

Description

The CHEUK YUI mini flat coupler CYPC357 is a small outline coupler, suitable for surface mount assembly. CYPC357 consist of a photo-transistor optically coupled to a gallium arsenide infrared emitting diode, The CYPC357 is smaller than DIP package, it's suitable for high-density surface mounting applications such as programmable controllers..

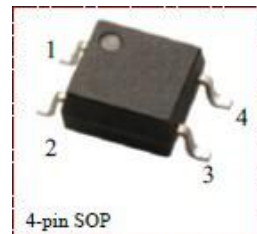
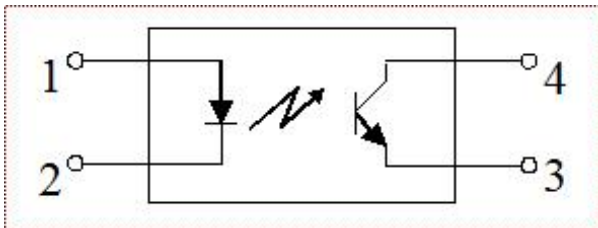
Features

- 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°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 ($T_a = 25^\circ\text{C}$)

Parameter		Symbol	Rating	Unit
Input	Forward Current	I_F	50	mA
	Pulse forward current	I_{FP}	1	A
	Reverse Voltage	VR	6	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)

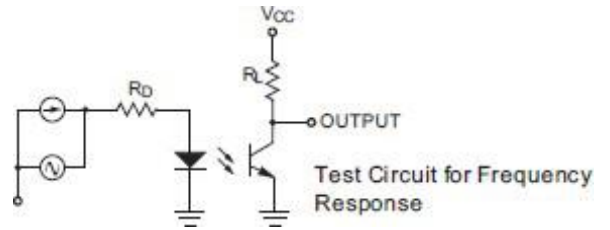
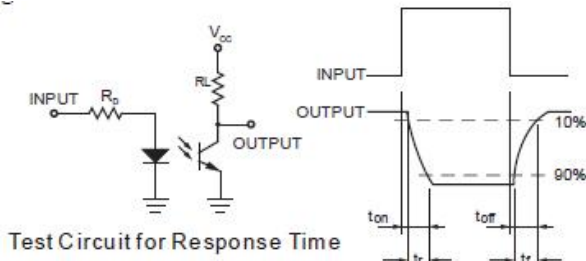
Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	$I_F=20\text{mA}$		1.2	1.4	V
	Reverse Current	I_R	$V_R=5\text{V}$			10	μA
	Terminal Capacitance	C_T	$V=0, f=1\text{kHz}$	-	30	250	pF
Output	Collector Dark Current	I_{CEO}	$V_{CE}=70\text{V}$			100	nA
	Collector-Emitter Breakdown 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.	5×10^{10}			Ω
	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
	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	$V_{CE}=10\text{V}, I_C=2\text{mA}, R_L=100\Omega$	-	3	18	μs
	Fall Time	T_f			4	18	μs

