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..

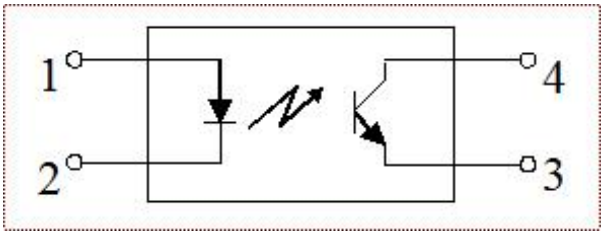
Features

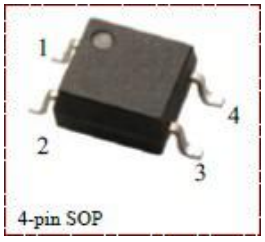
- Current transfer ratio (CTR: 50~600% at I_F =5mA ,V_{CE} =5V)
- High isolation voltage between input and output (Viso=3750 Vrms)
- Minimum BV_{CEO} of 80V guaranteed
- Operation temperature:-55 to 110° C
- UL approved (NO.:E497745)
- Compliance with EU REACH and RoHS
- CQC approved（NO:CQC20001238559）

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 (Ta=25°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	Tj	125	°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	Tj	125	°C
Total Power Dissipation		Ptot	200	mW
Isolation Voltage		Viso	3750	Vrms
Operating Temperature		Topr	-55~+110	°C
Storage Temperature		Tstg	-55~+125	°C
Soldering Temperature		Tsol	260（10s）	°C

Electro-optical Characteristics (Ta=25°C)

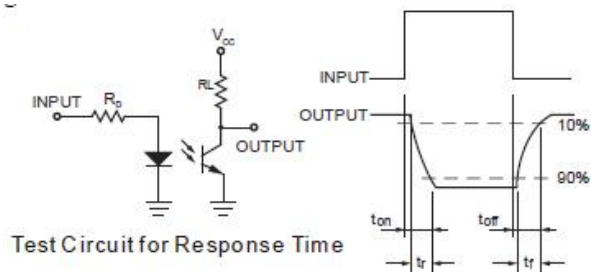
Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	I_F=20mA		1.2	1.4	V
	Reverse Current	I_R	V_R=5V			10	μA
	Terminal Capacitance	C_r	V=0, f=1kHz	-	30	250	pF
Output	Collector Dark Current	I_{CEO}	V_{CE}=70V			100	nA
	Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=0.1mA, I_F=0	80			V
	Emitter-Collector Breakdown Voltage	BV_{ECO}	I_E=0.1mA, I_F=0	7			V
Transfer Characteristics	Current Transfer Ratio	CTR	I_F=5mA, V_{CE}=5V	50		600	%
	Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_F=20mA, I_C=1mA		0.1	0.2	V
	Isolation Resistance	R_{ISO}	DC1000V, 40~60%R.H.	$5x10^{10}$			Ω
	Floating Capacitance	Cf	V=0, f=1MHz		0.6	1.0	pF
	Capacitance (Collector to emitter)	C_{CE}	V=0, f=1MHz		10		pF
	Cut-off Frequency	Fc	V_{CE}=5V, I_C=2mA, R_L=100Ω, -3dB		80		kHz
Switching Characteristics	Rise Time	Tr	V_{CE}=10V, I_C=2mA, R_L=100Ω	-	3	18	μs
	Fall Time	Tf			4	18	μs

* CTR=I_C/I_F x 100%

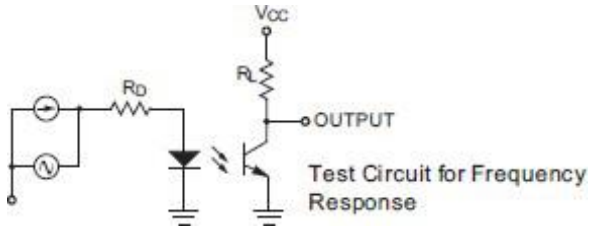
Rank Table of CTR

Type	CTR Classification	I_C(mA)		CTR (%)	
		I_F = 5mA, V_{CE} = 5V, Ta = 25°C		I_F = 5mA, V_{CE} = 5V, Ta = 25°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

