



CPH5902

N-Channel JFET and NPN Bipolar Transistor 15V, 10 to 32mA, 50V, 150mA, Composite type CPH5

ON Semiconductor®

<http://onsemi.com>

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

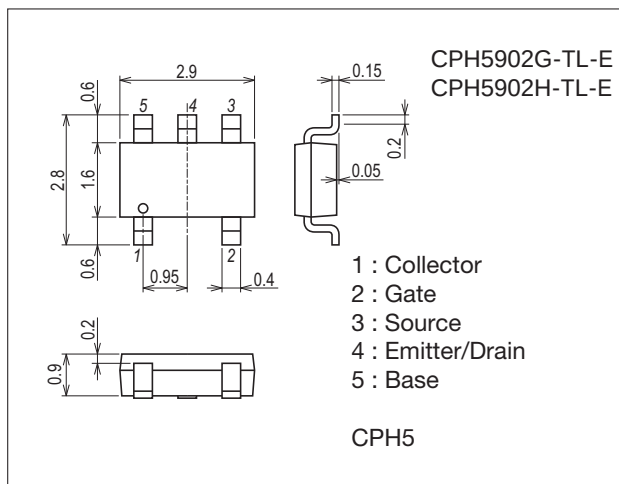
Parameter	Symbol	Conditions	Ratings	Unit
[FET]				
Drain-to-Source Voltage	V_{DSX}		15	V
Gate-to-Drain Voltage	V_{GDS}		-15	V
Gate Current	I_G		10	mA
Drain Current	I_D		50	mA
Allowable Power Dissipation	P_D	Mounted on a ceramic board (600mm ² ×0.8mm)	350	mW
[TR]				
Collector-to-Base Voltage	V_{CBO}		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	T_j		150	°C
Storage Temperature	T_{stg}		-55 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

unit : mm (typ)

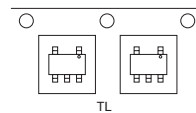
7017A-007



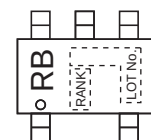
Product & Package Information

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

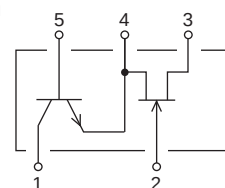
Packing Type : TL



Marking



Electrical Connection



CPH5902

Electrical Characteristics at Ta=25°C

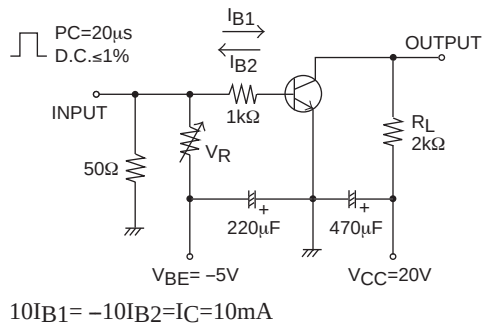
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[FET]						
Gate-to-Drain Breakdown Voltage	V(BR)GDS	I _G =-10μA, V _{GS} =0V	-15			V
Gate Cutoff Current	I _{GSS}	V _{GS} =-10V, V _{DS} =0V			-1.0	nA
Cutoff Voltage	V _{GS(off)}	V _{DS} =5V, I _D =100μA	-0.4	-0.7	-1.5	V
Drain Current	I _{DSS}	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

