



概述

TLP181是一块小外形的贴片光电耦合器件，适合表面贴装生产。TLP181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。

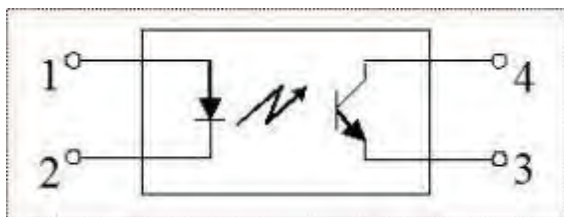
特性

- 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 $BV_{CEO}\geq 80\text{V}$

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	5	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	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}	240(10s)	$^\circ\text{C}$



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_F	$I_F=20\text{mA}$		1.2	1.4	V
	反向电流	I_R	$V_R=5\text{V}$	-	-	10	μA
	输入端电容	C_{in}	$V=0, f=1\text{MHz}$	-	30	-	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	-	600	%
	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, 40~60%R.H.	1×10^{11}	-	-	Ω
	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
开关时间	截止频率	F_c	$V_{CE}=5\text{V}, I_C=2\text{mA}, R_L=100\Omega, -3\text{dB}$	-	80	-	kHz
	上升时间	T_r	$V_{CE}=10\text{V}, I_C=2\text{mA}, R_L=100\Omega$	-	-	12	μs
	下降时间	T_f		-	-	12	μs
	开启时间	T_{on}		-	-	12	μs
	关断时间	T_{off}		-	-	12	μs

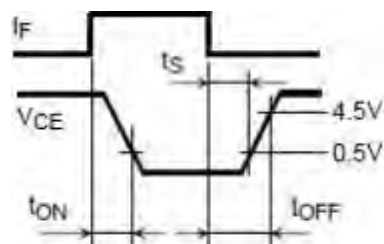
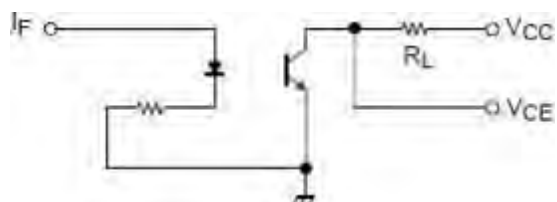
* $CTR=I_C/I_F \times 100\%$