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

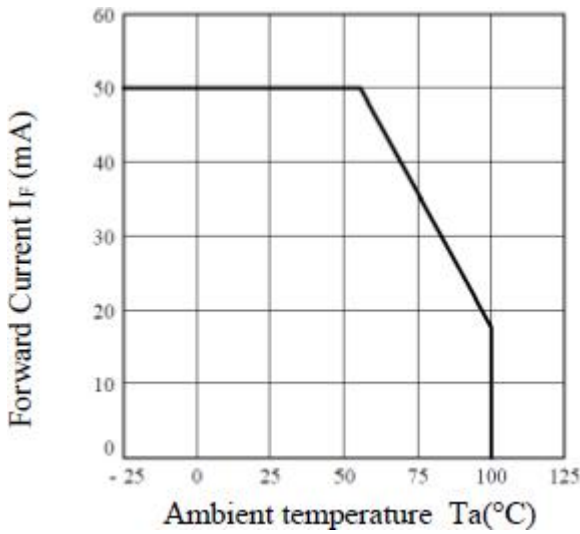
Rank Table of CTR

Type	CTR Classification	$I_C(\text{mA})$		CTR (%)	
		$I_F = 5\text{mA}, V_{CE} = 5\text{V}, T_a = 25^\circ\text{C}$		$I_F = 5\text{mA}, V_{CE} = 5\text{V}, T_a = 25^\circ\text{C}$	
		Min	Max	Min	Max
CYPC357	Blank	2.5	30.0	50	600
	A	4.0	8.0	80	160
	B	6.5	13.0	130	260
	C	10.0	20.0	200	400
	D	15.0	30.0	300	600
	A or B	4.0	13.0	80	160
	B or C	6.5	20.0	130	400
	C or D	10.0	30.0	200	600
	A,B or C	4.0	20.0	80	400
	A,B,C or D	4.0	30.0	80	600

