

## Description

The CHEUK YUI mini flat coupler CYTLP181 is a small outline coupler, suitable for surface mount assembly. CYTLP181 consist of a photo-transistor optically coupled to a gallium arsenide infrared emitting diode, The CYTLP181 is smaller than DIP package, it's suitable for high-density surface mounting applications such as programmable controllers..

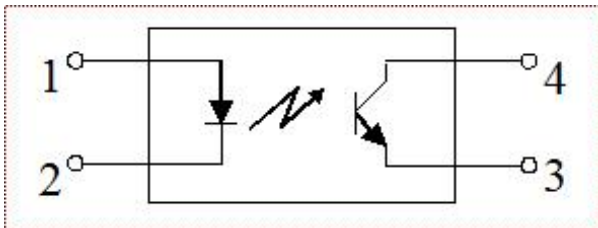
## Features

- Current transfer ratio (CTR: 50~600% at  $I_F = 5\text{mA}$ ,  $V_{CE} = 5\text{V}$ )
- High isolation voltage between input and output ( $V_{iso} = 3750\text{ Vrms}$ )
- Minimum  $BV_{CEO}$  of 80V guaranteed
- Operation temperature:  $-55$  to  $110^\circ\text{C}$
- UL approved (NO.:E497745)
- Compliance with EU REACH and RoHS
- CQC approved (NO:CQC20001238559)

## Applications

- Switching power supply, intelligent meter
- Industrial control, measuring instruments
- Office equipment such as copiers
- Household appliances, such as air conditioners, fans, water heaters, etc.

## Block Diagram and Package



## Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating	Unit
Input	Forward Current	$I_F$	50	mA
	Pulse forward current	$I_{FP}$	1	A
	Reverse Voltage	VR	5	V
	Power Dissipation	P	70	mW
	Junction temperature	$T_j$	125	$^\circ\text{C}$
Output	Collector Power Dissipation	$P_C$	150	mW
	Collector Current	$I_C$	50	mA
	Collector-Emitter Voltage	$V_{CEO}$	80	V
	Emitter-Collector Voltage	$V_{ECO}$	7	V
	Junction temperature	$T_j$	125	$^\circ\text{C}$
Total Power Dissipation		$P_{tot}$	200	mW
Isolation Voltage		$V_{iso}$	3750	Vrms
Operating Temperature		$T_{opr}$	$-55 \sim +110$	$^\circ\text{C}$
Storage Temperature		$T_{stg}$	$-55 \sim +125$	$^\circ\text{C}$
Soldering Temperature		$T_{sol}$	260 (10s)	$^\circ\text{C}$

**Electro-optical Characteristics (Ta=25°C)**

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	$V_F$	$I_F=20\text{mA}$		1.2	1.4	V
	Reverse Current	$I_R$	$V_R=5\text{V}$			10	$\mu\text{A}$
	Terminal Capacitance	$C_{in}$	$V=0, f=1\text{kHz}$	-	30	-	pF
Output	Collector Dark Current	$I_{CEO}$	$V_{CE}=70\text{V}$			100	nA
	Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=0.1\text{mA}, I_F=0$	80			V
	Emitter-Collector Breakdown Voltage	$BV_{ECO}$	$I_E=0.1\text{mA}, I_F=0$	7			V
Transfer Characteristics	Current Transfer Ratio	CTR	$I_F=5\text{mA}, V_{CE}=5\text{V}$	50		600	%
	Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_F=20\text{mA}, I_C=1\text{mA}$		0.1	0.2	V
	Isolation Resistance	$R_{ISO}$	DC1000V, 40~60%R.H.	$1 \times 10^{11}$			$\Omega$
	Floating Capacitance	$C_f$	$V=0, f=1\text{MHz}$		0.6	1.0	pF
	Capacitance (Collector to emitter)	$C_{CE}$	$V=0, f=1\text{MHz}$		10		pF
	Capacitance (input to output)	$C_S$	$V=0, f=1\text{MHz}$		0.8		pF
	Cut-off Frequency	$F_c$	$V_{CE}=5\text{V}, I_C=2\text{mA}, R_L=100\Omega, -3\text{dB}$		80		kHz
Switching Characteristics	Rise Time	$T_r$	$V_{CE}=10\text{V}, I_C=2\text{mA}, R_L=100\Omega$	-	-	12	$\mu\text{s}$
	Fall Time	$T_f$		-	-	12	$\mu\text{s}$
	Turn On			-	-	12	
	Turn Off			-	-	12	

