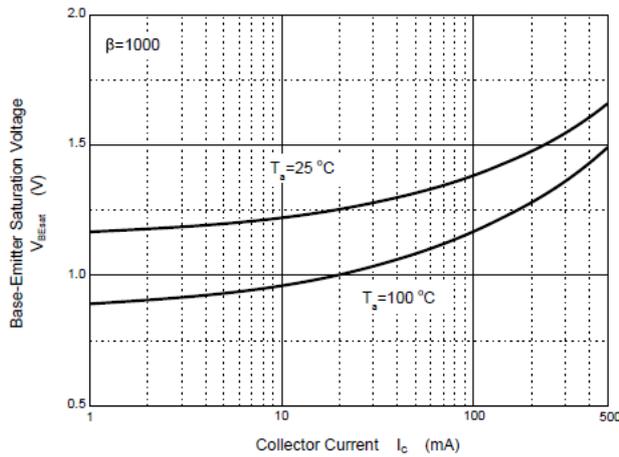
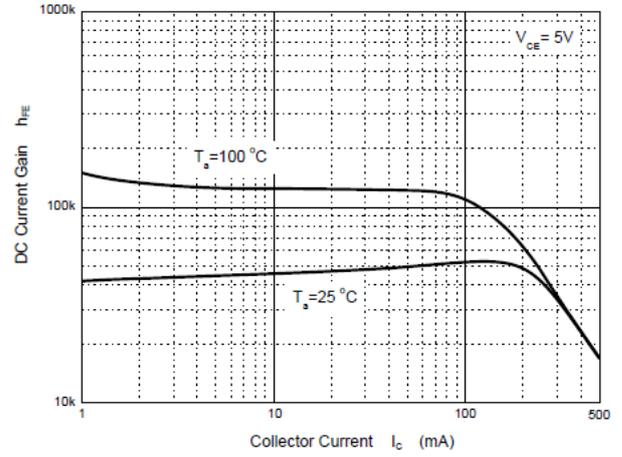
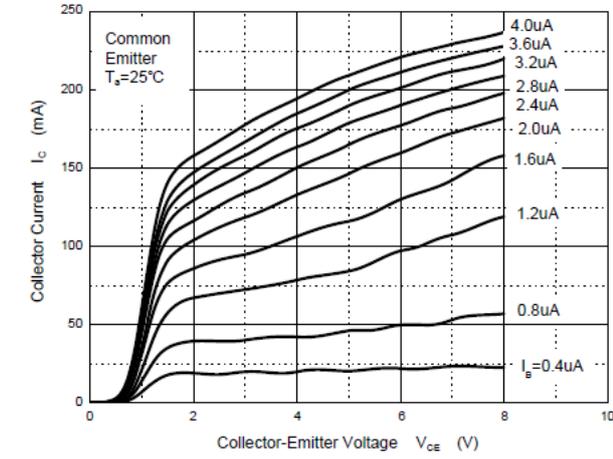
### Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 5\text{ V}$ , $I_C = 1\text{ mA}$ at $V_{CE} = 5\text{ V}$ , $I_C = 10\text{ mA}$ at $V_{CE} = 5\text{ V}$ , $I_C = 100\text{ mA}$	$h_{FE}$	2000 4000 10000	- - -	- - -	-
Collector Base Cutoff Current at $V_{CB} = 60\text{ V}$	$I_{CBO}$	--	--	100	nA
Emitter Base Cutoff Current at $V_{EB} = 10\text{ V}$	$I_{EBO}$	--	--	100	nA
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	80	--	--	V
Collector Emitter Breakdown Voltage at $I_C = 10\text{ mA}$	$V_{(BR)CEO}$	60	--	--	V
Emitter Base Breakdown Voltage at $I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EBO}$	10	--	--	V
Collector Emitter Saturation Voltage at $I_C = 100\text{ mA}$ , $I_B = 0.1\text{ mA}$	$V_{CE(sat)}$	--	--	1	V
Base Emitter Saturation Voltage at $I_C = 100\text{ mA}$ , $I_B = 0.1\text{ mA}$	$V_{BE(sat)}$	--	--	2	V
Base Emitter On Voltage at $V_{CE} = 5\text{ V}$ , $I_C = 10\text{ mA}$	$V_{BE(on)}$	--	--	1.6	V
Transition Frequency at $V_{CE} = 5\text{ V}$ , $I_C = 30\text{ mA}$ , $f = 100\text{ MHz}$	$f_T$	--	220	--	pF

