



## 概述

HTLP185是一块小外形的贴片光电耦合器件，适合表面贴装生产。HTLP185是由一个砷化镓发光二极管和一个光电晶体管组成的光电耦合器，它的体积比DIP小，适用于高密度表面贴装应用，如可编程控制器等。

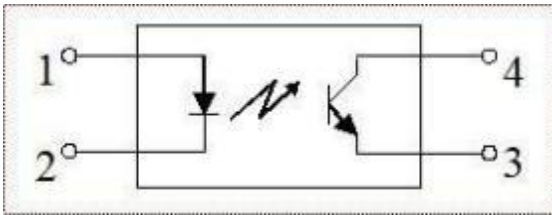
## 特性

- 电流转换比 (CTR)范围: 50~600% ( $I_F=5\text{mA}$ ,  $V_{CE}=5\text{V}$ )
- 输入-输出隔离电压 ( $V_{iso}=3750\text{Vrms}$ )
- 集电极-发射极击穿电压  $BV_{CEO}\geq 80\text{V}$
- 工作温度:  $-55\sim 110^\circ\text{C}$

## 应用

- 开关电源，智能电表
- 工业控制，测量仪器
- 办公设备，比如复印机
- 家用电器，比如空调、风扇、热水器等

## 结构原理图



## 绝对最大额定值 ( $T_a=25^\circ\text{C}$ )

| 参数   |           | 符号             | 额定值              | 单位               |
|------|-----------|----------------|------------------|------------------|
| 输入   | 正向电流      | $I_F$          | 50               | mA               |
|      | 正向脉冲电流    | $I_{FP}$       | 1                | A                |
|      | 反向电压      | $V_R$          | 6                | V                |
|      | 功耗        | $P$            | 70               | mW               |
|      | 结温        | $T_j$          | 125              | $^\circ\text{C}$ |
| 输出   | 集电极功耗     | $P_c$          | 150              | mW               |
|      | 集电极电流     | $I_c$          | 50               | mA               |
|      | 集电极-发射极电压 | $V_{CEO}$      | 80               | V                |
|      | 发射极-集电极电压 | $V_{ECO}$      | 7                | V                |
|      | 结温        | $T_j$          | 125              | $^\circ\text{C}$ |
| 总功耗  | $P_{tot}$ | 200            | mW               |                  |
| 隔离电压 | $V_{iso}$ | 3750           | Vrms             |                  |
| 工作温度 | $T_{opr}$ | $-55\sim +110$ | $^\circ\text{C}$ |                  |
| 储存温度 | $T_{stg}$ | $-55\sim +125$ | $^\circ\text{C}$ |                  |
| 焊接温度 | $T_{sol}$ | 260 (10s)      | $^\circ\text{C}$ |                  |



光电特性 (Ta=25°C)

| Parameter |             | Symbol        | Condition   | Min.               | Typ. | Max. | Unit          |
|-----------|-------------|---------------|---|--------------------|------|------|---------------|
| 输入        | 正向电压        | $V_F$         | $I_F=20\text{mA}$   |                    | 1.2  | 1.4  | V             |
|           | 反向电流        | $I_R$         | $V_R=5\text{V}$   | -                  | -    | 10   | $\mu\text{A}$ |
|           | 输入端电容       | $C_{in}$      | $V=0, f=1\text{kHz}$  | -                  | 30   | 250  | pF            |
| 输出        | 集电极暗电流      | $I_{CEO}$     | $V_{CE}=70\text{V}$   | -                  | -    | 100  | nA            |
|           | 集电极-发射极击穿电压 | $BV_{CEO}$    | $I_C=0.1\text{mA}, I_F=0$   | 80                 | -    | -    | V             |
|           | 发射极-集电极击穿电压 | $BV_{ECO}$    | $I_E=0.1\text{mA}, I_F=0$   | 7                  | -    | -    | V             |
| 传输特性      | 电流转换比       | CTR           | $I_F=5\text{mA}, V_{CE}=5\text{V}$                                  | 50                 | -    | 400  | %             |
|           | 集电极-发射极饱和压降 | $V_{CE(sat)}$ | $I_F=20\text{mA}, I_C=1\text{mA}$                                   | -                  | 0.1  | 0.2  | V             |
|           | 隔离电阻        | $R_{ISO}$     | DC1000V,<br>40-60%R.H.  | $1 \times 10^{11}$ | -    | -    | $\Omega$      |
|           | 隔离电容        | $C_f$         | $V=0, f=1\text{MHz}$  | -                  | 0.6  | 1.0  | pF            |
|           | 集电极-发射极电容   | $C_{CE}$      | $V=0, f=1\text{MHz}$  |                    | 10   |      | pF            |
|           | 输入-输出电容     | $C_s$         | $V=0, f=1\text{MHz}$  |                    | 0.8  |      | pF            |
|           | 截止频率        | $F_c$         | $V_{CE}=5\text{V}, I_C=2\text{mA},$<br>$R_L=100\Omega, -3\text{dB}$ | -                  | 80   | -    | kHz           |
| 开关时间      | 上升时间        | $T_r$         | $V_{CE}=10\text{V}, I_C=2\text{mA},$<br>$R_L=100\Omega$             | -                  | 3    | 18   | $\mu\text{s}$ |
|           | 下降时间        | $T_f$         |   | -                  | 4    | 18   | $\mu\text{s}$ |

