



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

2SC6096 — NPN Epitaxial Planar Silicon Transistor

High-Voltage Switching Applications

Applications

- DC / DC converter, relay drivers, lamp drivers, motor drivers, inverter

Features

- Adoption of FBET, MBIT process
- Low collector-to-emitter saturation voltage
- High allowable power dissipation
- Large current capacity
- High-speed switching
- Halogen free compliance

Specifications

Absolute Maximum Ratings at Ta=25°C

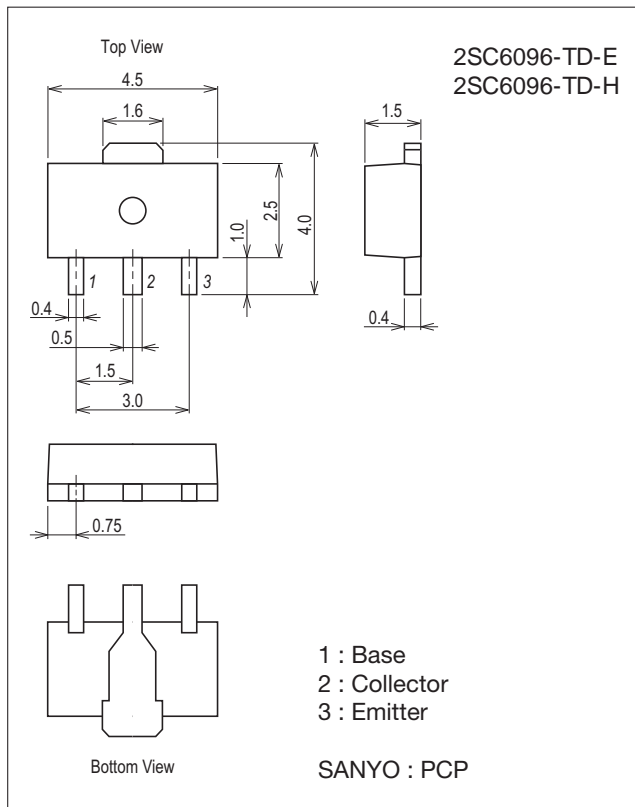
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	VCBO		120	V
Collector-to-Emitter Voltage	VCES		120	V
	VCEO		100	V
Emitter-to-Base Voltage	VEBO		6.5	V
Collector Current	IC		2	A
Collector Current (Pulse)	ICP		3	A

Continued on next page.

Package Dimensions

unit : mm (typ)

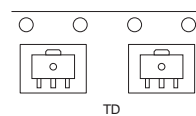
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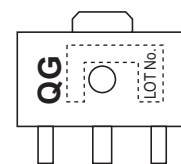
Product & Package Information

- Package : PCP
- JEITA, JEDEC : SC-62, SOT-89, TO-243
- Minimum Packing Quantity : 1,000 pcs./reel

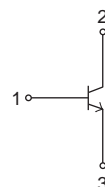
Packing Type: TD



Marking



Electrical Connection



2SC6096

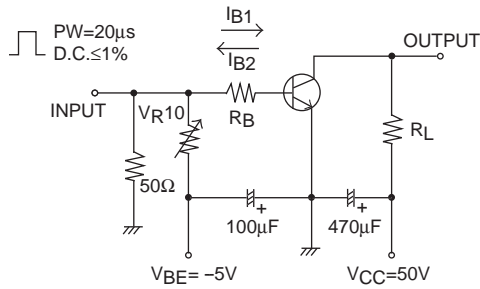
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Parameter	Symbol	Conditions	Ratings	Unit
Base Current	I_B		400	mA
Collector Dissipation	PC	When mounted on ceramic substrate (250mm ² ×0.8mm)	1.3	W
		$T_c=25^\circ\text{C}$	3.5	W
Junction Temperature	T_j		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=80\text{V}, I_E=0\text{A}$			1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4\text{V}, I_C=0\text{A}$			1	μA
DC Current Gain	h_{FE}	$V_{CE}=5\text{V}, I_C=100\text{mA}$	300		600	
Gain-Bandwidth Product	f_T	$V_{CE}=10\text{V}, I_C=300\text{mA}$		300		MHz
Output Capacitance	C_{ob}	$V_{CB}=10\text{V}, f=1\text{MHz}$		13		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=1\text{A}, I_B=100\text{mA}$		100	150	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1\text{A}, I_B=100\text{mA}$		0.85	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0\text{A}$	120			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=100\mu\text{A}, R_{BE}=0\Omega$	120			V
	$V_{(BR)CEO}$	$I_C=1\text{mA}, R_{BE}=\infty$	100			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0\text{A}$	6.5			V
Turn-ON Time	t_{on}			40		ns
Storage Time	t_{stg}	See specified Test Circuit.		1100		ns
Fall Time	t_f			40		ns

