



概述

HTLP785是可控制的光电耦合器件，电路之间的信号传输，使之前端与负载完全隔离，目的在于增加安全性，减小电路干扰，减化电路设计。四引脚封装，三种形式（DIP、SMD）

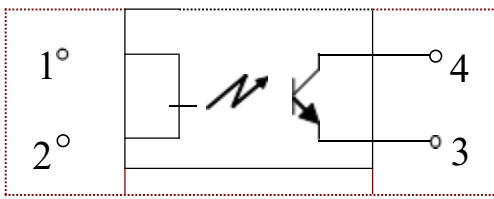
特性

- 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 ($V_{iso}=5000\text{V}_{rms}$)
- 集电极-发射极击穿电压 $BV_{CEO}\geq 80\text{V}$

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
	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}	5000	V_{rms}	
工作温度	T_{opr}	$0\sim+70$	$^\circ\text{C}$	
储存温度	T_{stg}	$-55\sim+125$	$^\circ\text{C}$	
焊接温度	T_{sol}	260	$^\circ\text{C}$	



光电特性 (Ta=25°C)

参数		符号	条件	最小	额定	最大	单位
输入	正向电压	V_{F1}	$I_F=10mA$	1.0	-	1.3	V
	正向电压	V_{F2}	$I_F=20mA$	1.1	-	1.4	V
	反向电流	I_R	$V_R=5V$	-	-	10	μA
	终端电容	C_t	$V=0, f=1kHz$	-	30	250	pF
输出	集电极暗电流	I_{CEO}	$V_{CE}=50V$	-	-	100	nA
	集电极-发射极击穿电压	BV_{CEO}	$I_C=0.1mA, I_F=0$	80	-	-	V
	发射极-集电极击穿电压	BV_{ECO}	$I_E=10\mu A, I_F=0$	7	-	-	V
传输特性	电流转换比	CTR	$I_F=5mA, V_{CE}=5V$	130	-	600	%
	隔离电阻	$V_{CE(sat)}$	$I_F=2mA, I_C=5mA$	-	0.25	0.8	V
	集电极-发射极饱和压降	R_{ISO}	DC500V, 40~60%R.H.	1×10^{12}	-	-	Ω
	隔离电容	C_f	$V=0, f=1MHz$	-	0.6	1.0	pF
	截止频率	F_c	$V_{CE}=5V, I_C=2mA,$ $R_L=100\Omega, -3dB$	-	80	-	kHz
开关时间	上升时间	T_r	$V_{CE}=10V, I_C=2mA,$ $R_L=100\Omega$	-	2	-	μs
	下降时间	T_f		-	3	-	μs
	开启时间	T_{on}		-	3	-	μs
	关断时间	T_{off}		-	3	-	μs
	开启时间	T_{on}	$R_L = 1.9 k\Omega$ $V_{CC} = 5 V, I_F = 16 mA$	-	2	-	μs
	存储时间	T_s		-	15	-	μs
	关断时间	T_{off}		-	25	-	μs

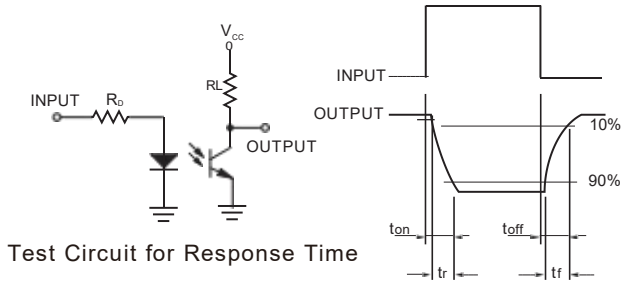
* $CTR=I_C/I_F \times 100\%$

CTR分级表

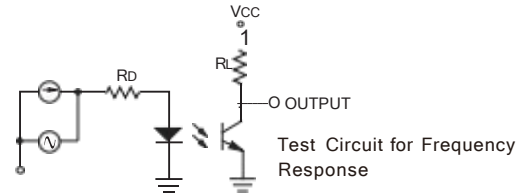
型号	分级标准	电流转换率 (%) (I_C/I_F)	
		$I_F = 5mA, V_{CE} = 5V, T_a = 25^\circ C$	
		Min	Max
HTLP785	HTLP785-S	50	600
	HTLP785Y-S	50	150
	HTLP785GR-S	100	300
	HTLP785BL-S	200	600
	HTLP785GB-S	100	600
	HTLP785YH-S	75	150
	HTLP785GRL-S	100	200
	HTLP785GRH-S	150	300
	HTLP785BLL-S	200	400



