

# CPH5901

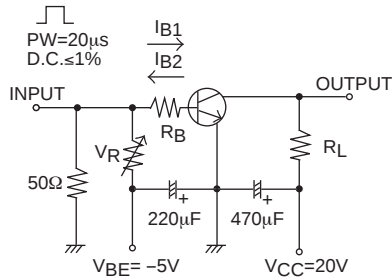
## Electrical Characteristics at Ta=25°C

| Parameter                               | Symbol               | Conditions                                                            | Ratings |      |       | Unit |
|-----------------------------------------|----------------------|-----------------------------------------------------------------------|---------|------|-------|------|
|                                         |                      |                                                                       | min     | typ  | max   |      |
| [FET]                                   |                      |                                                                       |         |      |       |      |
| Gate-to-Drain Breakdown Voltage         | V(BR)GDS             | I <sub>G</sub> =-10μA, V <sub>GS</sub> =0V                            | -15     |      |       | V    |
| Gate Cutoff Current                     | I <sub>GSS</sub>     | V <sub>GS</sub> =-10V, V <sub>DS</sub> =0V                            |         |      | -1.0  | nA   |
| Cutoff Voltage                          | V <sub>GS(off)</sub> | V <sub>DS</sub> =5V, I <sub>D</sub> =100μA                            | -0.2    | -0.6 | -1.4  | V    |
| Drain Current                           | I <sub>DSS</sub>     | V <sub>DS</sub> =5V, V <sub>GS</sub> =0V                              | 6.0*    |      | 20.0* | mA   |
| Forward Transfer Admittance             | y <sub>fs</sub>      | V <sub>DS</sub> =5V, V <sub>GS</sub> =0V, f=1kHz                      | 25      | 50   |       | mS   |
| Input Capacitance                       | C <sub>iss</sub>     | V <sub>DS</sub> =5V, V <sub>GS</sub> =0V, f=1kHz                      |         | 10   |       | pF   |
| Reverse Transfer Capacitance            | C <sub>rss</sub>     | V <sub>DS</sub> =5V, V <sub>GS</sub> =0V, f=1kHz                      |         | 3.0  |       | pF   |
| Noise Figure                            | NF                   | V <sub>DS</sub> =5V, R <sub>g</sub> =1kΩ, I <sub>D</sub> =1mA, f=1kHz |         | 1.5  |       | dB   |
| [TR]                                    |                      |                                                                       |         |      |       |      |
| Collector Cutoff Current                | I <sub>CBO</sub>     | V <sub>CB</sub> =35V, I <sub>E</sub> =0A                              |         |      | 0.1   | μA   |
| Emitter Cutoff Current                  | I <sub>EBO</sub>     | V <sub>EB</sub> =4V, I <sub>C</sub> =0A                               |         |      | 0.1   | μA   |
| DC Current Gain                         | h <sub>FE</sub>      | V <sub>CE</sub> =6V, I <sub>C</sub> =1mA                              | 135     |      | 400   |      |
| Gain-Bandwidth Product                  | f <sub>T</sub>       | V <sub>CE</sub> =6V, I <sub>C</sub> =10mA                             |         | 200  |       | MHz  |
| Output Capacitance                      | C <sub>ob</sub>      | V <sub>CB</sub> =6V, f=1MHz                                           |         | 1.7  |       | pF   |
| Collector-to-Emitter Saturation Voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =50mA, I <sub>B</sub> =5mA                             |         | 0.08 | 0.4   | mV   |
| Base-to-Emitter Saturation Voltage      | V <sub>BE(sat)</sub> | I <sub>C</sub> =50mA, I <sub>B</sub> =5mA                             |         | 0.8  | 1.0   | V    |
| Collector-to-Base Breakdown Voltage     | V(BR)CBO             | I <sub>C</sub> =10μA, I <sub>E</sub> =0A                              | 55      |      |       | V    |
| Collector-to-Emitter Breakdown Voltage  | V(BR)CEO             | I <sub>C</sub> =1mA, R <sub>BE</sub> =∞                               | 50      |      |       | V    |
| Emitter-to-Base Breakdown Voltage       | V(BR)EBO             | I <sub>E</sub> =10μA, I <sub>C</sub> =0A                              | 6       |      |       | V    |
| Turn-On Time                            | t <sub>on</sub>      | See specified Test Circuit.                                           |         | 0.15 |       | ns   |
| Storage Time                            | t <sub>stg</sub>     |                                                                       |         | 0.75 |       | ns   |
| Fall Time                               | t <sub>f</sub>       |                                                                       |         | 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 |

