Ordering number : EN8278B

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

CPH5901

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 CPH5901 is formed with two chips, being equivalent to the 2SK932 and the other the 2SC4639, placed in one package
- Common drain and emitter

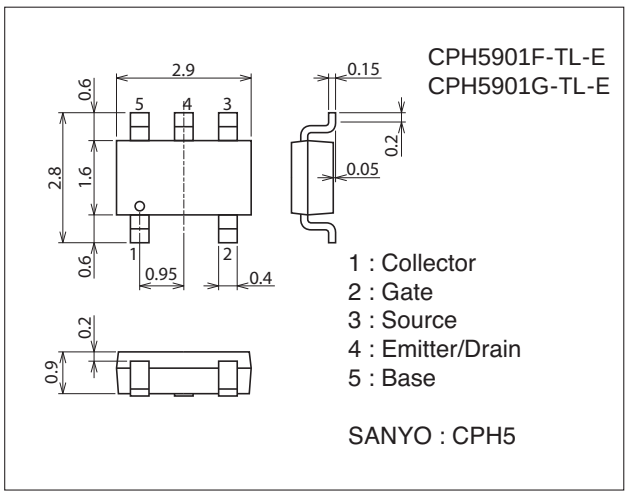
Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
[FET]				
Drain-to-Source Voltage	V_{DSX}		15	V
Gate-to-Drain Voltage	V_{GDS}		−15	V
Gate Current	I_G		10	mA
Drain Current	I_D		50	mA
Allowable Power Dissipation	P_D	Mounted on a ceramic board (600mm^2×0.8mm)	350	mW
[TR]				
Collector-to-Base Voltage	V_{CBO}		55	V
Collector-to-Emitter Voltage	V_{CEO}		50	V
Emitter-to-Base Voltage	V_{EBO}		6	V
Collector Current	I_C		150	mA
Collector Current (Pulse)	I_{CP}		300	mA
Base Current	I_B		30	mA
Collector Dissipation	P_C	Mounted on a ceramic board (600mm^2×0.8mm)	350	mW
[TR]				
Total Power Dissipation	P_T	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

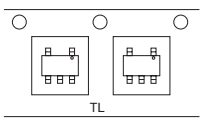
unit : mm (typ)
7017A-007



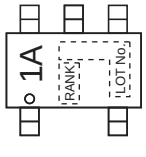
Product & Package Information

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

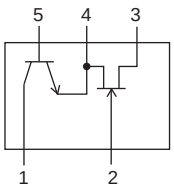
Packing Type : TL



Marking



Electrical Connection



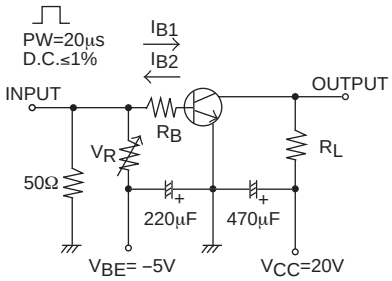
Electrical Characteristics at Ta=25°C

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	−0.2	−0.6	−1.4	V
Drain Current	I_{DSS}	V_{DS}=5V, V_{GS}=0V	6.0*		20.0*	mA
Forward Transfer Admittance	| yfs |	V_{DS}=5V, V_{GS}=0V, f=1kHz	25	50		mS
Input Capacitance	Ciss	V_{DS}=5V, V_{GS}=0V, f=1kHz		10		pF
Reverse Transfer Capacitance	Crss	V_{DS}=5V, V_{GS}=0V, f=1kHzz		3.0		pF
Noise Figure	NF	V_{DS}=5V, Rg=1kΩ, I_D=1mA, f=1kHz		1.5		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	Cob	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 CPH5901 is classified by I_{DSS} as follows : (unit : mA)

