产品规格书

Specification

品　　　名(P/N): 光电耦合器 Photocoupler

型　　号(Mfg P/N): DPC-357

制 作 日 期(Date): 2022-08-10

制作人（producer）： 高　康

审　　核（audit）： 黄俊民

批　准（approval）： 黄伟鹏

文件编号（Document No）DP-WI-QC-32-A

珠海市大鹏电子科技有限公司

Zhuhai dapeng ELEC-TECH co., LTD

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● 特点(Features)

1. 电流转换比(CTR: 最小. 50% 工作条件 I_F=5mA, V_{CE}=5V) Current transfer ratio (Min 50% Working condition I_F=5mA, V_{CE}=5V)
2. 绝缘电压:(V_{ISO}=5,000Vrms) Isolation Voltage = 5,000Vrms
3. 响应时间 (tr: TYP. 4μs),工作条件 V_{CE}=10V, I_C=2mA, R_L=100 Ω)
   Response Time (tr: TYP. 4μs),working condition V_{CE}=10V, I_C=2mA, R_L=100 Ω)
4. 本产品符合 ROHS 及 REACH 相关法规要求。Our products conform to the requirements of the ROHS and REACH the relevant laws and regulations.

● 说明 (Description)

1. DPC-357 系列光耦合器的组成是:由一个 GaAs 的发射管和一个 NPN 的晶体管组成
   DPC-357 photocoupler consist of one piece of GaAs emitter and one piece of NPN transistor
2. DPC-357 的引脚中心距是 2.54mm Pin pitch of DPC-357 is 2.54mm
3. DPC-357 系列光耦工作电压工作电压≤420Vpeak,250Vrms Working voltage of dpc-357 series optocoupler working voltage ≤ Vpeak,250Vrms

● 应用范围 (Applications)

1. 可编程控制器. Programmable controllers .
2. 系统设备、测量仪器. Telecommunication equipments.
3. 贮存器, 复印机, 自动售货机. System appliances, measuring instruments .
4. 家用电器, 如风扇加热器等. Electric home appliances, such as fan heaters, etc.
5. 信号传输系统. Signal transmission between circuits of different potentials and impedance.

● 最大绝对额定值 (常温=25℃) Absolute Maximum Ratings(Ta=25℃)

参数 Parameter		符号 Symbol	额定值 Rated Value	单位 Unit
输入 Inout	顺向电流 Forward Current	I_F	50	mA
	逆向电压 Reverse Voltage	V_R	6	V
	功消耗率 Power Dissipation	P_D	70	mW
输出 Output	集极与射极电压 Collector-Emitter Voltage	V_{CEO}	80	V
	射极与集极电压 Emitter- Collector Voltage	V_{ECO}	6	
	集极电流 Collector Current	I_C	50	mA
	消耗功率 Collector Power Dissipation	P_C	150	mW
总功率消耗 Collector Power Dissipation		P_{tot}	200	mW
*1 绝缘电压 Insulation Voltage		V_{iso}	3,750	Vrms
工作温度 Operating Temperature		T_{opr}	-55 to + 100	℃
存贮温度 Storage Temperature		T_{stg}	-55 to + 125	
*2 焊锡温度 Soldering Temperature		T_{sol}	260	

*1. 交流测试, 时间 1 分钟, 湿度. =40~60% AC Test, 1 minute, humidity = 40~60%
如下是绝缘测试的方法. Isolation voltage shall be measured using the following method.:
(1) 将产品的两端短路。Short between anode and cathode on the primary side and between collector and emitter on the secondary side
(2) 测试绝缘电压时无电流通过。The isolation voltage tester with zero-cross circuit shall be used
(3) 测试时加正弦波形电压。The waveform of applied voltage shall be a sine wave

*2. 锡焊时间为 10 秒 soldering time is 10 seconds

● 光电特性(常温=25℃) Electro-Optical Characteristics (Ta=25℃)