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

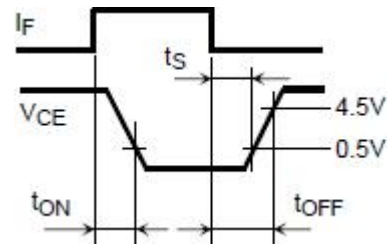
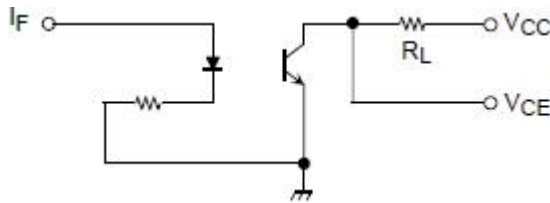
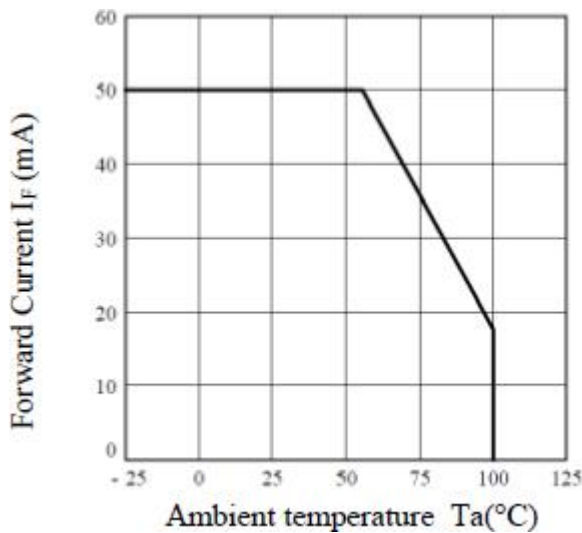
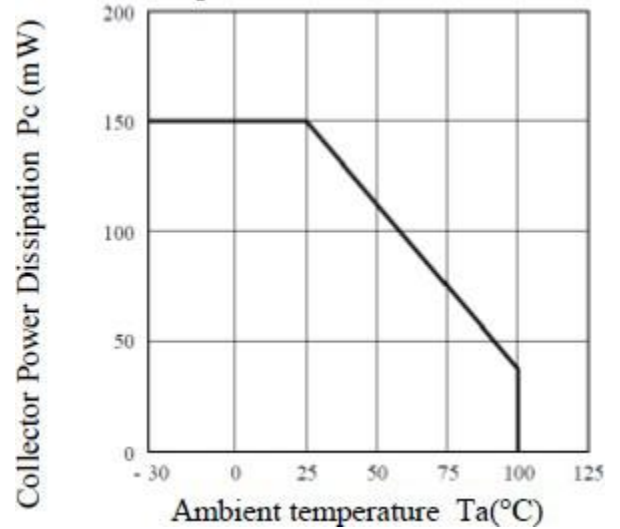
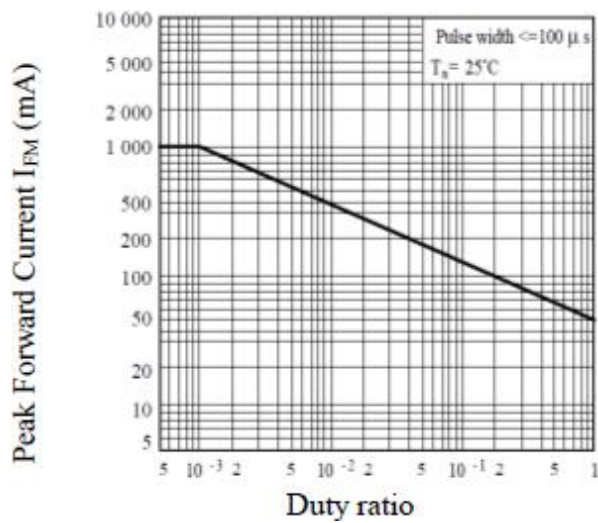
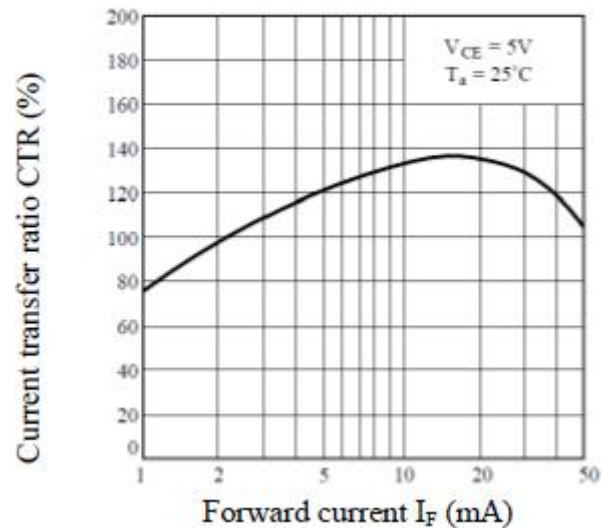
**Rank Table of CTR**

