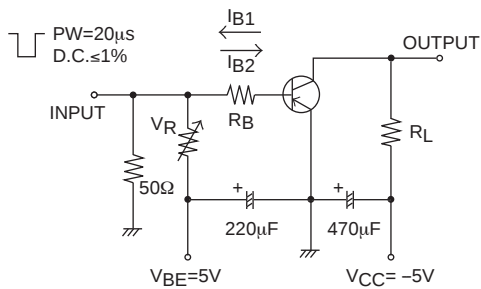


12A02CH

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB} = -12V, I_E = 0A$			-100	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = -4V, I_C = 0A$			-100	nA
DC Current Gain	h_{FE}	$V_{CE} = -2V, I_C = -10mA$	300		700	
Gain-Bandwidth Product	f_T	$V_{CE} = -2V, I_C = -50mA$		450		MHz
Output Capacitance	C_{ob}	$V_{CB} = -10V, f = 1MHz$		6		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -400mA, I_B = -20mA$		-120	-240	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -400mA, I_B = -20mA$		-0.9	-1.2	mV
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu A, I_E = 0A$	-15			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1mA, R_{BE} = \infty$	-12			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu A, I_C = 0A$	-5			V
Turn-On Time	t_{on}	See specified Test Circuit.		30		ns
Storage Time	t_{stg}			75		ns
Fall Time	t_f			15		ns

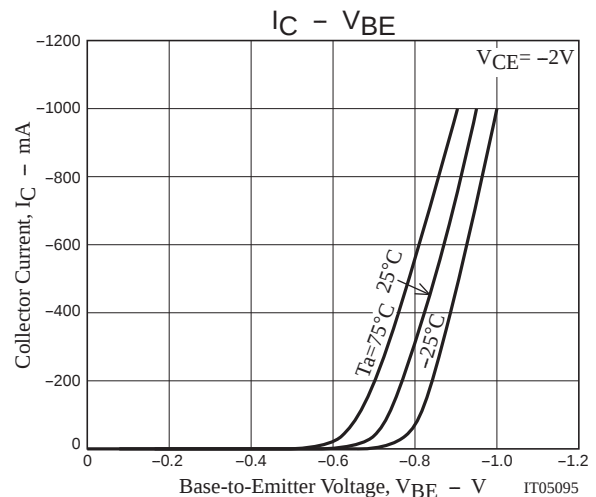
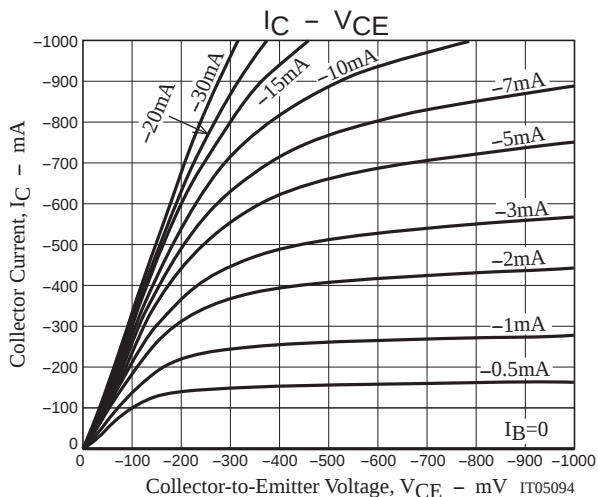
Switching Time Test Circuit