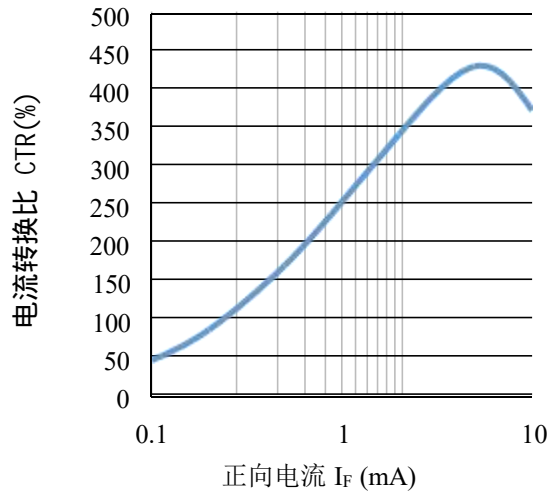
测试电路



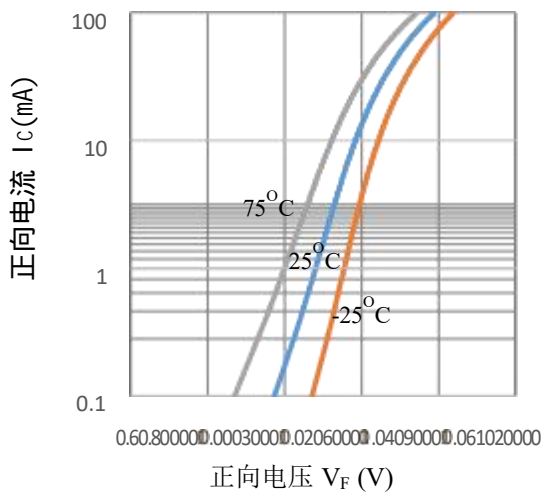
Test Circuit for Response Time



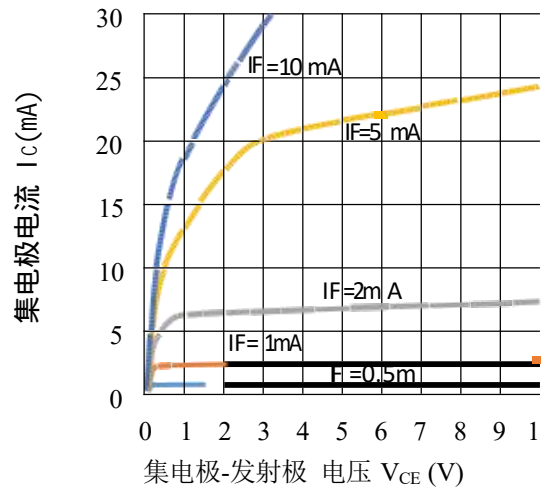
典型特性



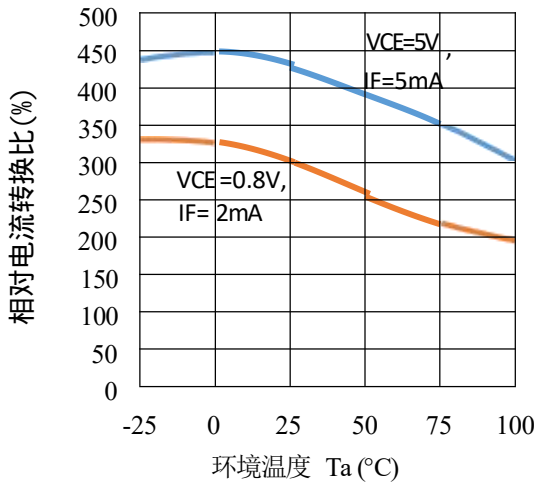