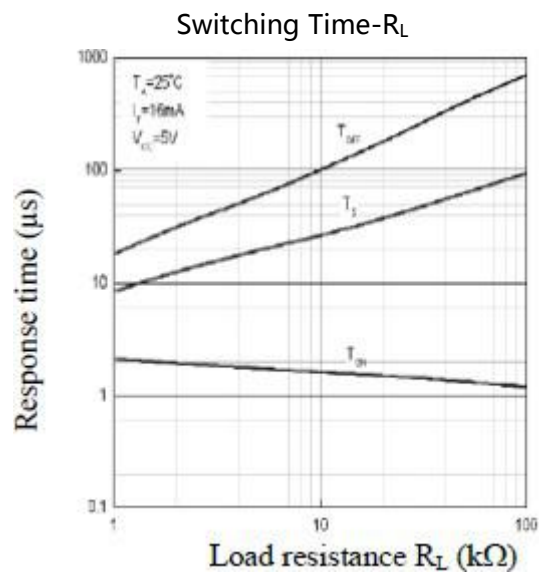
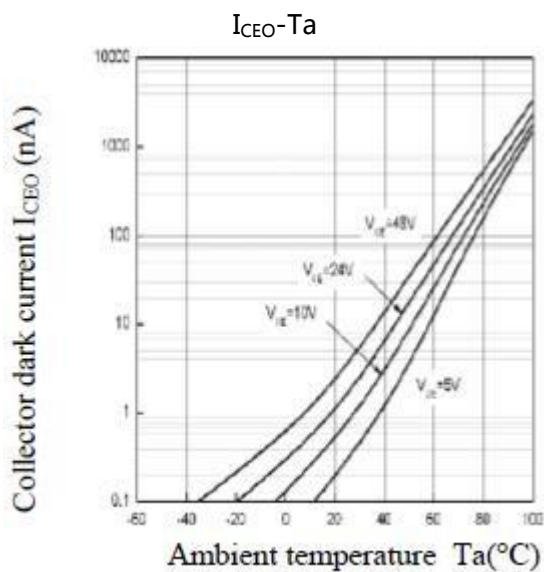
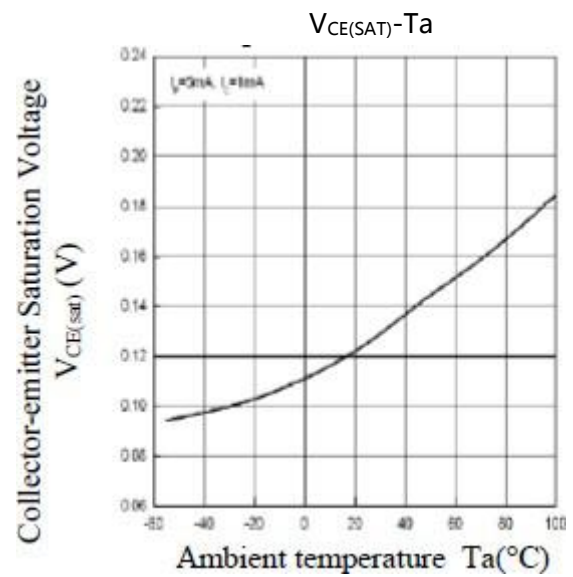
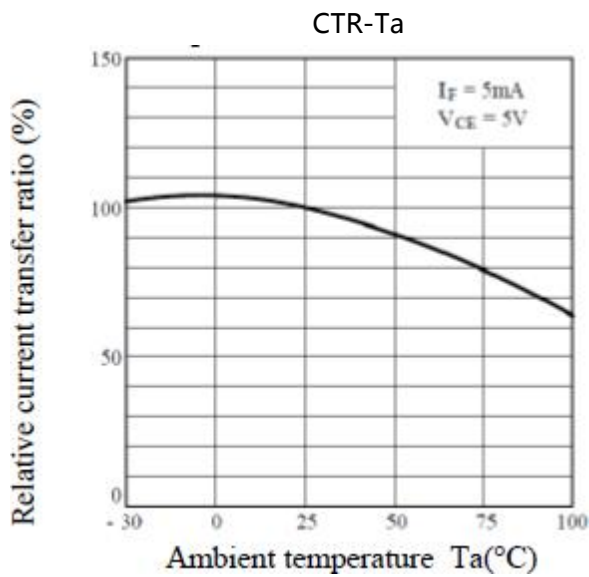
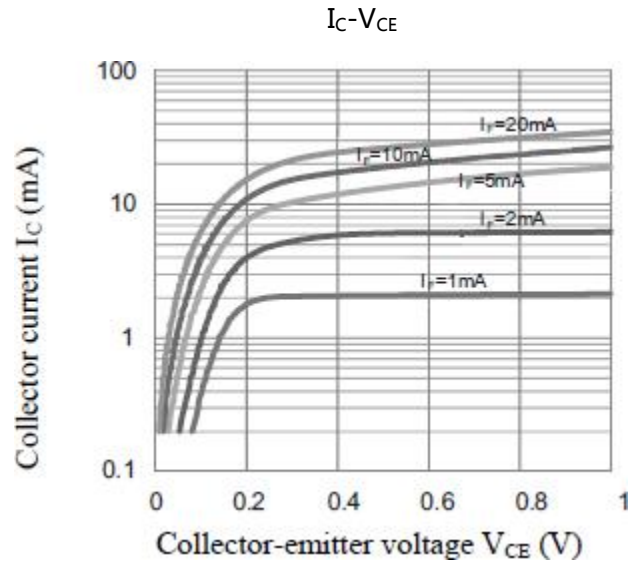
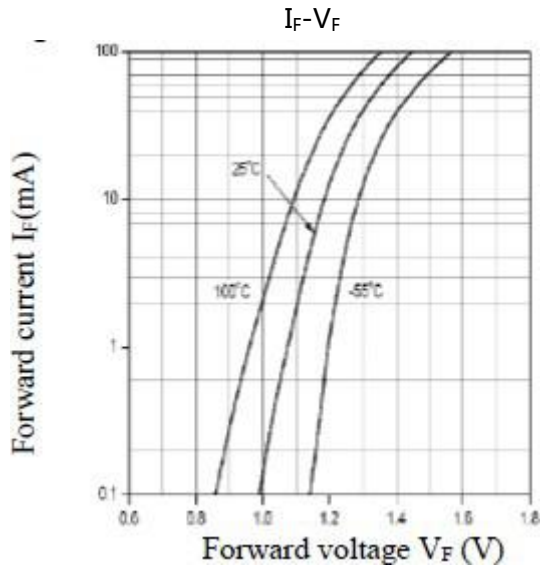
Type	CTR Classification	Current Transfer Ratio (%) ( $I_C/I_F$ )			Mark
		$I_F = 5\text{mA}, V_{CE} = 5\text{V}, T_a = 25^\circ\text{C}$			
		Min	Typ.	Max	
CYTLP181	Blank	50	-	600	BLANK, Y, GB, GR, BL
	Y	50		150	Y
	GR	100	-	300	GR
	GB	100	-	600	GB
	BL	200	-	600	BL

