



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

CPH5902

TR : NPN Epitaxial Planar Silicon Transistor

FET : N-Channel Silicon Junction FET

High-Frequency Amplifier. AM Amplifier. Low-Frequency Amplifier Applications

Features

- Composite type with J-FET and NPN transistors contained in the CPH5 package, improving the mounting efficiency greatly
- The CPH5902 contains a 2SK2394-equivalent chip and a 2SC4639-equivalent chip in one package
- Drain and emitter are shared

Specifications

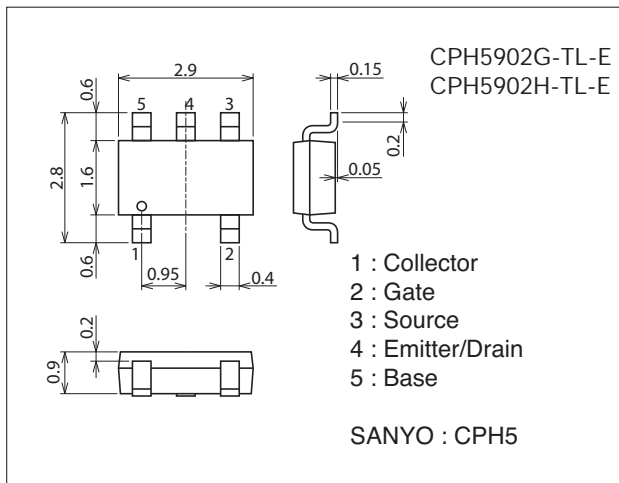
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
[FET]				
Drain-to-Source Voltage	VDSX		15	V
Gate-to-Drain Voltage	VGDS		-15	V
Gate Current	IG		10	mA
Drain Current	ID		50	mA
Allowable Power Dissipation	PD	Mounted on a ceramic board (600mm ² ×0.8mm)	350	mW
[TR]				
Collector-to-Base Voltage	VCBO		55	V
Collector-to-Emitter Voltage	VCEO		50	V
Emitter-to-Base Voltage	VEBO		6	V
Collector Current	IC		150	mA
Collector Current (Pulse)	ICP		300	mA
Base Current	IB		30	mA
Collector Dissipation	PC	Mounted on a ceramic board (600mm ² ×0.8mm)	350	mW
[TR]				
Total Power Dissipation	PT	Mounted on a ceramic board (600mm ² ×0.8mm)	500	mW
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Package Dimensions

unit : mm (typ)

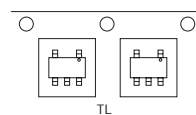
7017A-007



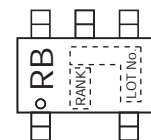
Product & Package Information

- Package : CPH5
- JEITA, JEDEC : SC-74A, SOT-25
- Minimum Packing Quantity : 3,000 pcs./reel

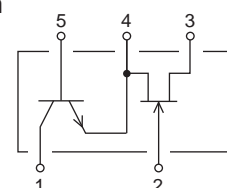
Packing Type : TL



Marking



Electrical Connection



SANYO Semiconductor Co., Ltd.