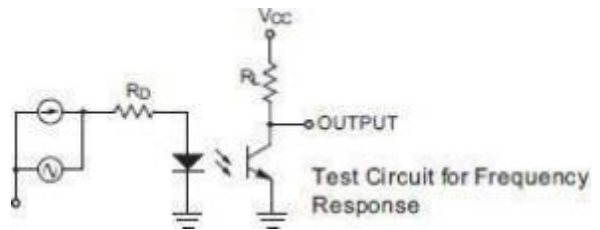
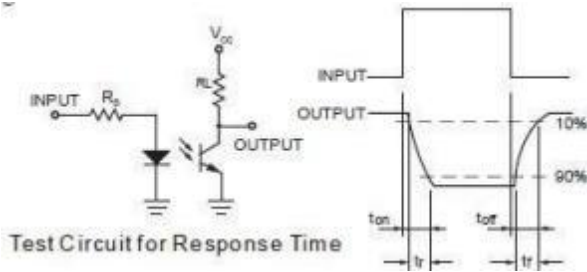
\*  $CTR=I_C/I_F \times 100\%$

CTR分级表

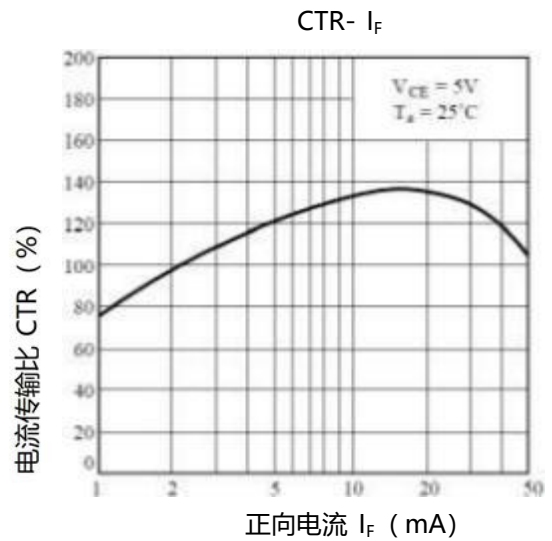
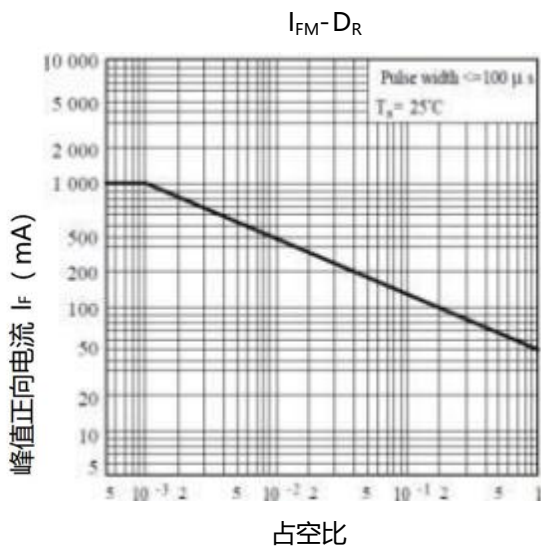
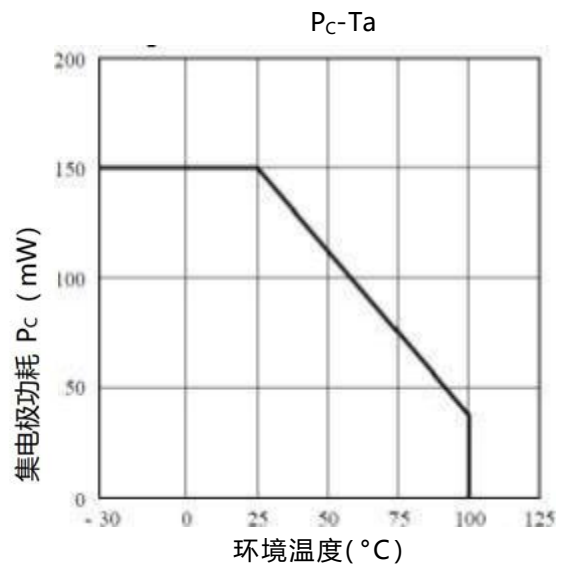
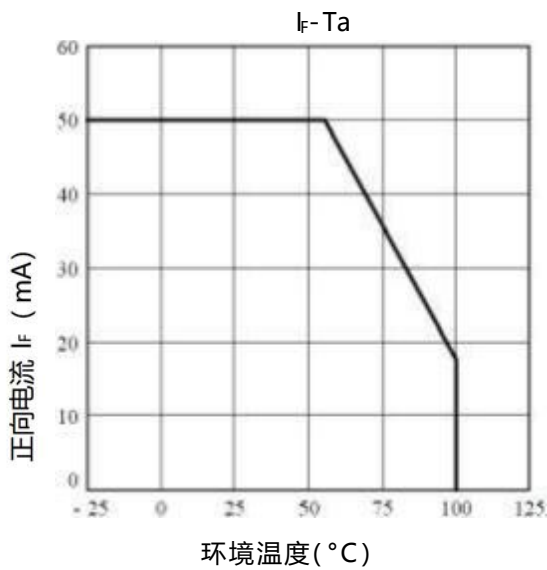
| 型号      | 分级标准         | 电流转换率(%) ( $I_C/I_F$ )   |      |     |  |      |     |
|---------|--------------|--|------|-----|--|------|-----|
|         |              | $I_F = 5\text{mA}, V_{CE} = 5\text{V}, T_a = 25^\circ\text{C}$ |      |     | $I_F = 1\text{mA}, V_{CE} = 0.4\text{V}, T_a = 25^\circ\text{C}$ |      |     |
|         |              | Min  | Type | Max | Min  | Type | Max |
| HTLP185 | HTLP185-S    | 50   | -    | 600 |  |      |     |
|         | HTLP185Y-S   | 50   | -    | 150 |  |      |     |
|         | HTLP185GR-S  | 100  | -    | 300 | -  | 60   | -   |
|         | HTLP185GB-S  | 100  | -    | 600 | 30   | -    | -   |
|         | HTLP185GBL-S | 200  |      | 220 |  |      |     |
|         | HTLP185GRL-S | 100  |      | 200 |  |      |     |
|         | HTLP185GRH-S | 150  |      | 300 |  |      |     |
|         | HTLP185GBH-S | 200  |      | 400 |  |      |     |