电流转换比 VS 正向电流曲线图



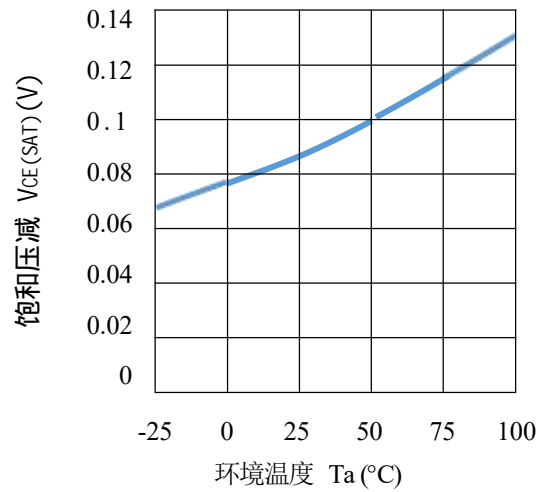
正向电流 VS 正向电压曲线图



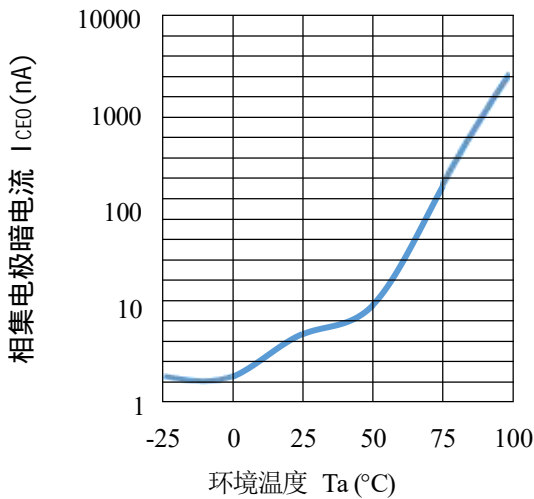
集电极电流 VS 集-发电压曲线图



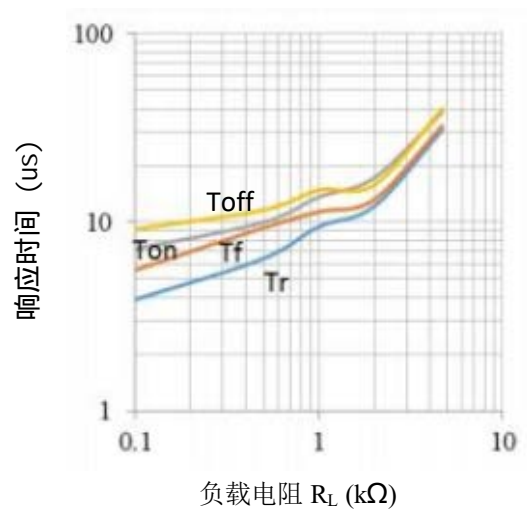
相对电流转换比 VS 环境温度曲线



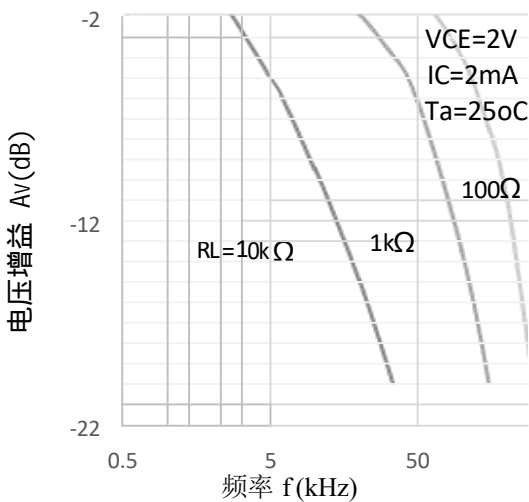