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

CPH5902

Electrical Characteristics at Ta=25°C

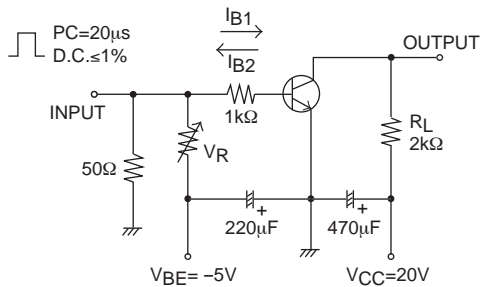
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[FET]						
Gate-to-Drain Breakdown Voltage	V(BR)GDS	I _G =-10μA, V _{GS} =0V	-15			V
Gate Cutoff Current	I _{GSS}	V _{GS} =-10V, V _{DS} =0V			-1.0	nA
Cutoff Voltage	V _{GS(off)}	V _{DS} =5V, I _D =100μA	-0.4	-0.7	-1.5	V
Drain Current	I _{DSS}	V _{DS} =5V, V _{GS} =0V	10.0*		32.0*	mA
Forward Transfer Admittance	y _{fs}	V _{DS} =5V, V _{GS} =0V, f=1kHz	24	38		mS
Input Capacitance	C _{iss}	V _{DS} =5V, V _{GS} =0V, f=1kHz		10.0		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =5V, V _{GS} =0V, f=1kHz		2.9		pF
Noise Figure	NF	V _{DS} =5V, R _g =1kΩ, I _D =1mA, f=1kHz		1.0		dB
[TR]						
Collector Cutoff Current	I _{CBO}	V _{CB} =35V, I _E =0A			0.1	μA
Emitter Cutoff Current	I _{EBO}	V _{EB} =4V, I _C =0A			0.1	μA
DC Current Gain	h _{FE}	V _{CE} =6V, I _C =1mA	135		400	
Gain-Bandwidth Product	f _T	V _{CE} =6V, I _C =10mA		200		MHz
Output Capacitance	C _{ob}	V _{CB} =6V, f=1MHz		1.7		pF
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}	I _C =50mA, I _B =5mA		0.08	0.4	mV
Base-to-Emitter Saturation Voltage	V _{BE(sat)}	I _C =50mA, I _B =5mA		0.8	1.0	V
Collector-to-Base Breakdown Voltage	V(BR)CBO	I _C =10μA, I _E =0A	55			V
Collector-to-Emitter Breakdown Voltage	V(BR)CEO	I _C =1mA, R _{BE} =∞	50			V
Emitter-to-Base Breakdown Voltage	V(BR)EBO	I _E =10μA, I _C =0A	6			V
Turn-On Time	t _{on}	See specified Test Circuit.		0.15		ns
Storage Time	t _{stg}			0.75		ns
Fall Time	t _f			0.20		ns

* : The CPH5902 is classified by I_{DSS} as follows : (unit : mA)

Rank	G	H
I _{DSS}	10.0 to 20.0	16.0 to 32.0

The specifications shown above are for each individual FET or transistor.