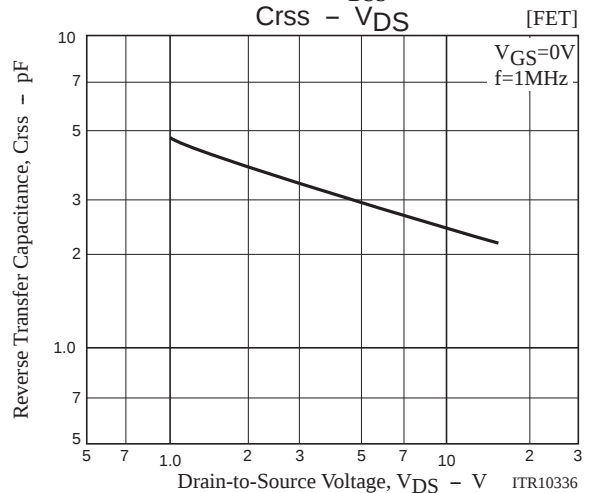
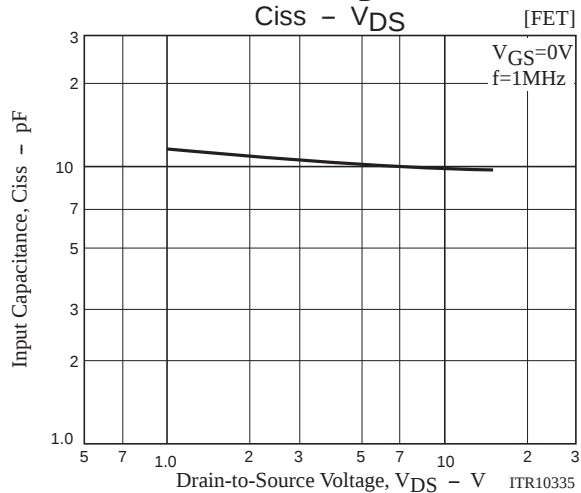
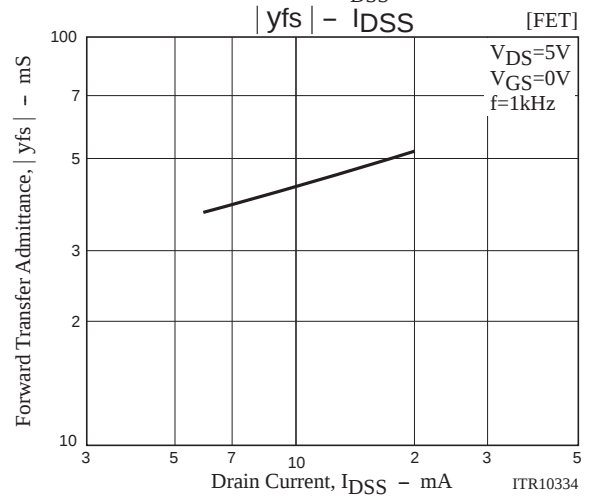
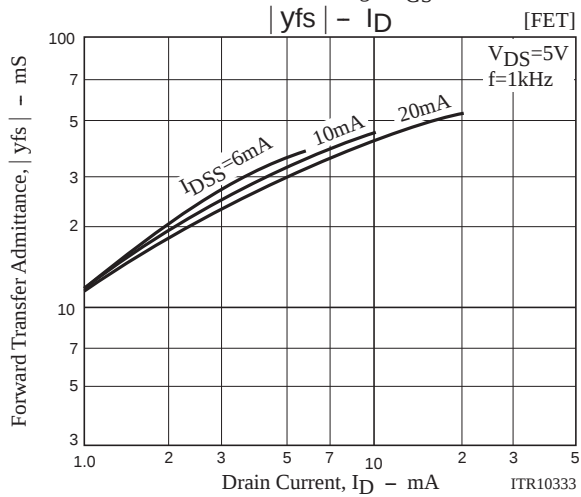