参数 Parameter		符号 Symbol	条件 Condition	最小 Min	中.Mid ium	最 大 Max	单位 Unit
输入 Input	顺向电压 Forward Voltage	V_F	I_F=20mA	---	1.2	1.4	V
	逆向电流 Reverse Current	I_R	V_R=4V	---	---	10	μA
	集极电容 Terminal Capacitance	C_t	V=0, f=1KHz	---	30	250	pF
输出 Output	集极至射极电流 Collector Dark Current	I_{CEO}	V_{CE}=20V, I_F=0	---	---	100	nA
	集极与射极衰减电压 Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=0.1mA I_F=0	80	---	---	V
	射极与集极衰减电压 Emitter-Collector Breakdown Voltage	BV_{ECO}	I_E=10μA I_F=0	6	---	---	V
传输特性 Transforming Characteristics	集极电流 Collector Current	Ic	IF=5mA VCE=5V	2.5	---	30	mA
	*1 电流转换比 Current Transfer Ratio	CTR		50	---	600	%
	集极与射极饱和电压 Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_F=20mA I_C= 1mA	---	0.1	0.2	V
	绝缘阻抗 Isolation Resistance	R_{iso}	DC500V 40~60%R.H.	5×10^{10}	---	---	Ω
	电容量 Floating capacitance	C_f	V=0, f=1MHz	---	0.6	1.0	pF
	转换频率 Cut-off Frequency	f_c	V_{CE}=5V, I_C=2mA R_L=100Ω, -3dB	---	80	---	kHz
	上升时间 Rise Time(Rise)	t_r	V_{CE}=2V, I_C=2mA R_L=100Ω	---	4	15	μs
	下降时间 Fall Time(Fall)	t_f		---	3	15	μs

注：电流转换比 Current Conversion Ratio = I_C / I_F × 100%

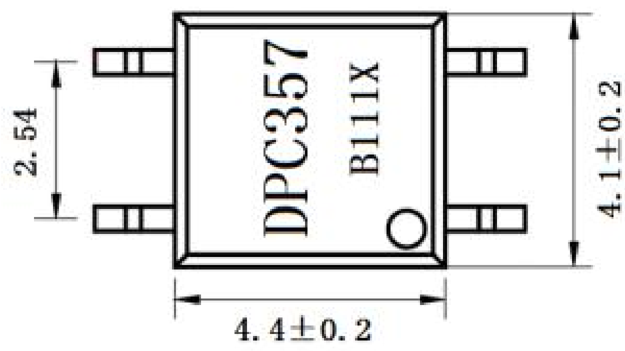
● 电流转换比的等级分类 Rank table of current transfer ratio

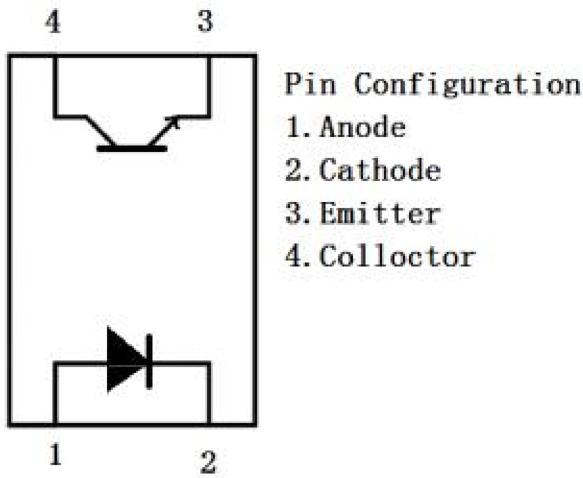
等级标示 Rank Mark	最小.Min (%)	最大.Max (%)
A	80	160
B	130	260
C	200	400
D	300	600
E	50	200
F	150	300
No mark	50	600

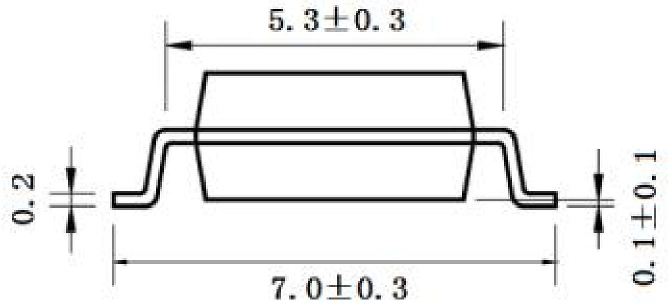
说 明： 工作条件: I_F=5mA, V_{CE}=5V, T_a=25℃.