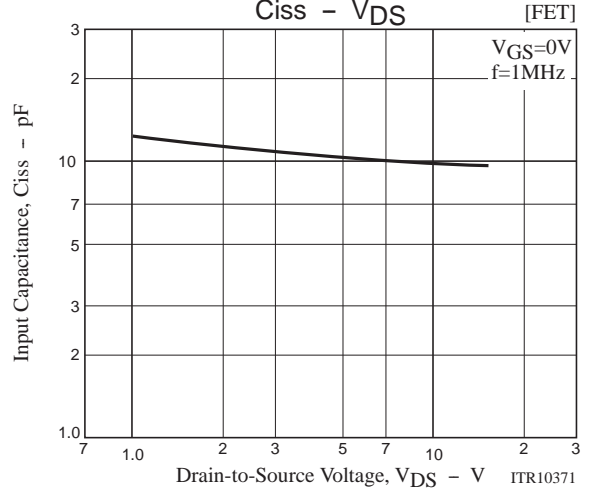
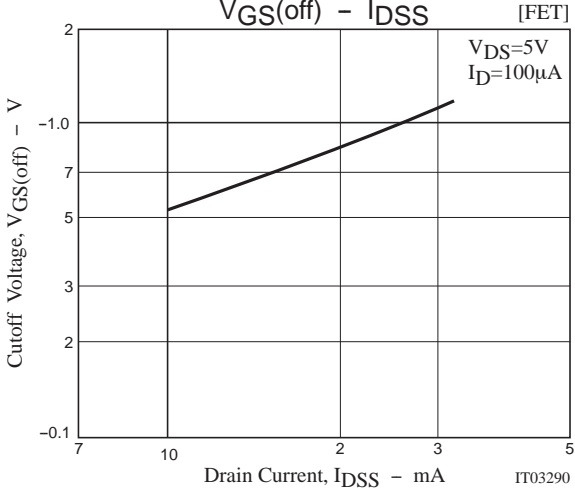
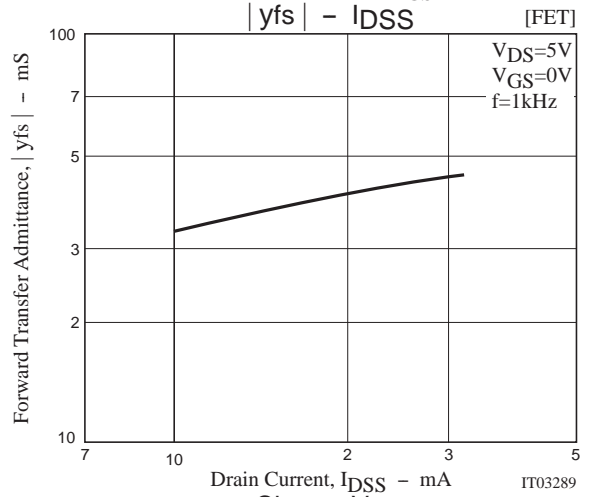
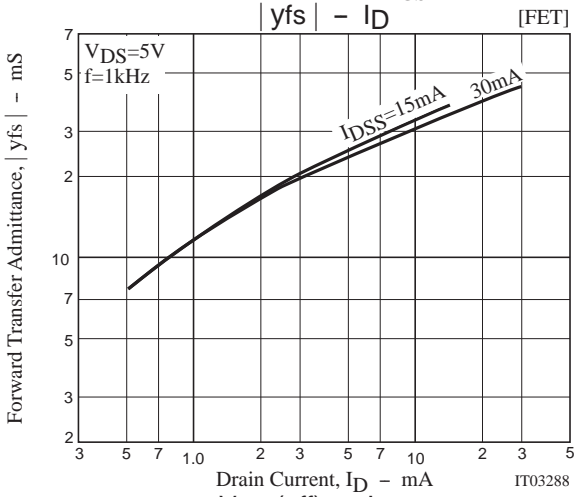
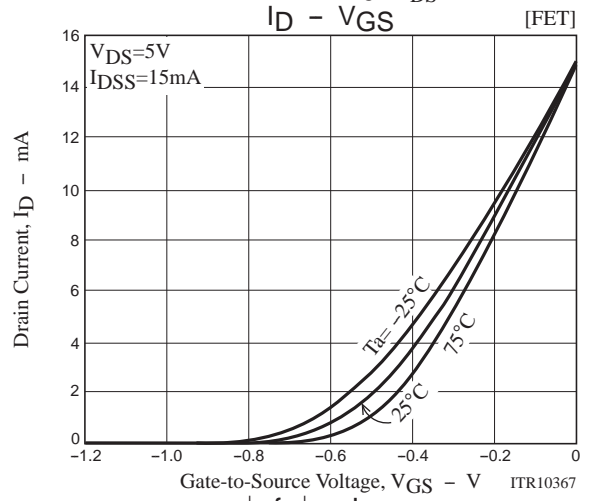
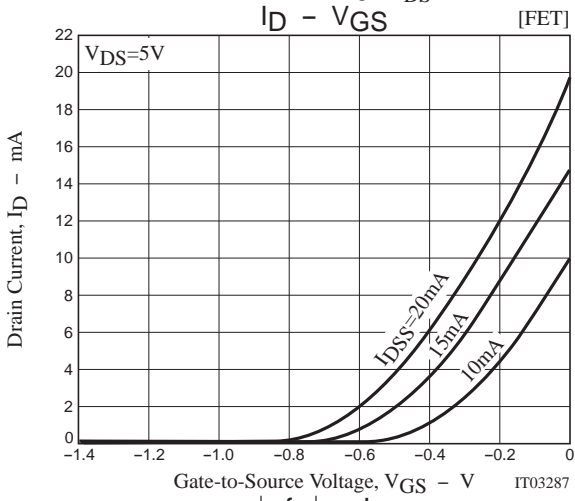
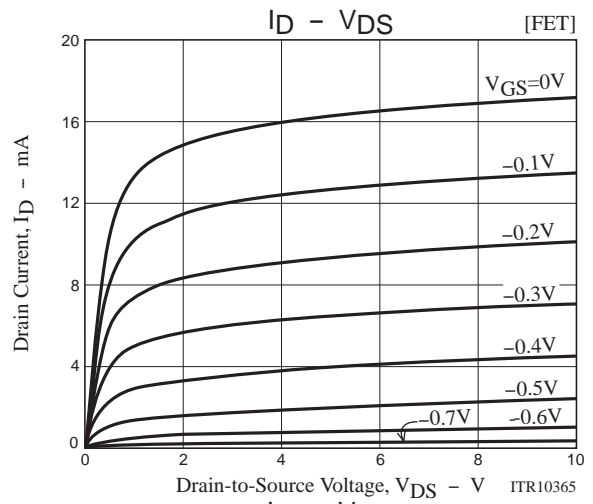
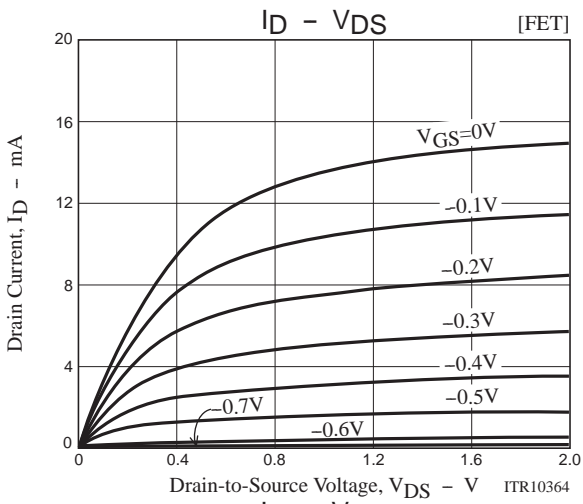
Switching Time Test Circuit