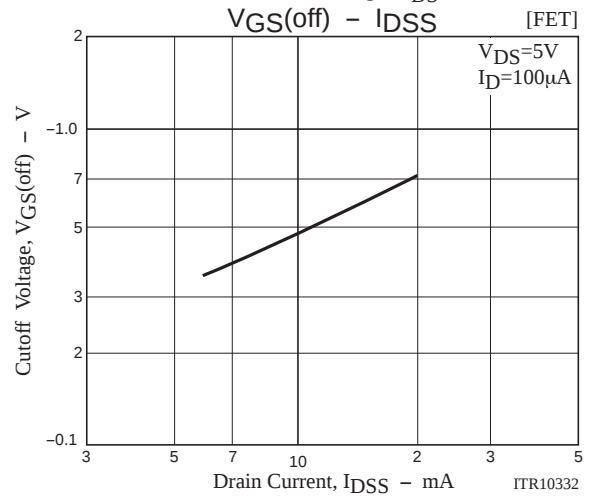
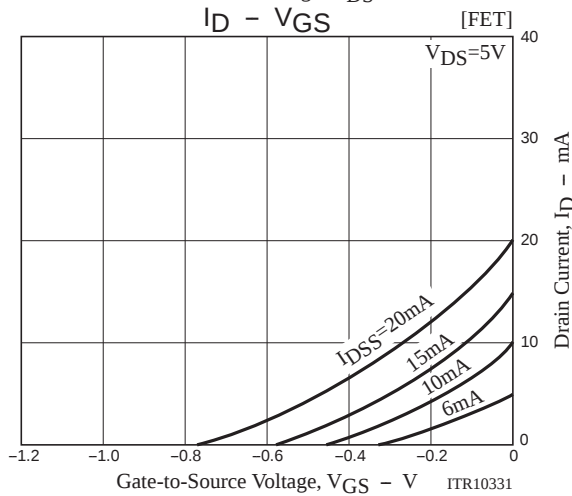
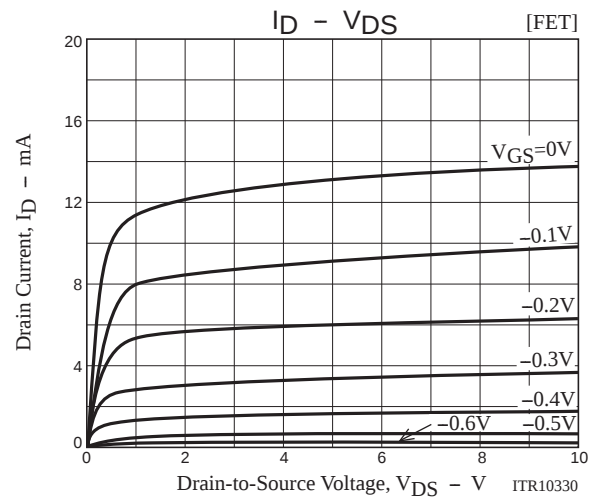
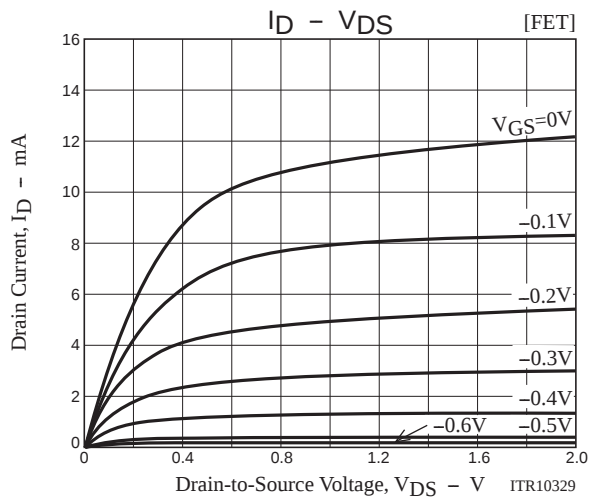
## Switching Time Test Circuit