CTR分级表

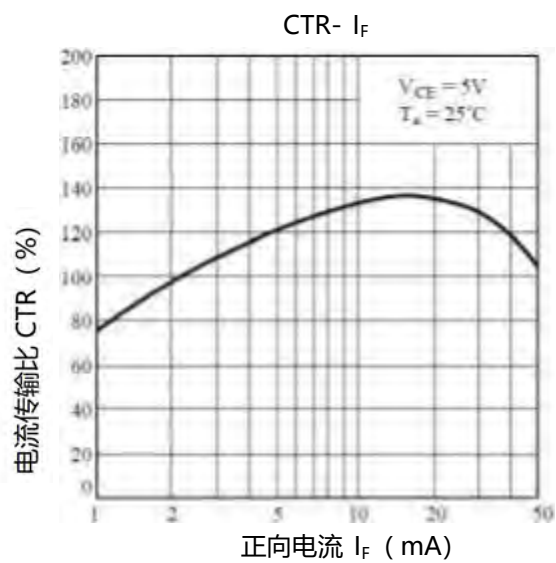
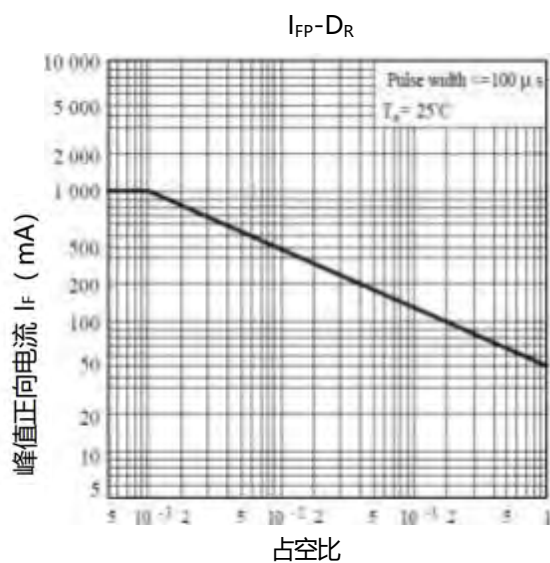
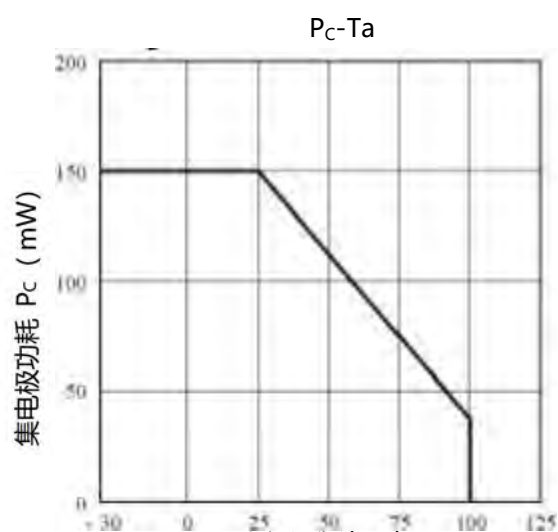
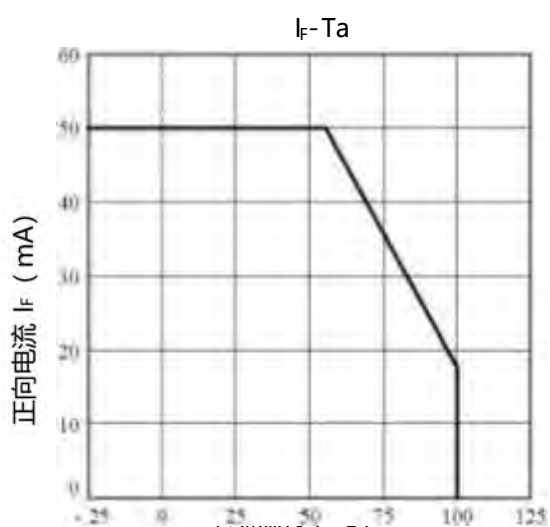
型号	分级标准	电流转换率(%) (I _C /I _F)			印字
		I _F = 5mA,V _{CE} = 5V ,T _a = 25℃			
		Min	Type	Max	
TLP181	Blank	50	-	600	BLANK, Y, GB, GR, BL
	Y	50		150	Y
	GR	100	-	300	GR
	GB	100	-	600	GB
	BL	200	-	600	BL