Rank	F	G
I_{DSS}	6.0 to 12.0	10.0 to 20.0

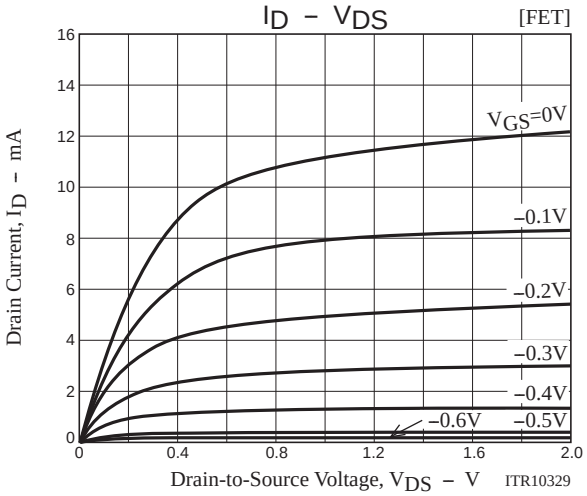
Switching Time Test Circuit

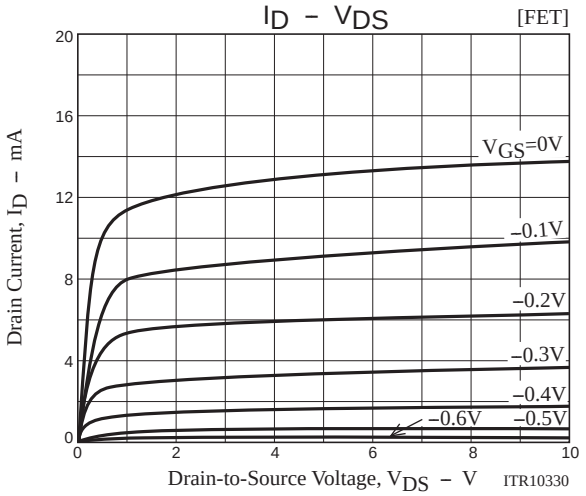


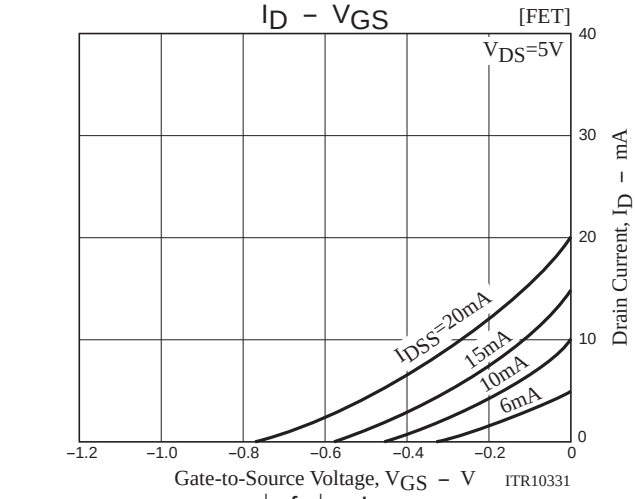
$10I_{B1}$= −$10I_{B2}$= I_C=10mA

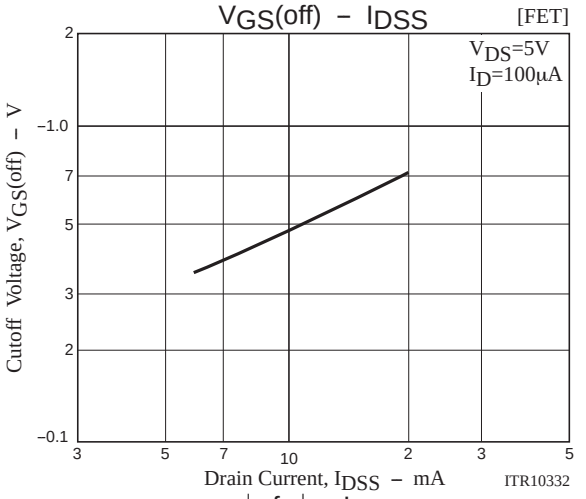
Ordering Information

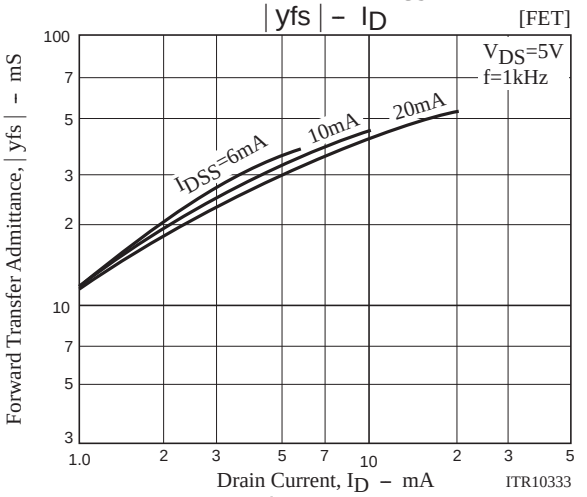
Device	Package	Shipping	memo
CPH5901F-TL-E	CPH5	3,000pcs./reel	Pb Free
CPH5901G-TL-E	CPH5	3,000pcs./reel	