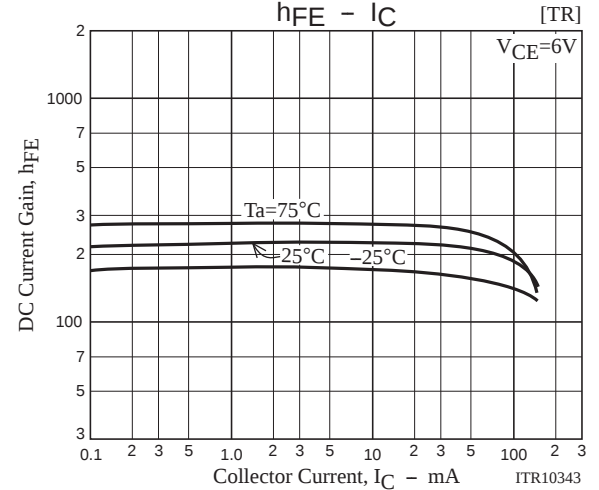
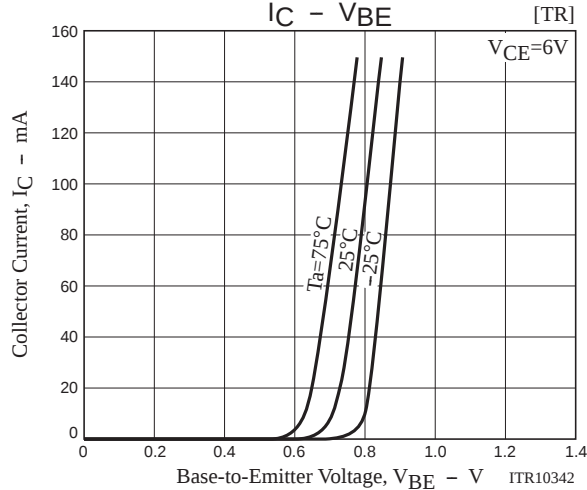
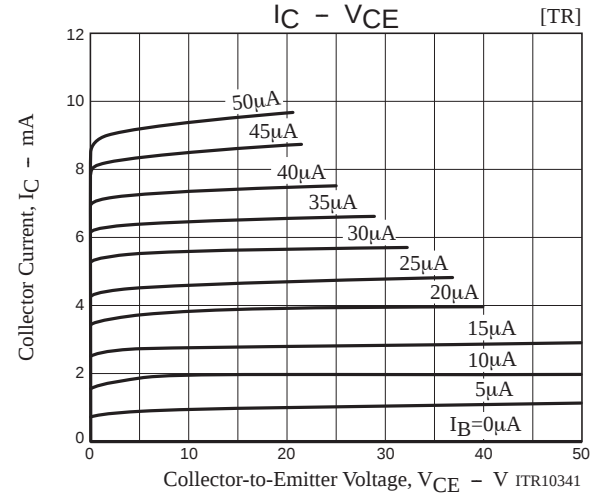
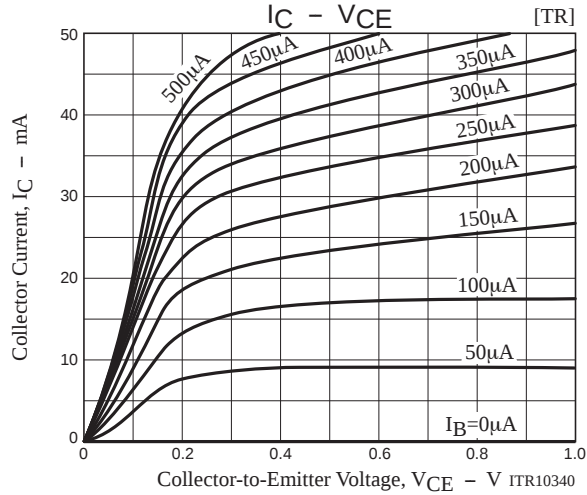