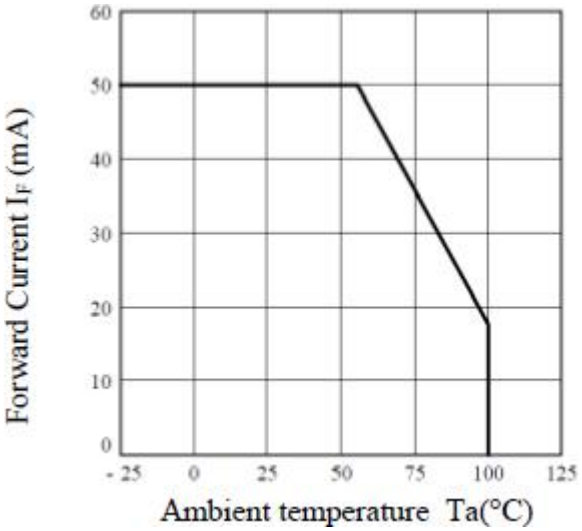


Test Circuit for Response Time

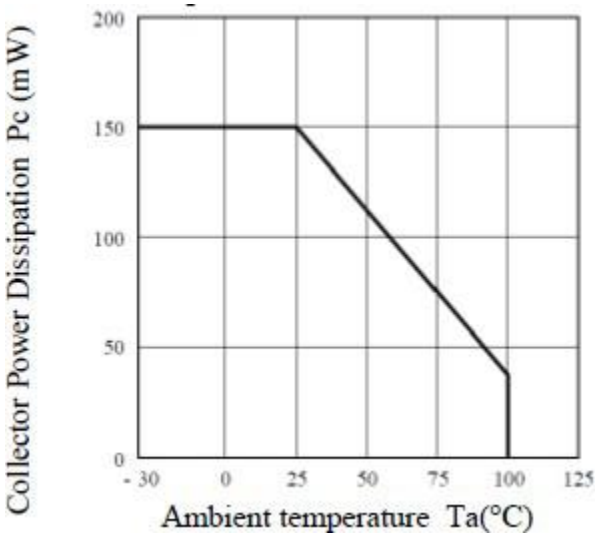


Test Circuit for Frequency Response

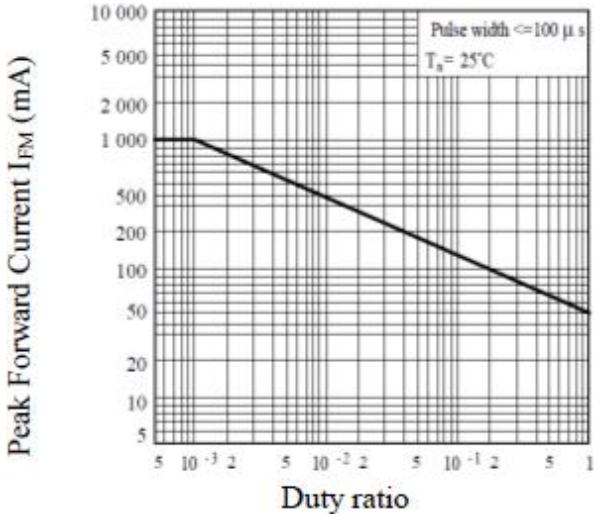
I_F-Ta



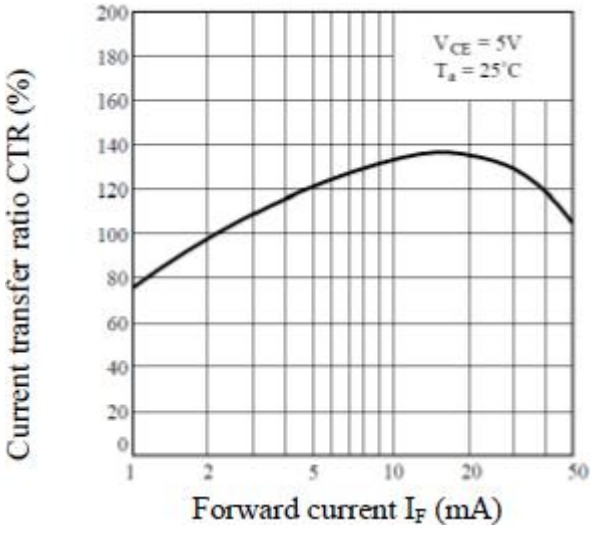
P_C-Ta