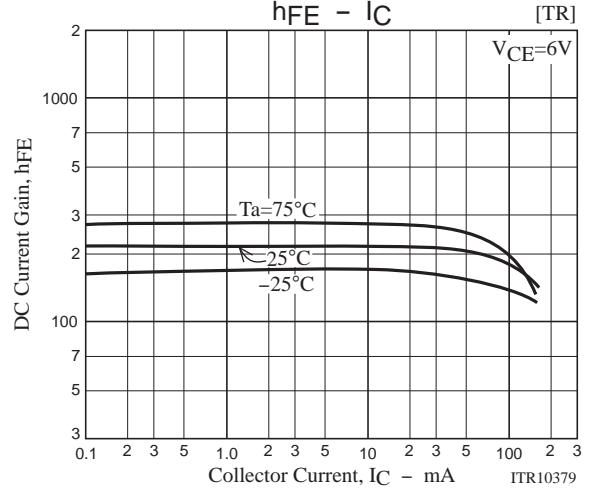
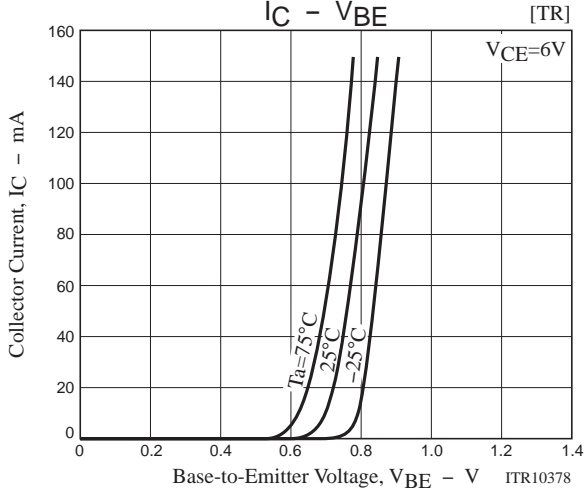
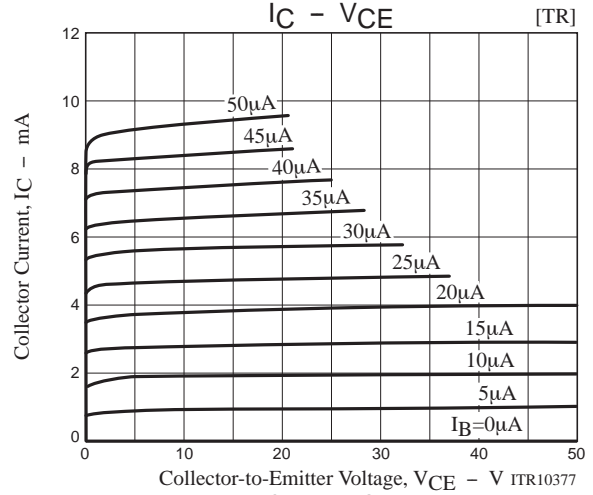
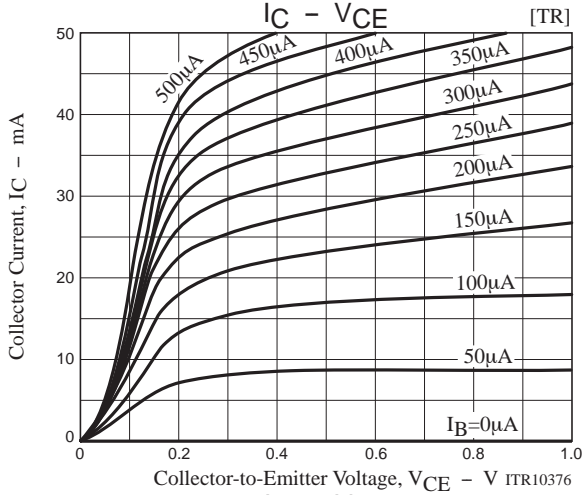