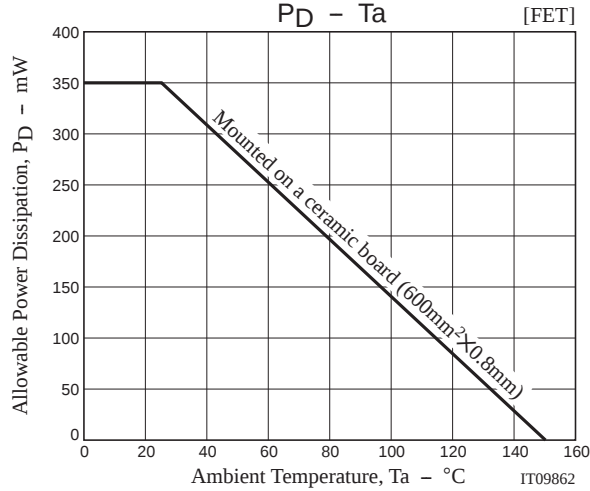
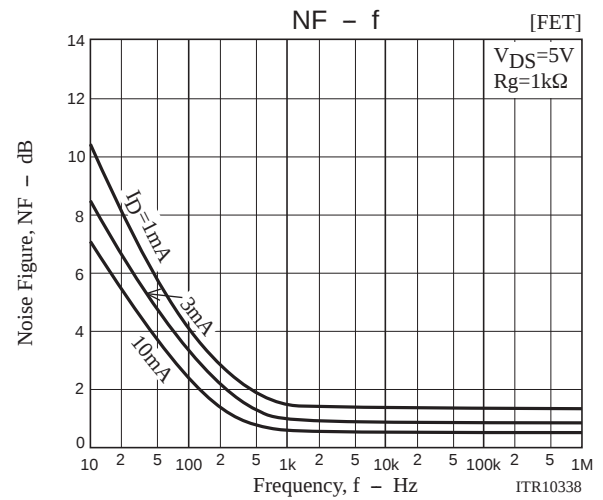
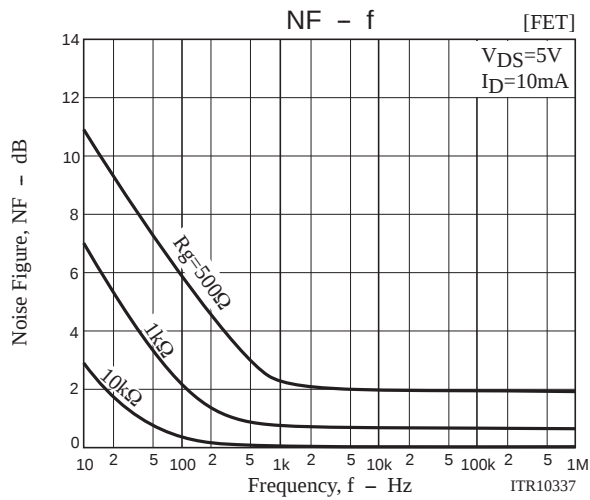


