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。

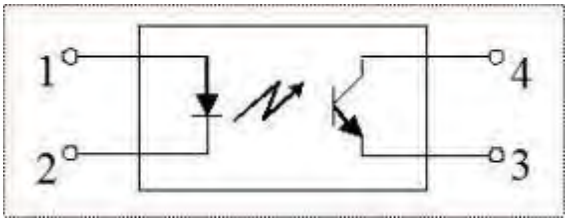
特性

- 电流转换比 (CTR)范围: 50~600% （I_F =5mA ,V_{CE} =5V）
- 输入-输出隔离电压 (Viso=3750 Vrms)
- 集电极-发射极击穿电压 BV_{CEO}≥80V

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 (Ta=25°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	Tj	125	℃
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	Tj	125	℃
总功耗		Ptot	200	mW
隔离电压		Viso	3750	Vrms
工作温度		Topr	0~+70	℃
储存温度		Tstg	-55~+125	℃
焊接温度		Tsol	240(10s)	℃

光电特性 (Ta=25°C)

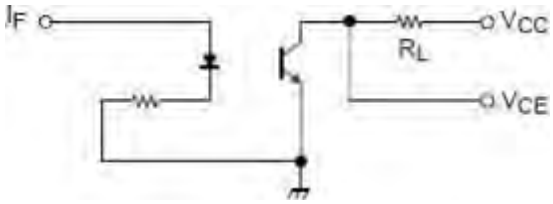
参数		符号	条件	最小	额定	最大	单位
输入	正向电压	V_F	I_F=20mA		1.2	1.4	V
	反向电流	I_R	V_R=5V	-	-	10	μA
	输入端电容	C_{in}	V=0, f=1MHz	-	30	-	pF
输出	集电极暗电流	I_{CEO}	V_{CE}=70V	-	-	100	nA
	集电极-发射极击穿电压	BV_{CEO}	I_C=0.1mA, I_F=0	80	-	-	V
	发射极-集电极击穿电压	BV_{ECO}	I_E=0.1mA, I_F=0	7	-	-	V
传输特性	电流转换比	CTR	I_F=5mA, V_{CE}=5V	50	-	600	%
	集电极-发射极饱和压降	$V_{CE(sat)}$	I_F=20mA, I_C=1mA	-	0.1	0.2	V
	隔离电阻	R_{ISO}	DC1000V, 40~60%R.H.	$1x10^{11}$	-	-	Ω
	隔离电容	Cf	V=0, f=1MHz	-	0.6	1.0	pF
	集电极-发射极电容	C_{CE}	V=0, f=1MHz	-	10	-	pF
	输入-输出电容	Cs	V=0, f=1MHz	-	0.8	-	pF
	截止频率	Fc	V_{CE}=5V, I_C=2mA, R_L=100Ω, -3dB	-	80	-	kHz
开关时间	上升时间	Tr	V_{CE}=10V, I_C=2mA, R_L=100Ω	-	-	12	μs
	下降时间	Tf		-	-	12	μs
	开启时间	Ton		-	-	12	μs
	关断时间	Toff		-	-	12	μs

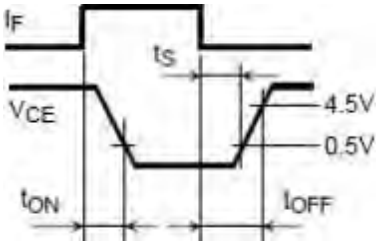
* CTR=I_C/I_F x 100%

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 ,Ta = 25°C			印字
		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