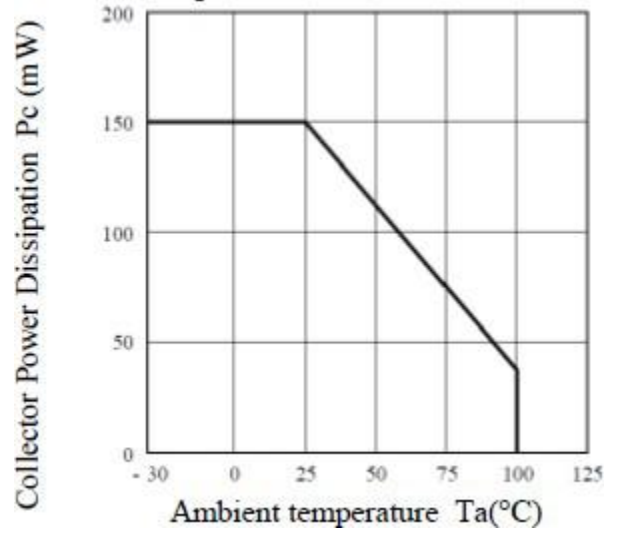
Test Circuits



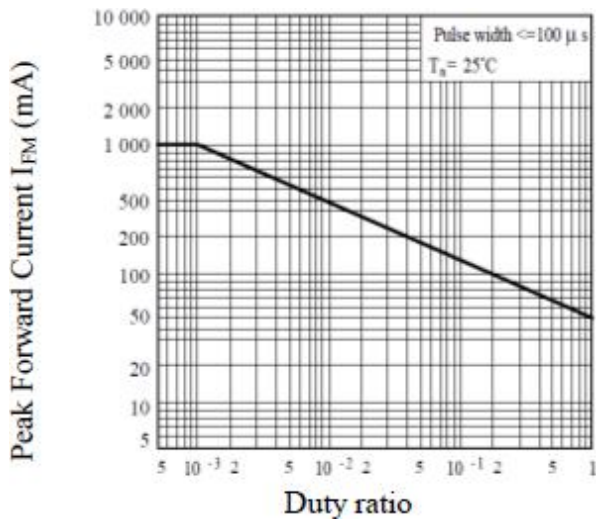
I_F - T_a



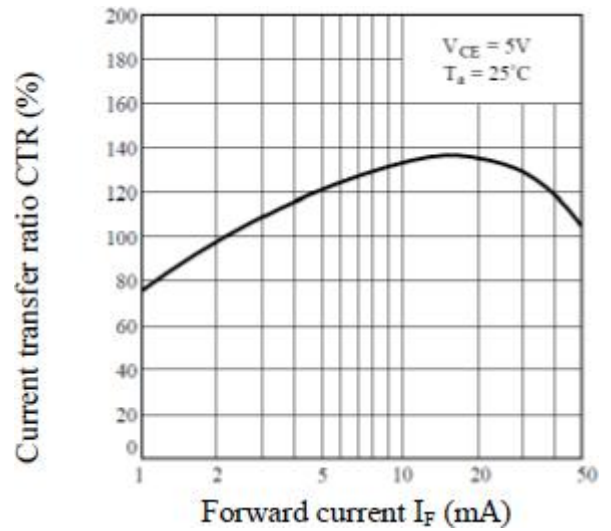
P_c - T_a

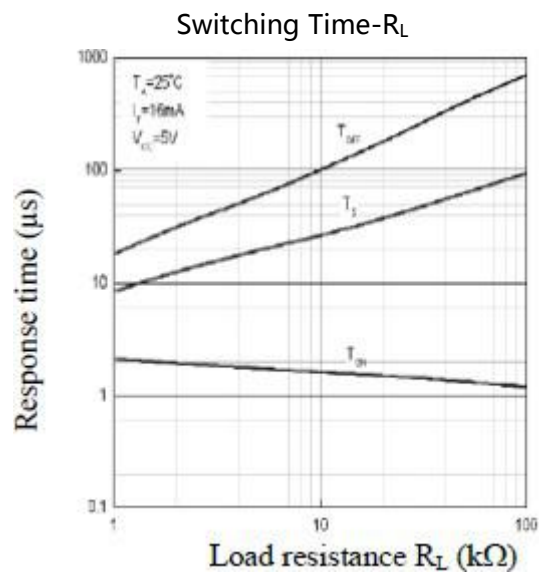