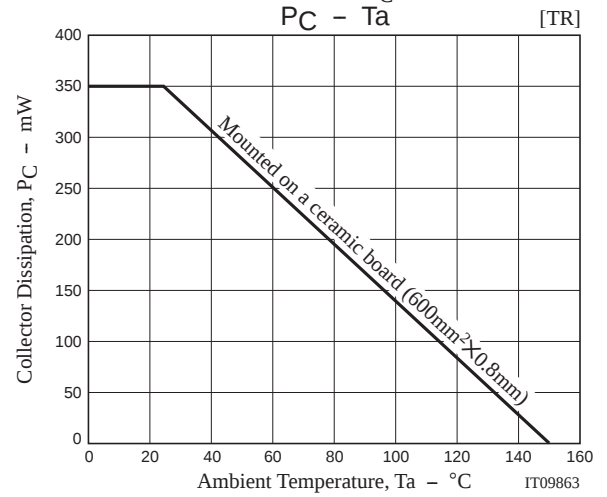
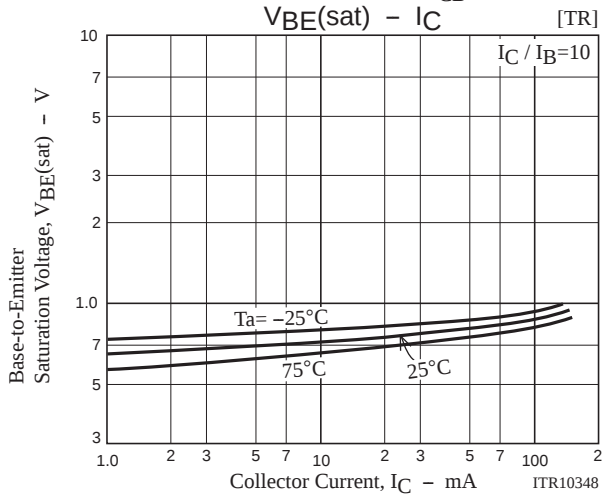
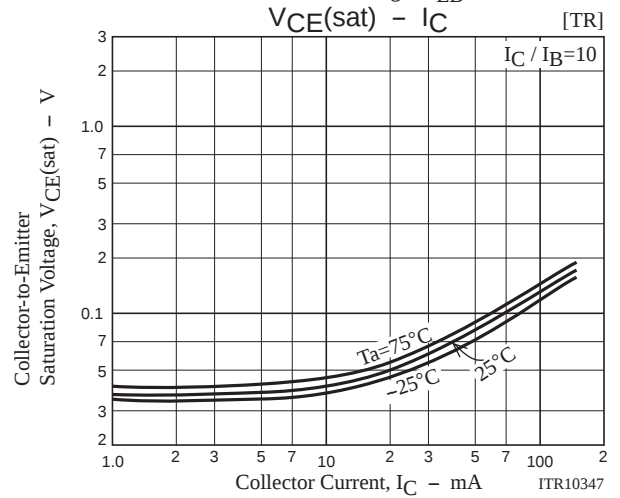
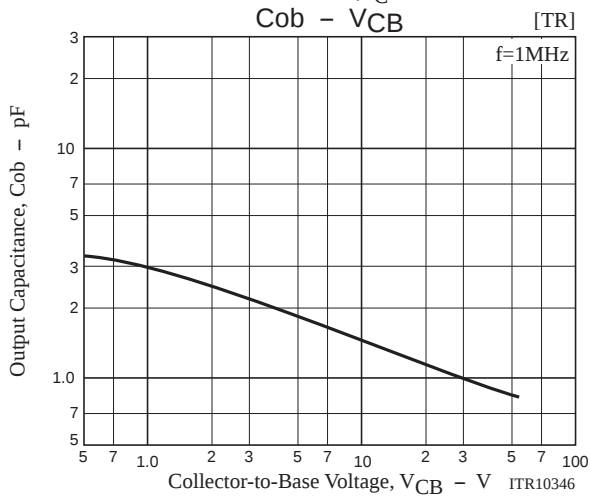
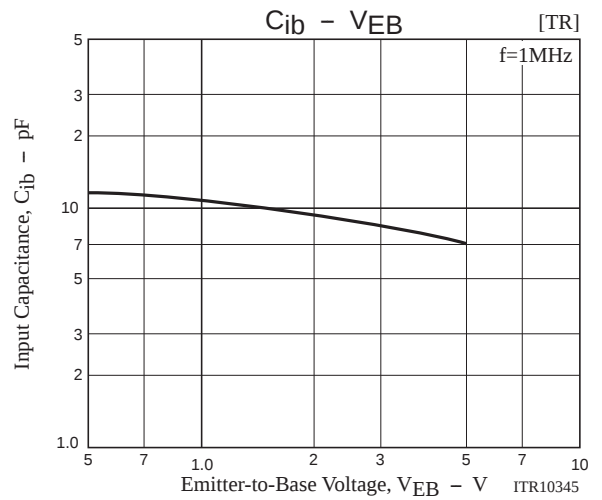
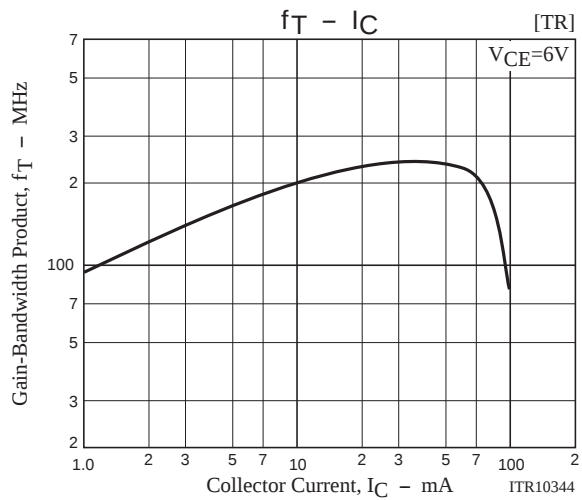
$$10I_{B1} = -10I_{B2} = I_C = 10mA$$