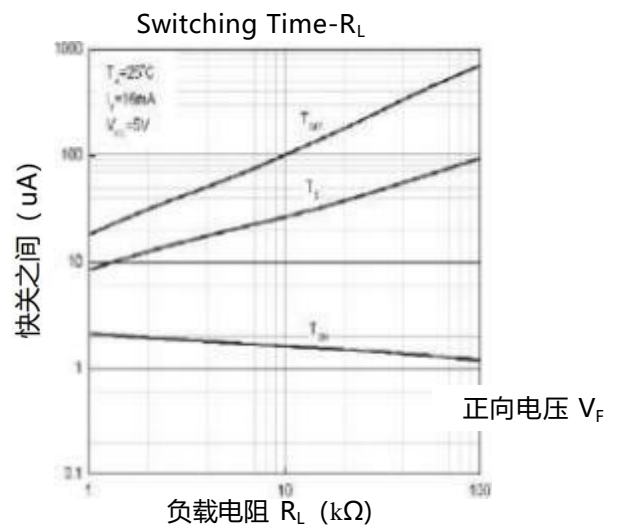
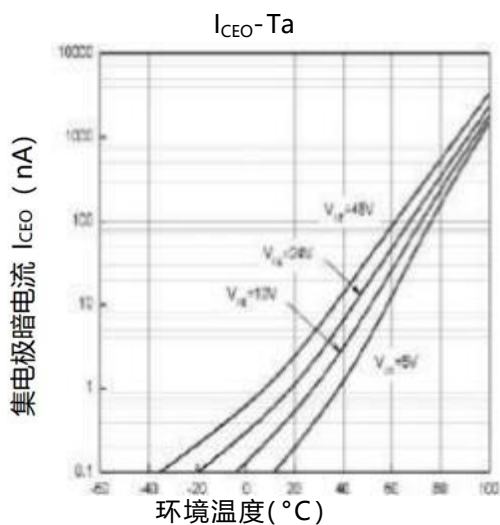
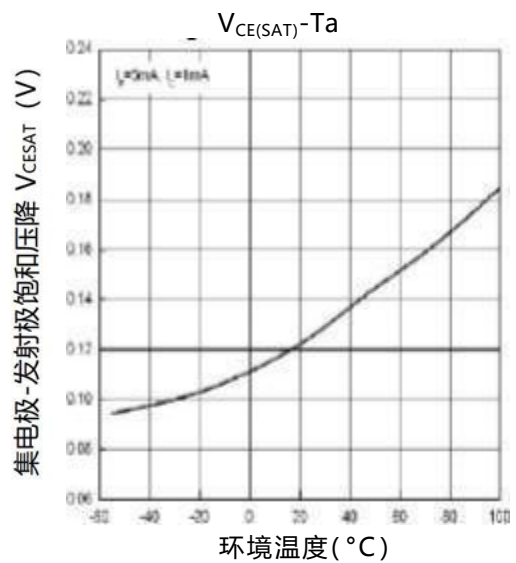
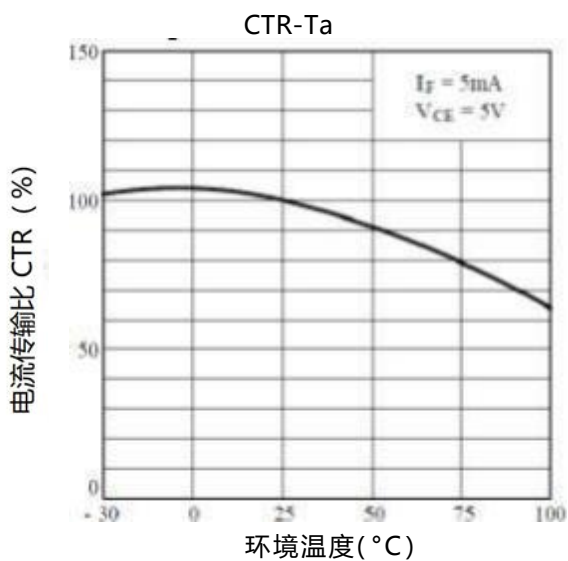
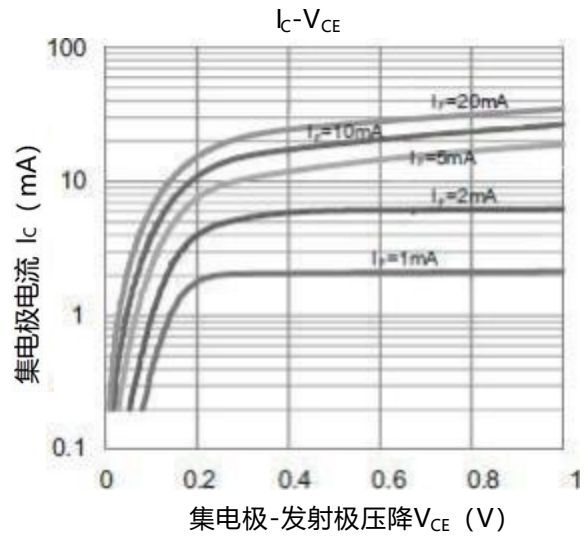
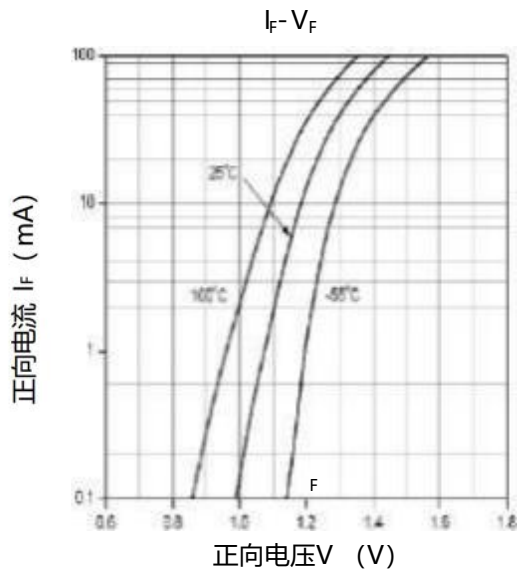