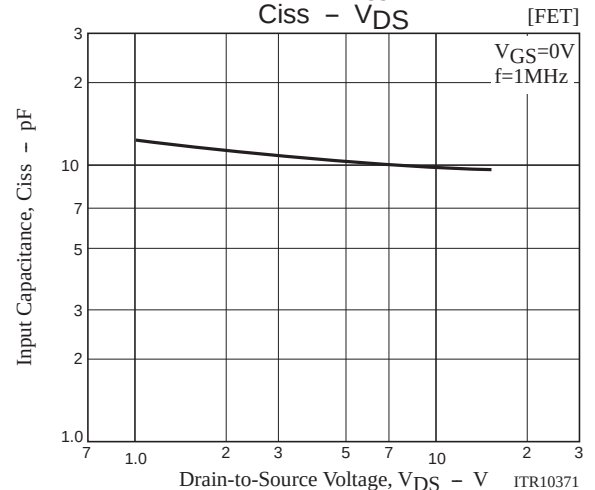
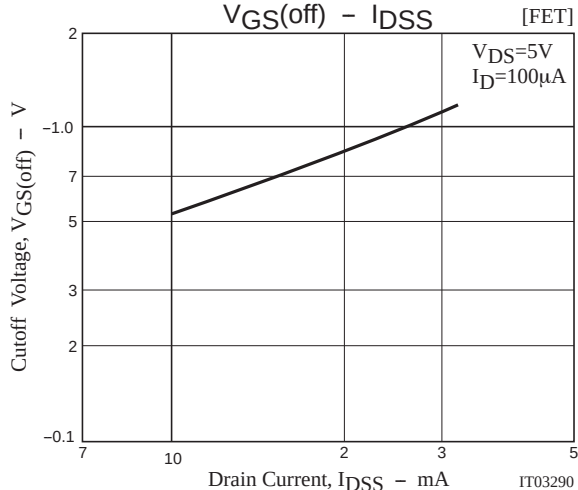
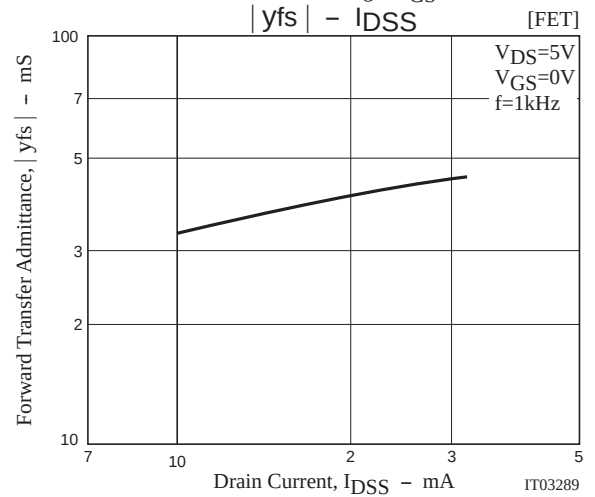
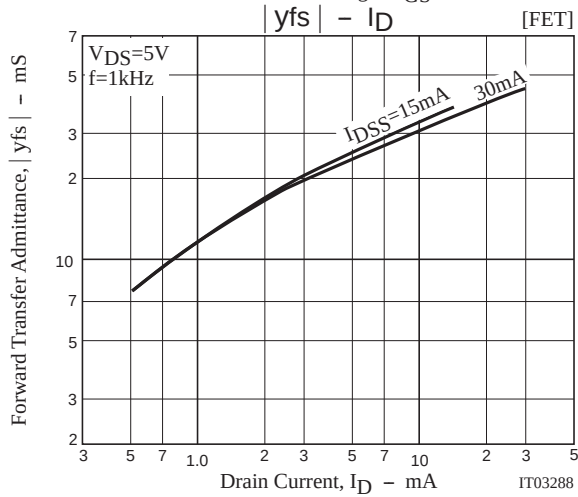
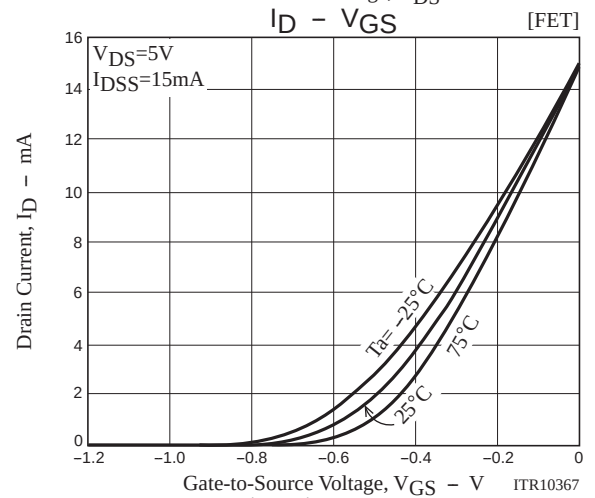