## Ordering Information

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







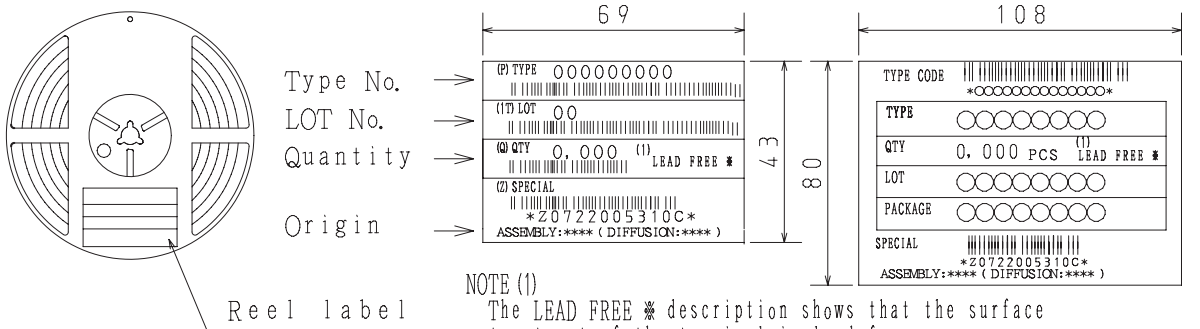
## Embossed Taping Specification

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<br>Dimensions:mm (external)<br>183×72×185 | 6 inner boxes contained<br>Dimensions:mm (external)<br>440×195×210 |

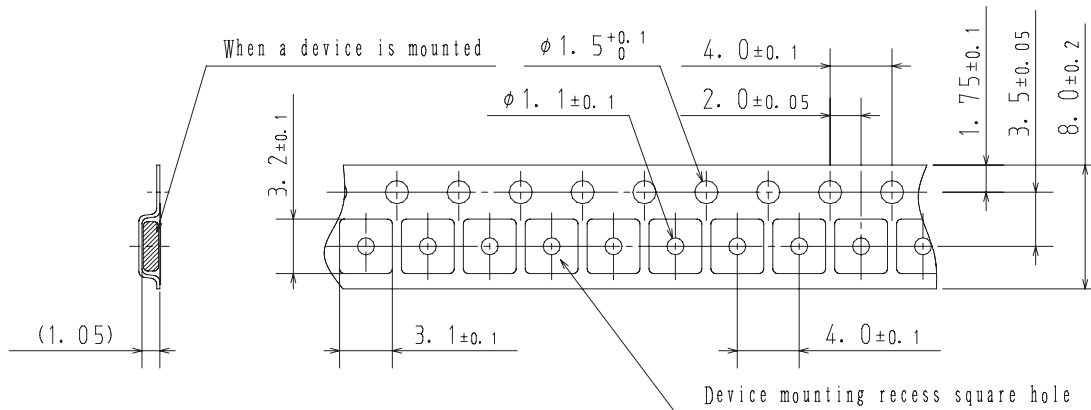
## Packing method



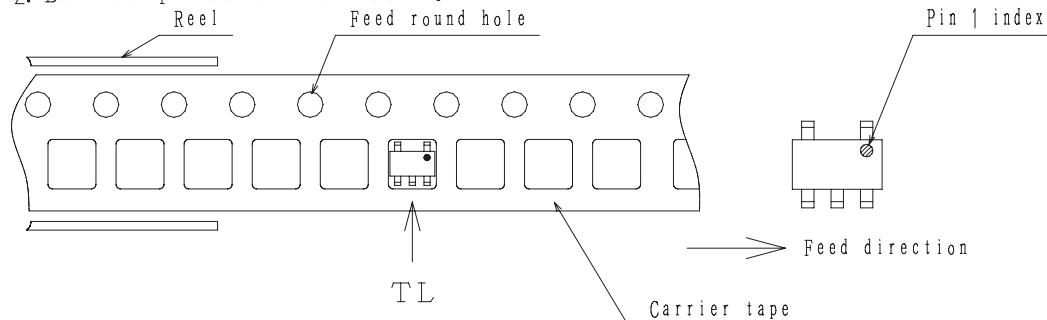
| Label       | JEITA Phase    |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3  |