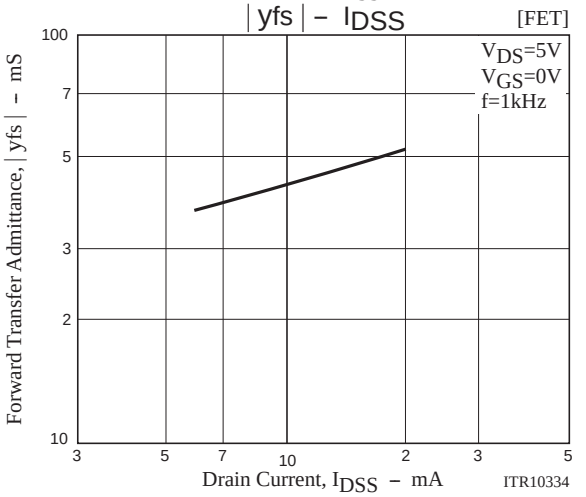

ID – VDS [FET]
Drain Current, ID – mA
VGS=0V
–0.1V
–0.2V
–0.3V
–0.4V
–0.5V
–0.6V
Drain-to-Source Voltage, VDS – V
ITR10329

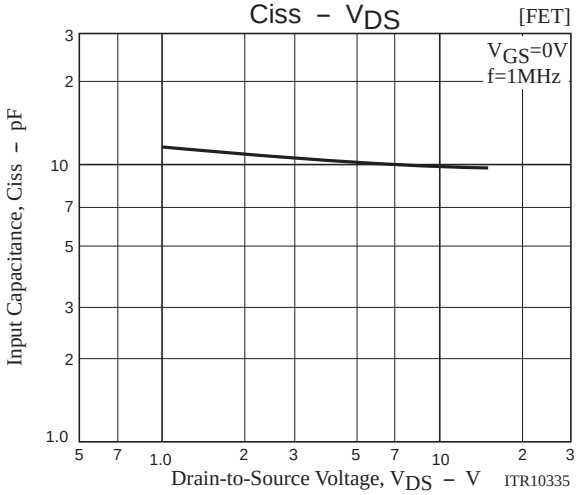

ID – VDS [FET]
Drain Current, ID – mA
VGS=0V
–0.1V
–0.2V
–0.3V
–0.4V
–0.5V
–0.6V
Drain-to-Source Voltage, VDS – V
ITR10330

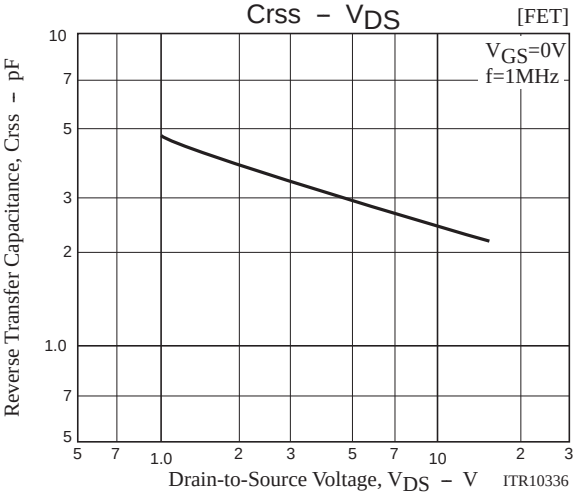

ID – VGS [FET]
VDS=5V
IDSS=20mA
15mA
10mA
6mA
Drain Current, ID – mA
Gate-to-Source Voltage, VGS – V
ITR10331

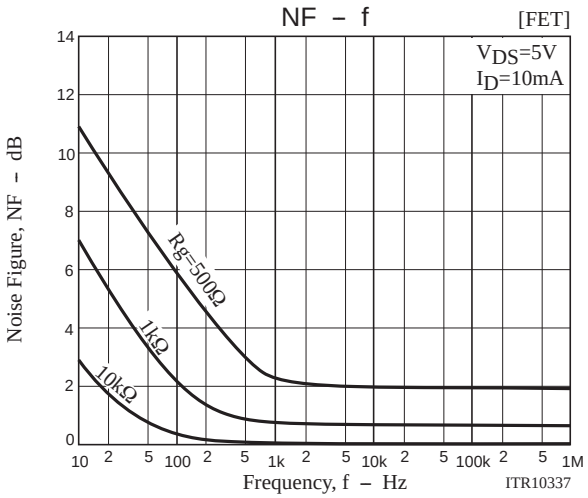

VGS(off) – IDSS [FET]
VDS=5V
ID=100μA
Cutoff Voltage, VGS(off) – V
Drain Current, IDSS – mA
ITR10332