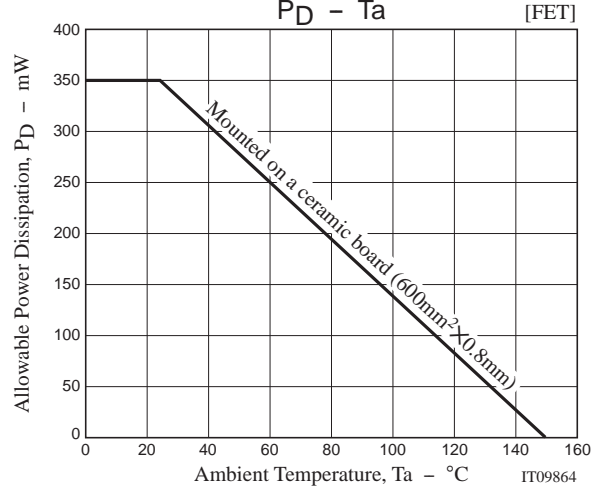
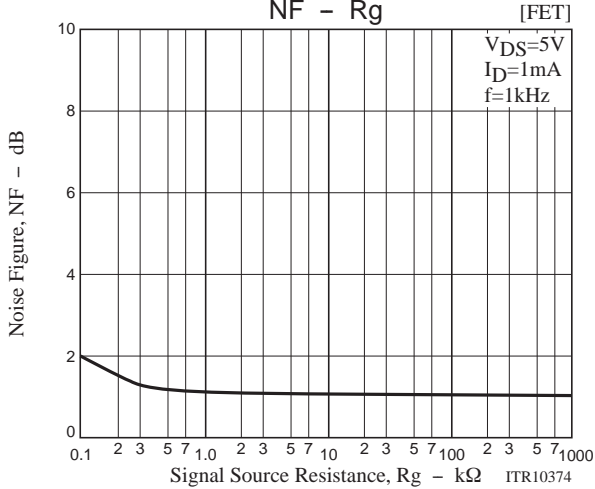
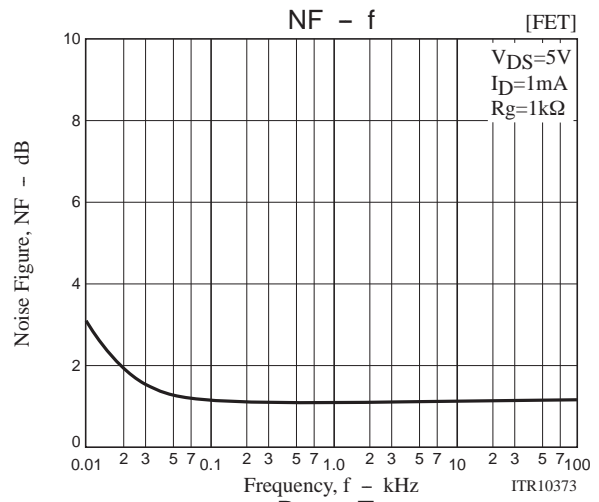
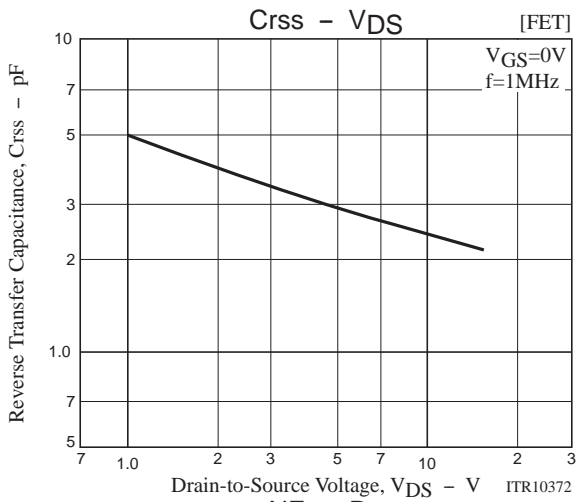