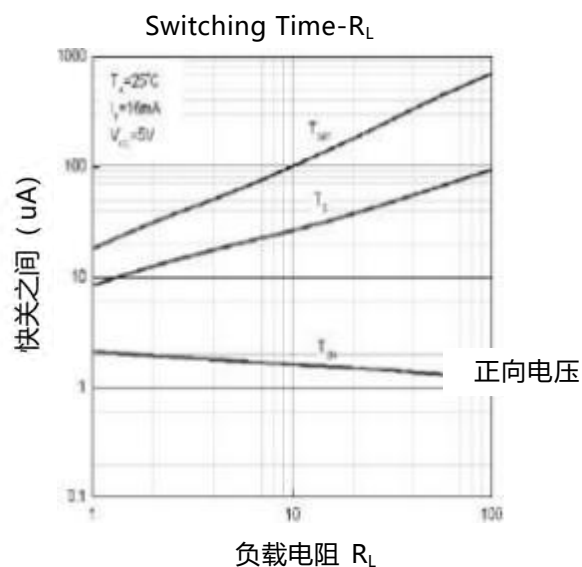
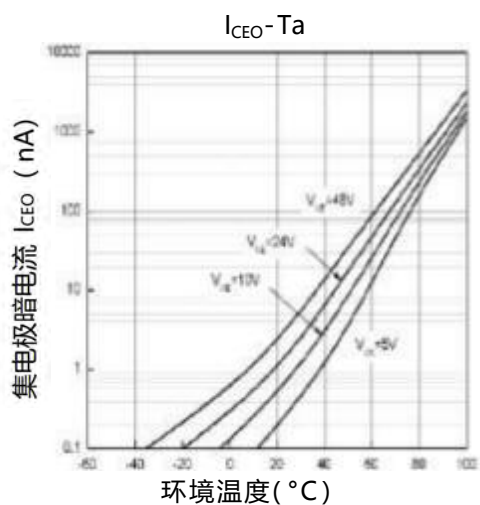
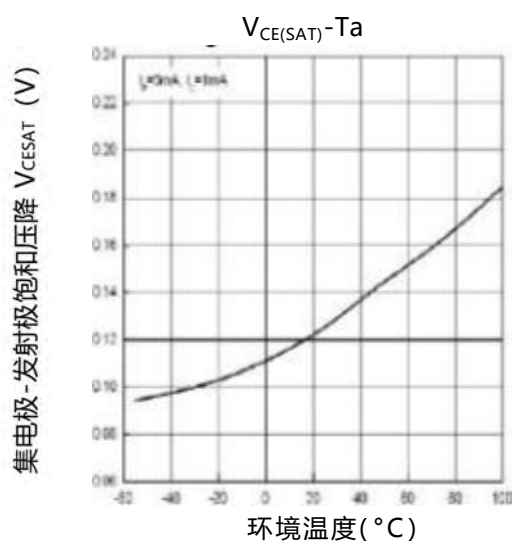
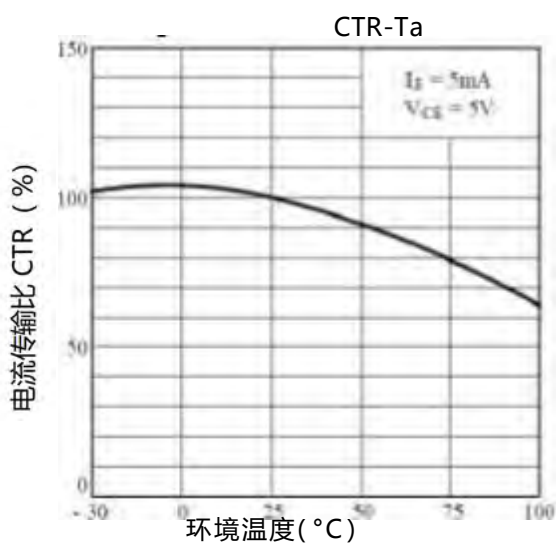
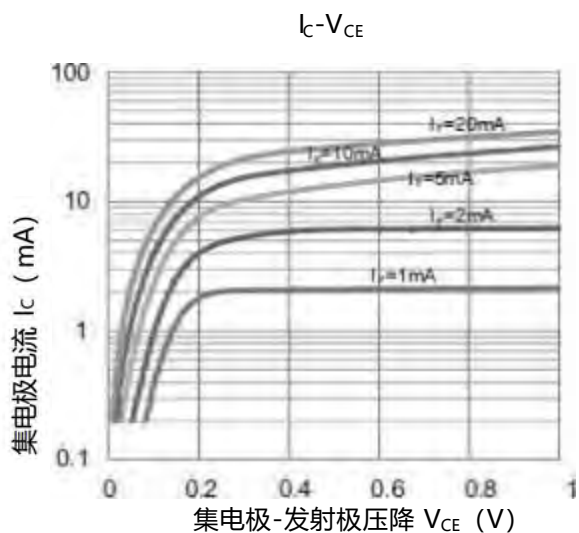
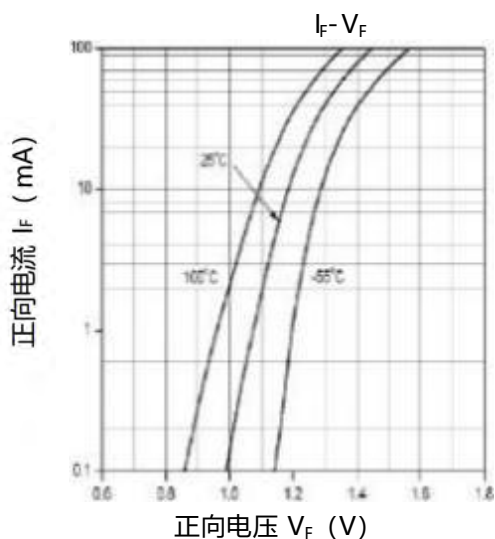