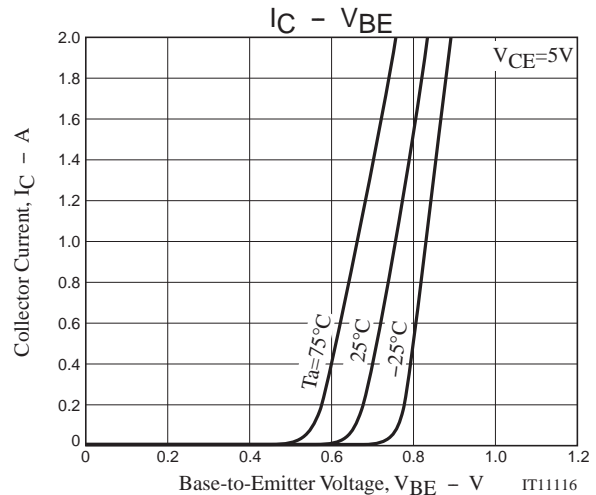
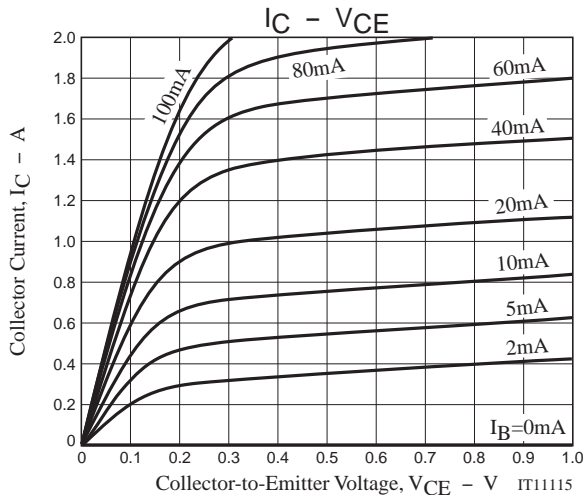
Switching Time Test Circuit