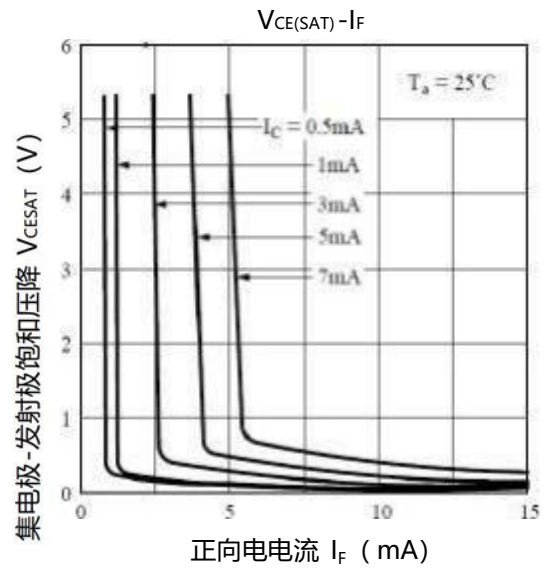
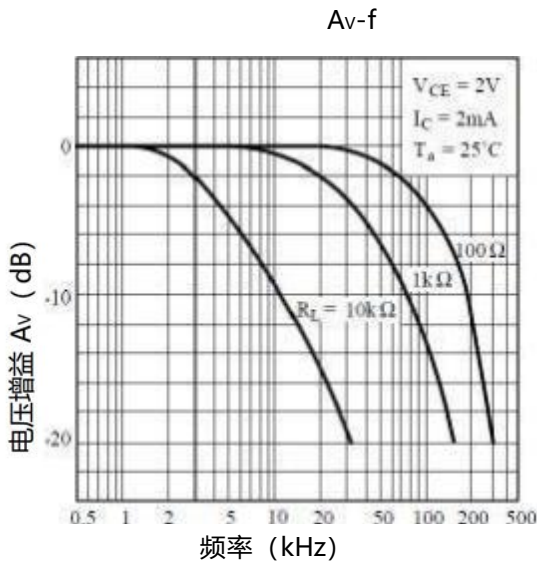
### 测试电路