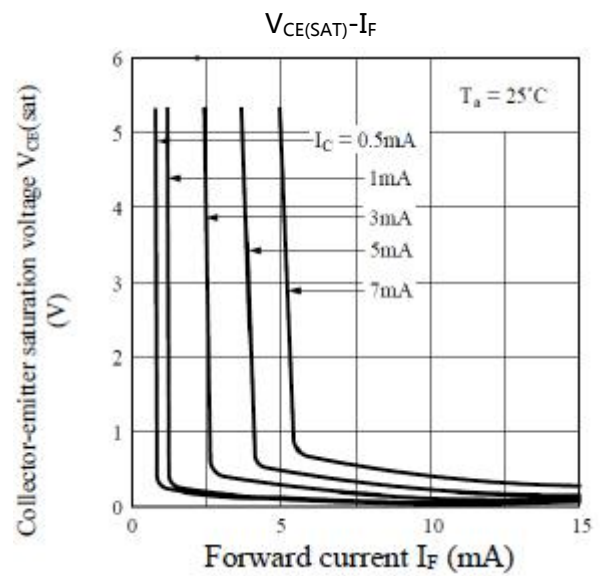
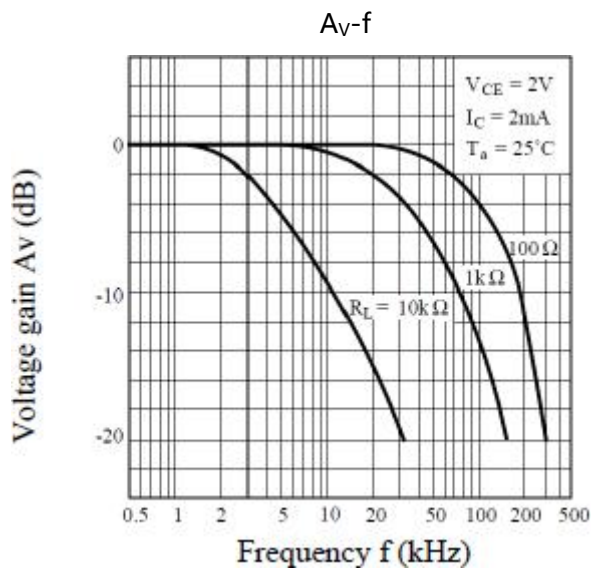
**Recommended Operating Conditions**