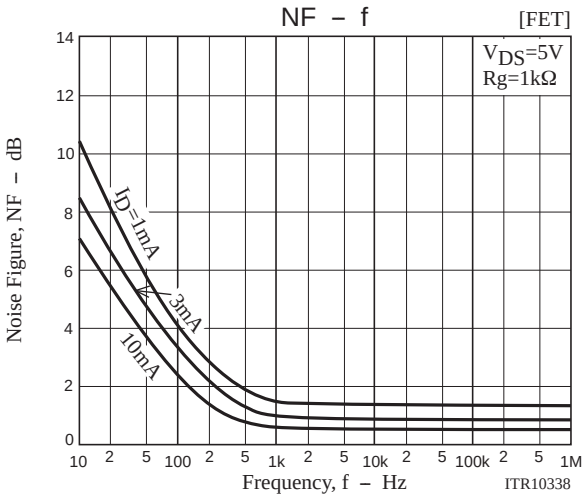

| yfs | – ID [FET]
VDS=5V
f=1kHz
IDSS=6mA
10mA
20mA
Forward Transfer Admittance, | yfs | – mS
Drain Current, ID – mA
ITR10333

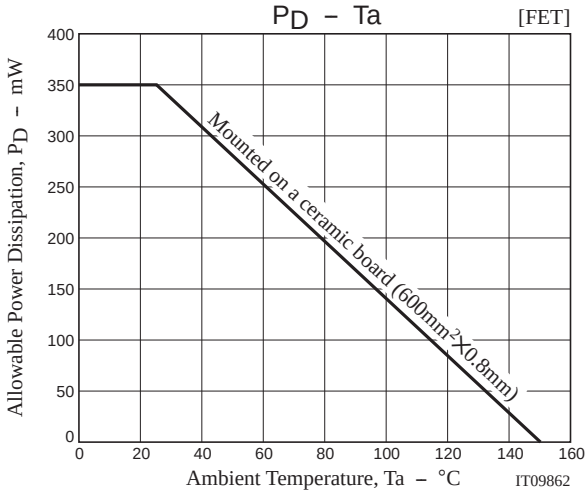

| yfs | – IDSS [FET]
VDS=5V
VGS=0V
f=1kHz
Forward Transfer Admittance, | yfs | – mS
Drain Current, IDSS – mA
ITR10334

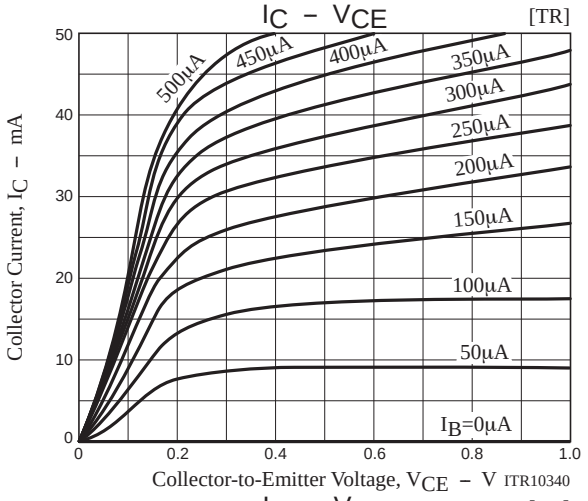

Ciss – VDS [FET]
VGS=0V
f=1MHz
Input Capacitance, Ciss – pF
Drain-to-Source Voltage, VDS – V
ITR10335

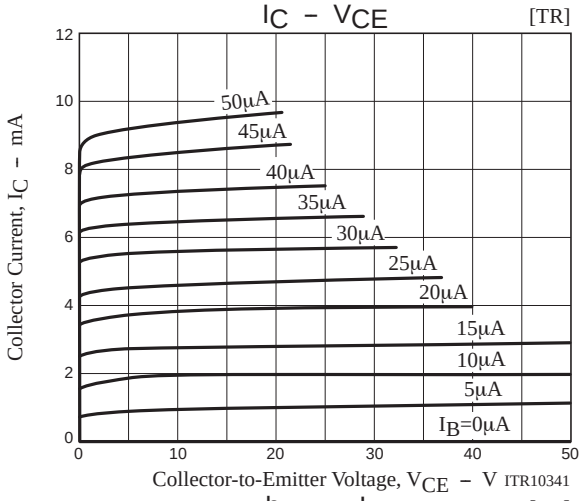

Crss – VDS [FET]
VGS=0V
f=1MHz
Reverse Transfer Capacitance, Crss – pF
Drain-to-Source Voltage, VDS – V
ITR10336