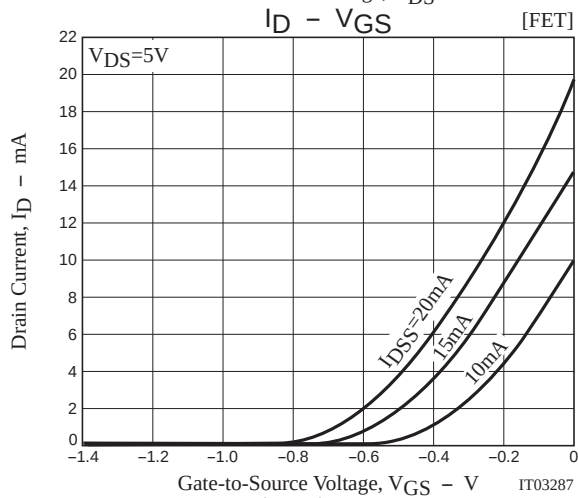
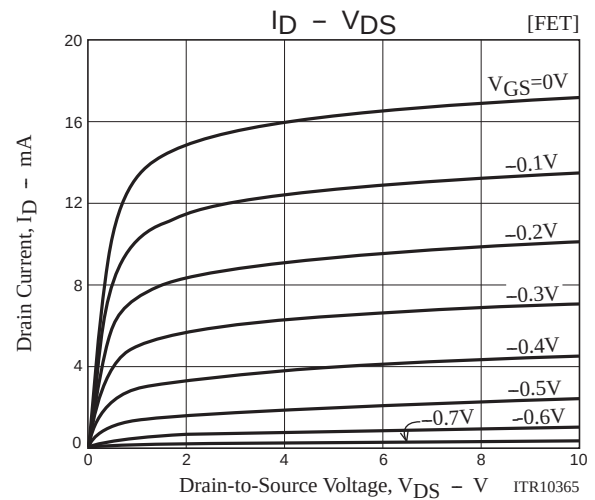
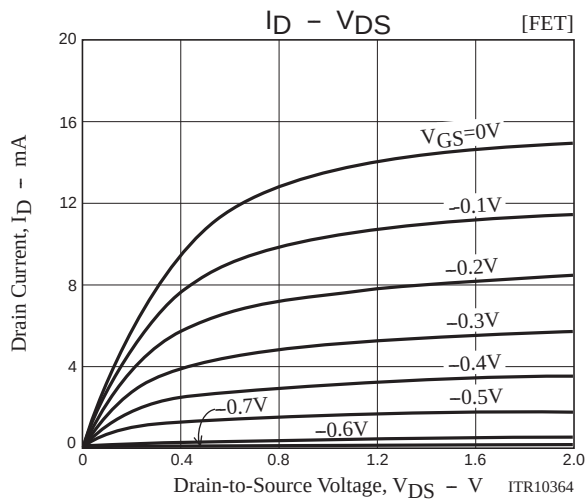
The specifications shown above are for each individual FET or transistor.