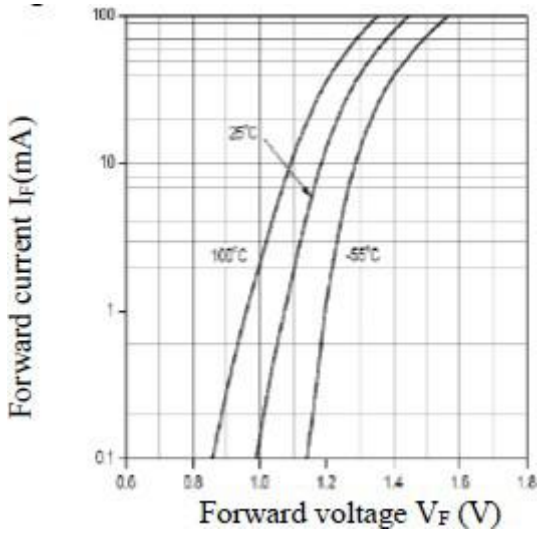
I_{FM}-D_R



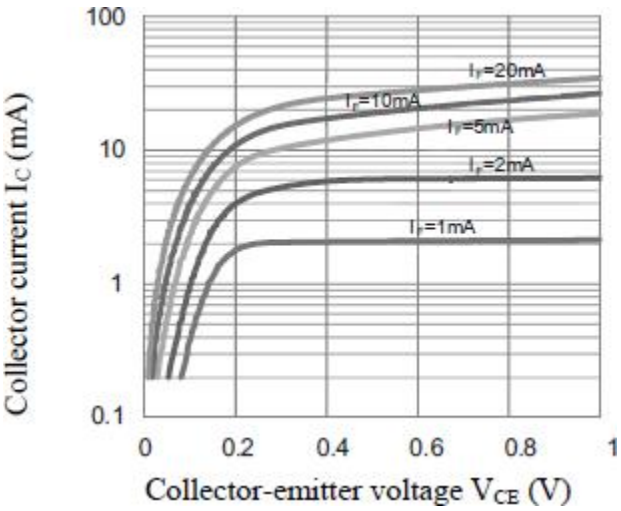
CTR- I_F



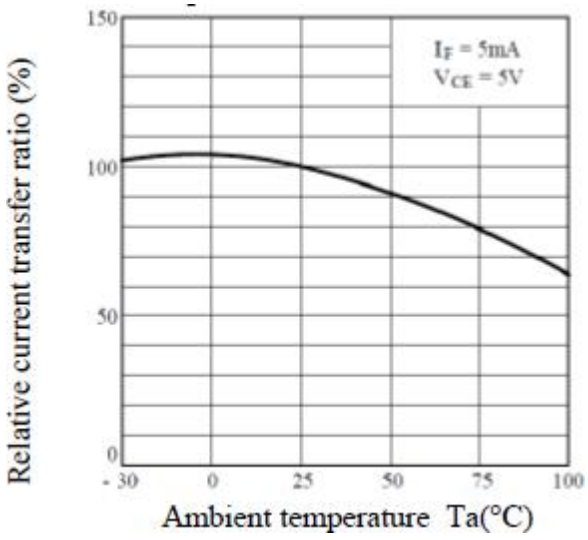
I_F-V_F



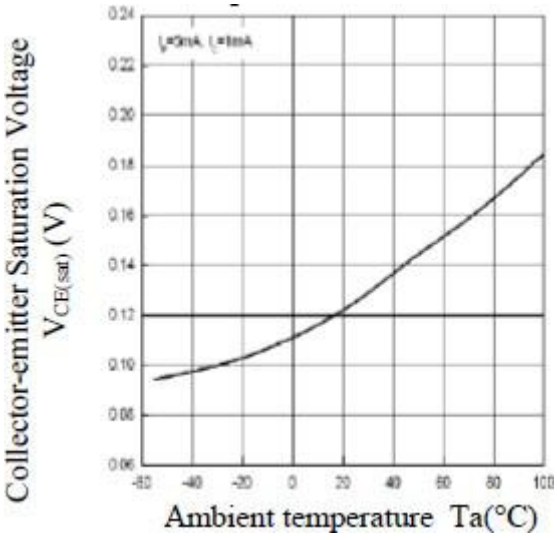
I_C-V_{CE}



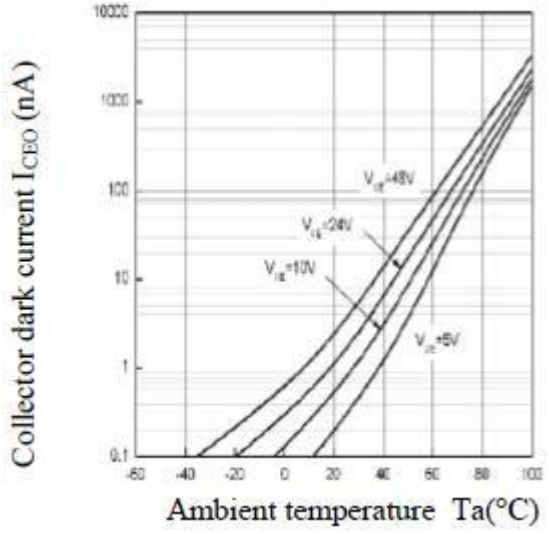