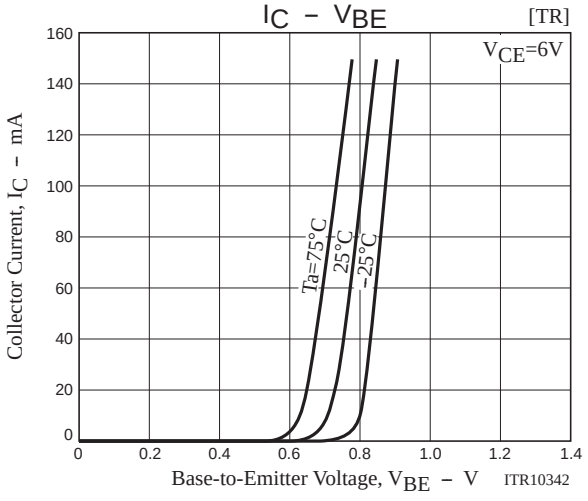

NF – f
[FET]
VDS=5V
ID=10mA
Rg=500Ω
1kΩ
10kΩ
Noise Figure, NF – dB
Frequency, f – Hz
ITR10337

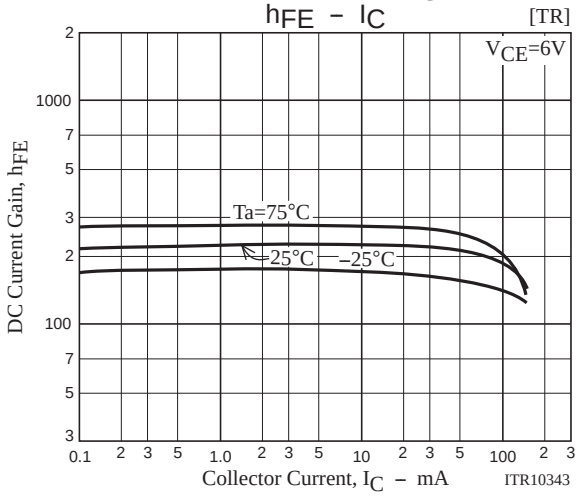

NF – f
[FET]
VDS=5V
Rg=1kΩ
ID=1mA
3mA
10mA
Noise Figure, NF – dB
Frequency, f – Hz
ITR10338

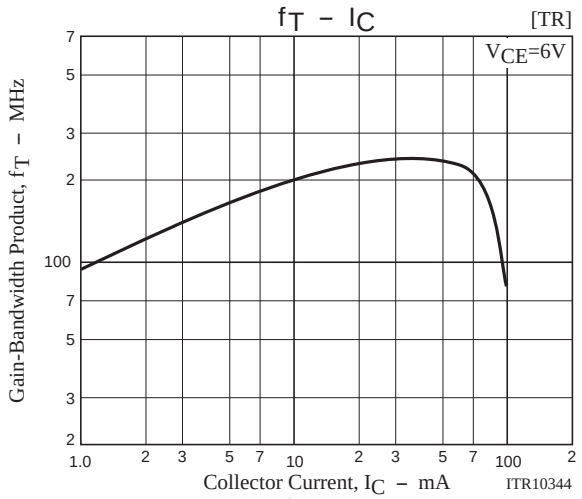

PD – Ta
[FET]
Mounted on a ceramic board (600mm²X0.8mm)
Allowable Power Dissipation, PD – mW
Ambient Temperature, Ta – °C
IT09862

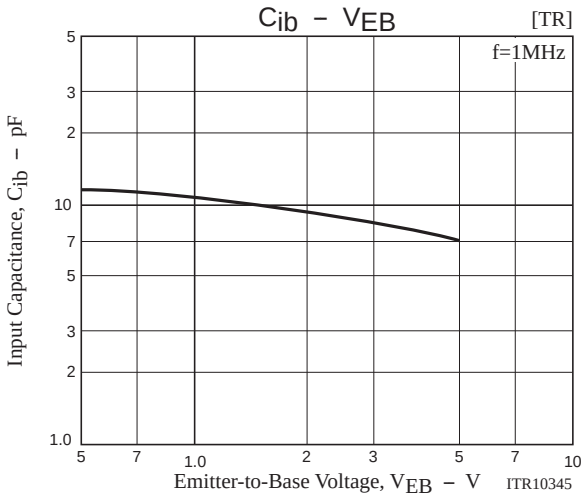

IC – VCE
[TR]
500μA
450μA
400μA
350μA
300μA
250μA
200μA
150μA
100μA
50μA
IB=0μA
Collector Current, IC – mA
Collector-to-Emitter Voltage, VCE – V
ITR10340