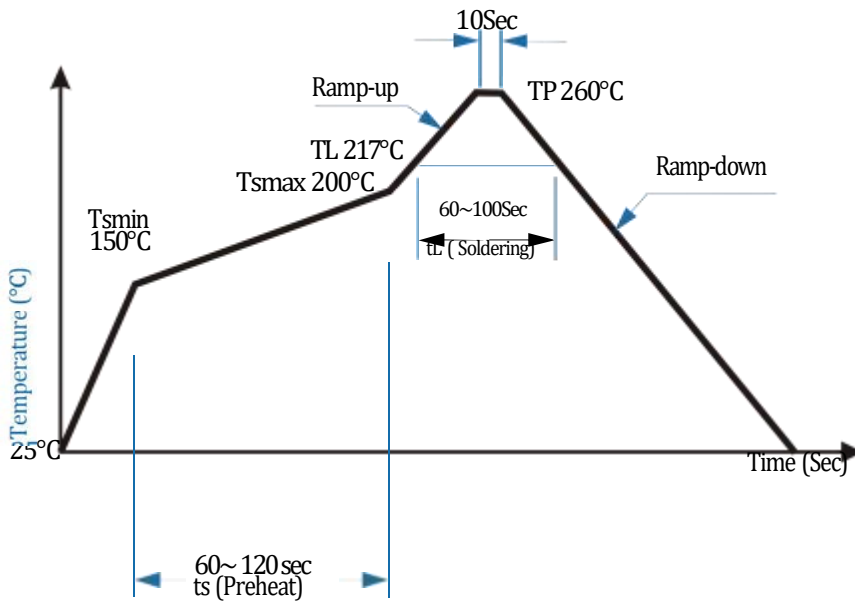
### 典型特性



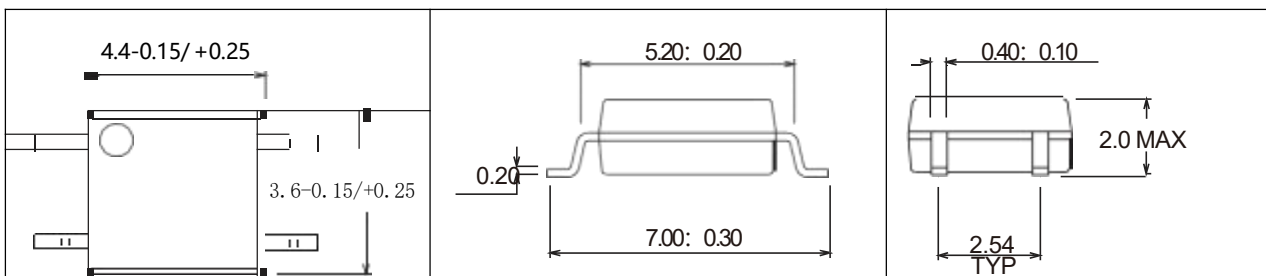




**回流焊温度曲线图**



**外形尺寸**





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