



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

NPN Epitaxial Planar Silicon Transistor

50C02CH — Low-Frequency General-Purpose Amplifier Applications

Applications

- Low-frequency Amplifier, high-speed switching, small motor drive, muting circuit

Features

- Large current capacitance
- Low collector-to-emitter saturation voltage (resistance) $R_{CE(sat)}$ typ.=175m Ω [$I_C=0.5A$, $I_B=50mA$]
- Ultrasmall package facilitates miniaturization in end products
- Small ON-resistance (R_{on})

Specifications

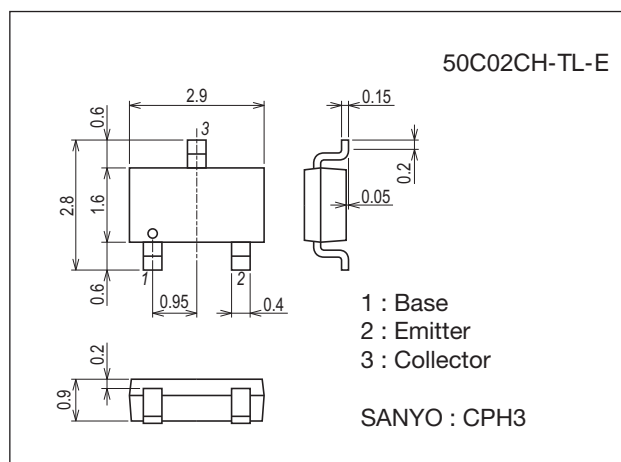
Absolute Maximum Ratings at $T_a=25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		60	V
Collector-to-Emitter Voltage	V_{CEO}		50	V
Emitter-to-Base Voltage	V_{EBO}		5	V
Collector Current	I_C		500	mA
Collector Current (Pulse)	I_{CP}		1.0	A
Collector Dissipation	P_C	Mounted on a ceramic board (600mm ² ×0.8mm)	700	mW
Junction Temperature	T_j		150	°C
Storage Temperature	T_{stg}		-55 to +150	°C

Package Dimensions

unit : mm (typ)

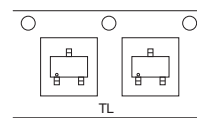
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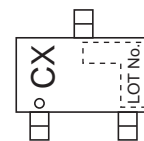
Product & Package Information

- Package : CPH3
- JEITA, JEDEC : SC-59, TO-236, SOT-23
- Minimum Packing Quantity : 3,000 pcs./reel

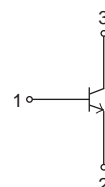
Packing Type: TL



Marking



Electrical Connection



SANYO Semiconductor Co., Ltd.

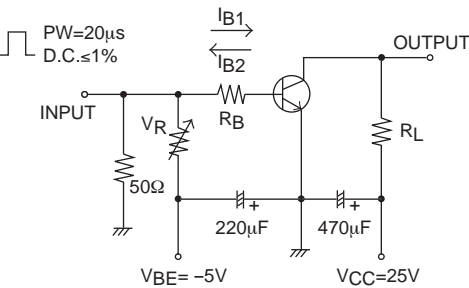
<http://semicon.sanyo.com/en/network>

50C02CH

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	ICBO	VCB=40V, IE=0A			100	nA
Emitter Cutoff Current	IEBO	VEB=4V, IC=0A			100	nA
DC Current Gain	hFE	VCE=2V, IC=10mA	300		800	
Gain-Bandwidth Product	fT	VCE=10V, IC=50mA		500		MHz
Output Capacitance	Cob	VCB=10V, f=1MHz		2.8		pF
Collector-to-Emitter Saturation Voltage	VCE(sat)	IC=100mA, IB=10mA		50	100	mV
Base-to-Emitter Saturation Voltage	VBE(sat)	IC=100mA, IB=10mA		0.9	1.2	V
Collector-to-Base Breakdown Voltage	V(BR)CBO	IC=10μA, IE=0A	60			V
Collector-to-Emitter Breakdown Voltage	V(BR)CEO	IC=1mA, RE=∞	50			V
Emitter-to-Base Breakdown Voltage	V(BR)EBO	IE=10μA, IC=0A	5			V
Turn-On Time	ton	See specified Test Circuit.		30		ns
Storage Time	tstg			340		ns
Fall Time	tf			55		ns