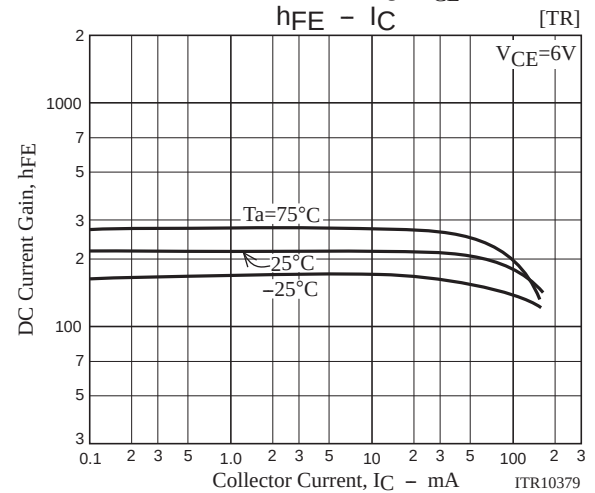
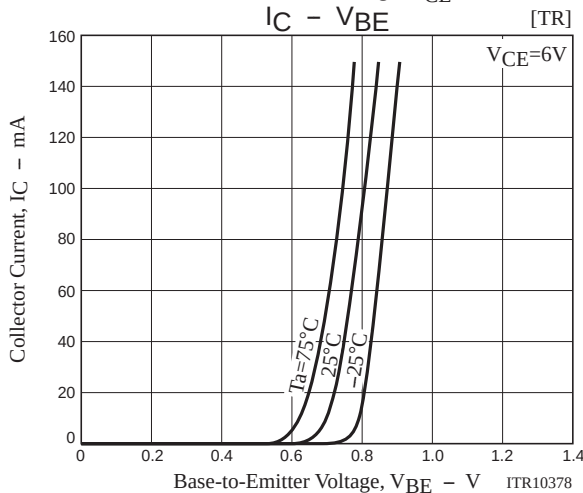
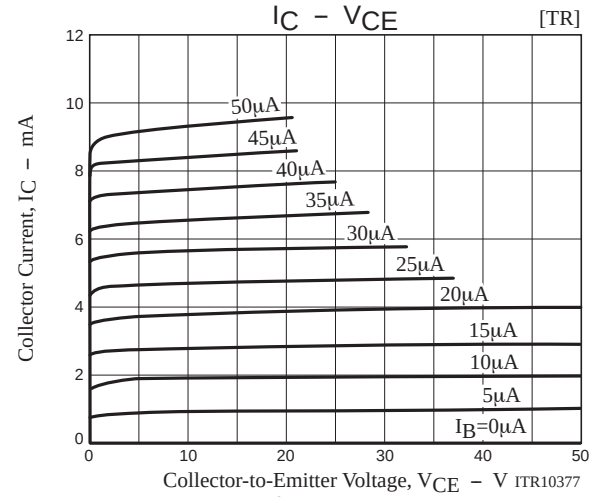
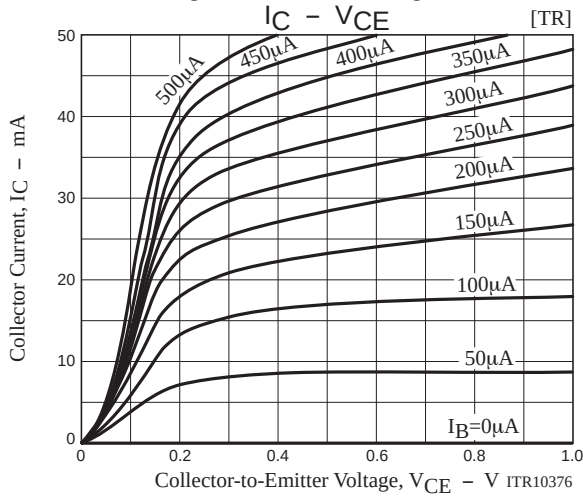
