



概述

TLP184(V4GBTL,SE(T 是一块小外形的贴片光电耦合器件，适合表面贴装生产。TLP184(V4GBTL,SE(T 是由两个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。

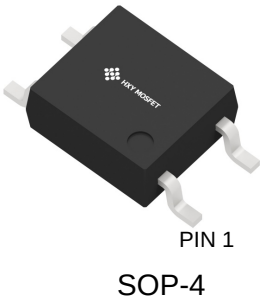
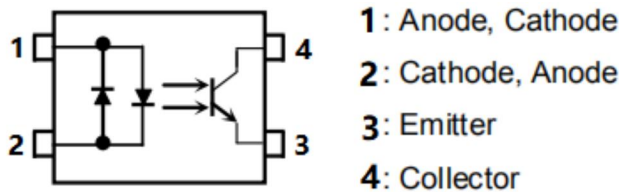
特性

- 电流转换比 (CTR)范围: (CTR: 50~600% at $I_F=5\text{mA}$, $V_{CE}=5\text{V}$)
- 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: $-55\sim 110^{\circ}\text{C}$

应用参数

- 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

结构原理图和封装



极限参数($T_a=25^{\circ}\text{C}$)

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	V_{rms}
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)	$^{\circ}\text{C}$

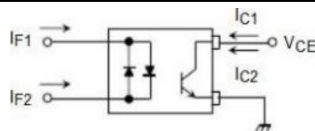


光电特性(Ta=25 °C)

参数		符号	条件	最小值	典型值	最大值	单位
输入	正向电压	V_F	$I_F = \pm 10\text{mA}$	1.1	1.25	1.4	V
	反向电流	I_R	$V_R = 5\text{V}$			10	μA
	输入端电容	C_{in}	$V = 0, f = 1\text{MHz}$	-	60	-	pF
输出	集电极暗电流	I_{CEO}	$V_{CE} = 70\text{V}$			100	nA
			$V_{CE} = 70\text{V}, T_a = 85^\circ\text{C}$	-	2	50	μA
	发射极-集电极击穿电压	BV_{CEO}	$I_C = 0.5\text{mA}, I_F = 0$	80			V
	集电极暗电流	BV_{ECO}	$I_E = 0.1\text{mA}, I_F = 0$	7			V
传输特性	电流转换比	CTR	$I_F = \pm 5\text{mA}, V_{CE} = 5\text{V}$	50		150	%
	饱和 CTR	$CTR_{(sat)}$	$I_F = \pm 1\text{mA}, V_{CE} = 0.4\text{V}$	-	60	-	%
	集电极-发射极饱和压降	$V_{CE(sat)}$	$I_F = \pm 8\text{mA}, I_C = 2.4\text{mA}$	-	-	0.3	V
			$I_F = \pm 1\text{mA}, I_C = 0.2\text{mA}$	-	0.2	-	
	隔离电阻	R_{ISO}	DC500V, 40~60%R.H.	1×10^{10}			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
	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
	截止状态集电极电流	$I_{C(off)}$	$V_F = \pm 0.7\text{V}, V_{CE} = 48\text{V}$	-	1	10	μA
	CTR 对称率	$I_{C(ratio)}$	$I_{C2}(I_F = -5\text{mA})/I_{C1}(I_F = 5\text{mA})$	0.33	1	3	-
开关时间	隔离电压	BV_s	AC, 1 minute	3750			V_{rms}
	上升时间	T_r	$V_{CE} = 10\text{V}, I_C = 2\text{mA}, R_L = 100\Omega$	-	5	-	μs
	下降时间	T_f		-	9	-	μs
	开启时间	T_{on}		-	9	-	μs
	关断时间	T_{off}		-	9	-	μs
	开关时间	T_{on}	$V_{CE} = 5\text{V}, I_C = \pm 16\text{mA}, R_L = 1.9\text{K}\Omega$	-	2	-	μs
	维持时间	T_s		-	30	-	μs
	关断时间	T_{off}		-	70	-	μs