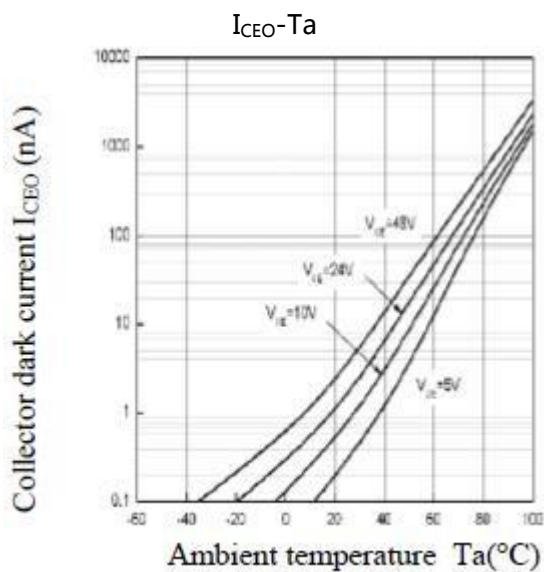
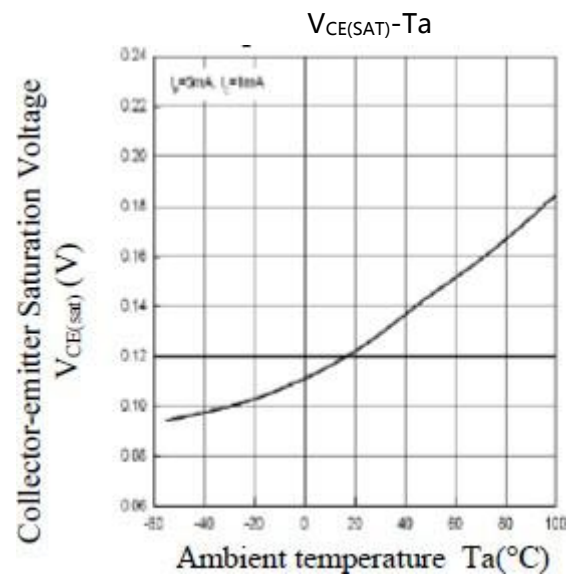
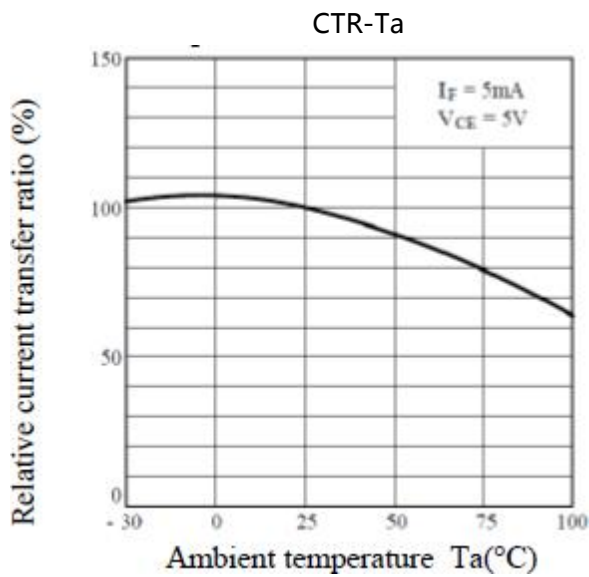
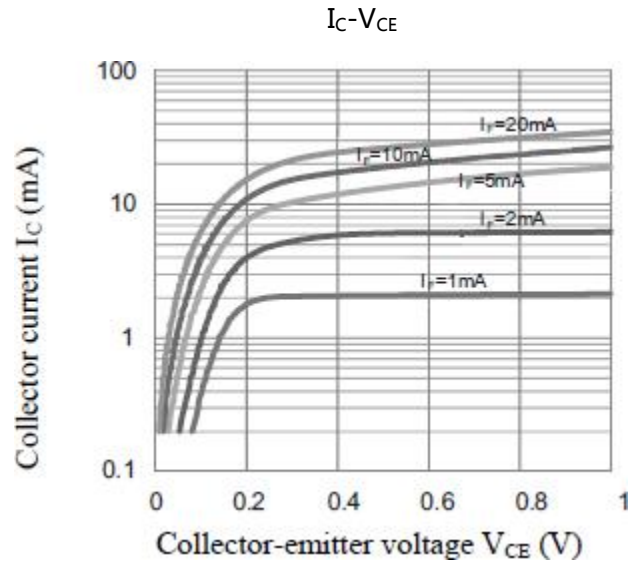
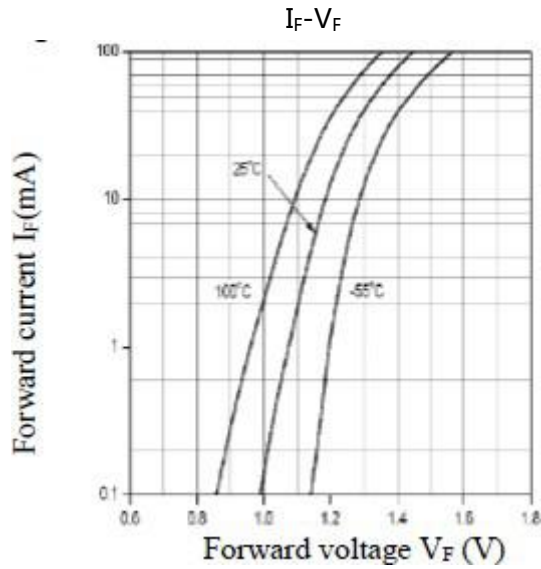