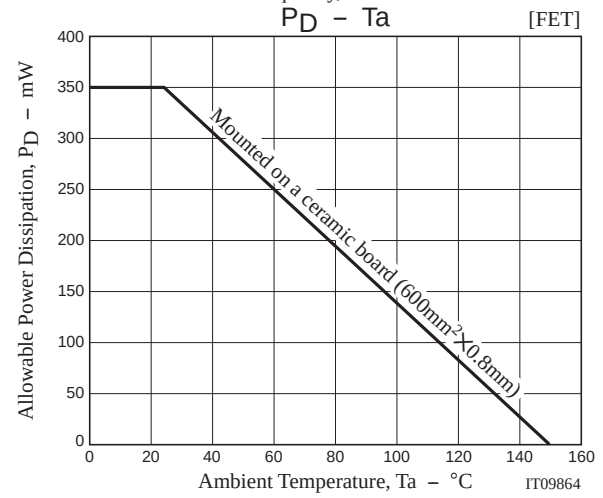
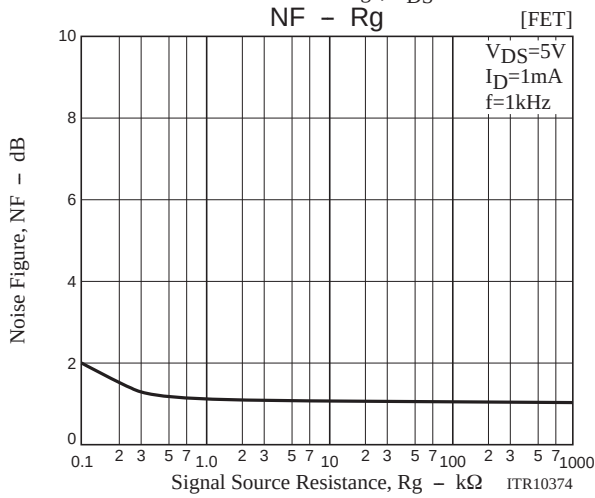
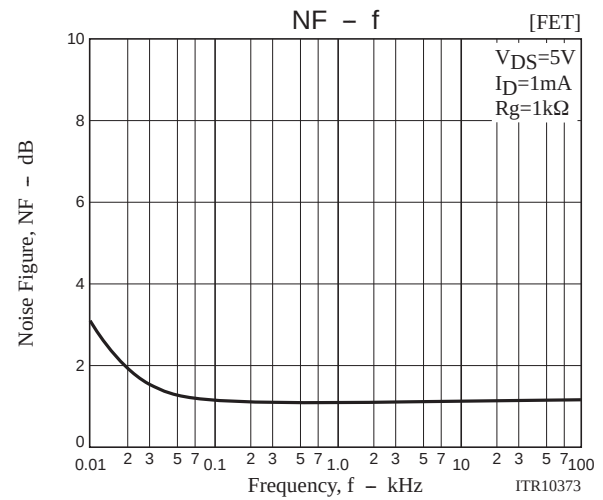
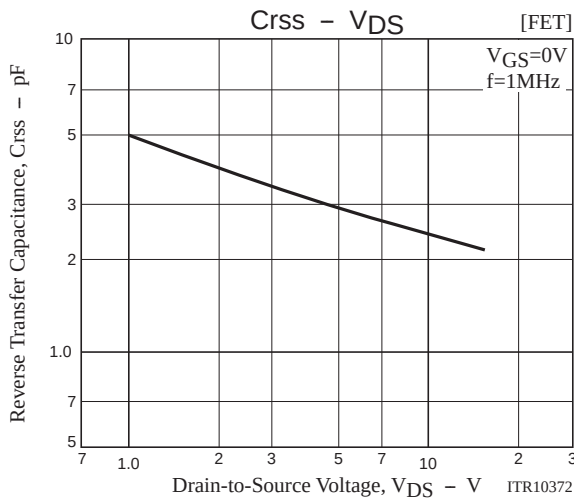
Switching Time Test Circuit