饱和压降 VS 环境温度曲线图



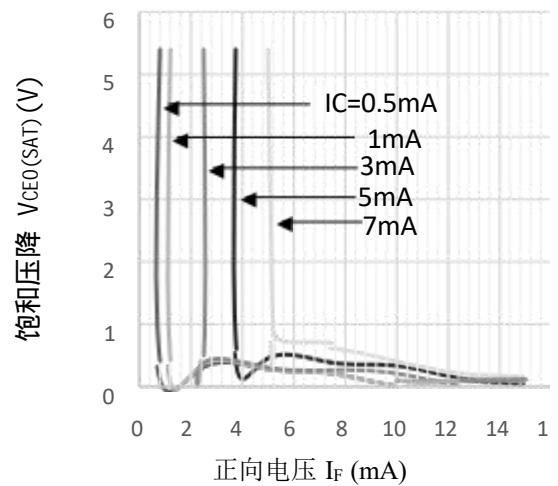
集电极暗电流 VS 环境温度曲线



响应时间 VS 负载电阻曲线图



频率响应曲线图

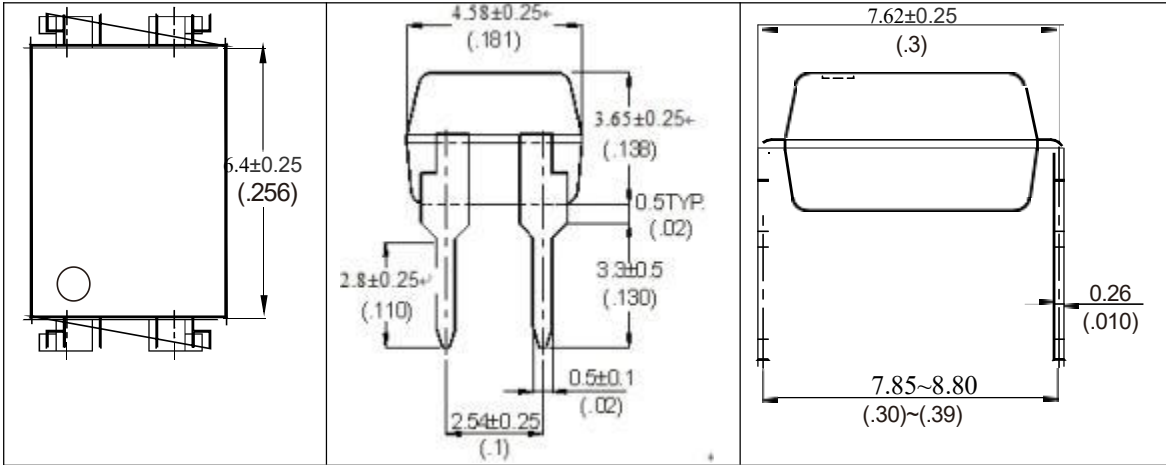


饱和压降 VS 正向电压曲线图

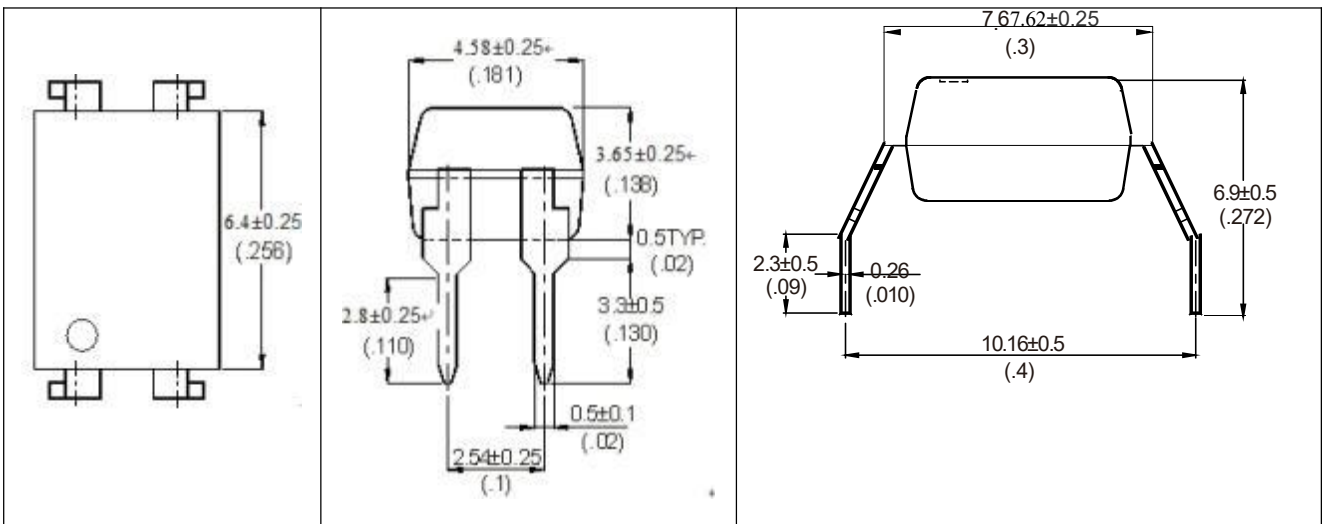