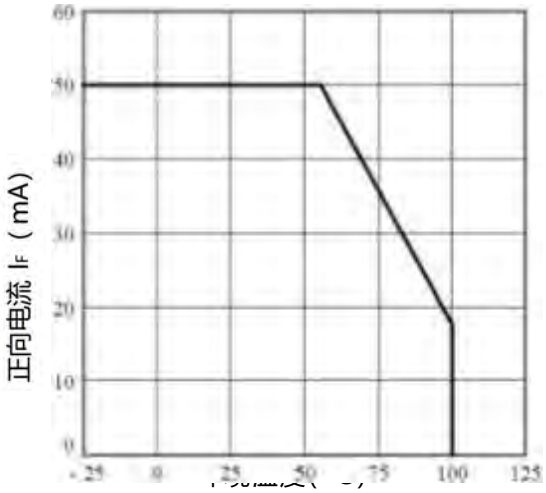
测试电路



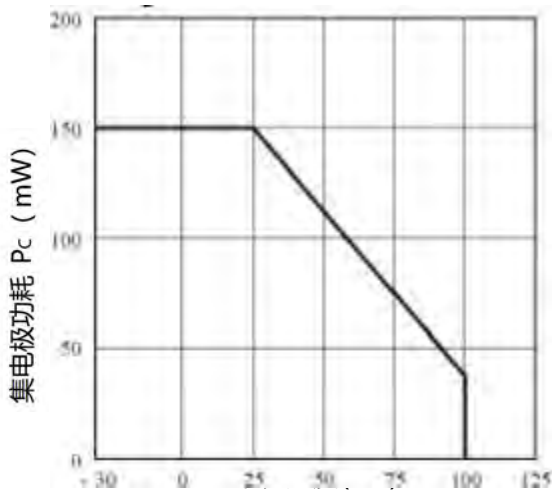


典型特性

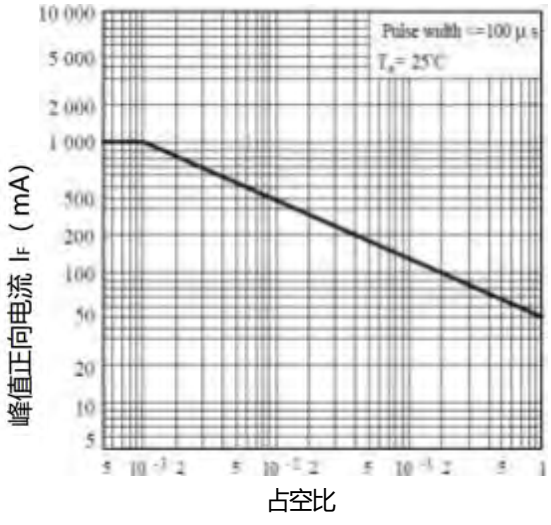
I_F-Ta



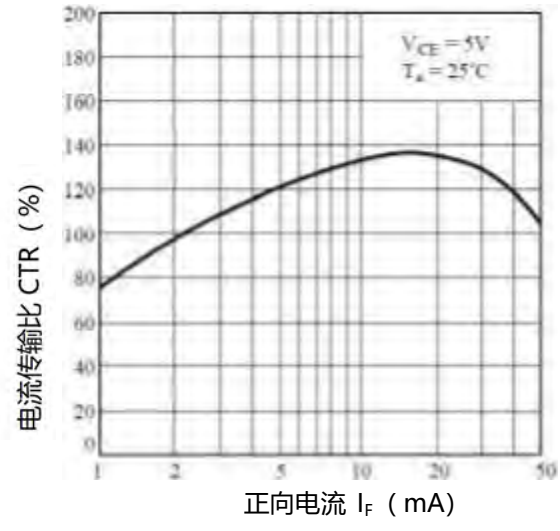
P_C-Ta



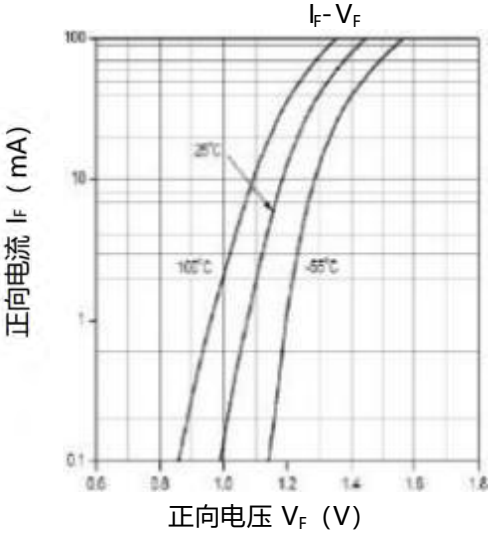
I_{FP}-D_R



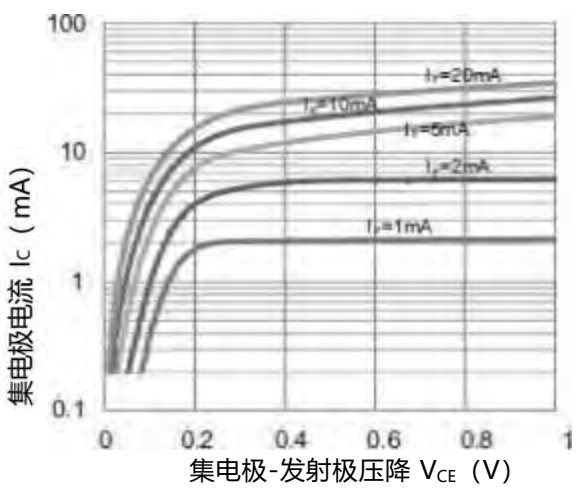