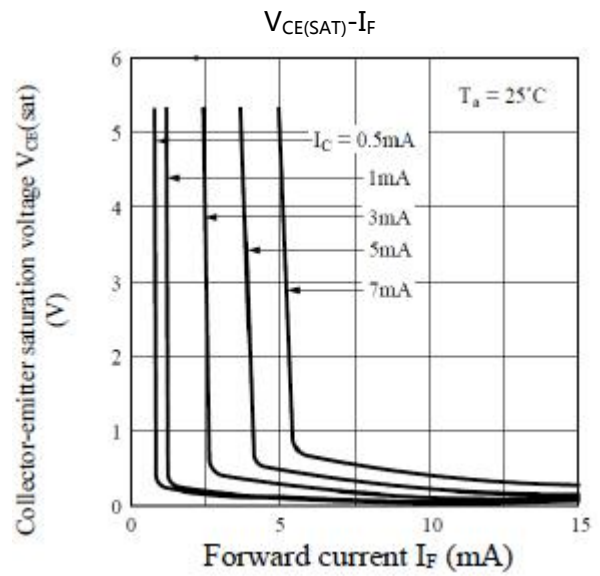
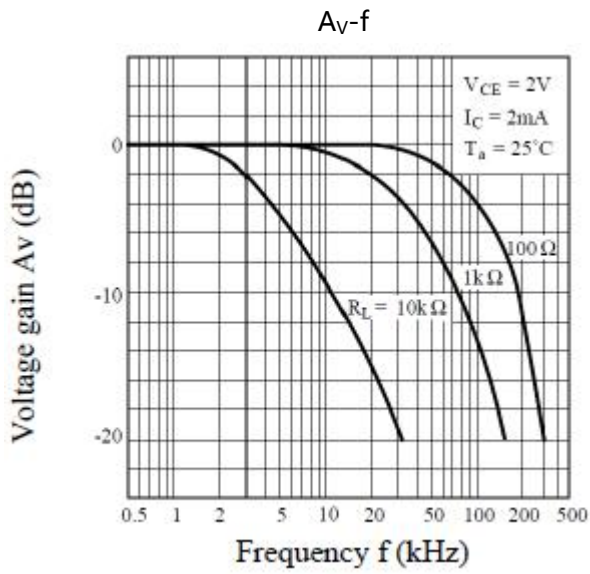
I_{FM} - D_R



