



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

12A02CH — PNP Epitaxial Planar Silicon Transistor

Low-Frequency General-Purpose Amplifier Applications

Applications

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

Features

- Large current capacity
- Low collector-to-emitter saturation voltage (resistance) $R_{CE(sat)}$ typ.=285m Ω [$I_C=1A$, $I_B=50mA$]
- Small ON-resistance (R_{on})

Specifications

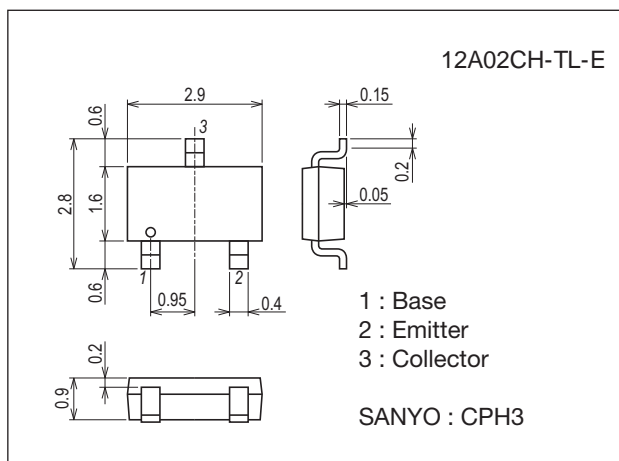
Absolute Maximum Ratings at $T_a=25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		-15	V
Collector-to-Emitter Voltage	V_{CEO}		-12	V
Emitter-to-Base Voltage	V_{EBO}		-5	V
Collector Current	I_C		-1	A
Collector Current (Pulse)	I_{CP}		-2	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)

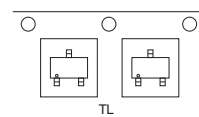
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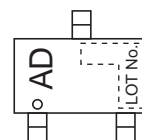
Product & Package Information

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

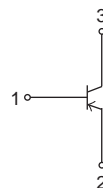
Packing Type: TL



Marking



Electrical Connection



SANYO Semiconductor Co., Ltd.

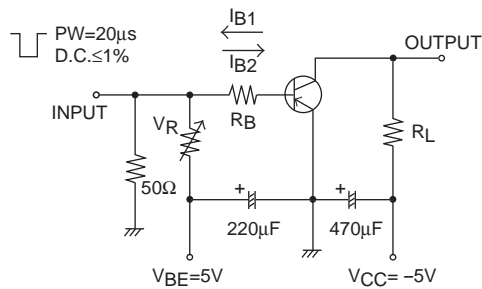
<http://www.sanyosemi.com/en/network/>

12A02CH

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	ICBO	VCE = -12V, IE=0A			-100	nA
Emitter Cutoff Current	IEBO	VEB = -4V, IC=0A			-100	nA
DC Current Gain	hFE	VCE = -2V, IC = -10mA	300		700	
Gain-Bandwidth Product	fT	VCE = -2V, IC = -50mA		450		MHz
Output Capacitance	Cob	VCE = -10V, f=1MHz		6		pF
Collector-to-Emitter Saturation Voltage	VCE(sat)	IC = -400mA, IB = -20mA		-120	-240	mV
Base-to-Emitter Saturation Voltage	VBE(sat)	IC = -400mA, IB = -20mA		-0.9	-1.2	mV
Collector-to-Base Breakdown Voltage	V(BR)CBO	IC = -10μA, IE=0A	-15			V
Collector-to-Emitter Breakdown Voltage	V(BR)CEO	IC = -1mA, RE=∞	-12			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			75		ns
Fall Time	tf			15		ns