CTR- I_F



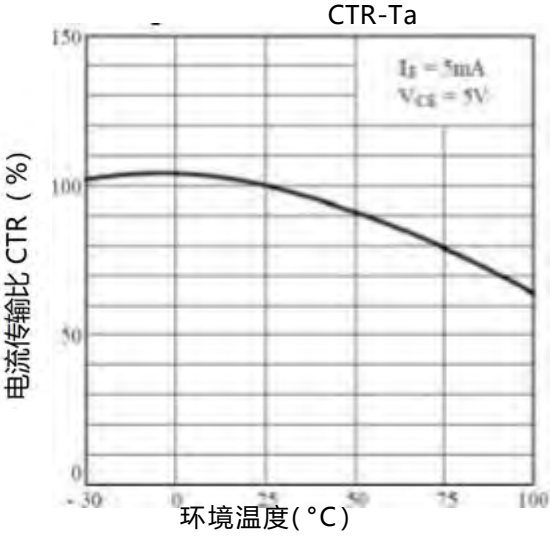
I_F-V_F



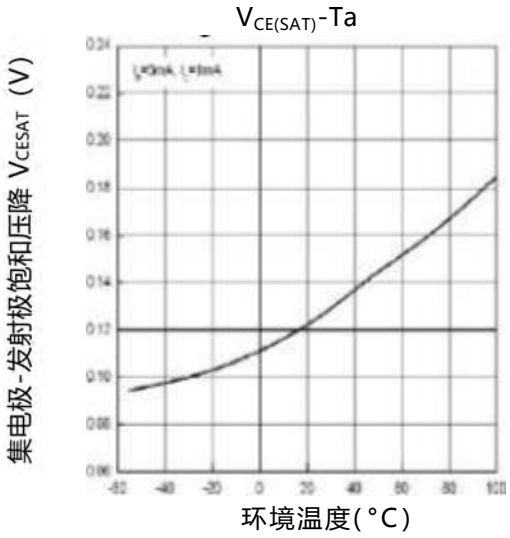
I_C-V_{CE}



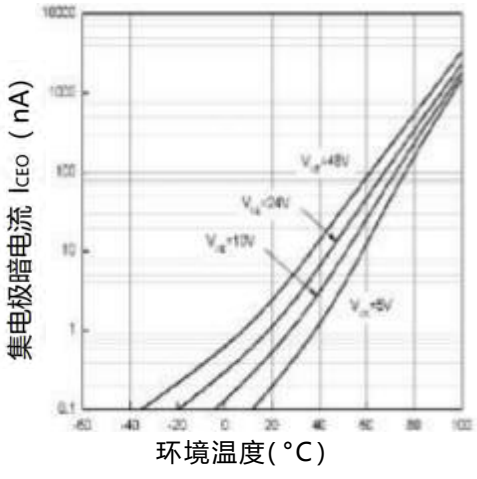
CTR-Ta



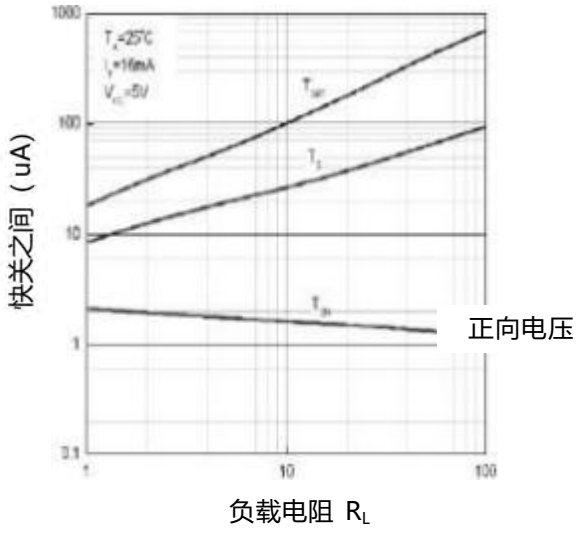
$V_{CE(SAT)}$-Ta



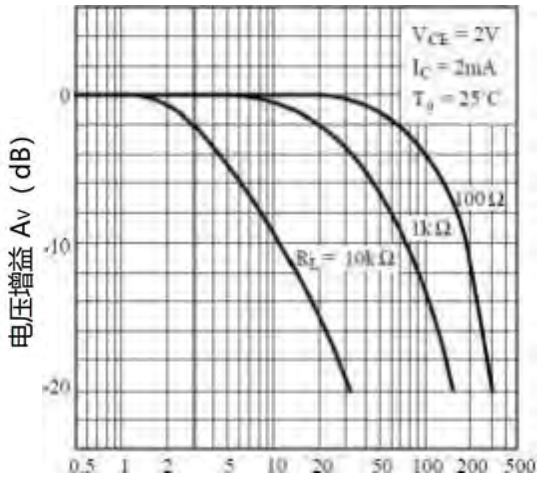