## 2. Taping configuration

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



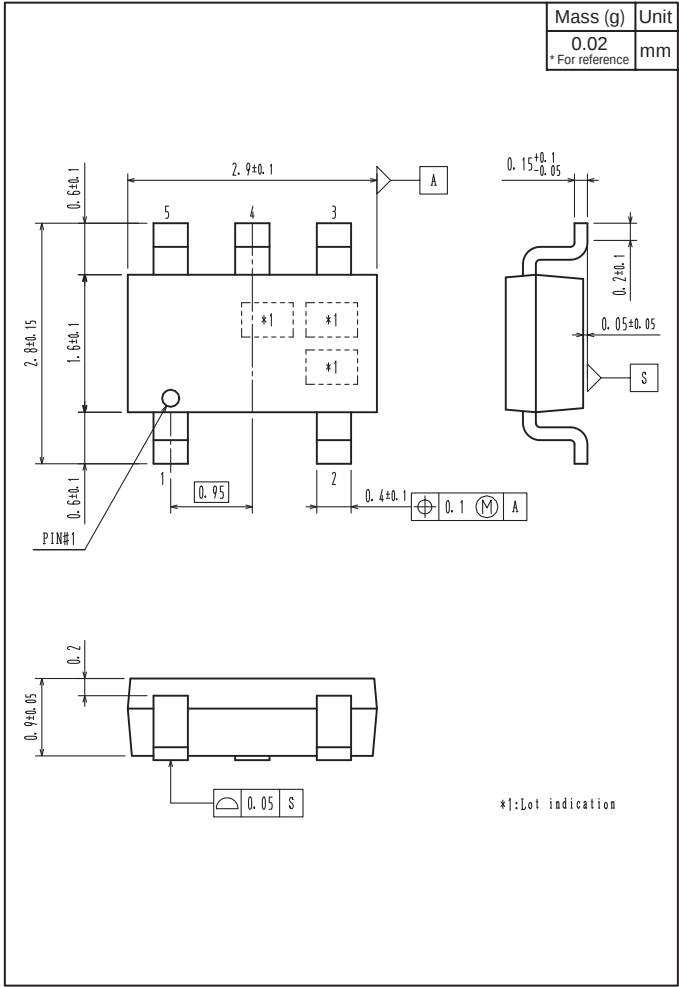
## 2-2. Device placement direction



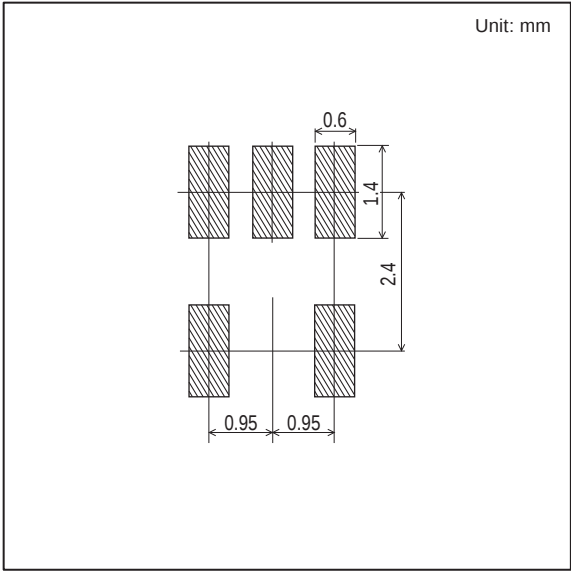
Those with pin 1 index on the feed hole side.....TL

Outline Drawing

CPH5901F-TL-E, CPH5901G-TL-E



Land Pattern Example



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