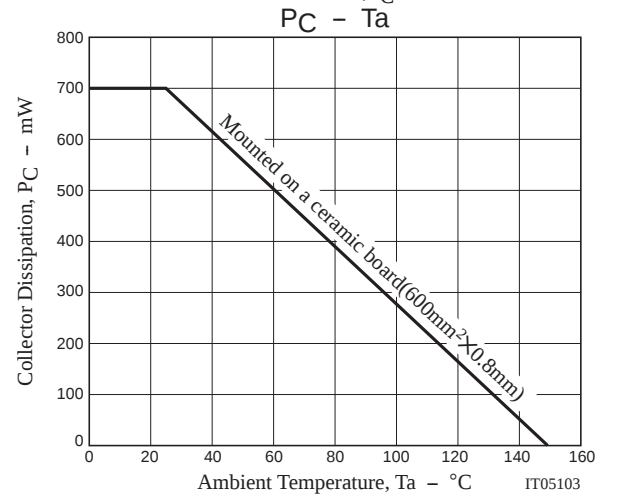
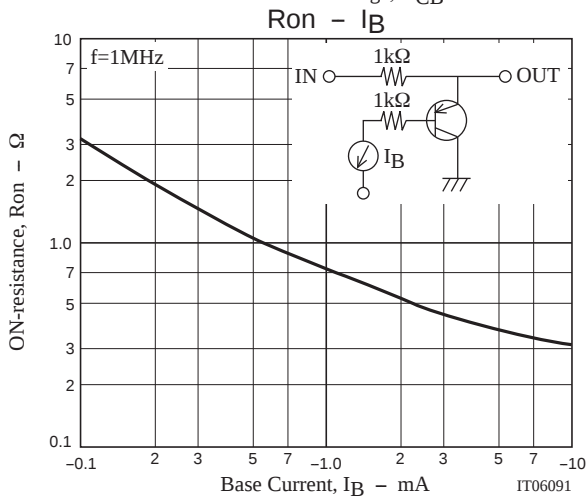
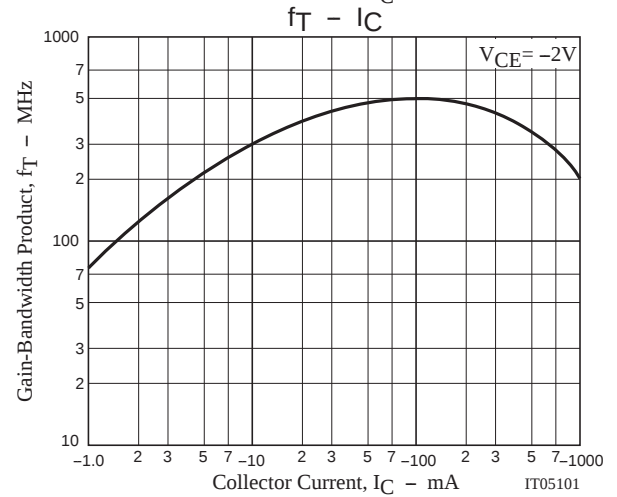
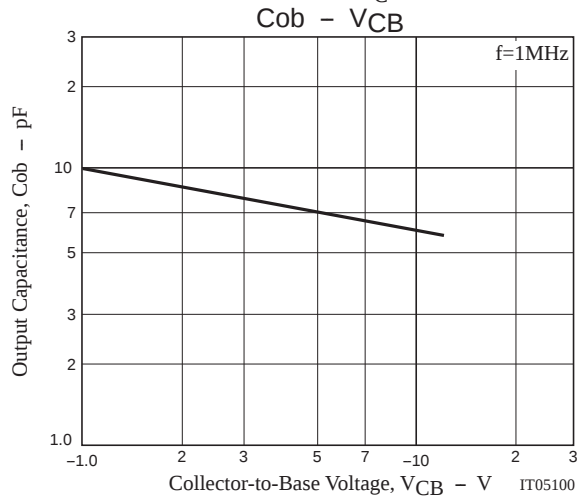
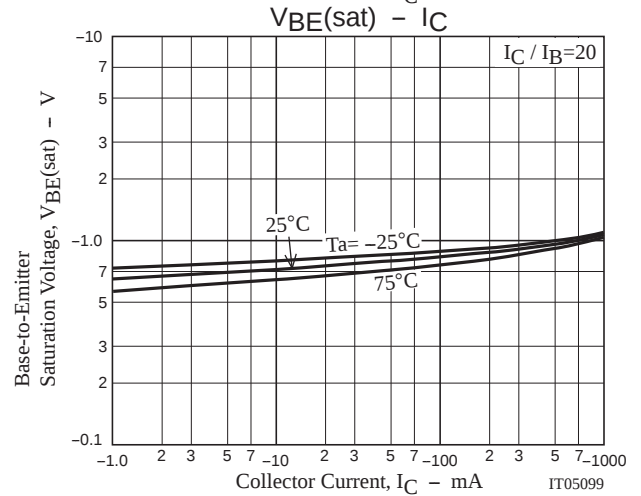
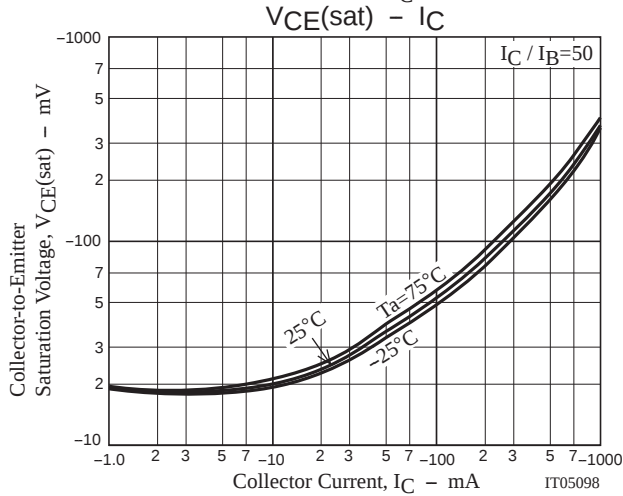
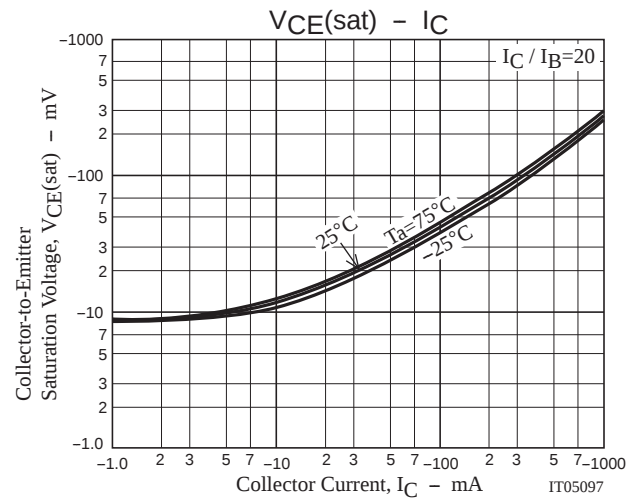
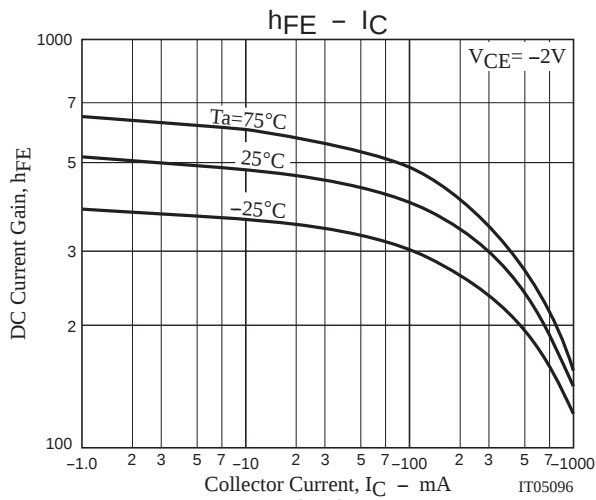


