



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## 2SC6094 — NPN Epitaxial Planar Silicon Transistor High-Current 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

### Specifications

Absolute Maximum Ratings at Ta=25°C

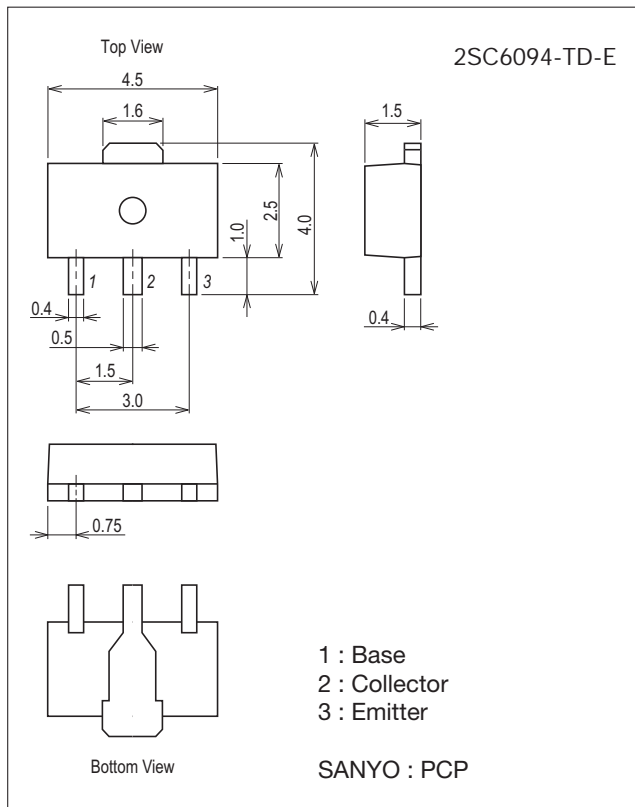
Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	VCBO		100	V
Collector-to-Emitter Voltage	VCES		100	V
	VCEO		60	V
Emitter-to-Base Voltage	VEBO		6.5	V
Collector Current	IC		3	A
Collector Current (Pulse)	ICP		5	A

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### Package Dimensions

unit : mm (typ)

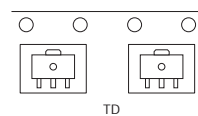
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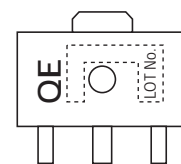
### Product & Package Information

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

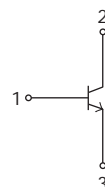
### Packing Type: TD



### Marking



### Electrical Connection



## 2SC6094

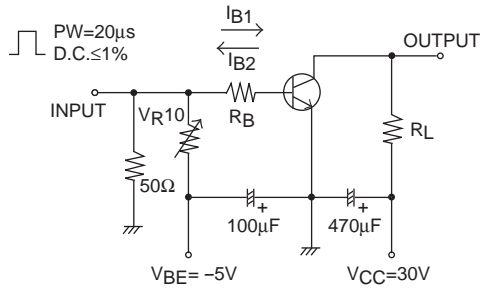
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Parameter	Symbol	Conditions	Ratings	Unit
Base Current	$I_B$		600	mA
Collector Dissipation	$P_C$	When mounted on ceramic substrate (250mm <sup>2</sup> ×0.8mm)	1.3	W
		$T_C=25^\circ\text{C}$	3.5	W
Junction Temperature	$T_J$		150	$^\circ\text{C}$
Storage 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	$I_{CBO}$	$V_{CB}=50\text{V}, I_E=0\text{A}$			1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=4\text{V}, I_C=0\text{A}$			1	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE}=2\text{V}, I_C=100\text{mA}$	300		600	
Gain-Bandwidth Product	$f_T$	$V_{CE}=10\text{V}, I_C=500\text{mA}$		390		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}, f=1\text{MHz}$		18		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C=1\text{A}, I_B=50\text{mA}$		90	135	mV
	$V_{CE(sat)2}$	$I_C=1\text{A}, I_B=100\text{mA}$		80	120	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1\text{A}, I_B=100\text{mA}$		0.84	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0\text{A}$	100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=100\mu\text{A}, R_{BE}=0\Omega$	100			V
	$V_{(BR)CEO}$	$I_C=1\text{mA}, R_{BE}=\infty$	60			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	$t_{on}$			35		ns
Storage Time	$t_{stg}$	See specified Test Circuit.		680		ns
Fall Time	$t_f$			24		ns