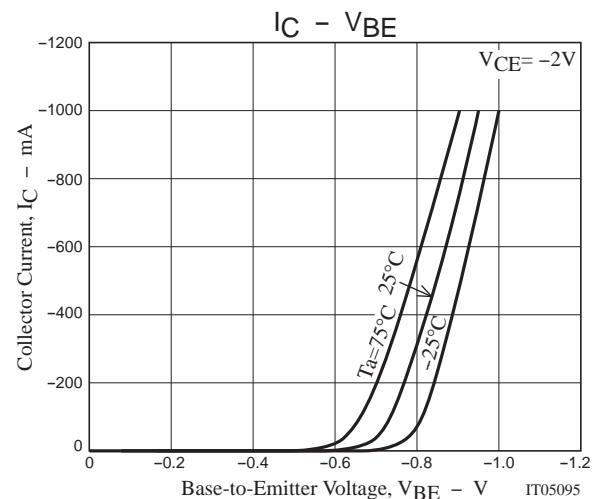
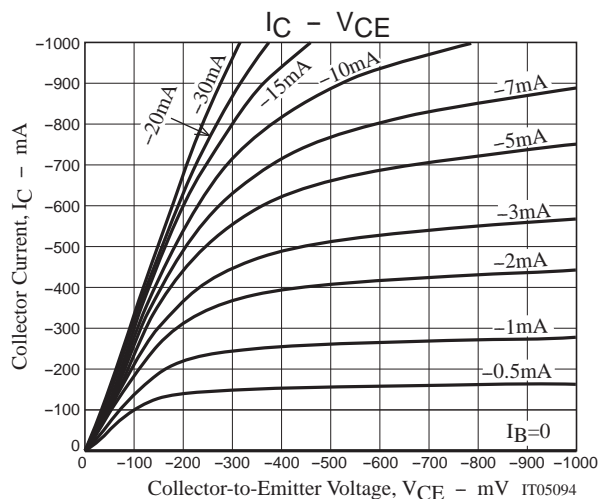
Switching Time Test Circuit