$$I_C = 20I_{B1} = -20I_{B2} = -400mA$$

Ordering Information

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





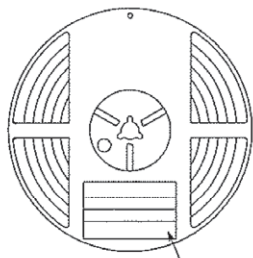
Embossed Taping Specification

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

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:****)

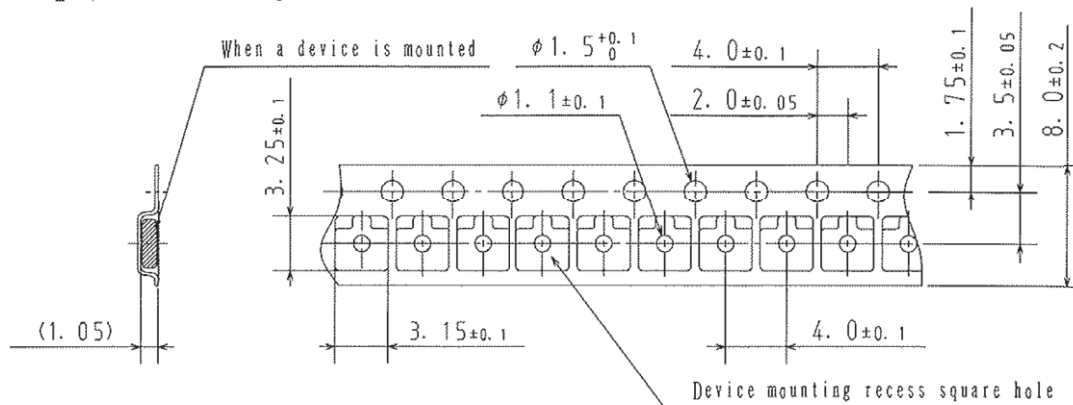
NOTE (1)