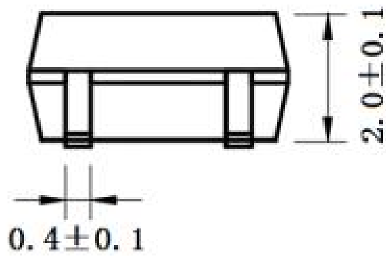
Note: Working condition: I_F=5mA, V_{CE}=5V, T_a=25℃.

● 外形尺寸 Outer Dimension









DPC: 产品品牌 Product brand

357: 产品型号 Product model

B ：等级标识 Rank mark

111: 年份尾数和周期数 Year mantissa and cycle number

X ：工艺代码 Process code

● 特性曲线 Characteristics Curves

Fig.1 Forword Current
vs. Ambient Temperatute

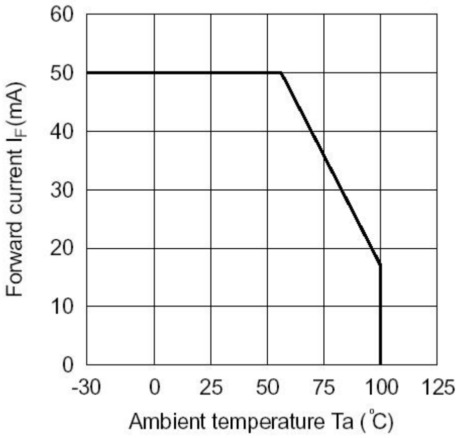


Fig.2 Collector Power Dissiption
vs. Ambient Temperature

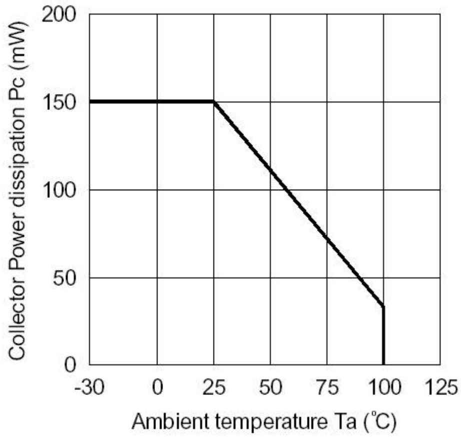


Fig.3 Collector-emitter Saturation
Voltage vs. Forward Current

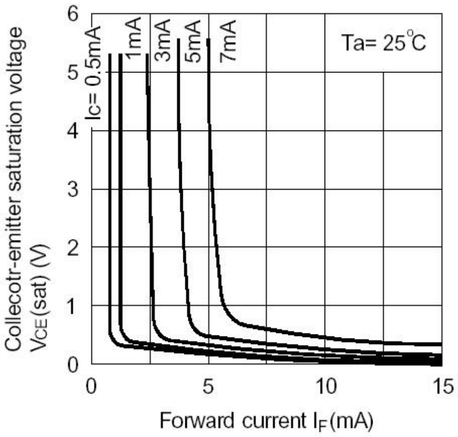


Fig.4 Forward Current vs. Forward
Voltage

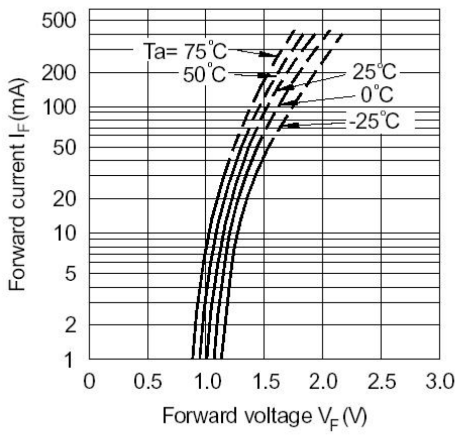


Fig.5 Current Transfer Ratio vs.
Forward Current

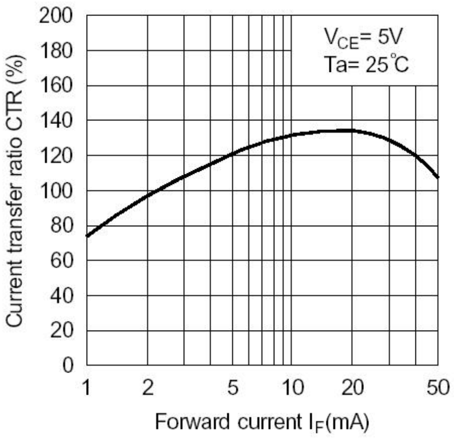
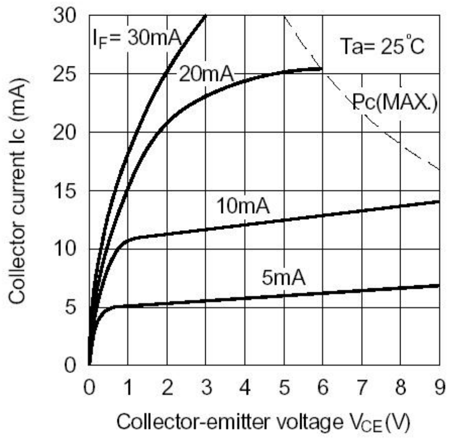