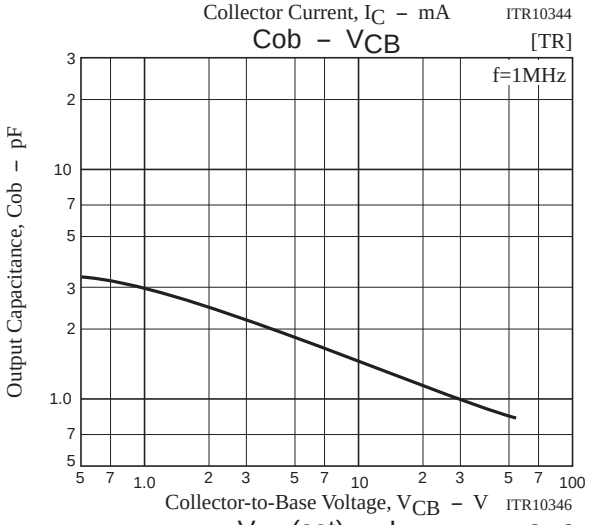

IC – VCE
[TR]
50μA
45μA
40μA
35μA
30μA
25μA
20μA
15μA
10μA
5μA
IB=0μA
Collector Current, IC – mA
Collector-to-Emitter Voltage, VCE – V
ITR10341

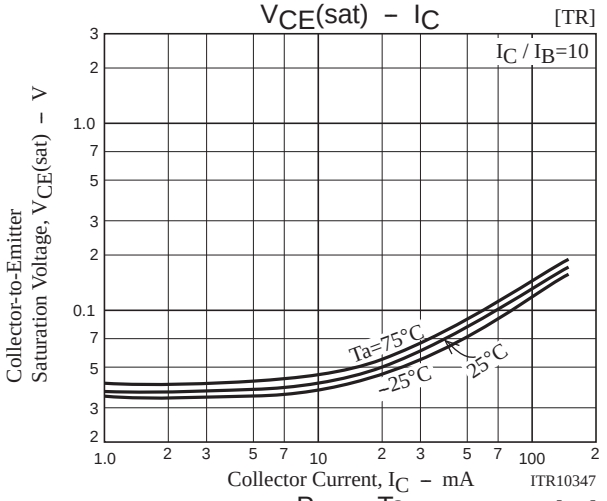

IC – VBE
[TR]
VCE=6V
Ta=75°C
25°C
–25°C
Collector Current, IC – mA
Base-to-Emitter Voltage, VBE – V
ITR10342

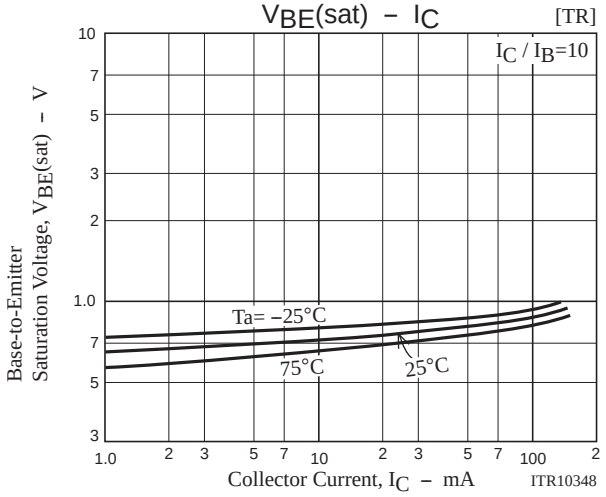

hFE – IC
[TR]
VCE=6V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – mA
ITR10343