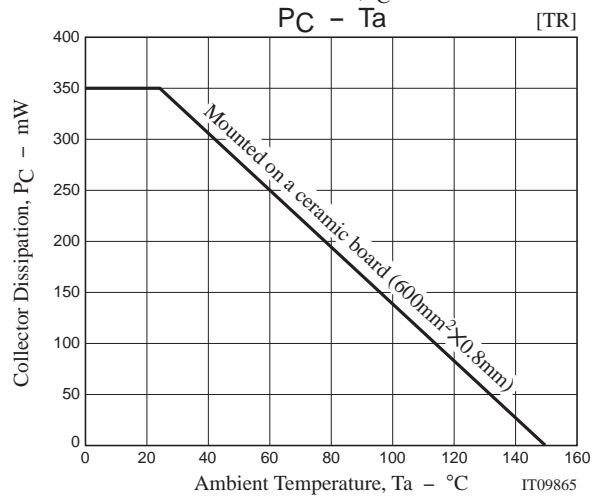
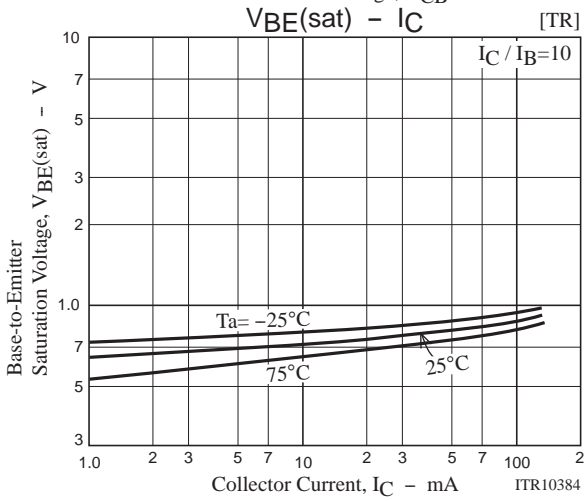
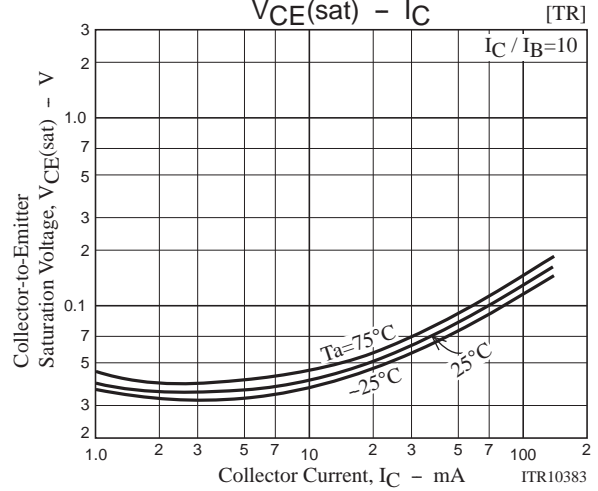
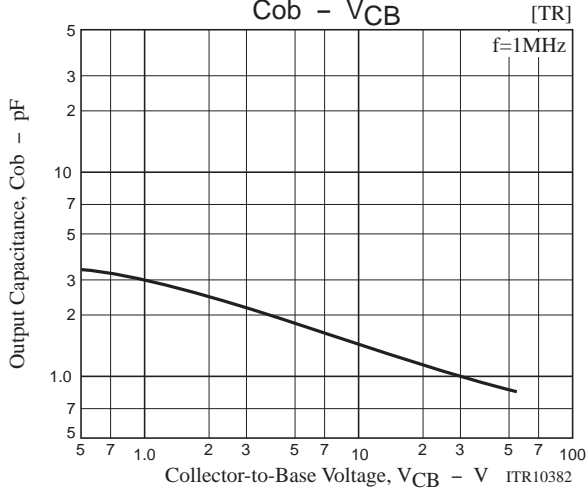
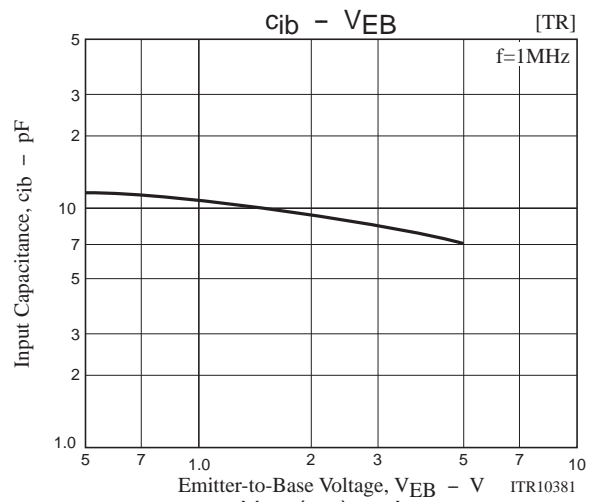
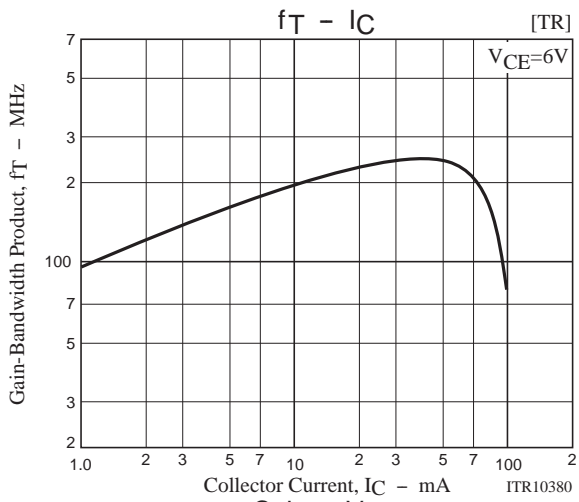
$$10I_{B1} = -10I_{B2} = I_C = 10\text{mA}$$