Fig.6 Collector Current vs.
Collector-emitter Voltage



● 特性曲线 Characteristics Curves

Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

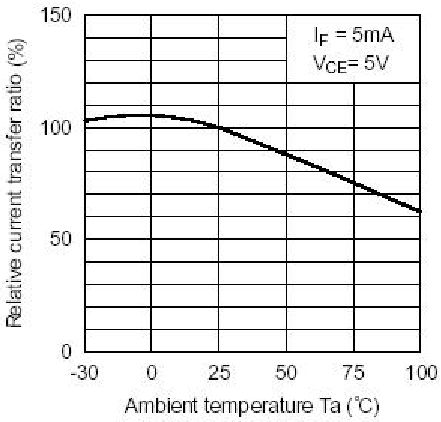


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

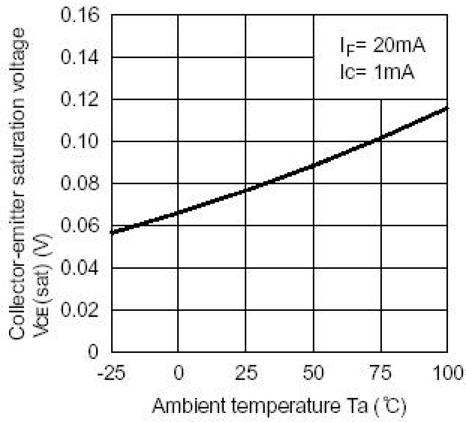


Fig.9 Collector Dark Current vs. Ambient Temperature

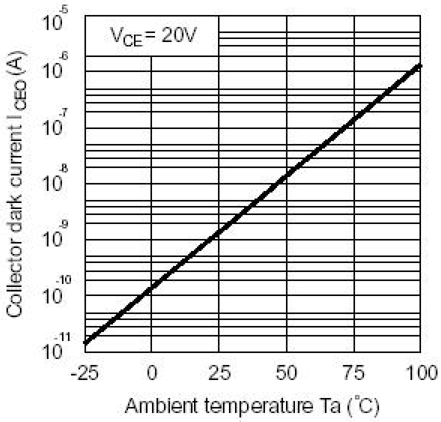


Fig.10 Response Time vs. Load Resistance

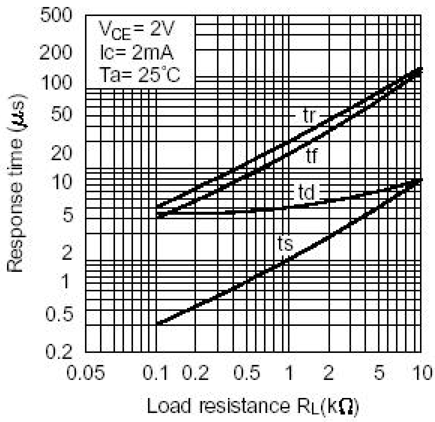
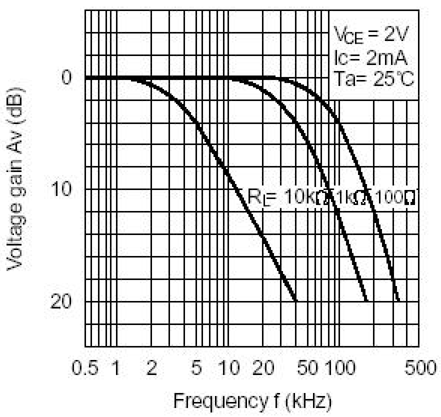
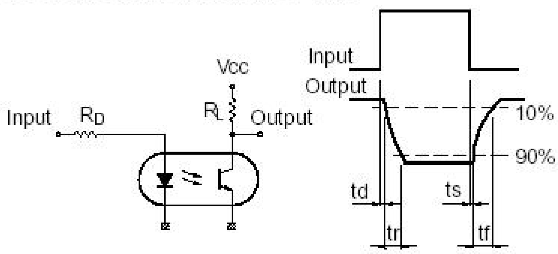