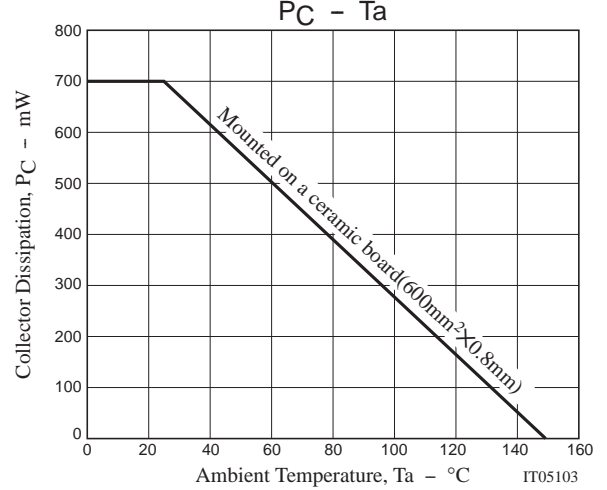
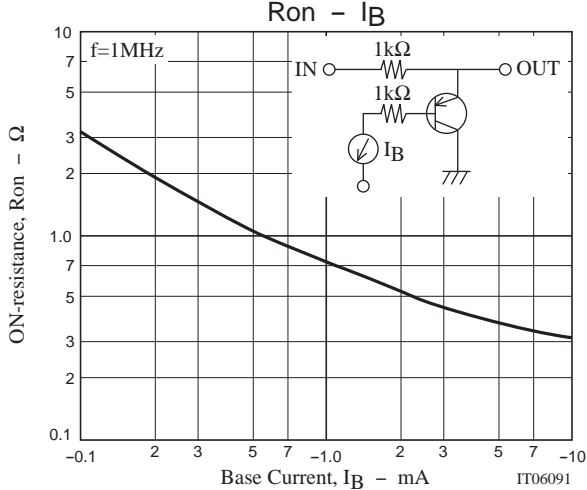
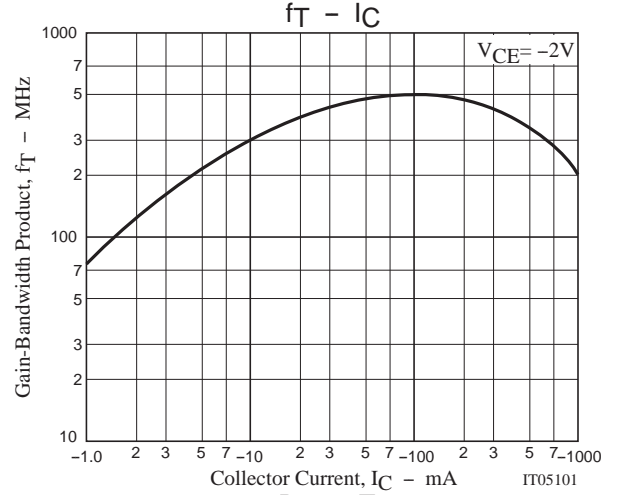
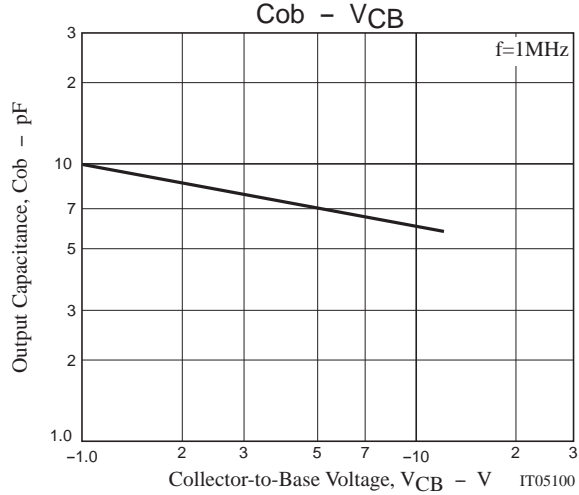