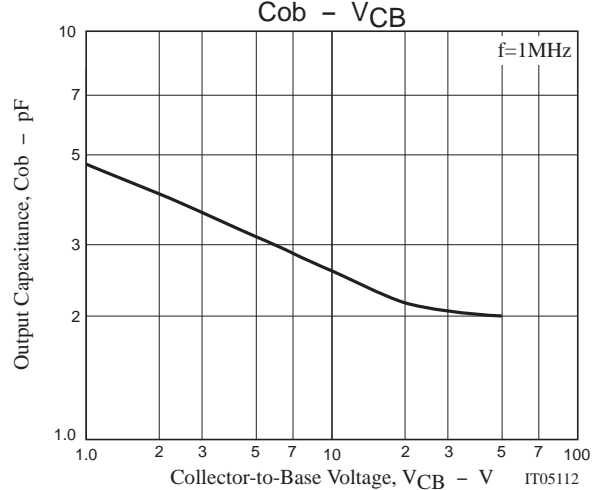
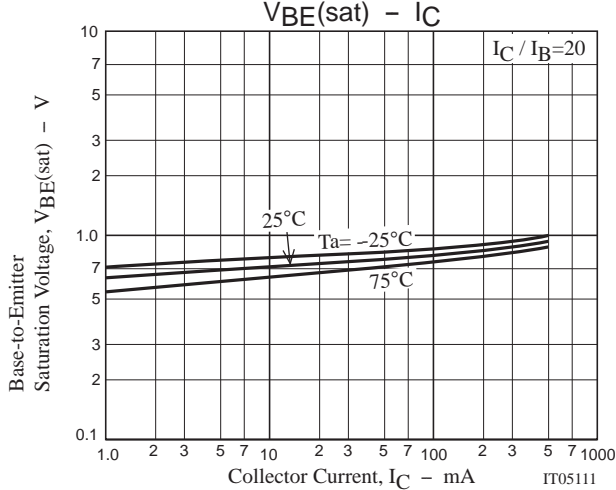
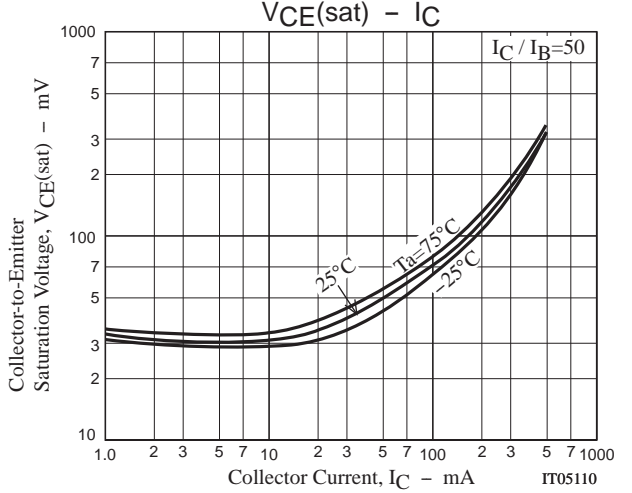
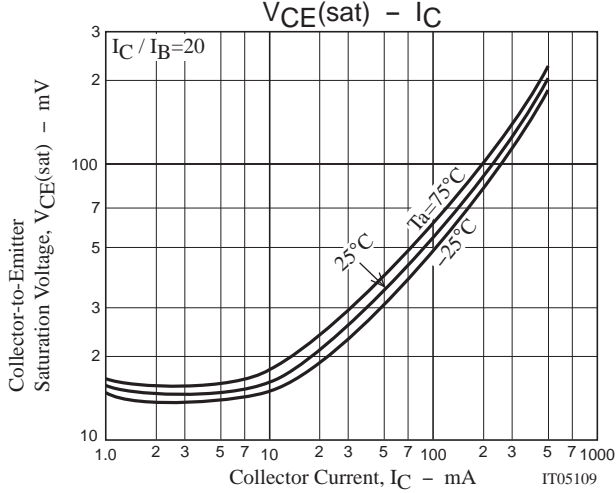
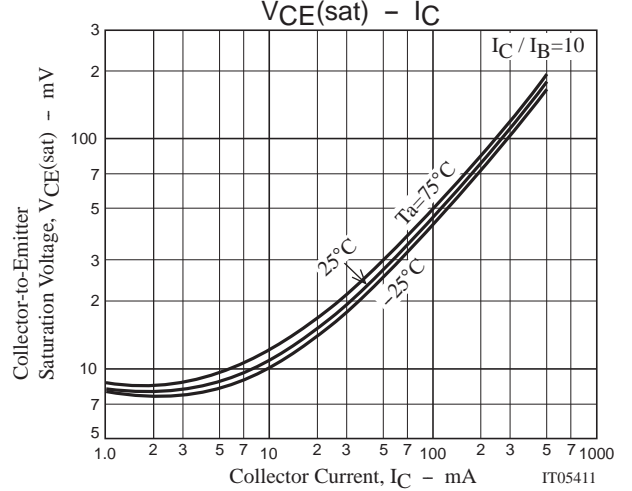
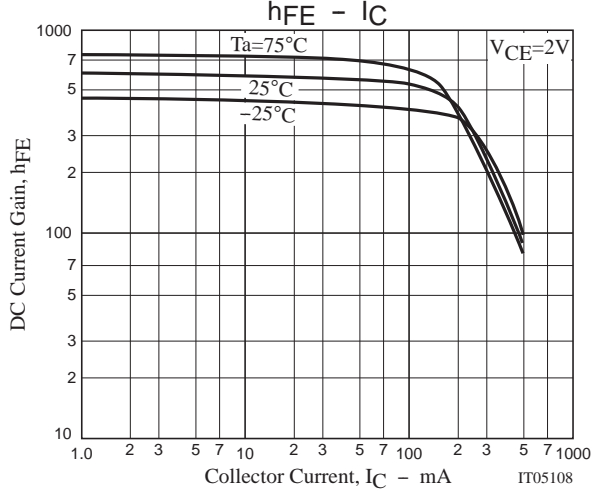
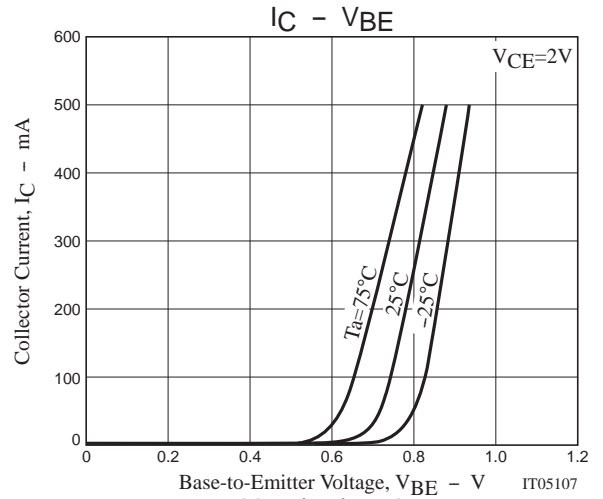
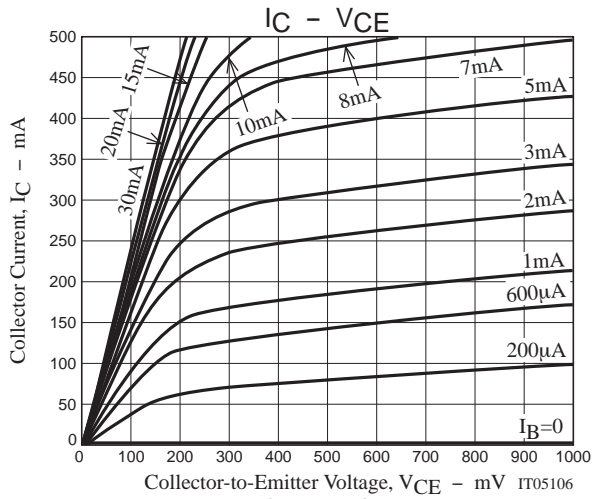
Switching Time Test Circuit