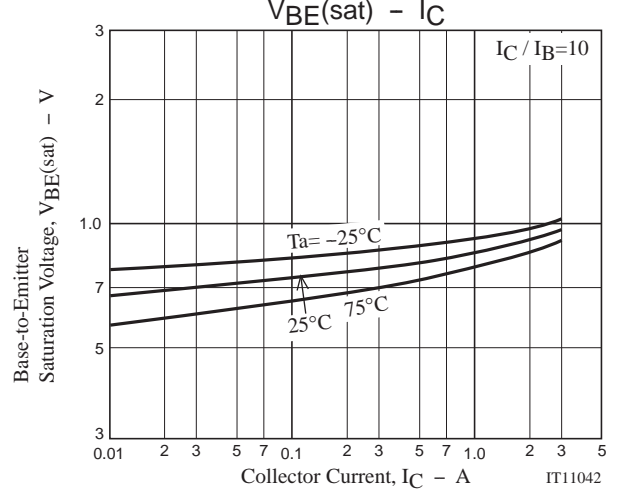
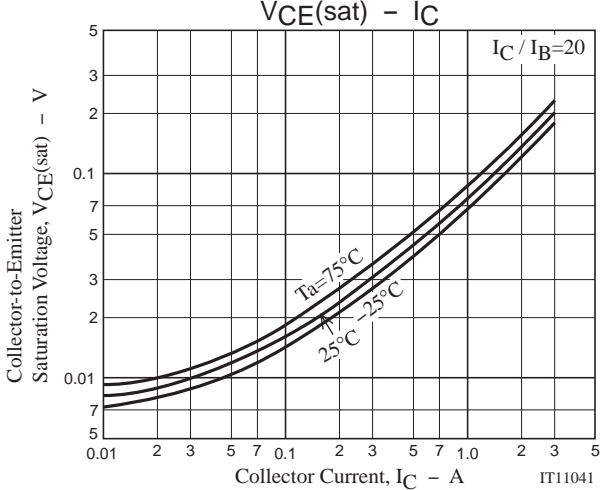
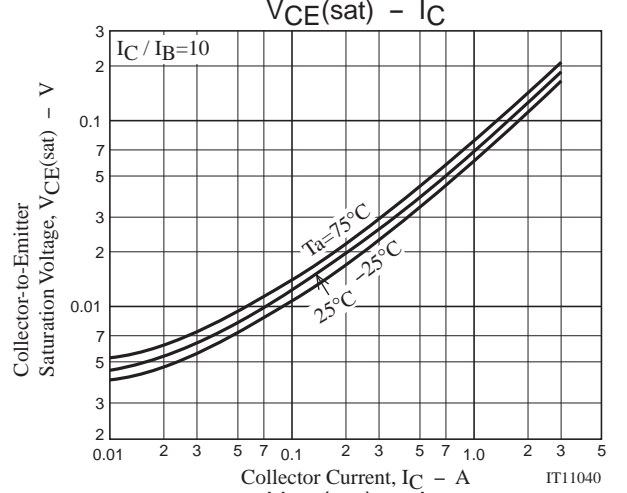
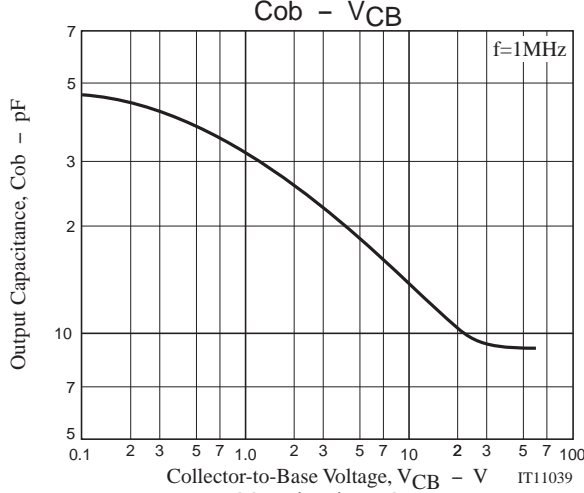
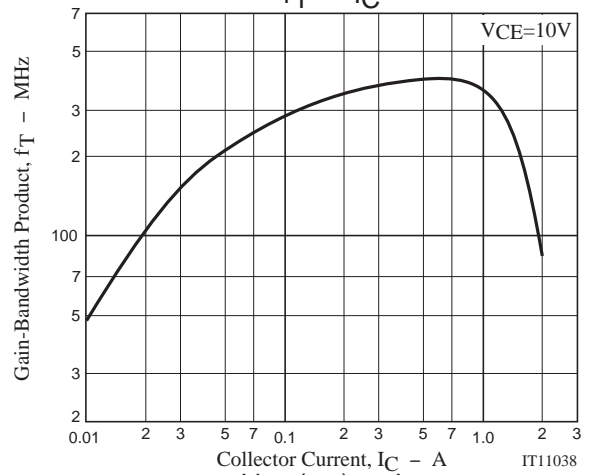
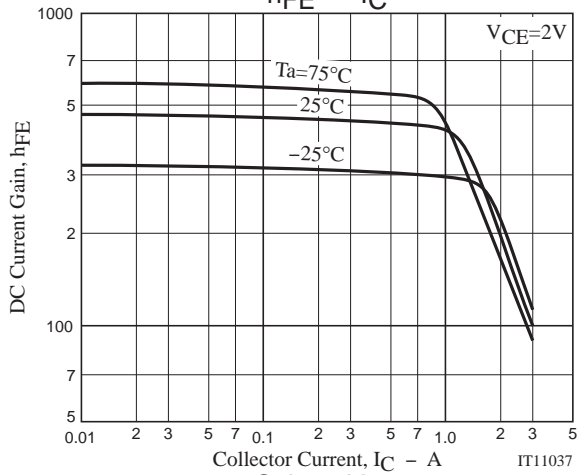
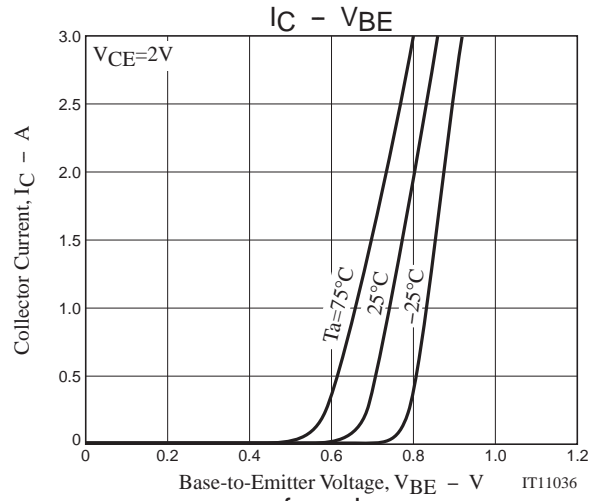
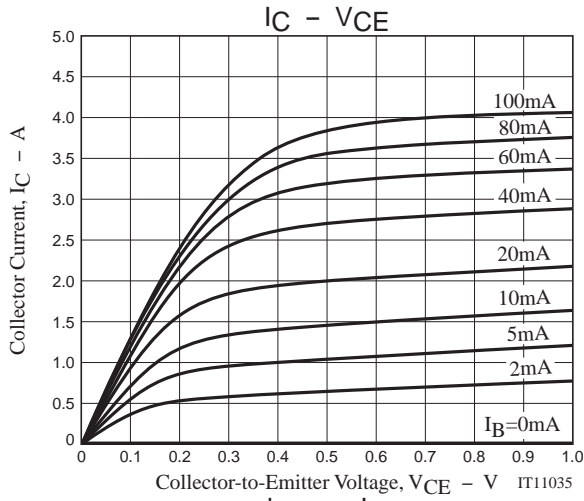
### Switching Time Test Circuit