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

* $I_{C(ratio)} = I_{C2}(I_F = I_{F2}, V_{CE} = 5\text{V}) / I_{C1}(I_F = I_{F1}, V_{CE} = 5\text{V})$

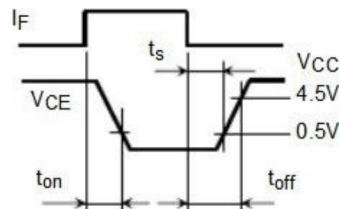
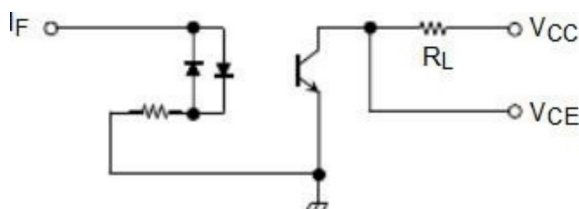




推荐的操作条件：(备注)

参数	符号	最小	典型	最大	单位
电源电压	V_{CC}	-	5	48	V
正向电流	I_F	-	16	20	mA
集电极电流	I_C	-	1	10	mA

开关时间测试电路



典型特性

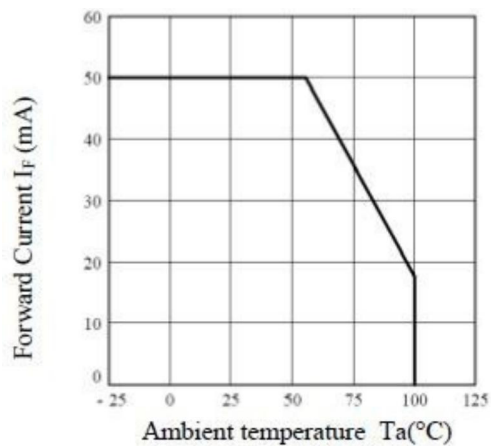


图 1：正向电流 VS 温度

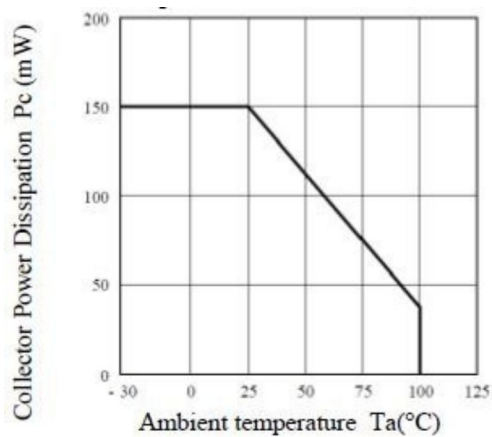


图 2：集电极功耗 VS 温度

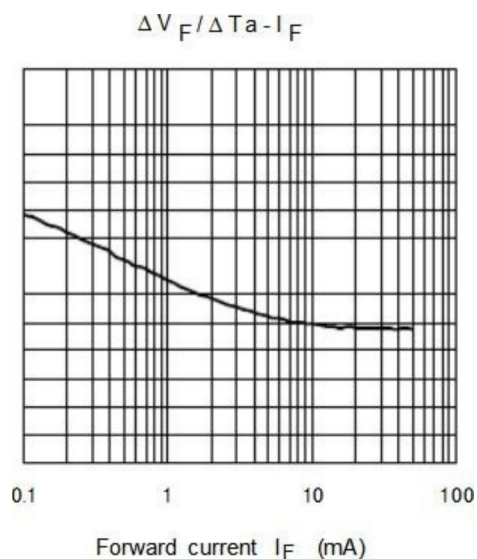


图 3：正向电流随温度变化 VS I_F

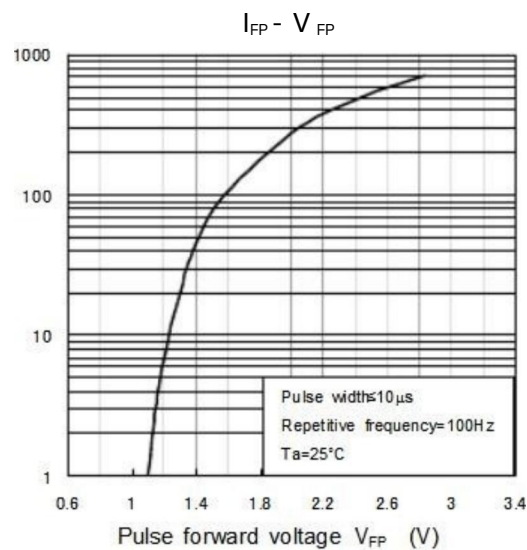


图 4：正向脉冲电压 VS 正向脉冲电流

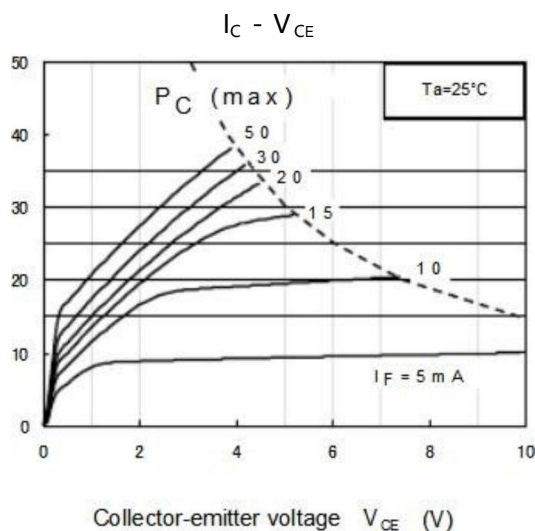


图 5：集电极电流 VS 集电极-发射极电压