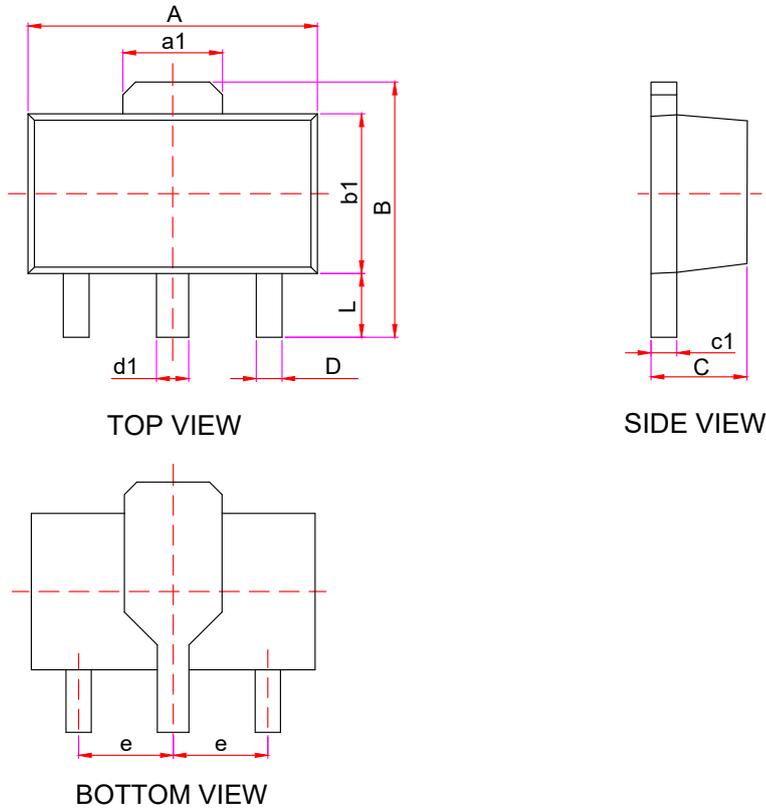


### Typical Characteristic Curves



### Package Outline

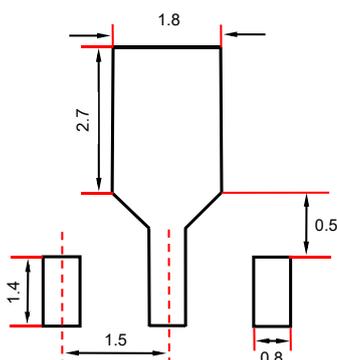
SOT-89



Symbol	Dimensions in Millimeters			Dimensions in Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	4.40	4.50	4.60	0.173	0.177	0.181
a1	1.50	1.55	1.60	0.059	0.061	0.063
B	3.75	4.00	4.25	0.147	0.157	0.167
b1	2.40	2.50	2.60	0.094	0.098	0.102
C	1.40	1.50	1.60	0.055	0.059	0.063
c1	0.30	0.40	0.50	0.012	0.016	0.020
D	0.35	0.40	0.45	0.014	0.016	0.018
d1	0.45	0.50	0.55	0.018	0.020	0.022
e	1.50 BSC			0.059 REF		
L	0.90	1.00	1.10	0.035	0.039	0.043