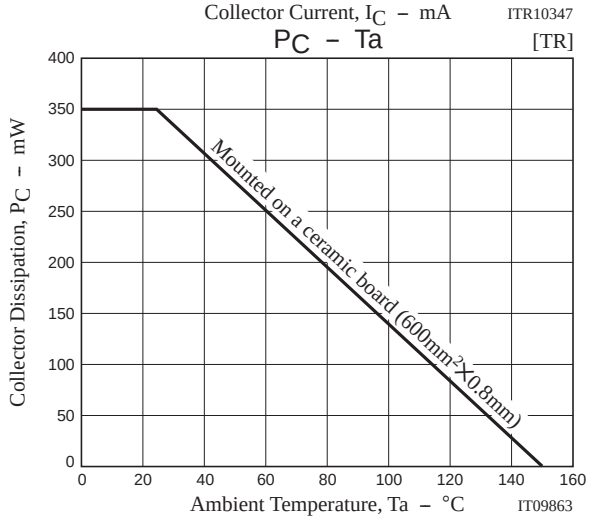

fT – IC
[TR]
VCE=6V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
ITR10344


Cib – VEB
[TR]
f=1MHz
Input Capacitance, Cib – pF
Emitter-to-Base Voltage, VEB – V
ITR10345


Cob – VCB
[TR]
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR10346


VCE(sat) – IC
[TR]
IC / IB=10
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Ta=75°C
25°C
–25°C
Collector Current, IC – mA
ITR10347


VBE(sat) – IC
[TR]
IC / IB=10
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Ta= –25°C
75°C
25°C
Collector Current, IC – mA
ITR10348


PC – Ta
[TR]
Collector Dissipation, PC – mW
Mounted on a ceramic board (600mm2×0.8mm)
Ambient Temperature, Ta – °C
IT09863

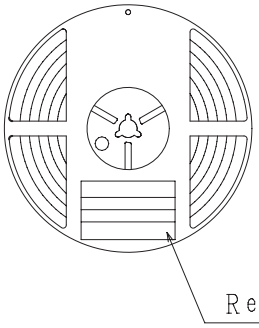
Embossed Taping Specification

CPH5901F-TL-E, CPH5901G-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

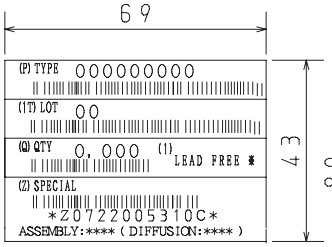
Packing method



Reel label

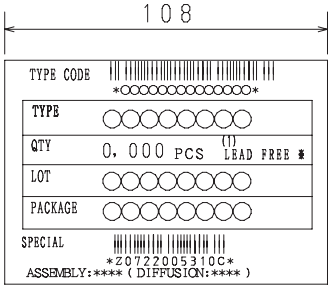
Reel label, Inner box label

(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.



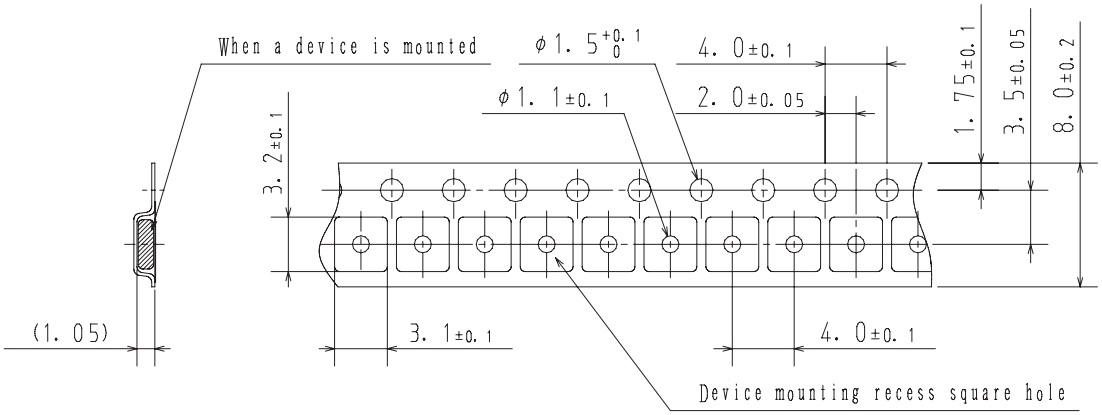
NOTE (1)