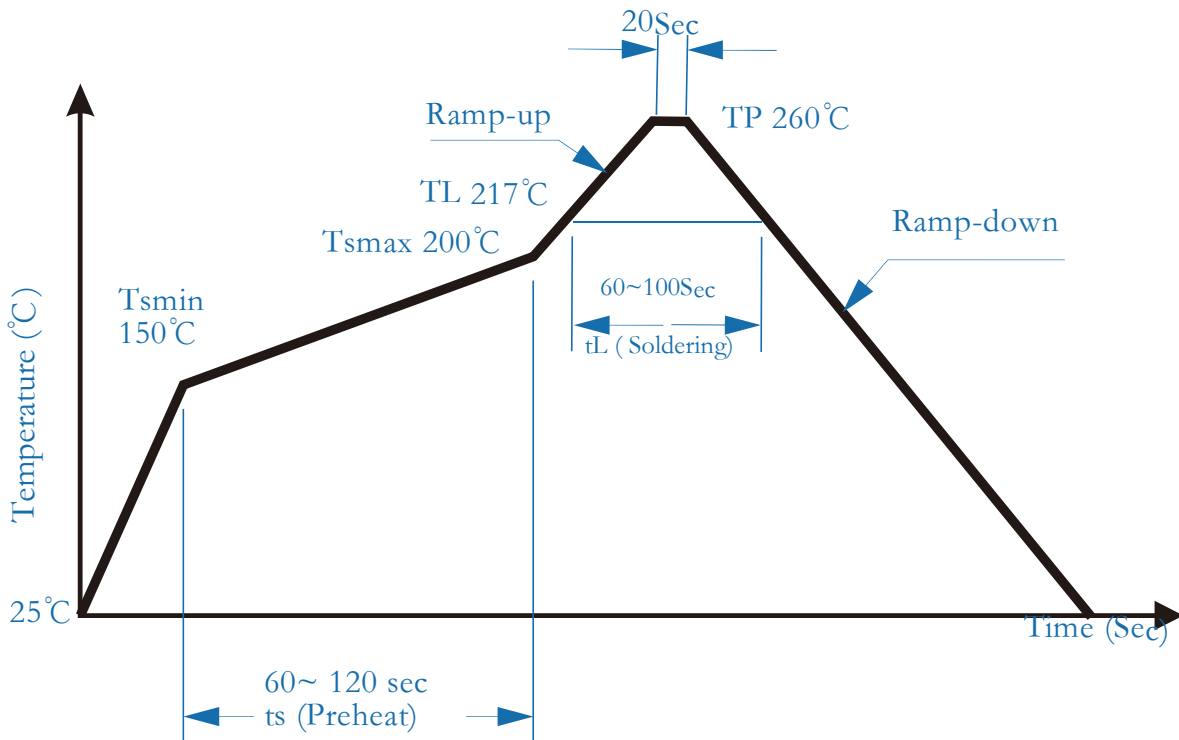
CTR- I_F





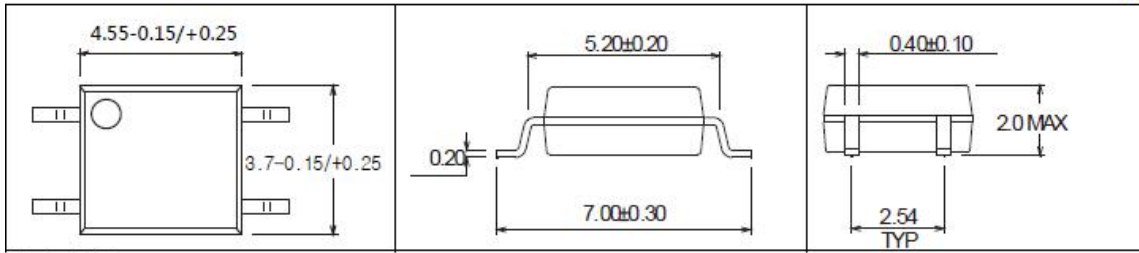


Solder Reflow Profile



Outline Dimension

Unit: mm



4-pin SOP

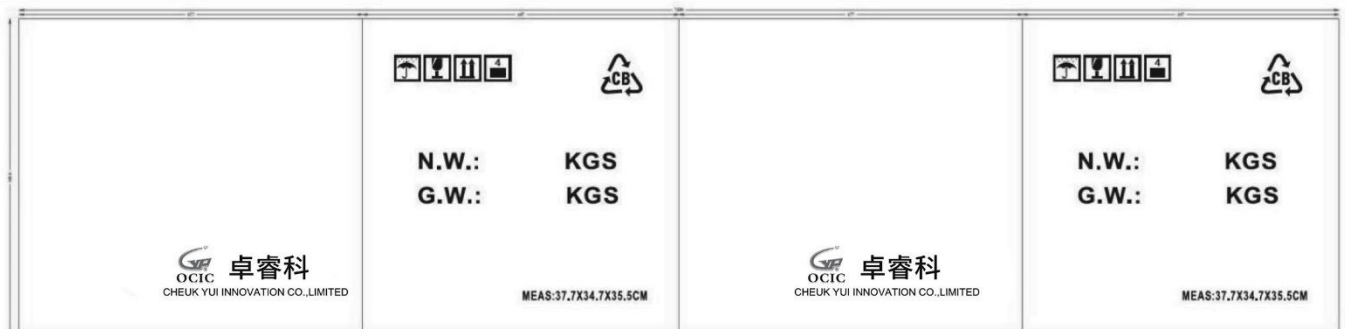
Packing

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/ Reel	15000PCS/ Box	60000PCS/ Carton	-	355*90*337mm	377*347*355mm

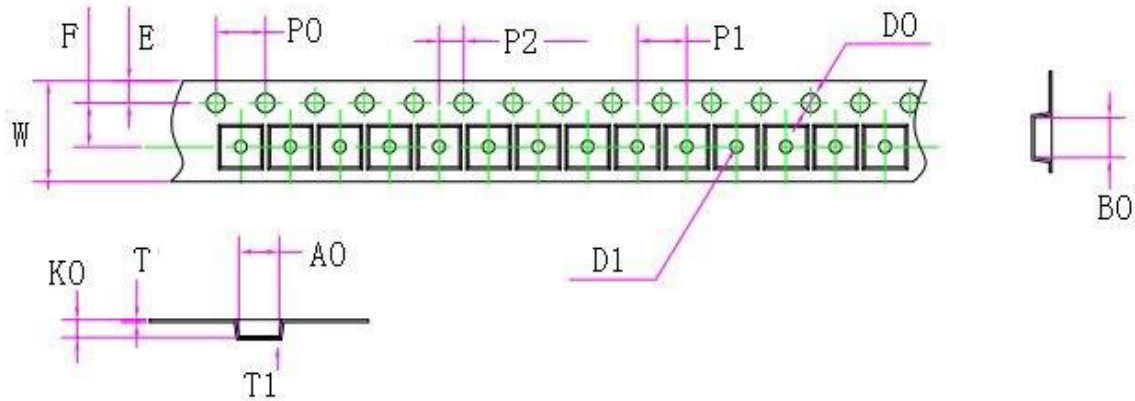
1) INNER BOX DEMENSION



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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