CTR-Ta



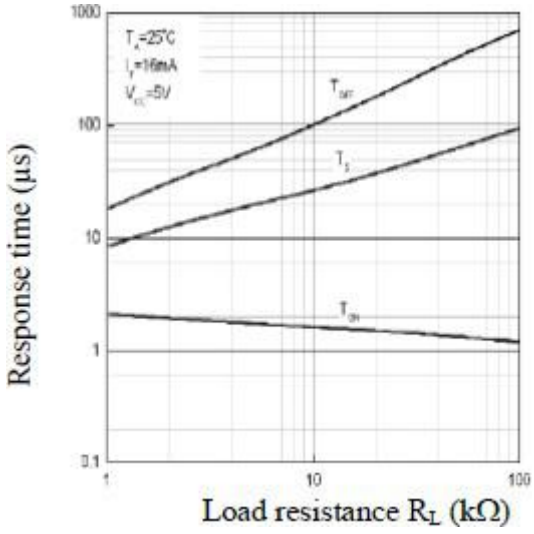
$V_{CE(SAT)}$-Ta



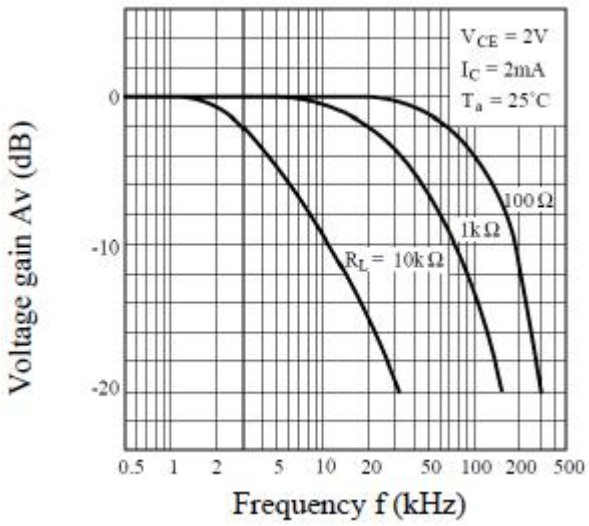
I_{CEO}-Ta



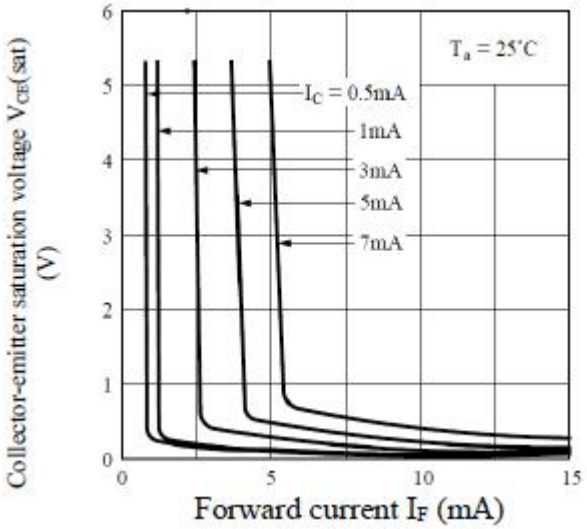
Switching Time-R_L



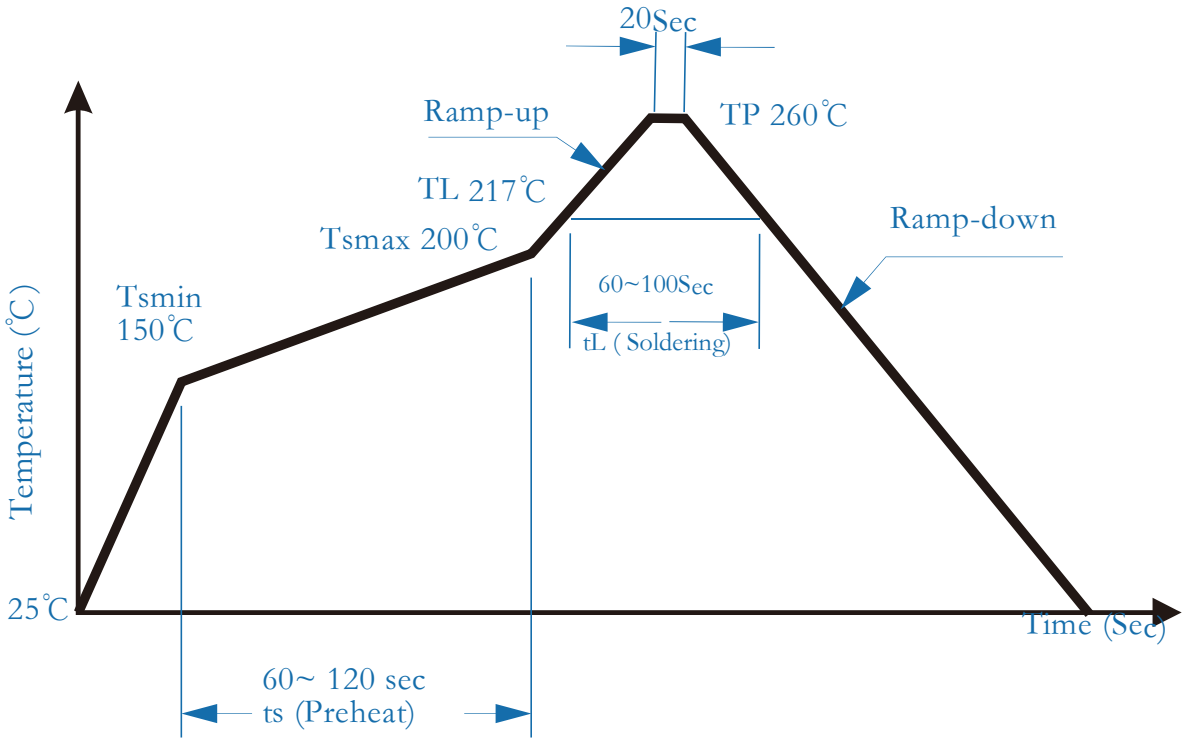
A_V-f



$V_{CE(SAT)}$-I_F