外形尺寸

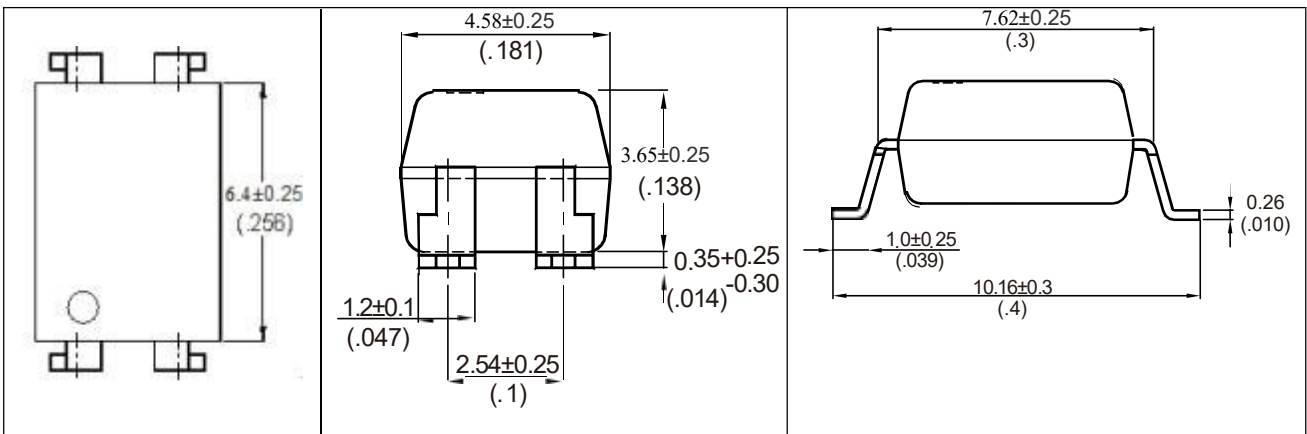
Unit: mm (inch)



4-pin DIP



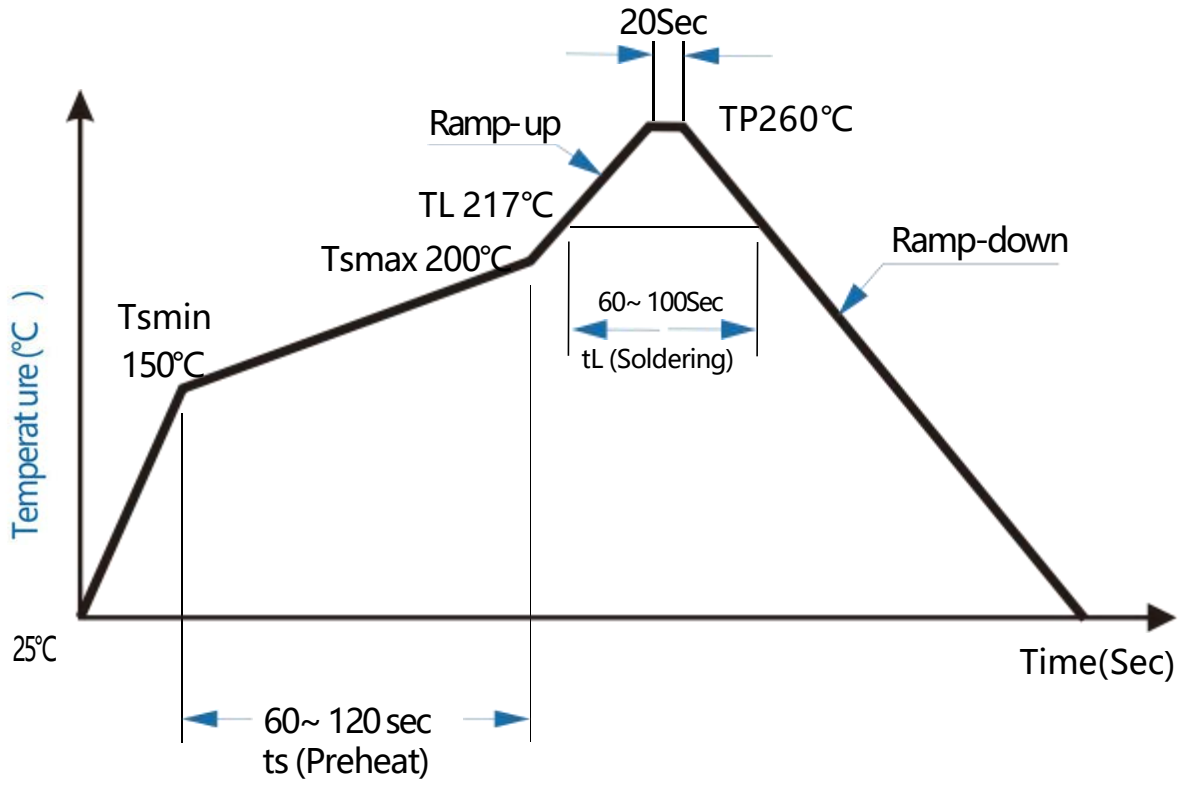
4-pin DIP (M Type)



4-pin SMD



回流焊温度曲线图





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