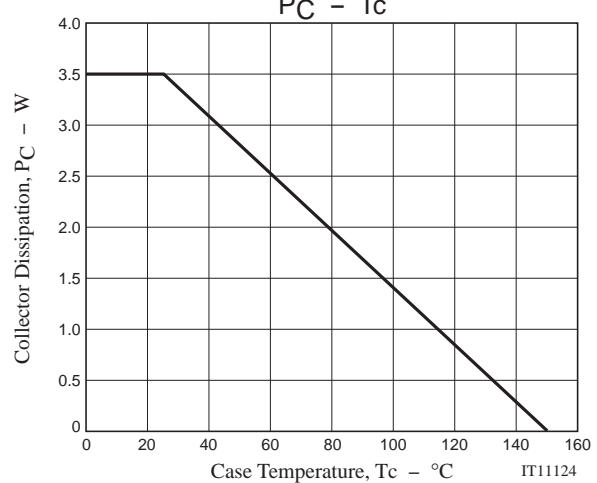
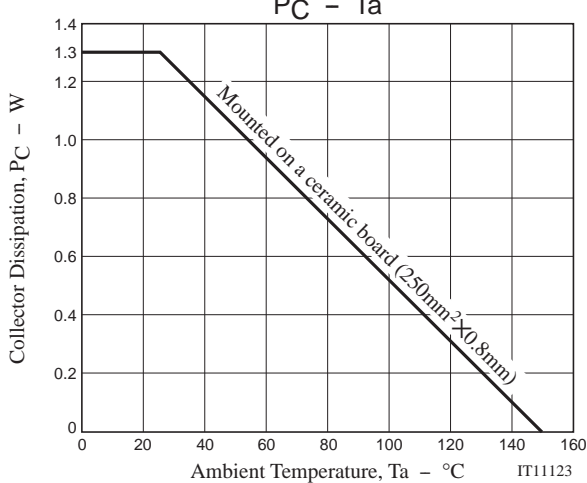
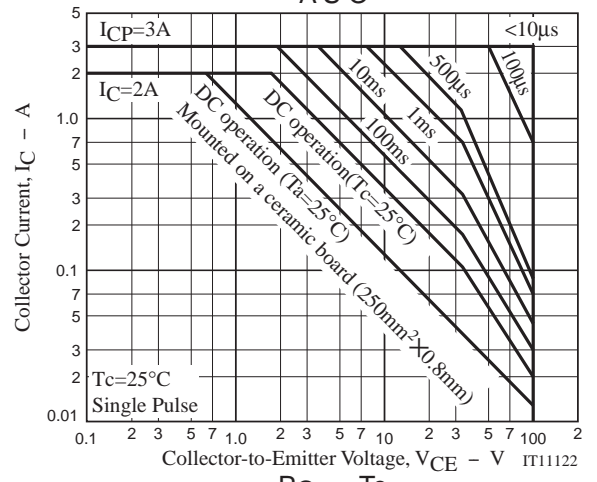
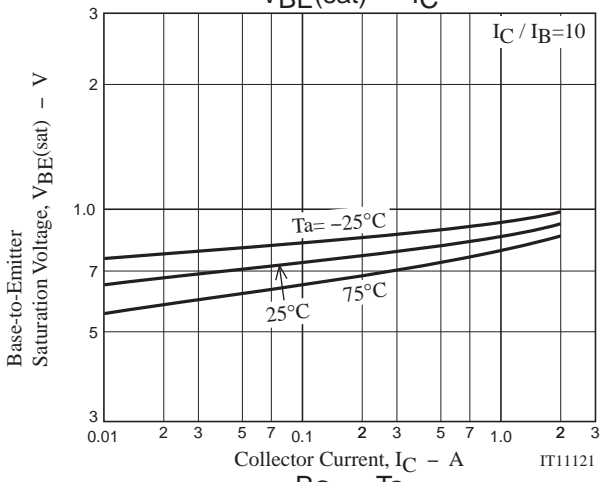
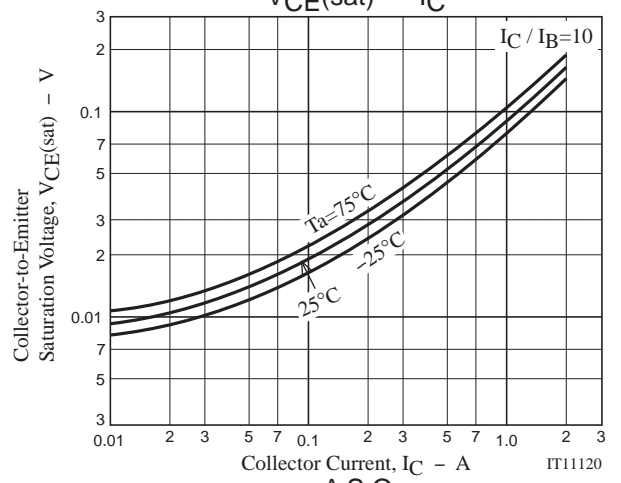
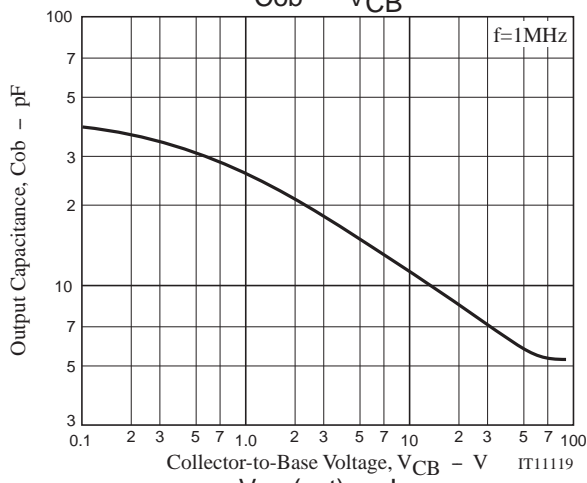
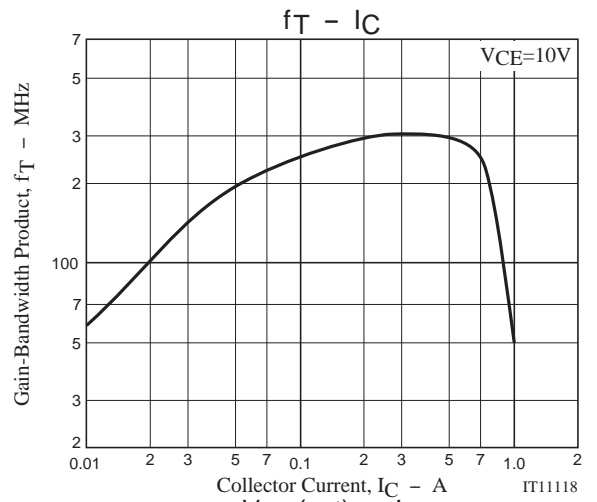
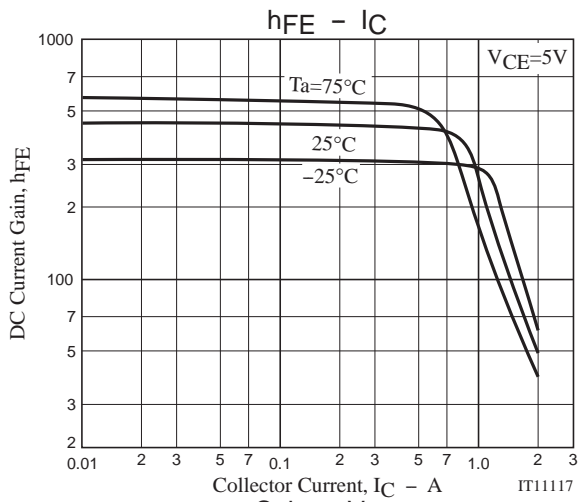