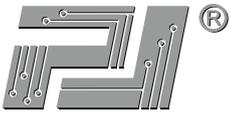
### Suggested Pad Layout

SOT-89



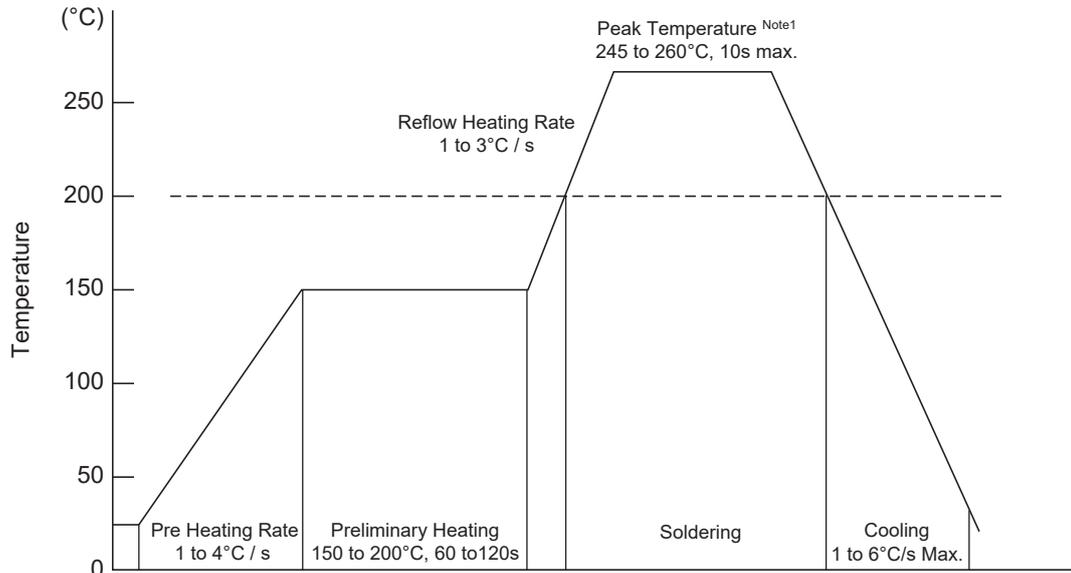
#### Note:

1. Package Body Sizes Exclude Mold Flash and Gate Burrs
2. Controlling Dimension: In millimeters
3. General Tolerance:  $\pm 0.05\text{mm}$
4. The Pad Layout is for reference purposes only



### Conditions of Soldering and Storage

#### ◆ Recommended condition of Reflow Soldering(Pb-Free Solder)



Recommended peak temperature is over 245°C. If peak temperature is below 245°C, you may adjust the following parameters:

- Time length of peak temperature (longer)
- Time length of soldering (longer)
- Thickness of solder paste (thicker)

Note1:

Maximum thermal excursion allowed during the reflow assembly is as follow:

- Temperature: 255°C~260°C
- Duration at peak soak : 30 seconds
- Number of reflow: 3
- **Conditions of hand soldering** <sup>Note2</sup>

- Temperature: 320±10°C
- Time: 3s max.
- Times: one time

Note2: Not recommended for mass production, an engineering project, or re-work, it is allowed. It should be used with caution