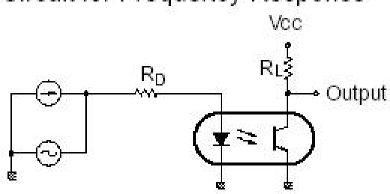
Fig.11 Frequency Response



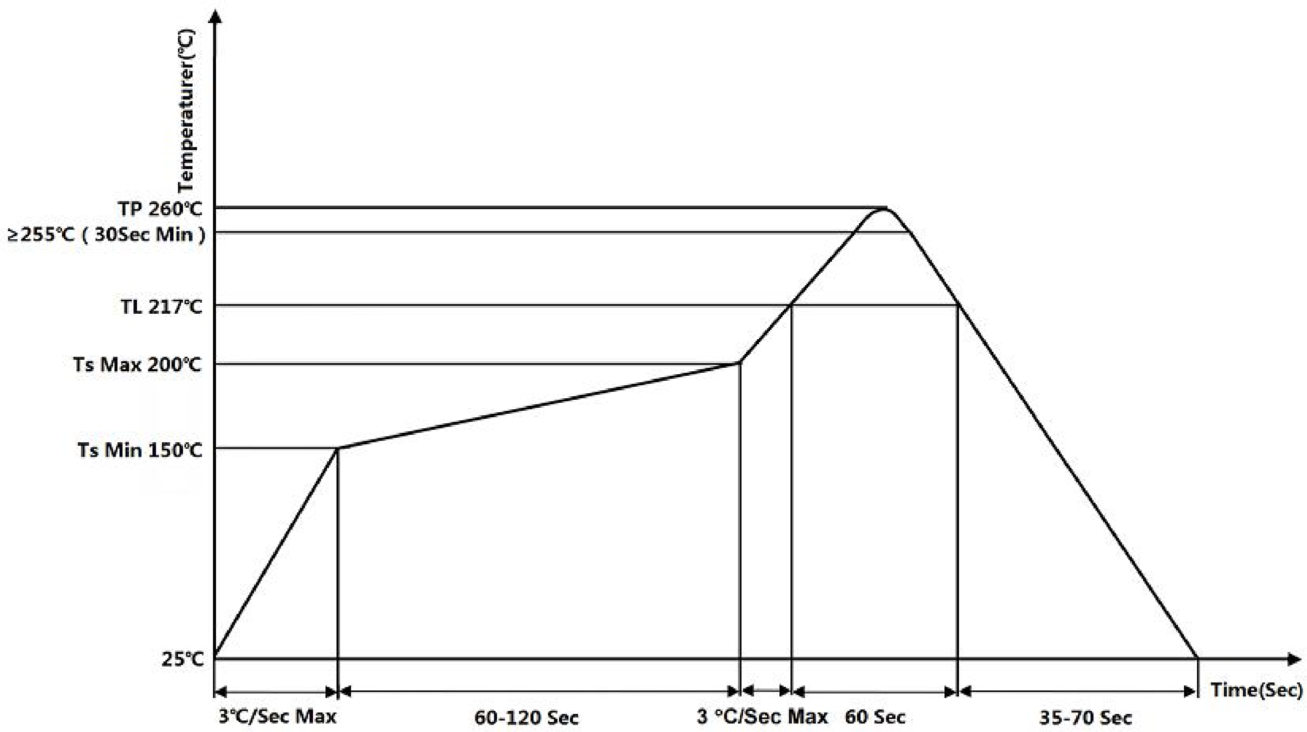
Test Circuit for Response Time



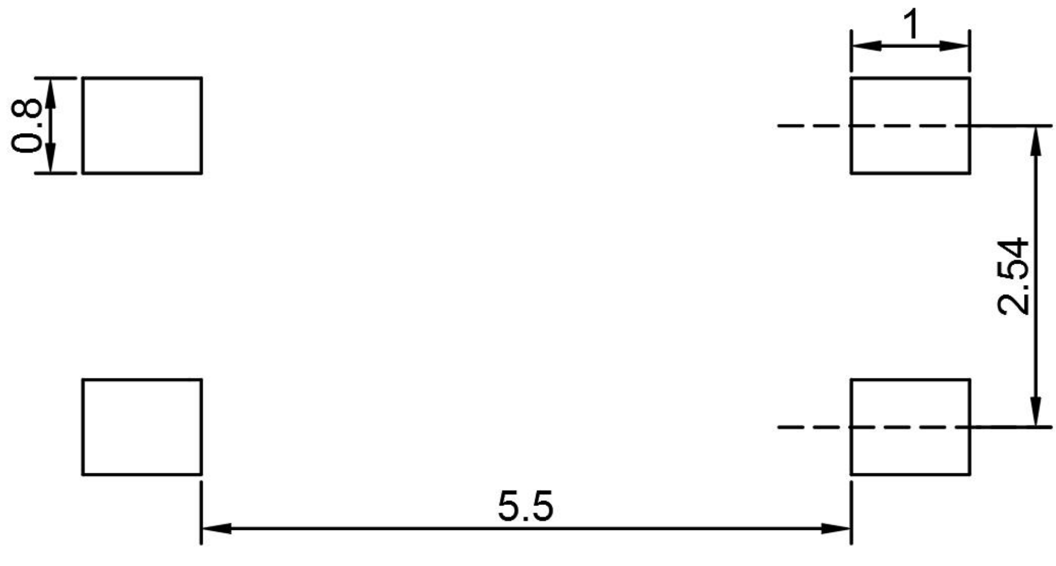
Test Circuit for Frequency Response



● 回流焊温度分布 Solder Reflow Temperature Profile