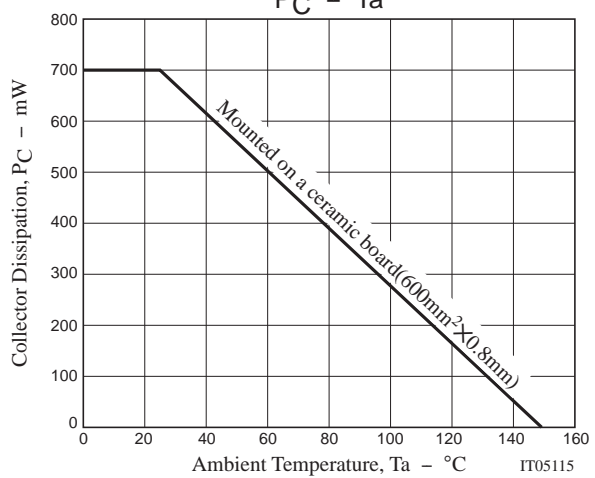
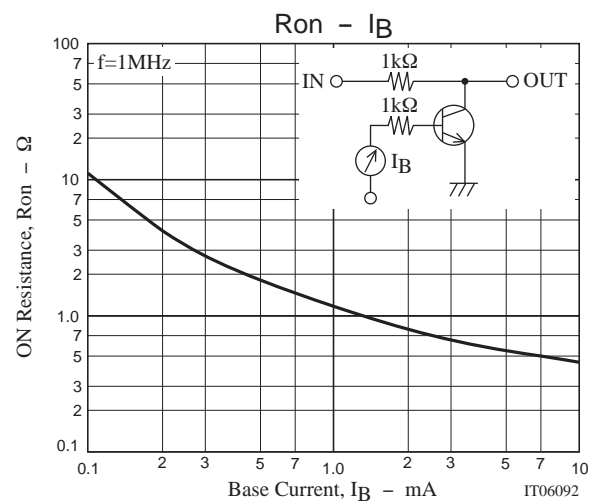
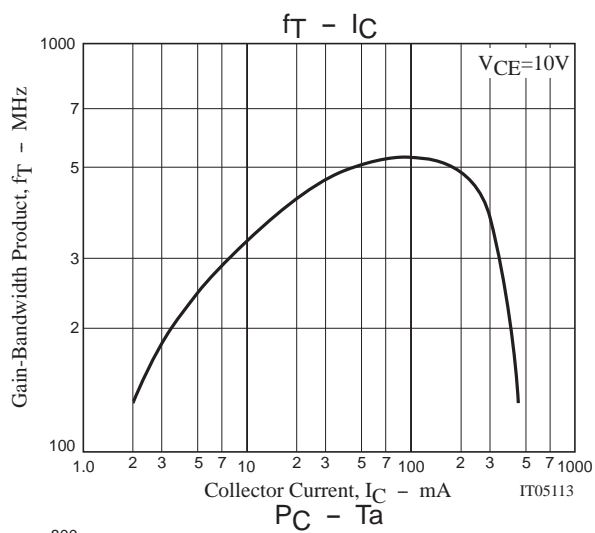