#### ● **Storage conditions**

##### ● **Temperature**

5 to 30°C

##### ● **Humidity**

≤ 60% RH

##### ● **Floor Life**

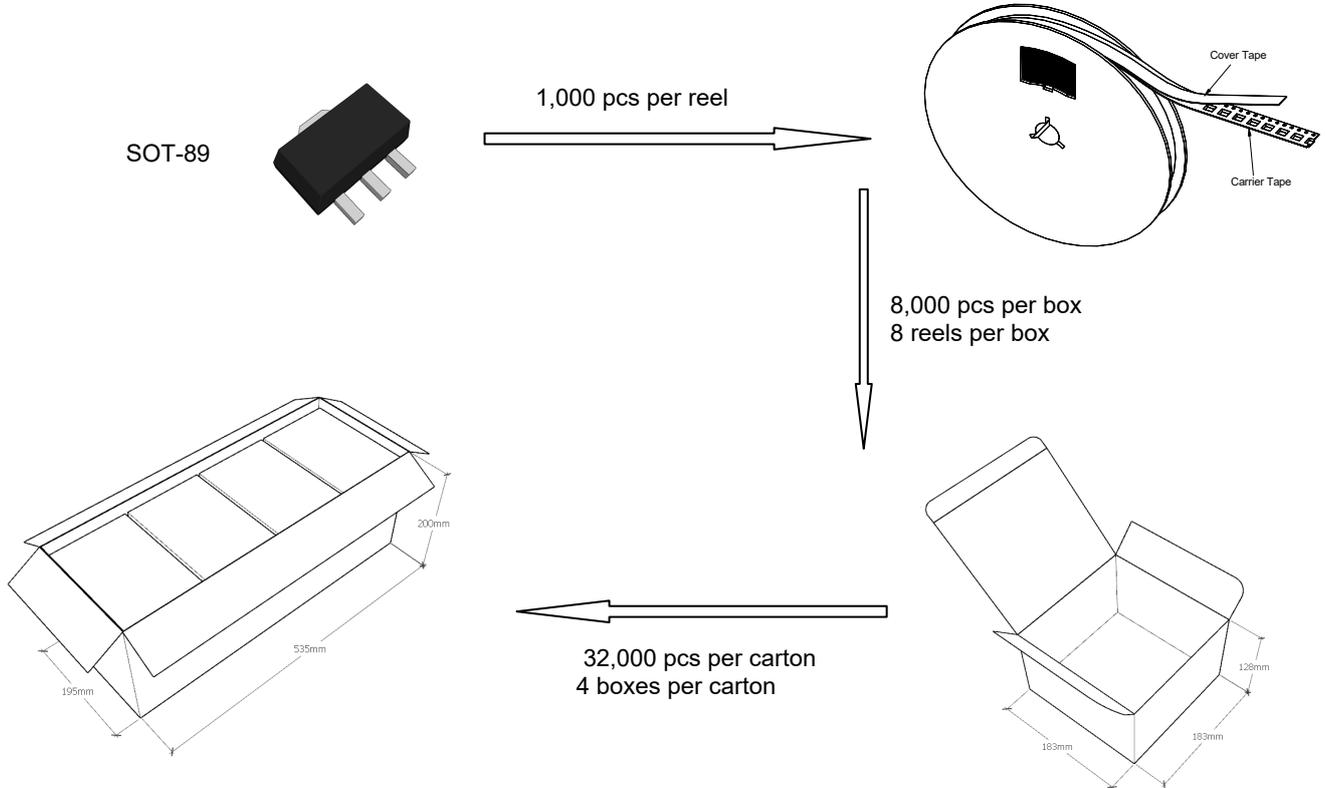
No Limited

##### ● **Recommended period**

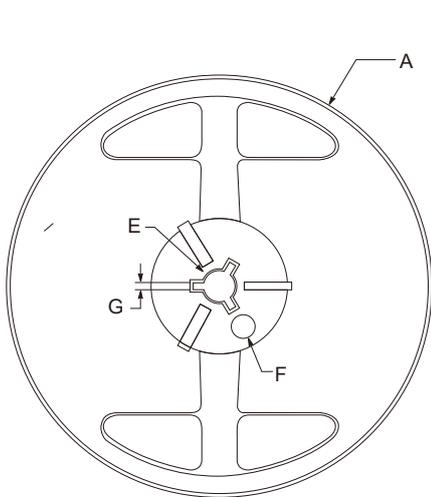
Five year after manufacturing(Depends on storage conditions)

### Package Specifications

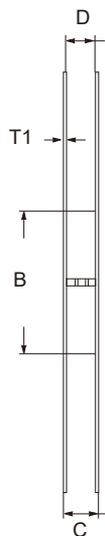
- The method of packaging (1,000PCS/Reel&7inches)