$$I_C = 10I_{B1} = -10I_{B2} = 0.5\text{A}$$

Ordering Information

Device	Package	Shipping	memo
2SC6096-TD-E	PCP	1,000pcs./reel	Pb Free
2SC6096-TD-H	PCP	1,000pcs./reel	Pb Free and Halogen Free





Embossed Taping Specification

2SC6096-TD-E, 2SC6096-TD-H

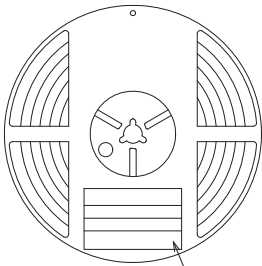
1. Packing Format

Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
PCP	PCP	1,000	4,000	24,000	4 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Reel label, Inner box label
(unit : mm)

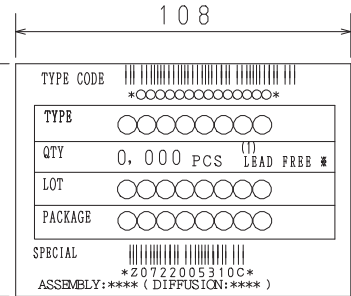
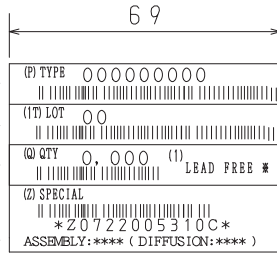
Outer box label
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.

Packing method



Reel label

Type No.
LOT No.
Quantity
Origin



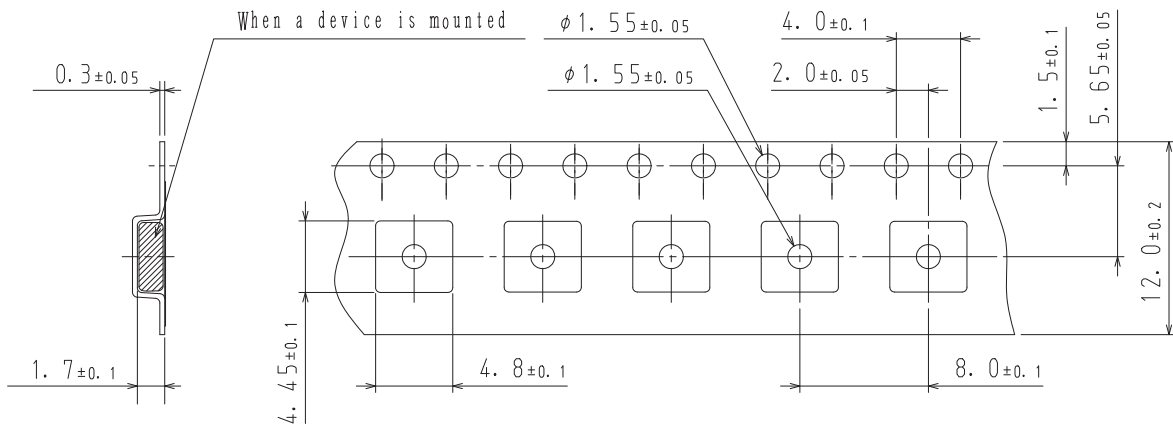
NOTE (1)

The LEAD FREE * description shows that the surface treatment of the terminal is lead free.