$I_C = 20I_{B1} = -20I_{B2} = 200\text{mA}$

Ordering Information

Device	Package	Shipping	memo
50C02CH-TL-E	CPH3	3,000pcs./reel	Pb Free





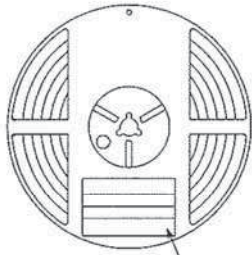
Embossed Taping Specification

50C02CH-TL-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)
CPH3	CPH3	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Packing method



Reel label

Type No.
LOT No.
Quantity
Origin

Reel label, Inner box label (unit:mm)

TYPE	000000000
LOT	00
QTY	0,000 (1) LEAD FREE *
SPECIAL	*20722005310C*
ASSEMBLY	**** (DIFFUSION:****)

Outer box label

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

TYPE CODE	00000000000000000000
TYPE	0000000000
QTY	0,000 PCS (1) LEAD FREE *
LOT	0000000000
PACKAGE	0000000000
SPECIAL	*20722005310C*
ASSEMBLY	**** (DIFFUSION:****)

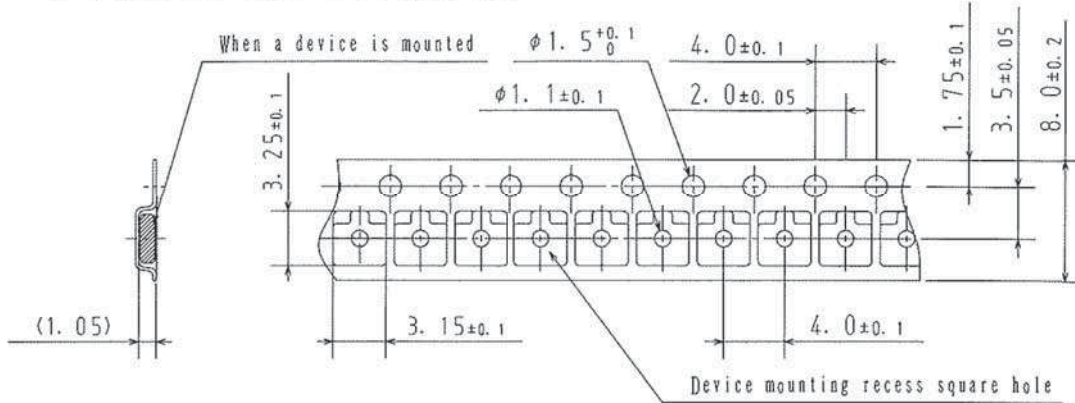
NOTE (1)