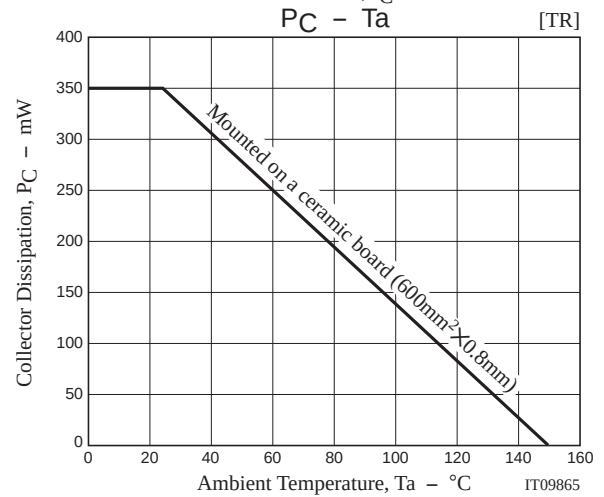
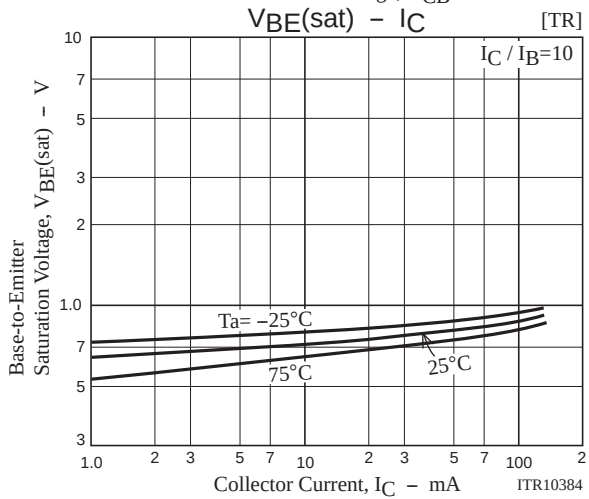
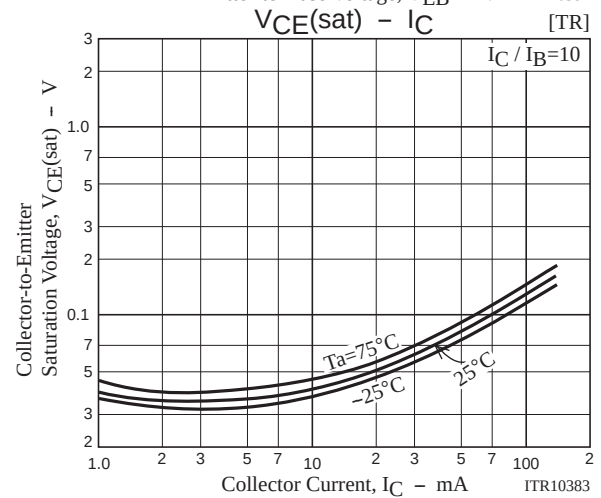
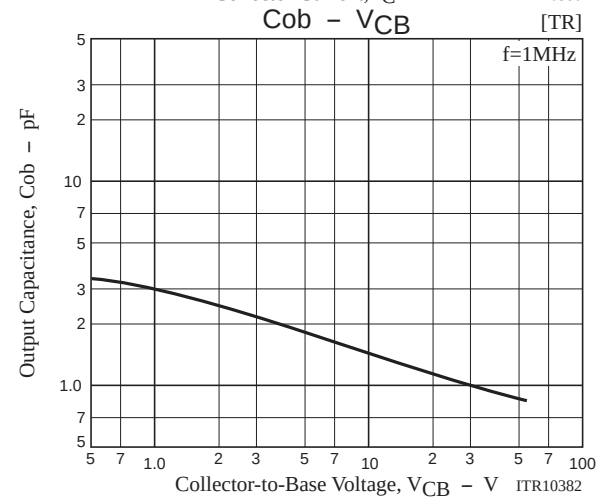
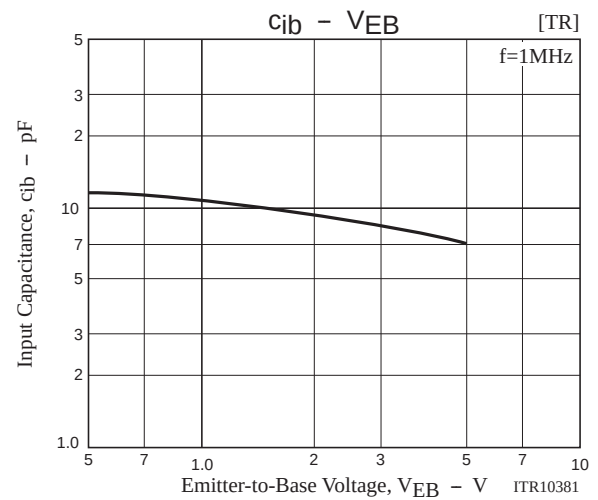
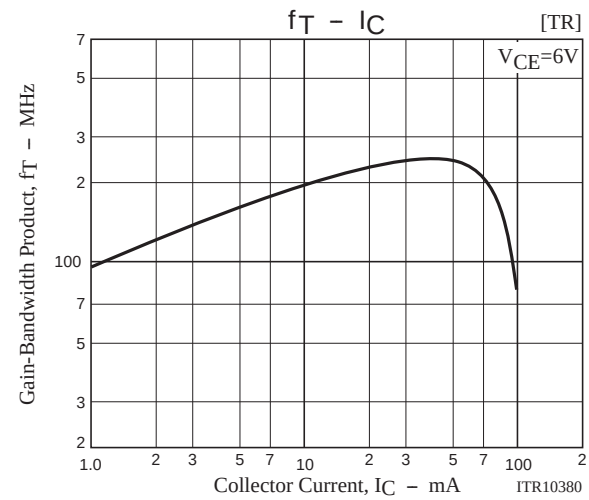