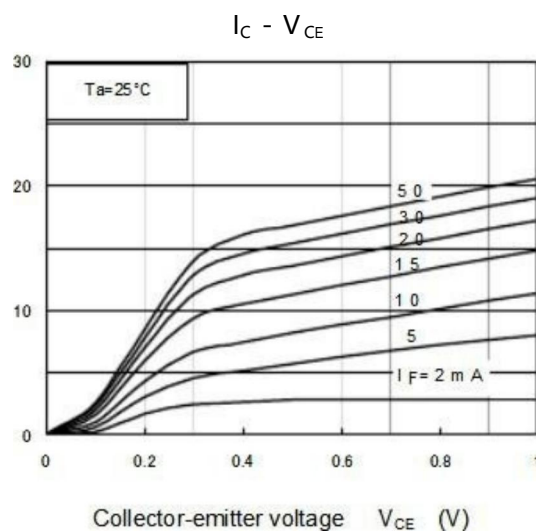


图 6：集电极电流 VS 集电极-发射极电压

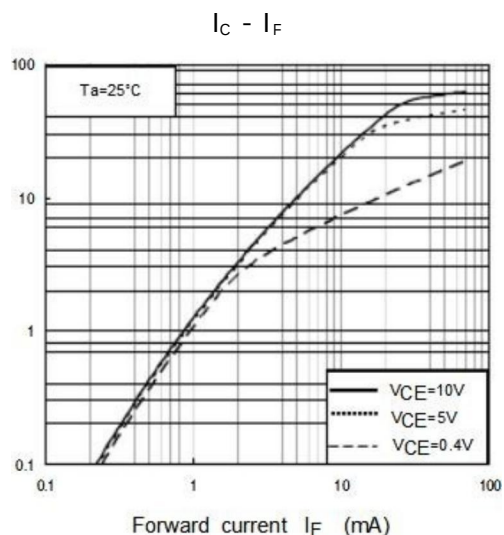


图 7：集电极电流 VS 正向电流

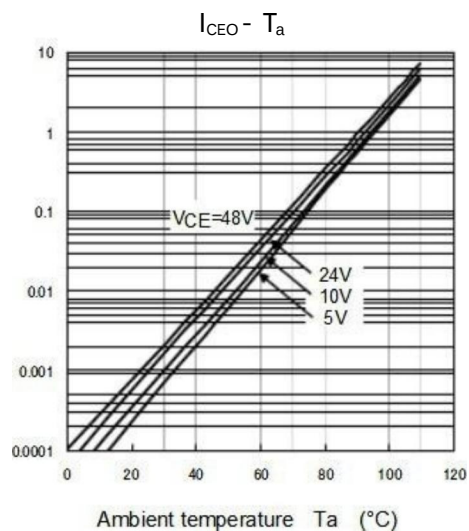


图 8：集电极暗电流 VS 温度

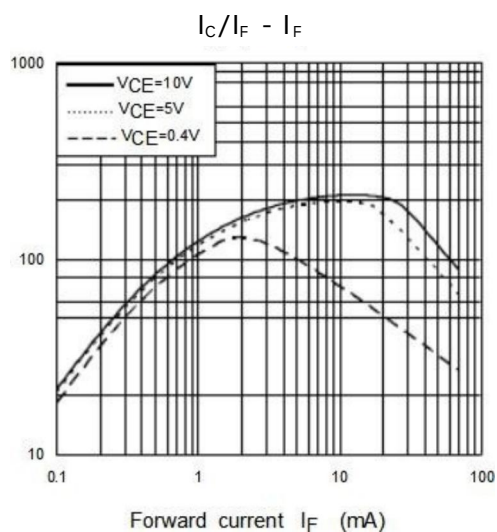


图 9：CTR VS 正向电流

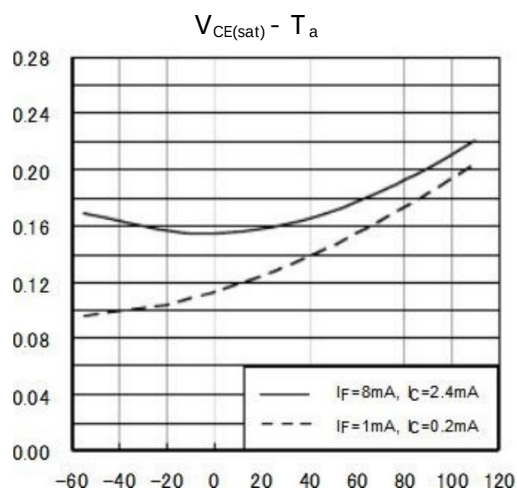


图 10：饱和电压 VS 温度