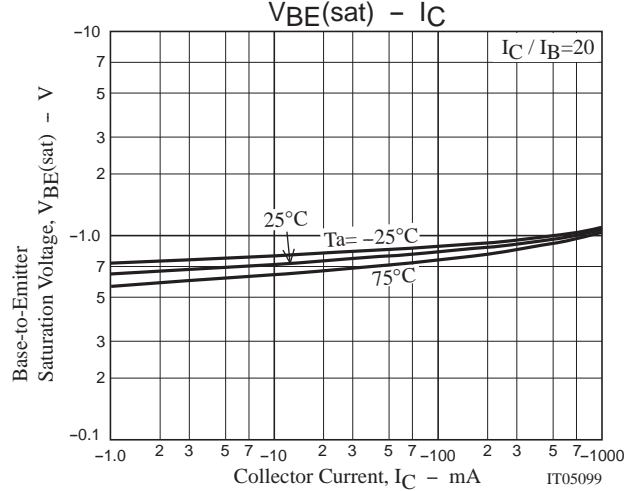
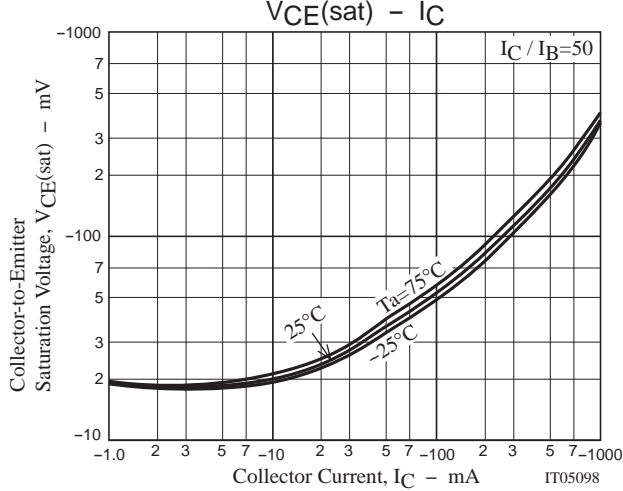
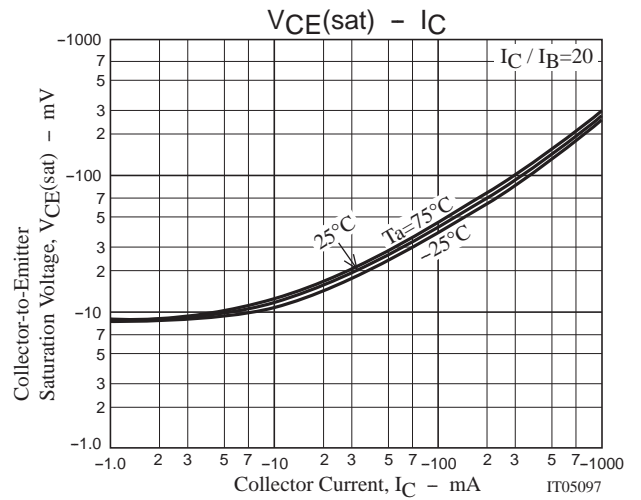
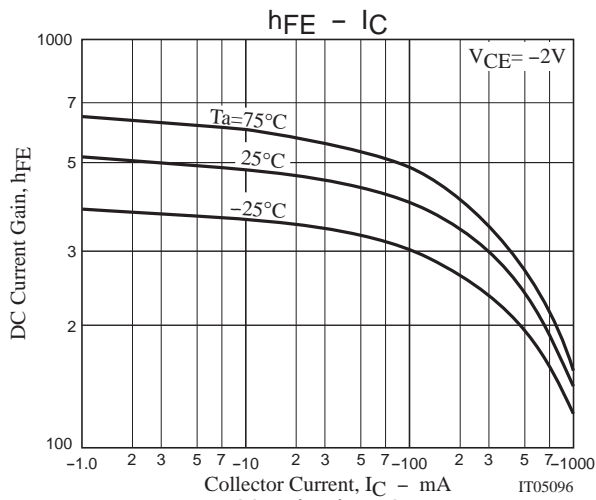