Ordering Information

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







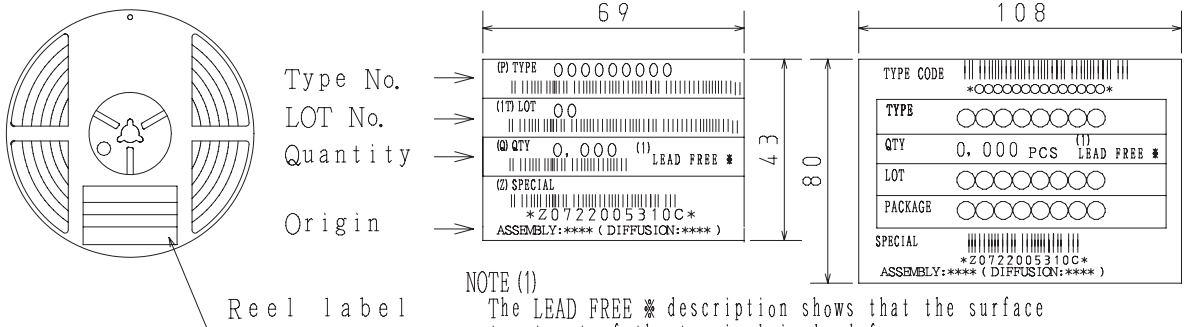
Embossed Taping Specification

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

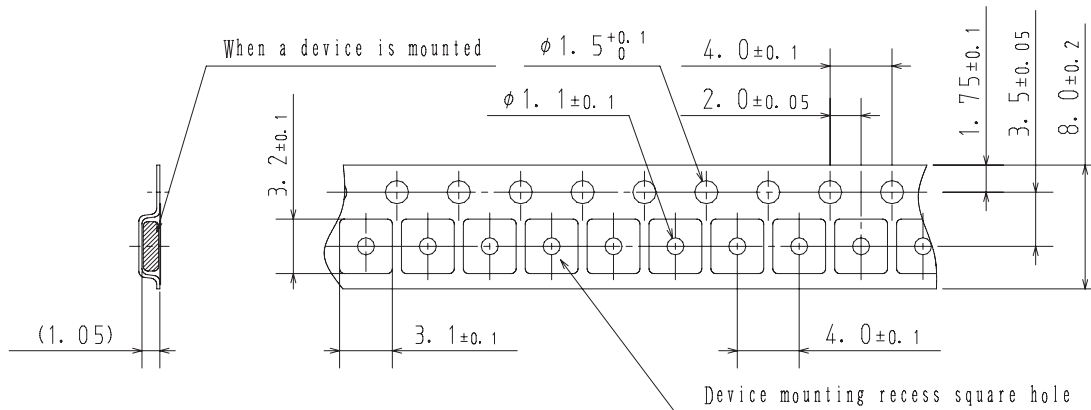
Packing method



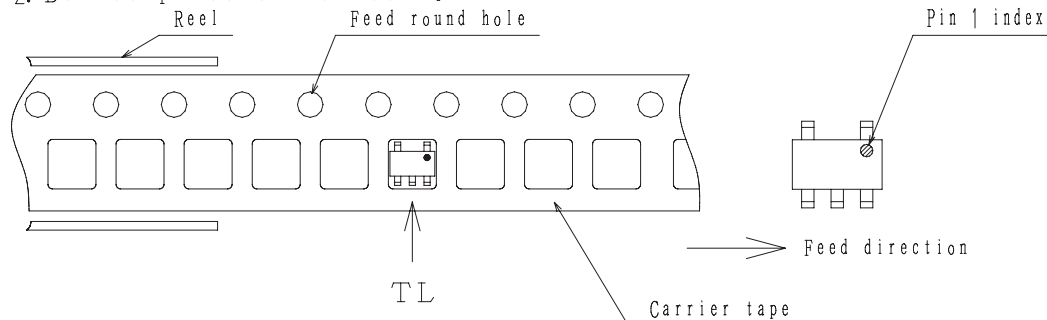
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction