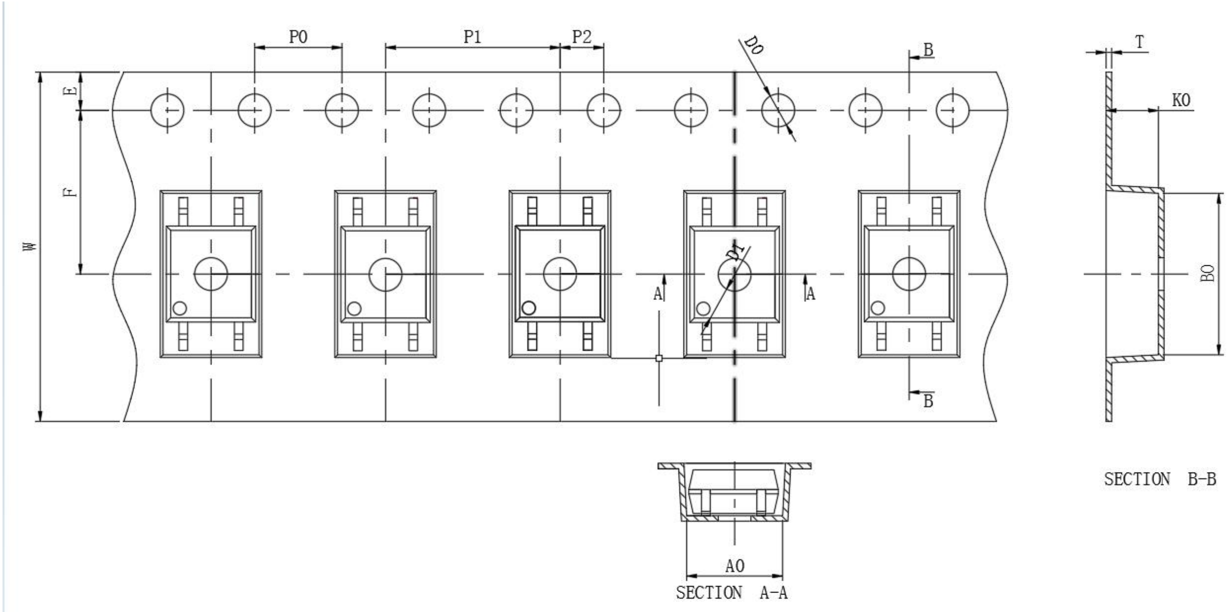


● 推荐安装脚位图 Recommended pad layout for surface mount leadfo（mm）

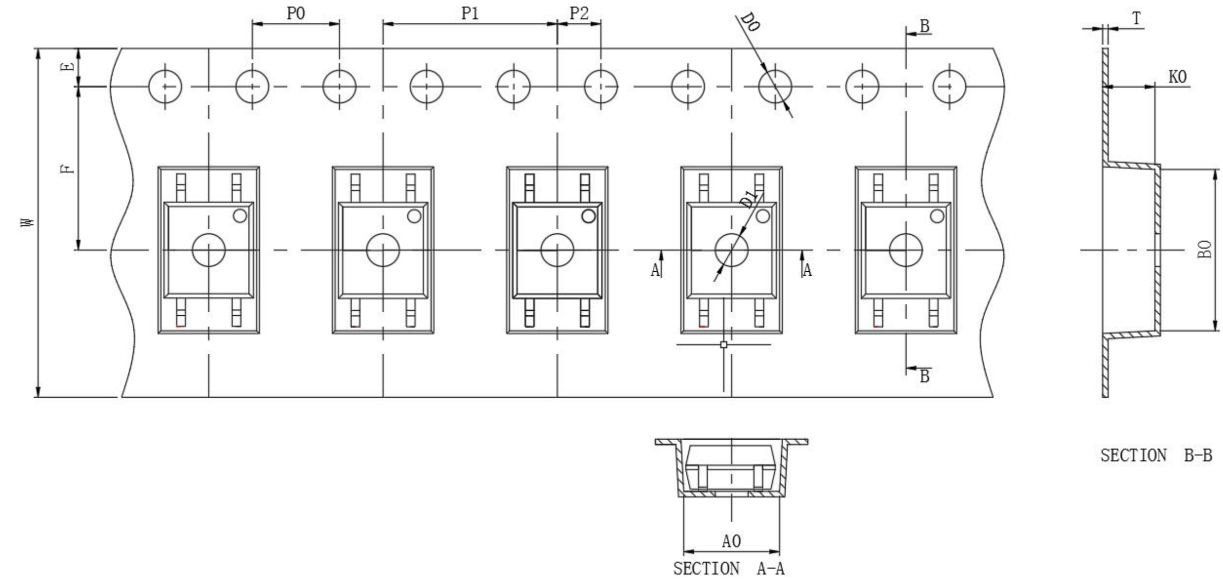


● 包装方式 Packing method

T1：



T2：



ITEM	W	A0	B0	K0	E	F	D0	D1	P0	P1	P2	T
DIM	16.00	4.60	7.60	2.40	1.75	7.50	1.50	1.50	4.00	8.00	2.00	0.25
TOLE	+0.30 -0.30	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.00	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.10 -0.10	+0.05 -0.05

1. 3000pcs/盘 3000pcs / plate;
2. 10 盘/箱 10 plate / box;
3. 包装如另有优化调整，恕不另行通知 The package is subject to optimization and adjustment without notice;