Ordering Information

Device	Package	Shipping	memo
CPH5902G-TL-E	CPH5	3,000pcs./reel	Pb Free
CPH5902H-TL-E	CPH5	3,000pcs./reel	







Embossed Taping Specification

CPH5902G-TL-E, CPH5902H-TL-E

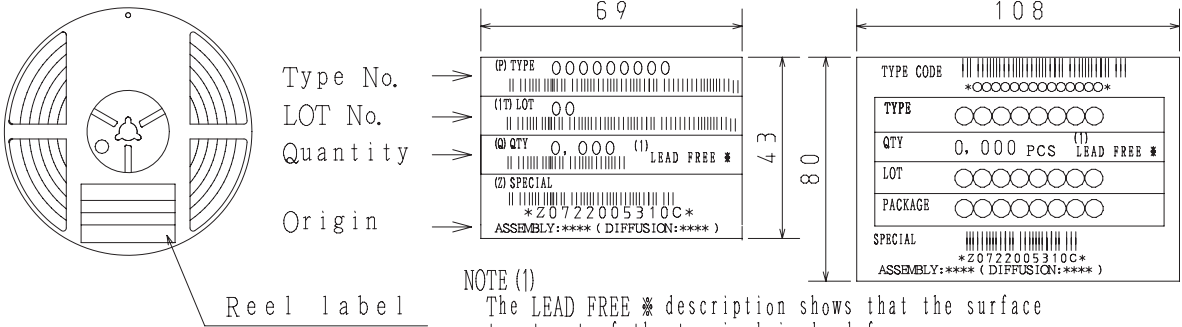
1. Packing Format

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)
CPH5	CPH6	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

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



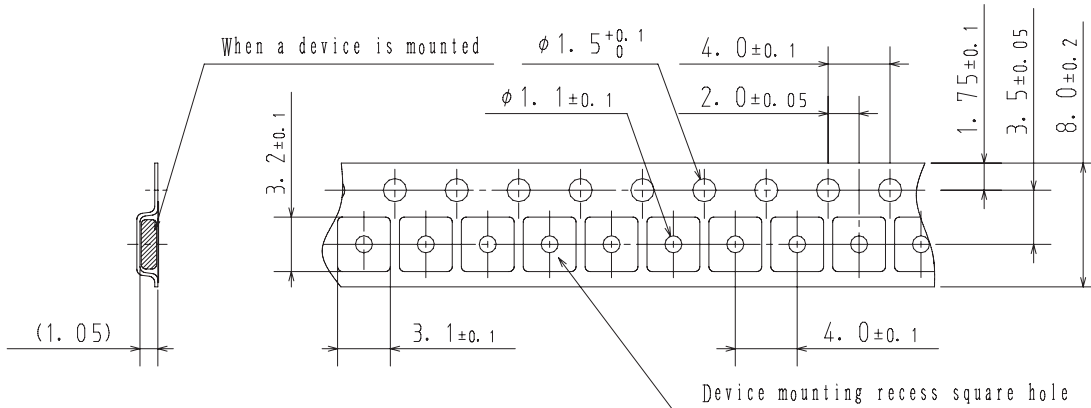
NOTE (1)