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

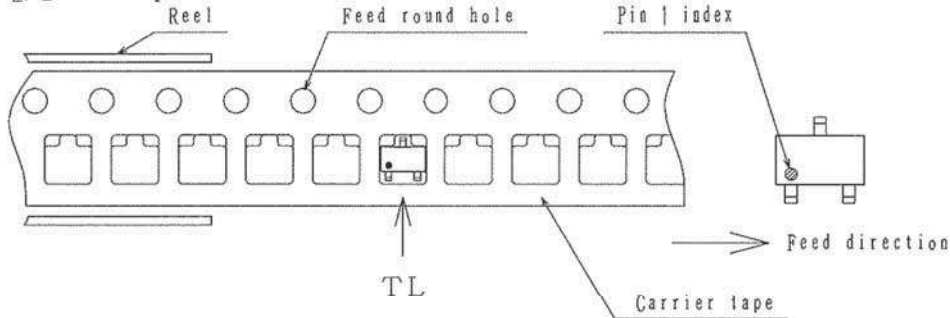
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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

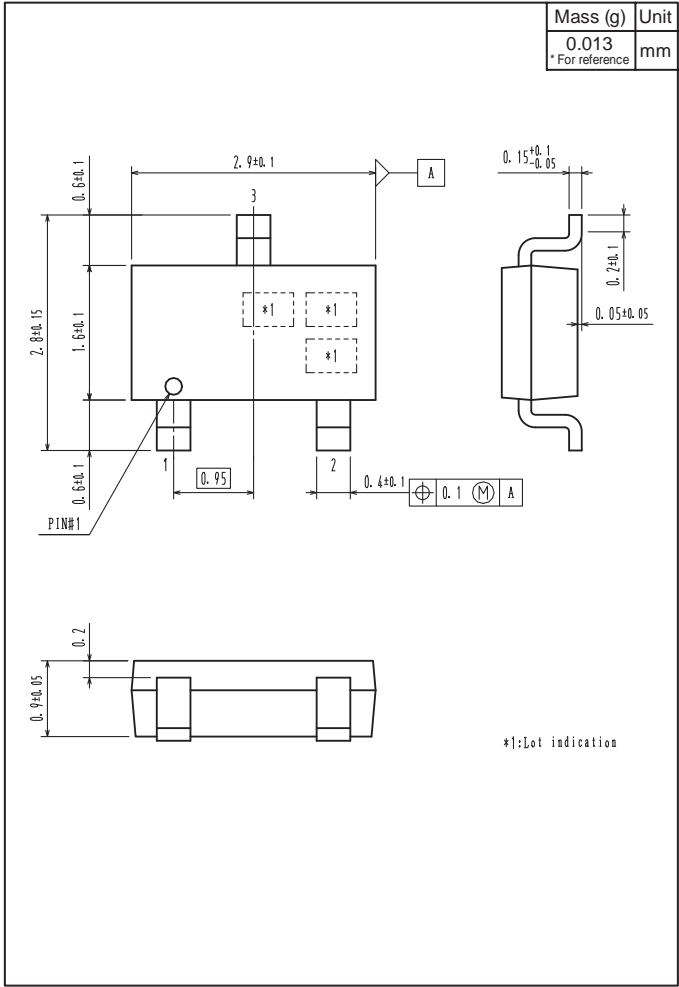


2-2. Device placement direction

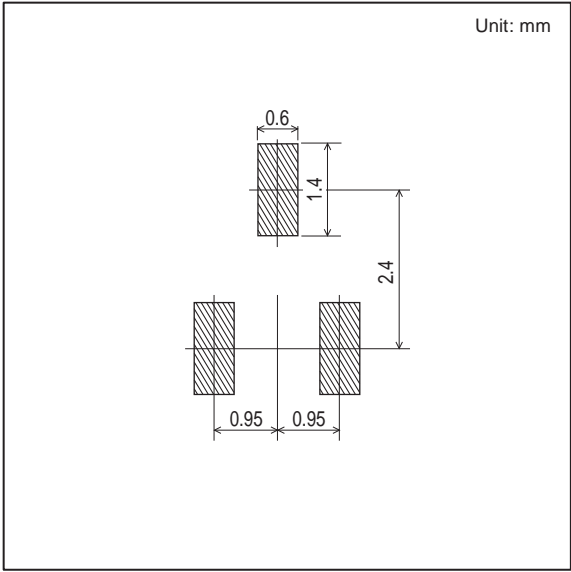


Those with one electrode terminal on the feed hole side.....TL

Outline Drawing
50C02CH-TL-E



Land Pattern Example



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