$$I_C = 20I_{B1} = -20I_{B2} = -400\text{mA}$$

Ordering Information

Device	Package	Shipping	memo
12A02CH-TL-E	CPH3	3,000pcs./reel	Pb Free





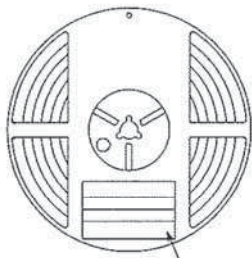
Embossed Taping Specification

12A02CH-TL-E

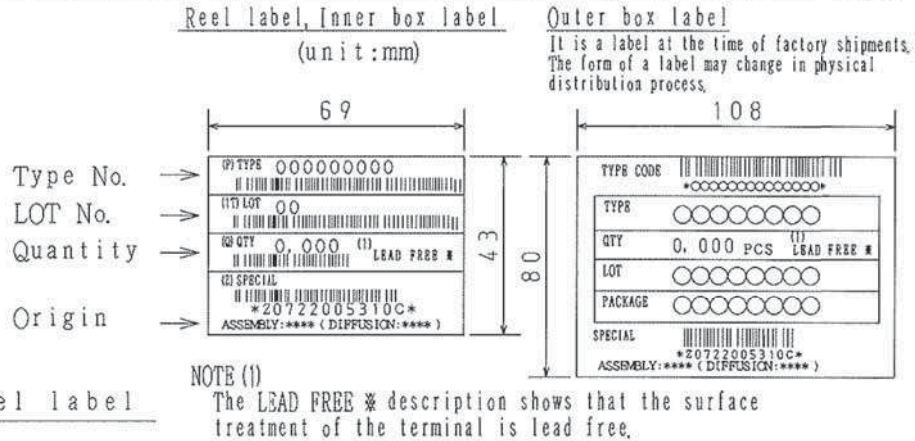
1. Packing Format

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

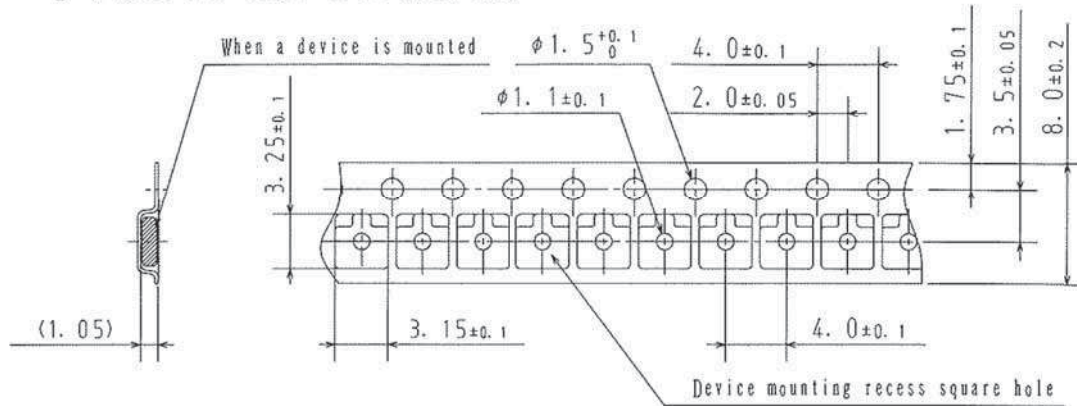


Reel label

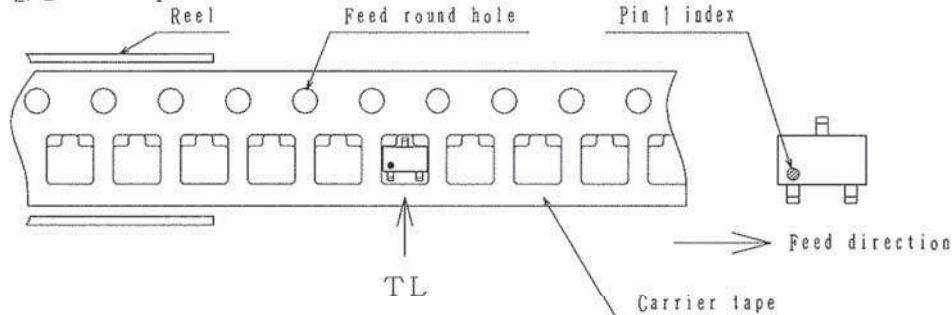


2. Taping configuration

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

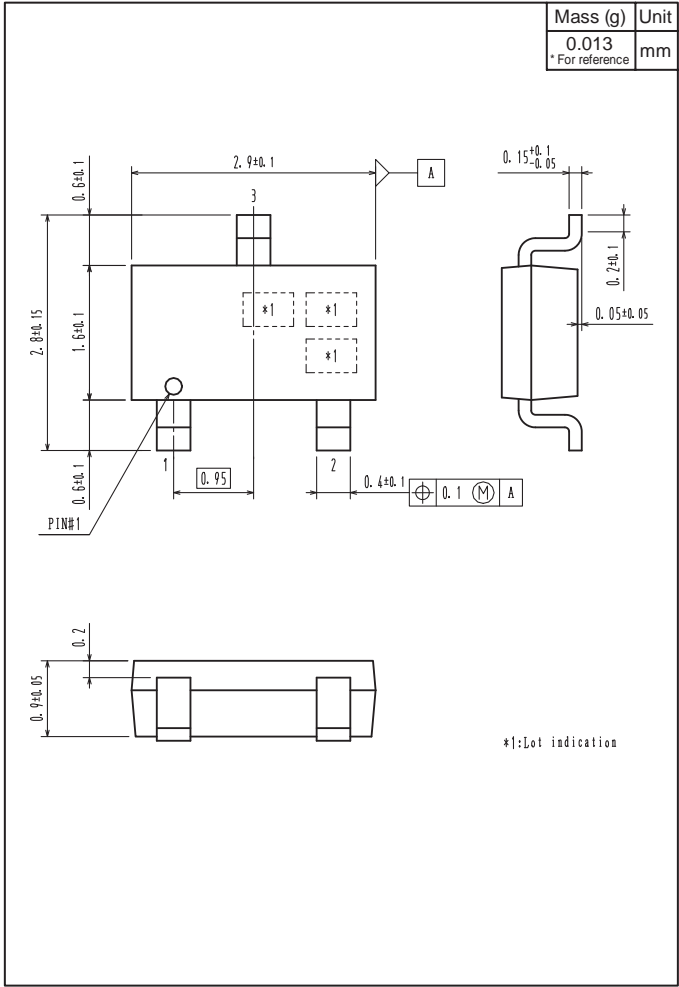


2-2. Device placement direction

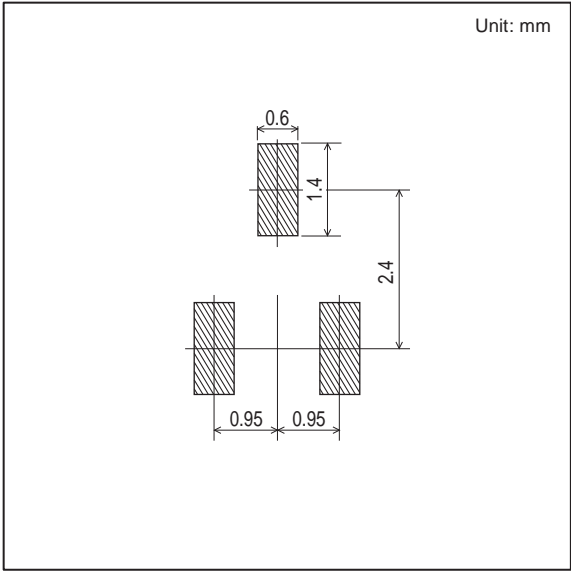


Those with one electrode terminal on the feed hole side.....TL

Outline Drawing
12A02CH-TL-E



Land Pattern Example



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