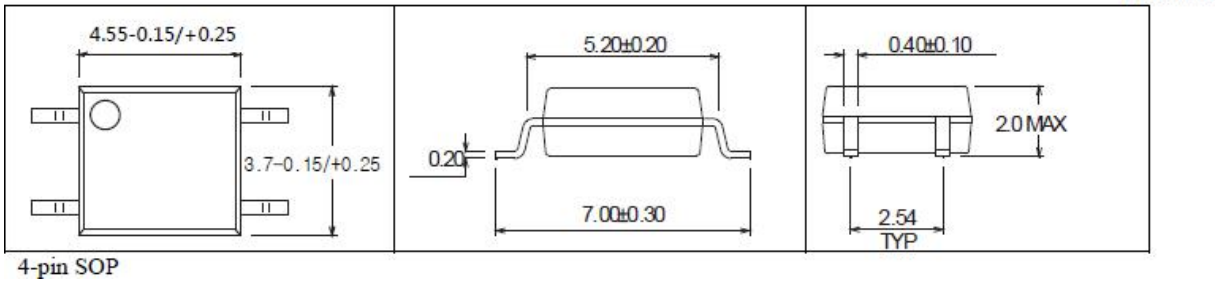


Solder Reflow Profile



Outline Dimension

Unit: mm



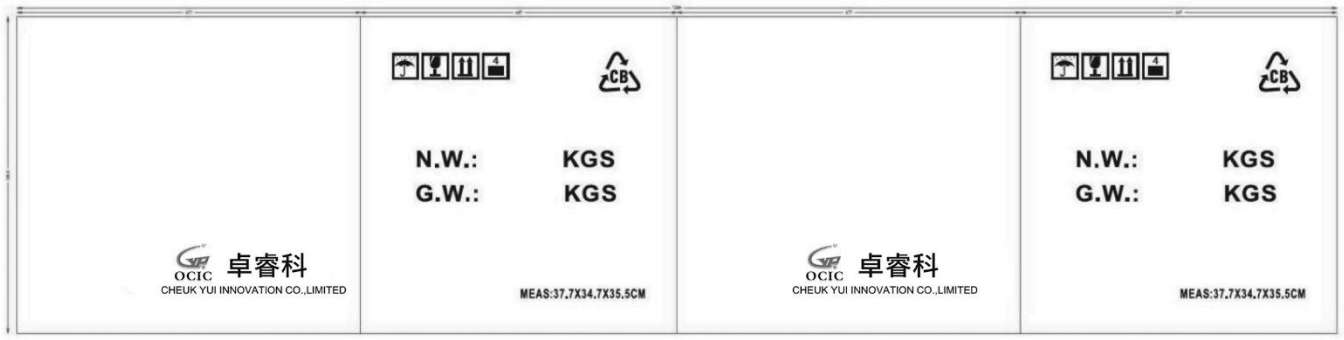
4-pin SOP

Packing

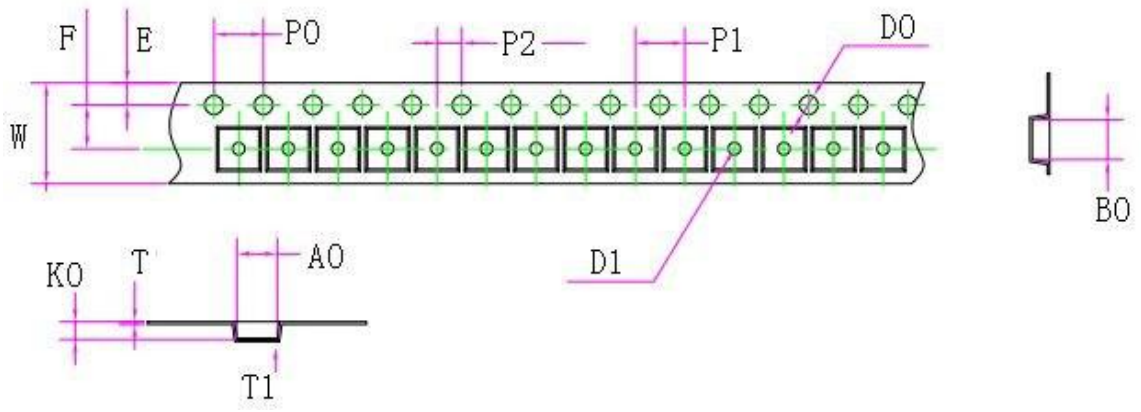
Package Type	Packing Form	Quantity per Reel	Quantity per Box	Quantity per Carton	Antistatic Bag Specification	Inner Box Specification	Carton Box Specification
SOP4	Reel (ϕ330mm)	3000PCS/ Reel	15000PCS/ Box	60000PCS/ Carton	-	355*90*337mm	377*347*355mm

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