### ◆ Embossed tape and reel data



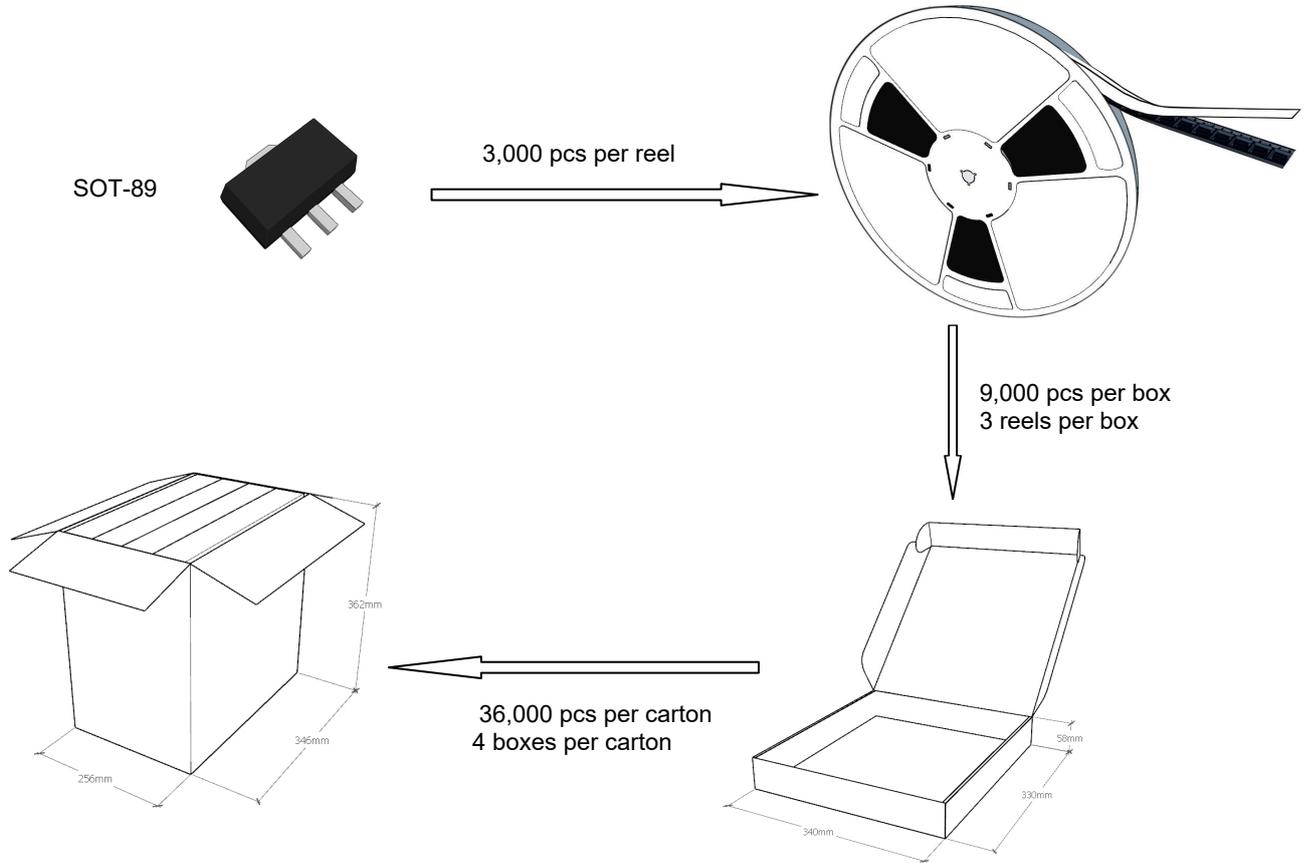
Reel (7")



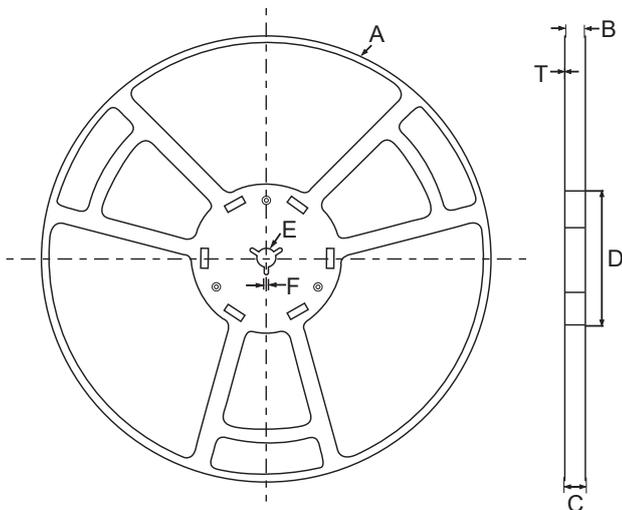
symbol	Value(unit:mm)
A	$\Phi 179 \pm 1$
B	$60.5 \pm 0.2$
C	$15.3 \pm 0.3$
D	$12.5 \sim 13.7$
E	$\Phi 13.5 \pm 0.2$
F	$\Phi 10.0 \pm 0.2$
G	$2.7 \pm 0.2$
T1	$1.0 \pm 0.2$

### Package Specifications

- The method of packaging (3,000PCS/Reel&13inches)

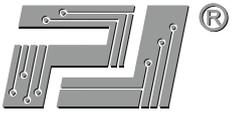


### ◆ Embossed tape and reel data



symbol	Value(unit:mm)
A	$\Phi 330 \pm 1$
B	$12.7 \pm 0.5$
C	$16.5 \pm 0.3$
D	$\Phi 99.5 \pm 0.5$
E	$\Phi 13.6 \pm 0.3$
F	$2.8 \pm 0.3$
T1	$1.9 \pm 0.2$

Reel (13")



# BCV49

## NPN Darlington Transistor

### ◆ Embossed tape data