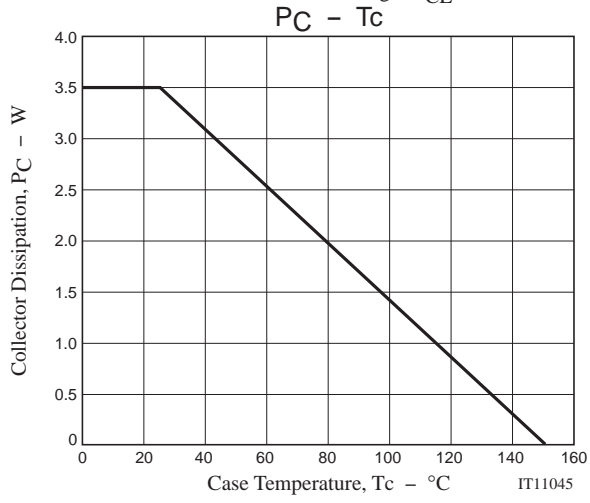
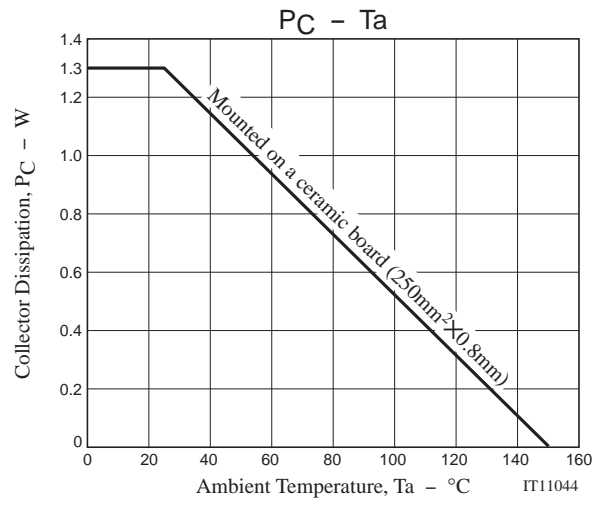
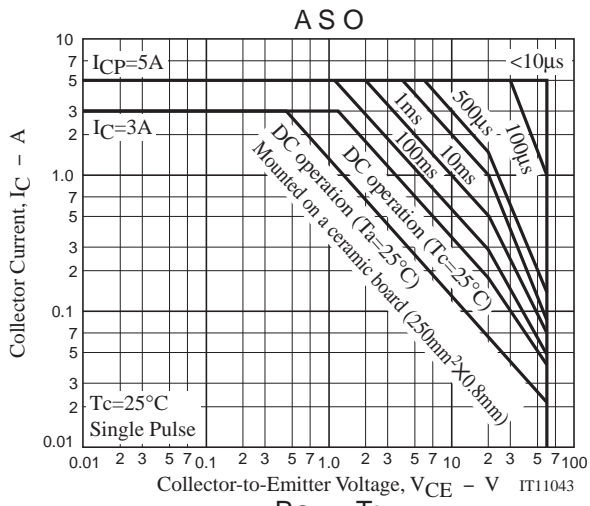