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

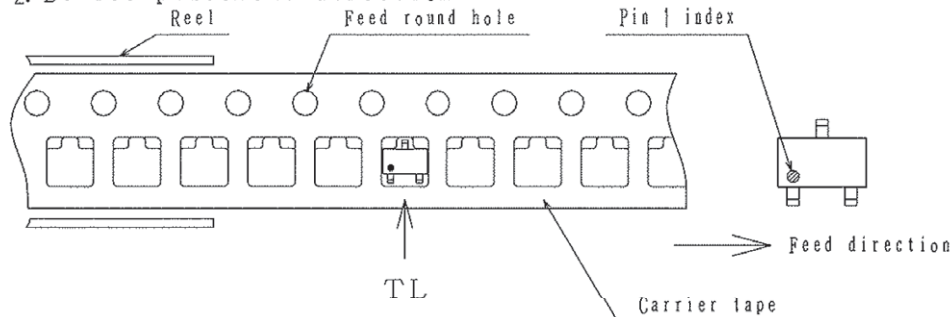
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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

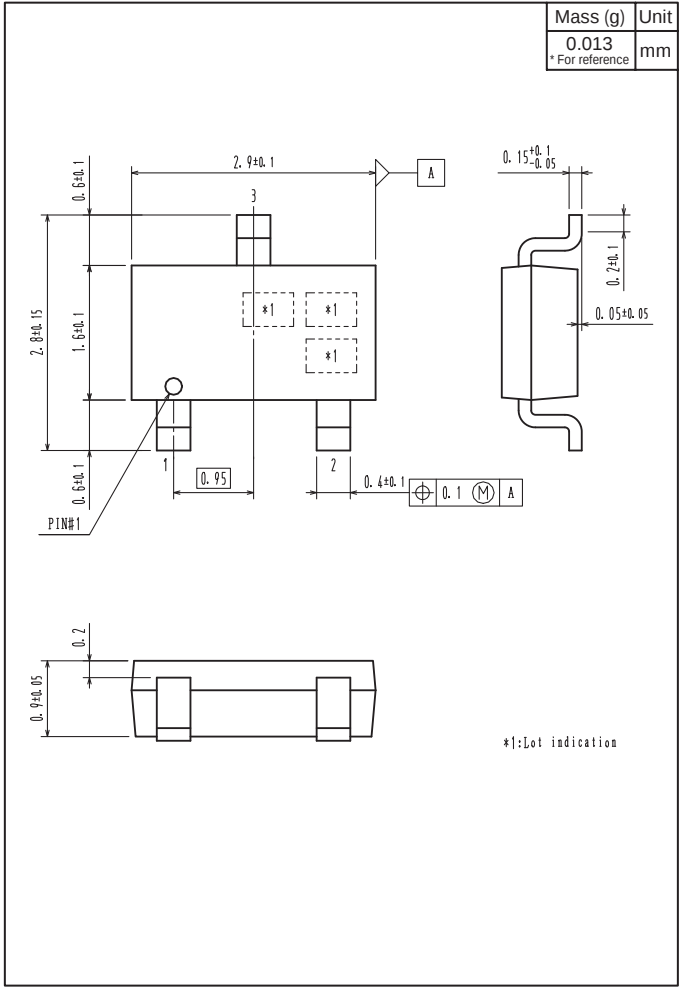


2-2. Device placement direction

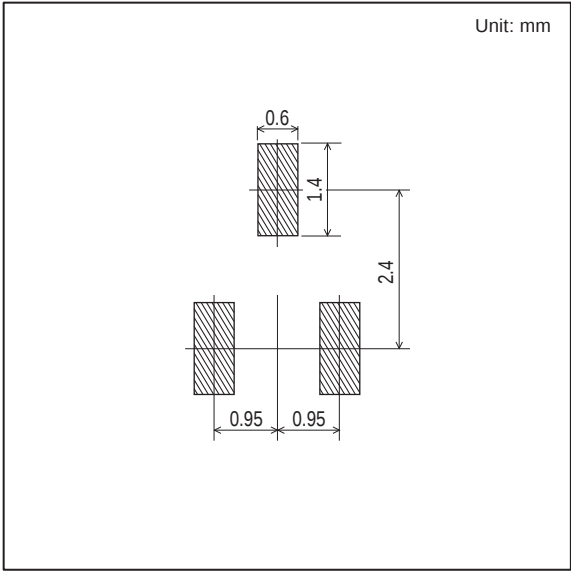


Those with one electrode terminal on the feed hole side.....TL

Outline Drawing
12A02CH-TL-E



Land Pattern Example



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