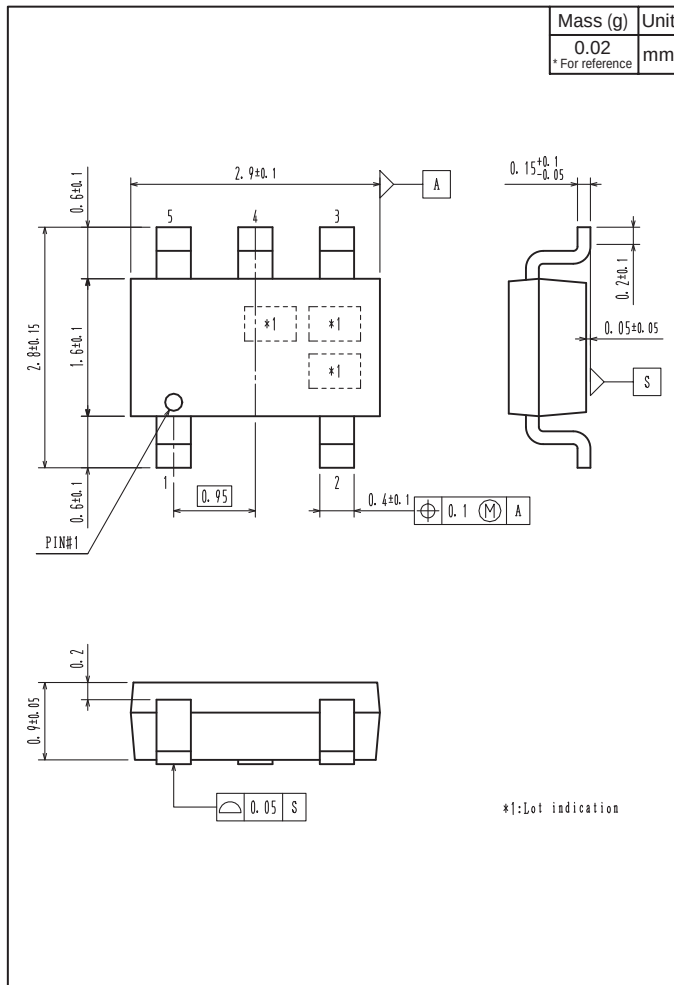


Those with pin 1 index on the feed hole side.....TL

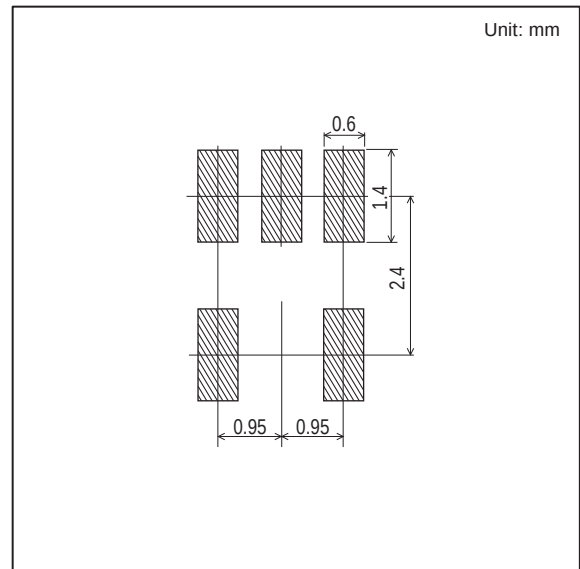
CPH5902

Outline Drawing

CPH5902G-TL-E, CPH5902H-TL-E



Land Pattern Example



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