I_{CEO}-Ta



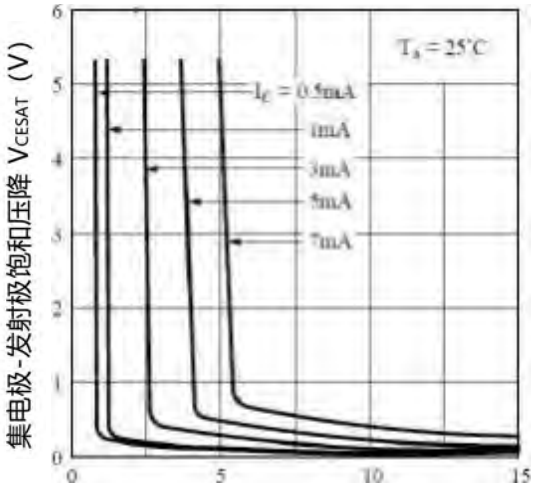
Switching Time-R_L



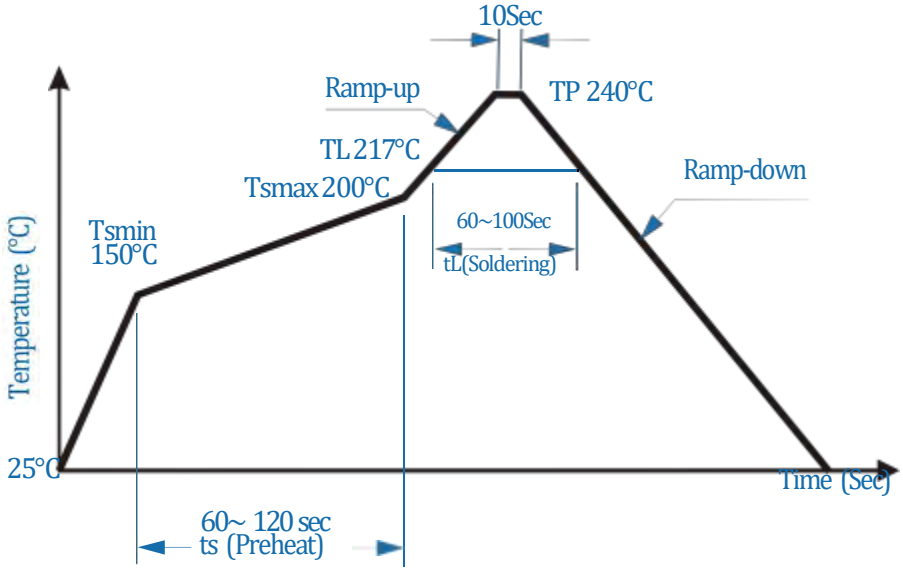
A_V-f



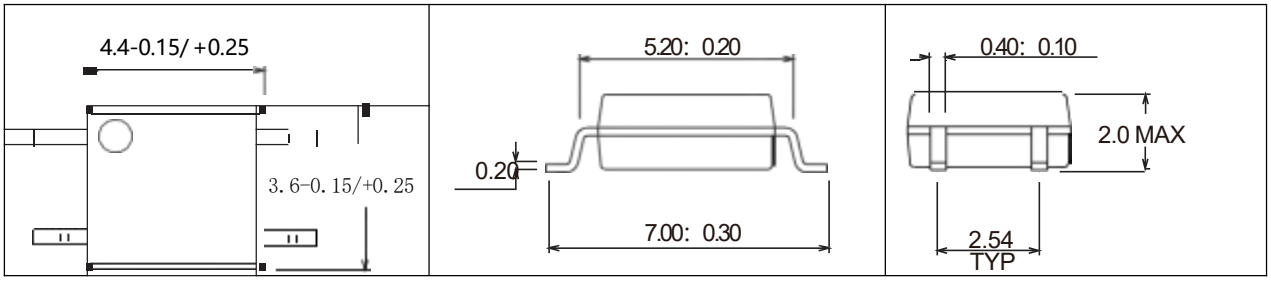
$V_{CE(SAT)}$ - I_F



回流焊温度曲线图



外形尺寸



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