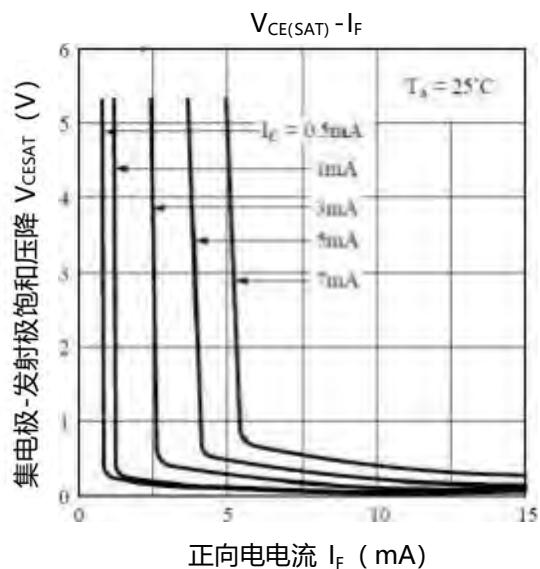
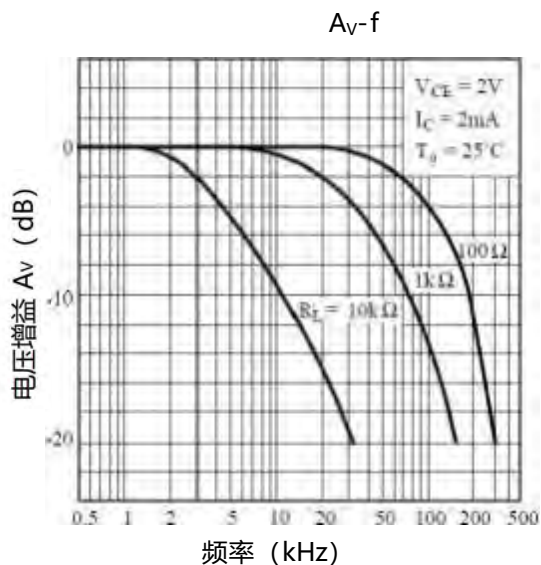
测试电路



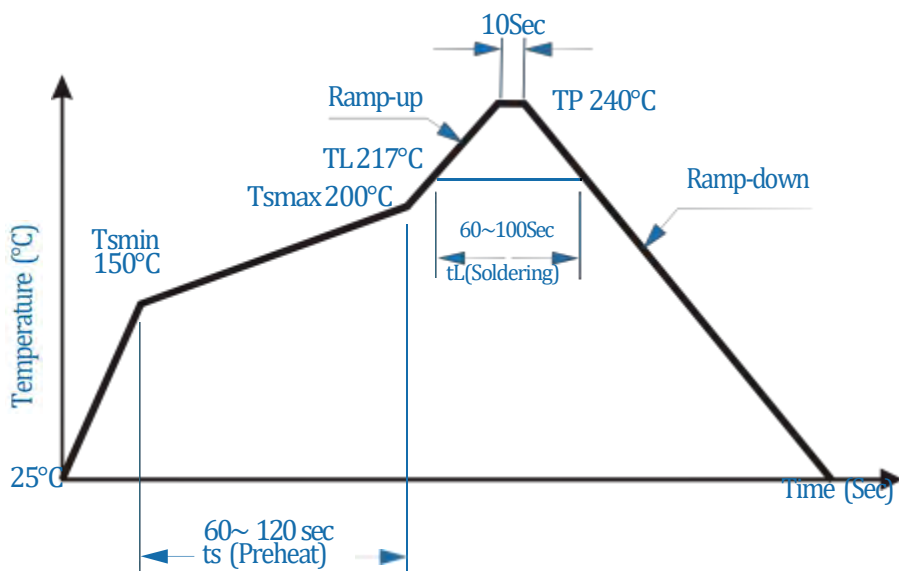
典型特性



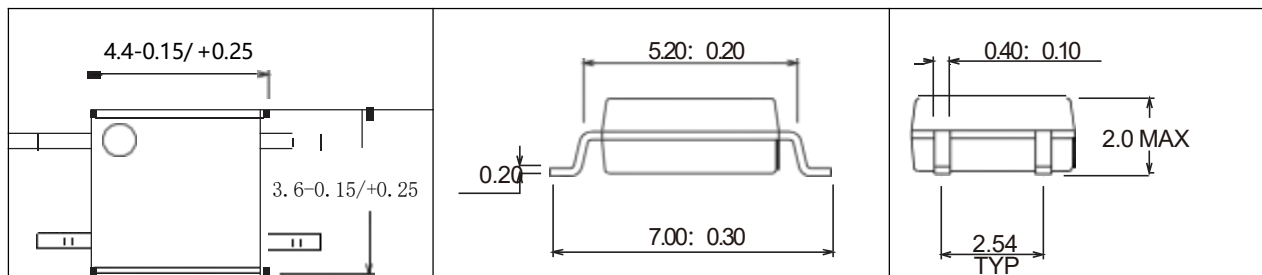




回流焊温度曲线图



外形尺寸





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