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

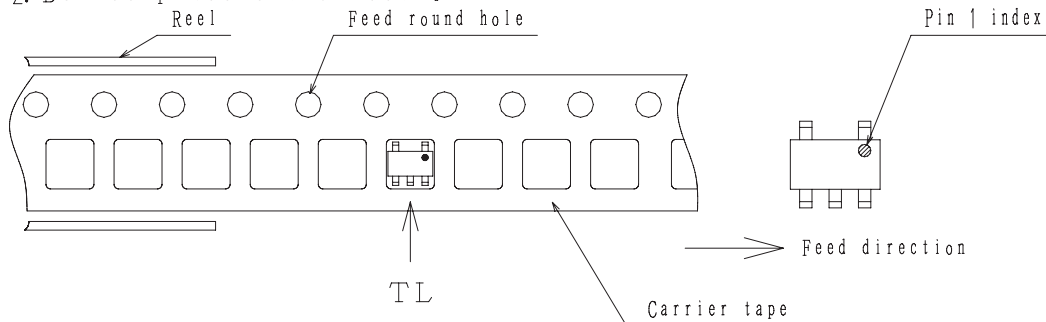
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction

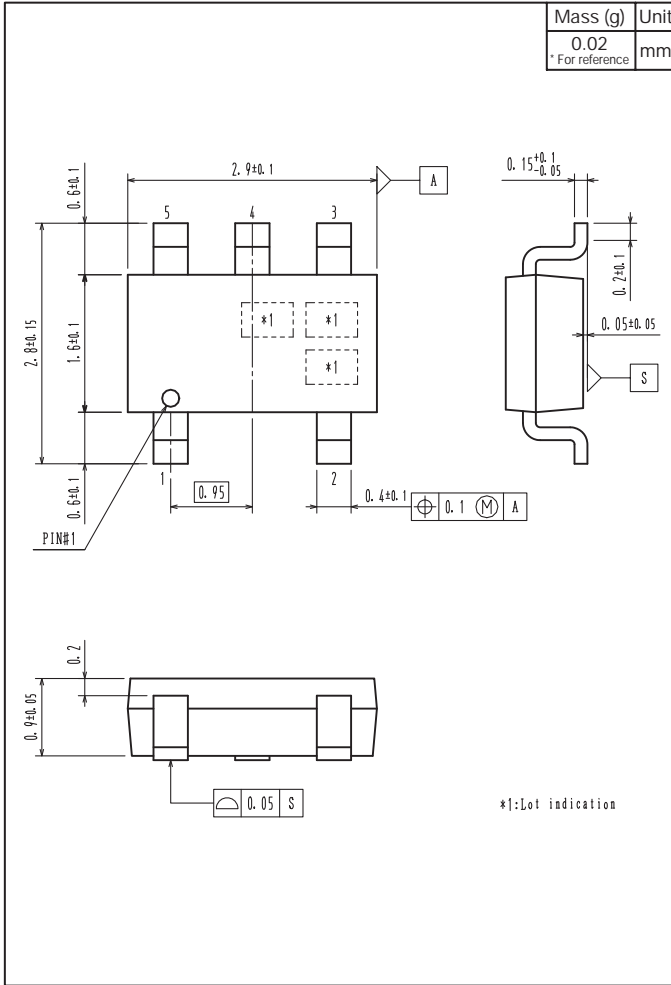


Those with pin 1 index on the feed hole side.....TL

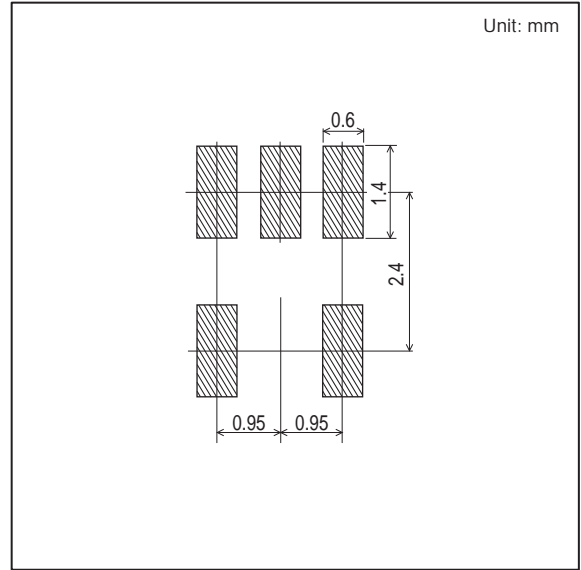
CPH5902

Outline Drawing

CPH5902G-TL-E, CPH5902H-TL-E



Land Pattern Example



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