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

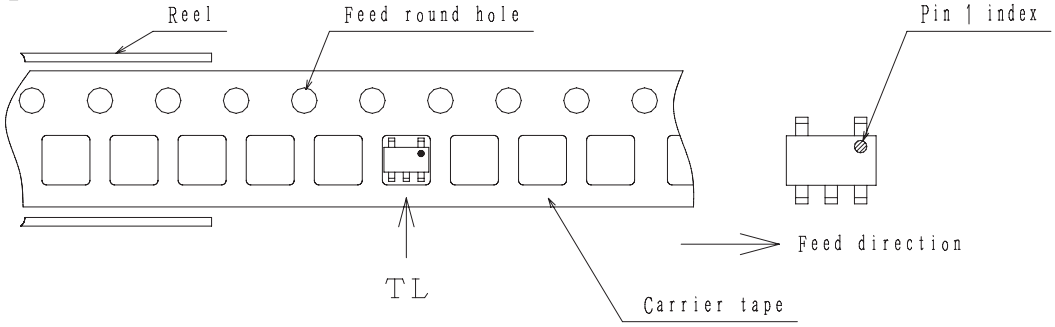
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



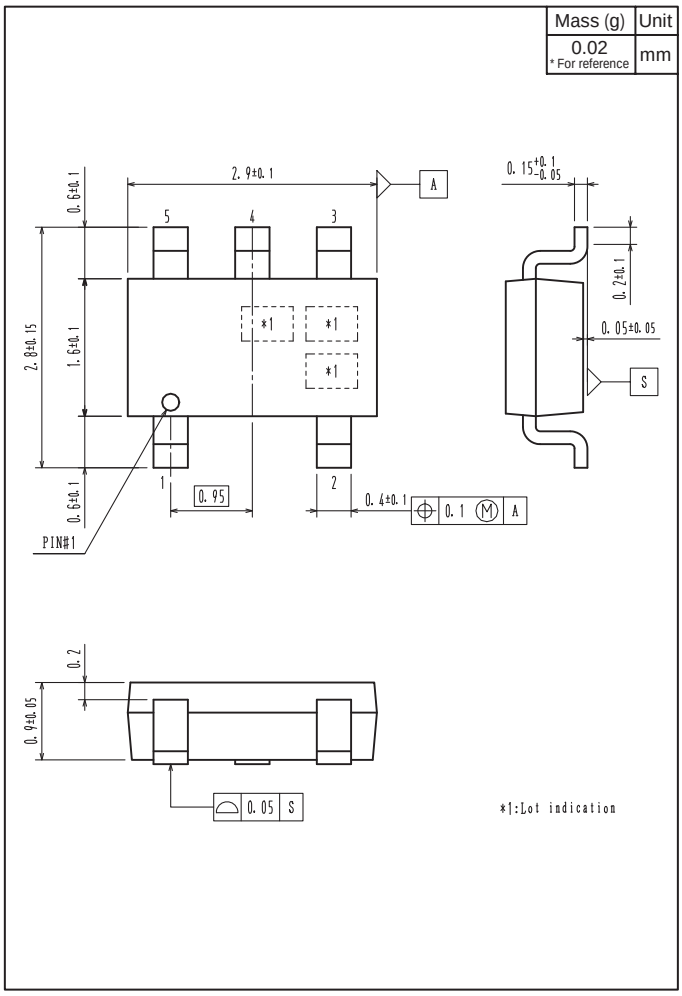
2-2. Device placement direction



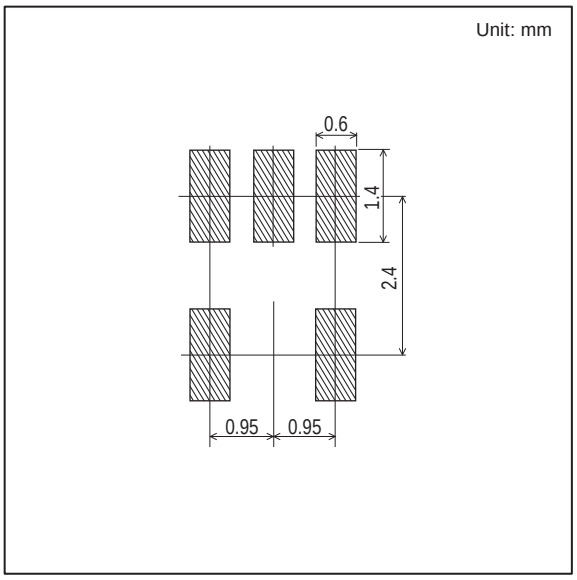
Those with pin 1 index on the feed hole side·····TL

Outline Drawing

CPH5901F-TL-E, CPH5901G-TL-E



Land Pattern Example



Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001
Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

http://moschip.ru/get-element

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:
moschip.ru
moschip.ru_4
moschip.ru_6
moschip.ru_9