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	$V_{CC}$	-	5	48	V
Forward current	$I_F$	-	16	20	mA
Collector current	$I_C$	-	1	10	mA
Operating temperature	$T_{op}$	-25	-	85	$^\circ\text{C}$

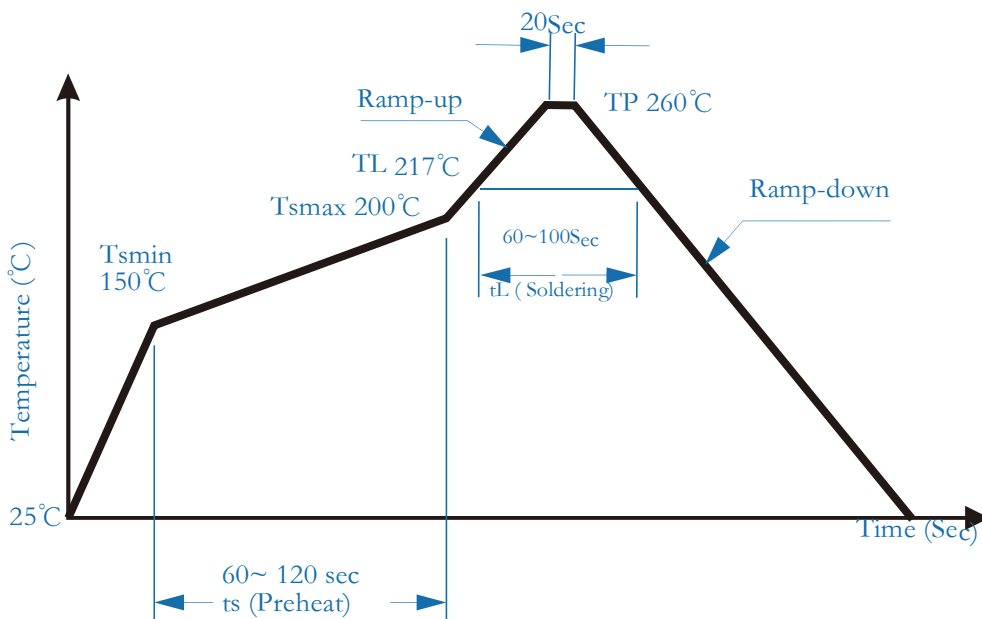
## Test Circuits


 $I_F$ - $T_a$ 

 $P_c$ - $T_a$ 

 $I_{FM}$ - $D_R$ 

 $CTR$ - $I_F$ 


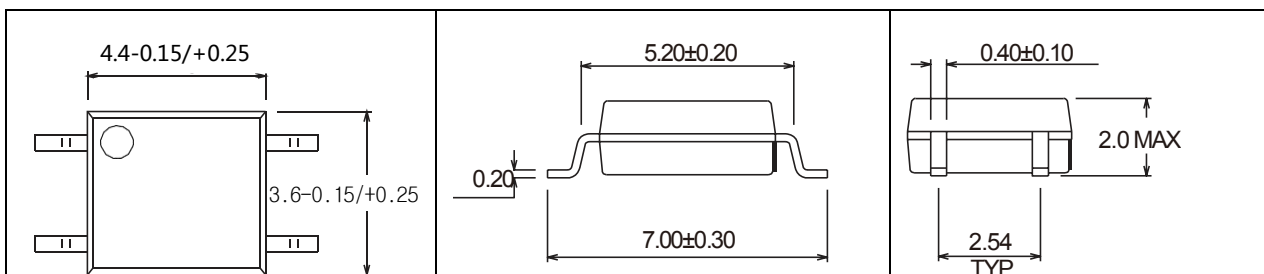




### Solder Reflow Profile



### Outline Dimension



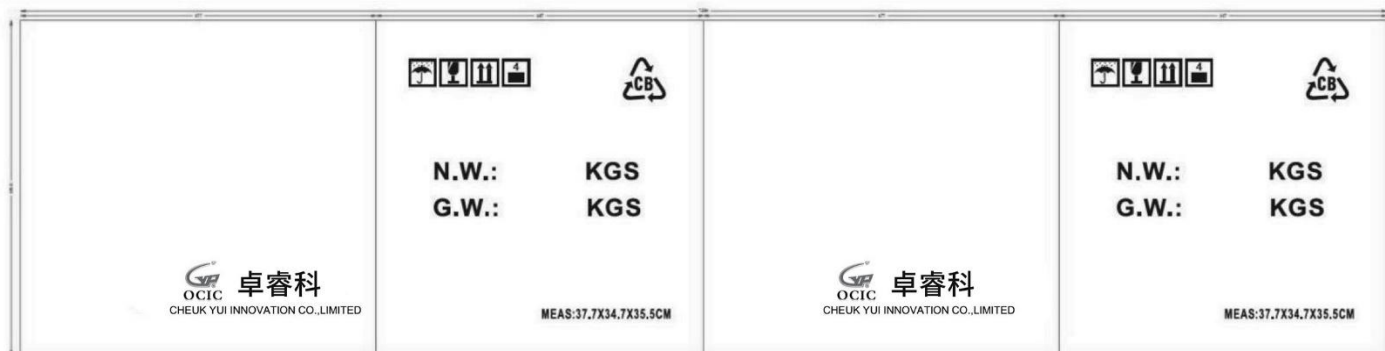