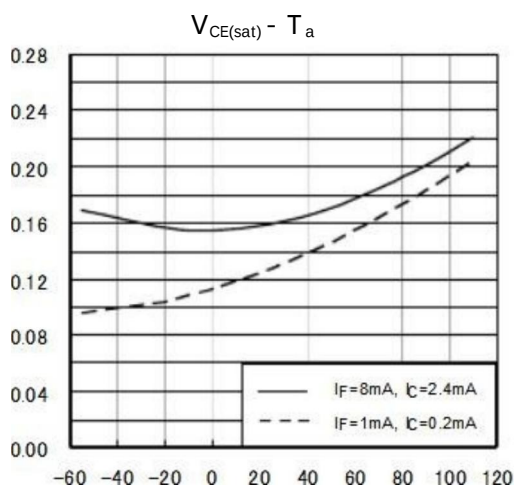


图 11：CTR VS 正向电流

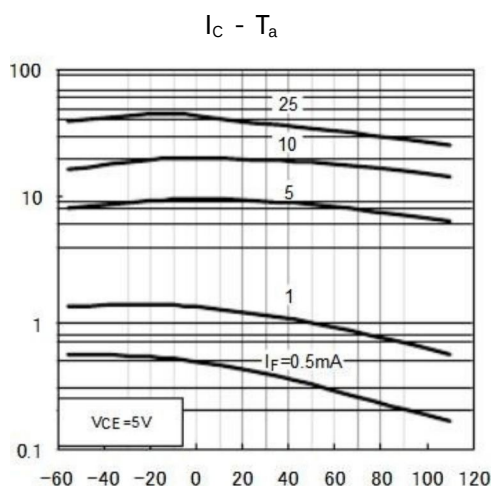


图 12：集电极电流 VS 温度

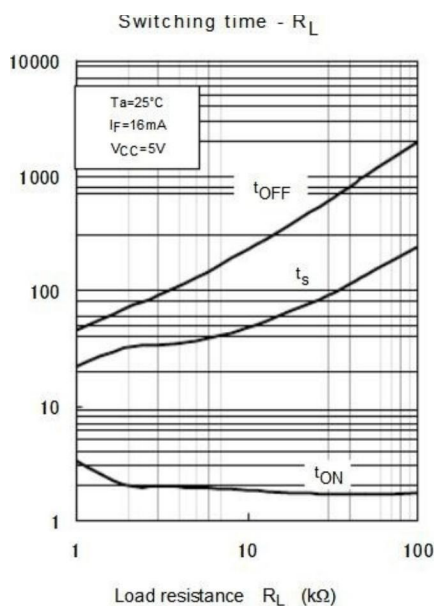


图 13：开关时间 VS 负载电阻

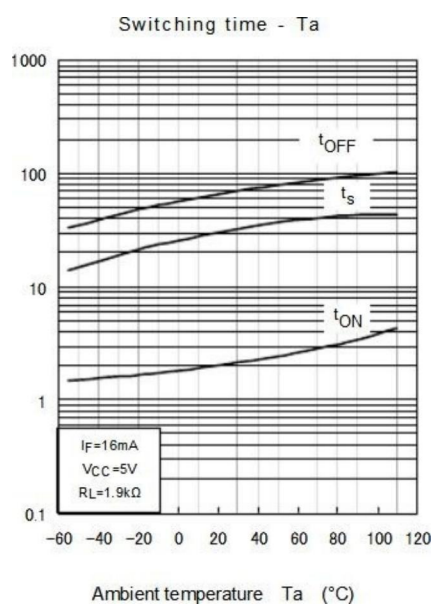
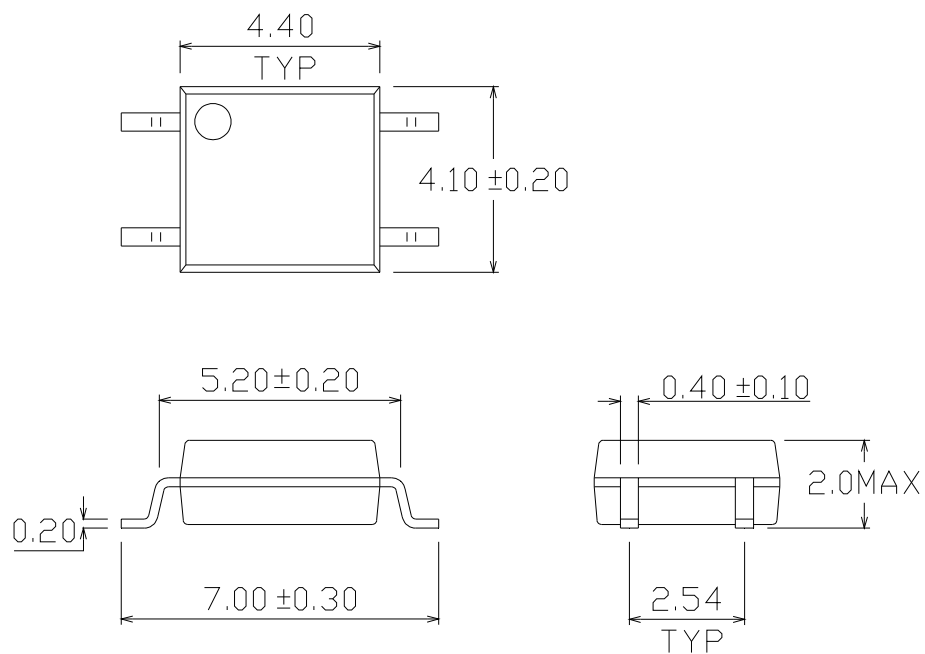


图 14：开关时间 VS 温度



外形尺寸(单位)





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