$$I_C=10I_{B1}=-10I_{B2}=0.5\text{A}$$

### Ordering Information

Device	Package	Shipping	memo
2SC6094-TD-E	PCP	1,000pcs./reel	Pb Free





Embossed Taping Specification

2SC6094-TD-E

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)

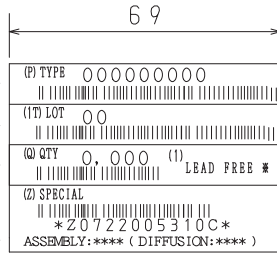
Outer box label  
It is a label at the time of factory shipments.  
The form of a label may change in physical distribution process.

Packing method



Reel label

Type No.  
LOT No.  
Quantity  
Origin



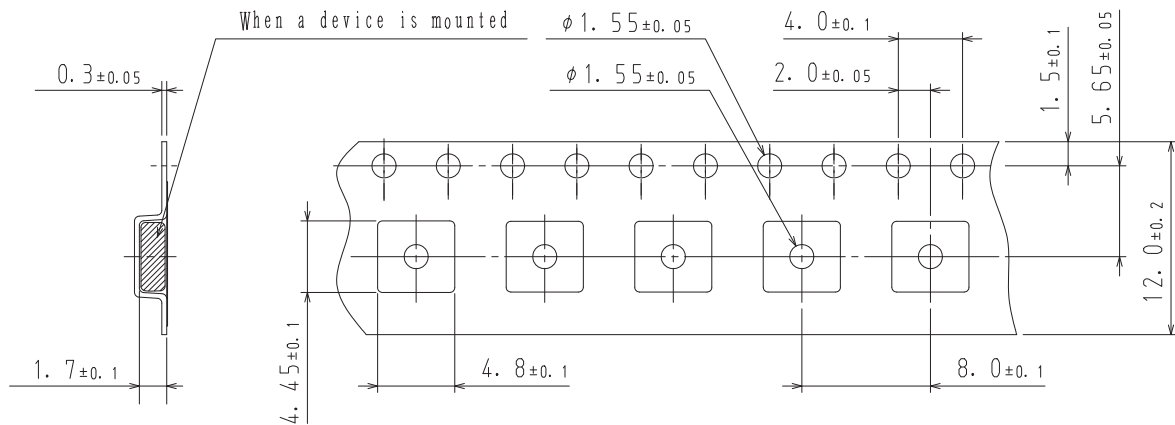
NOTE (1)

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

# 2SC6094

## Outline Drawing

2SC6094-TD-E



## Land Pattern Example



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