## Packing

Package Type	Packing Form	Quantity per Reel	Quantity per Box	Quantity per Carton	Antistatic Bag Specification	Inner Box Specification	Carton Box Specification
SOP4	Reel (φ330mm)	3000PCS/盘	15000PCS/盒	60000PCS/箱	-	355*90*337mm	377*347*355mm

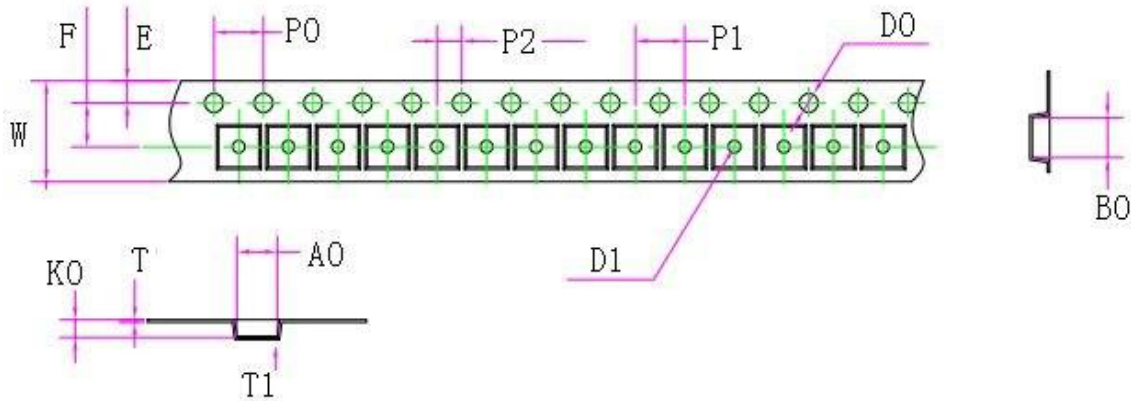
### 1) INNER BOX DEMENSION



### 2) CARTONBOX SIZE



## Tape dimensions



W	12.00±0.10
E	1.75±0.10
F	5.50±0.05
D0	1.50+0.10/-0
D1	1.50+0.10/-0
P0	4.00±0.10
P1	8.00±0.10
P2	2.00±0.10
A0	3.90±0.10
B0	7.38±0.10
K0	2.50±0.10
T	0.2±0.05
T1	0.10min
10*P0	40.00±0.20

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