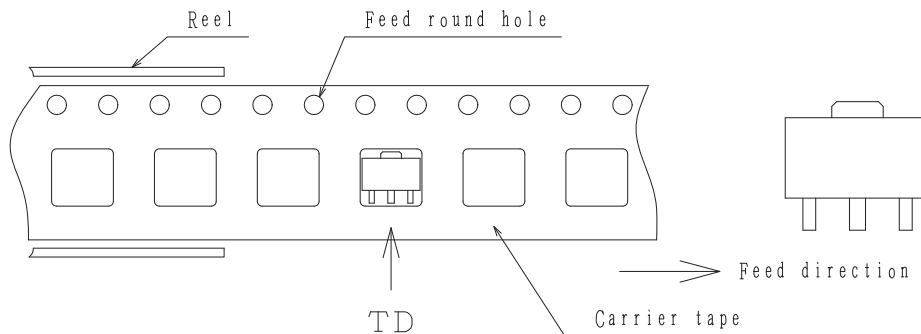
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

2-1. Carrier tape size (unit:mm)



2-2. Device placement direction

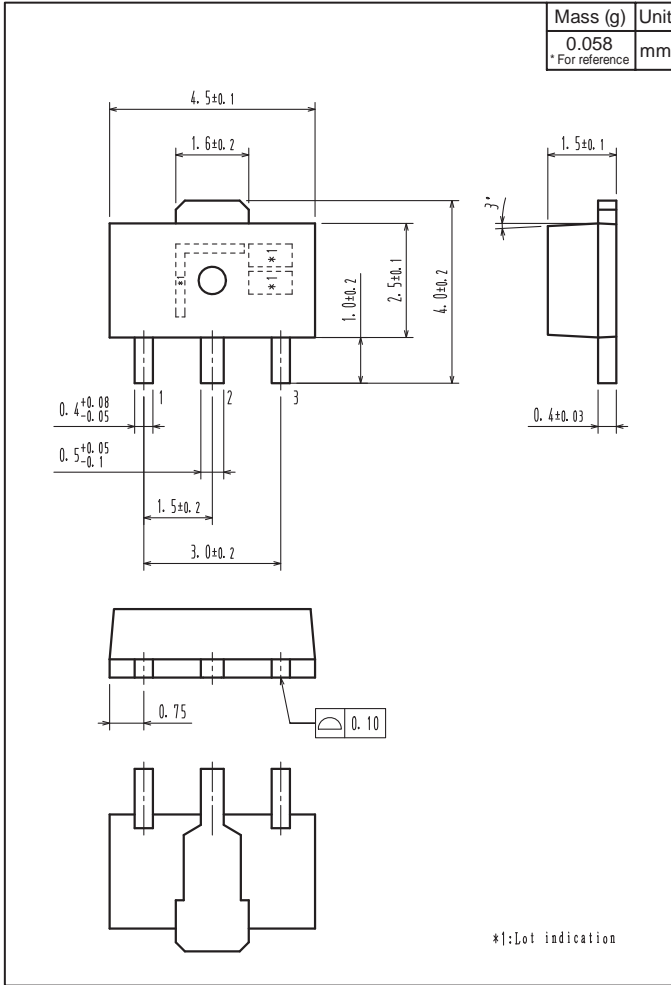


Those with pin 1 index on the feed hole side.....TD

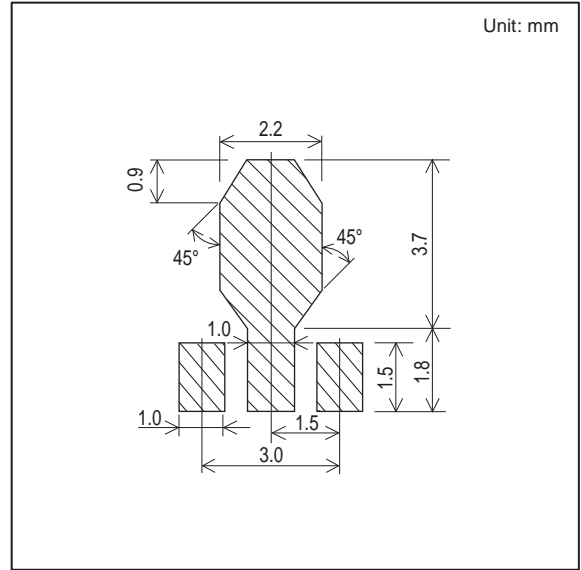
2SC6096

Outline Drawing

2SC6096-TD-E, 2SC6096-TD-H



Land Pattern Example



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