

Description

The CHEUK YUI mini flat coupler CYPC356 is a small outline coupler, suitable for surface mount assembly. CYPC356 consist of a photo-transistor optically coupled to a gallium arsenide infrared emitting diode, smaller than DIP package, it's suitable for high-density surface mounting applications such as programmable controllers.

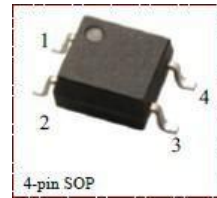
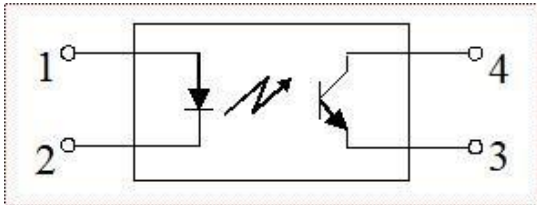
Features

- Current transfer ratio (CTR: 50~600% at $I_F = 5\text{mA}$, $V_{CE} = 5\text{V}$)
- High isolation voltage between input and output ($V_{iso} = 3750\text{ Vrms}$)
- Collector-emitter breakdown voltage $BV_{CEO} \geq 80\text{V}$
- 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		Viso	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)

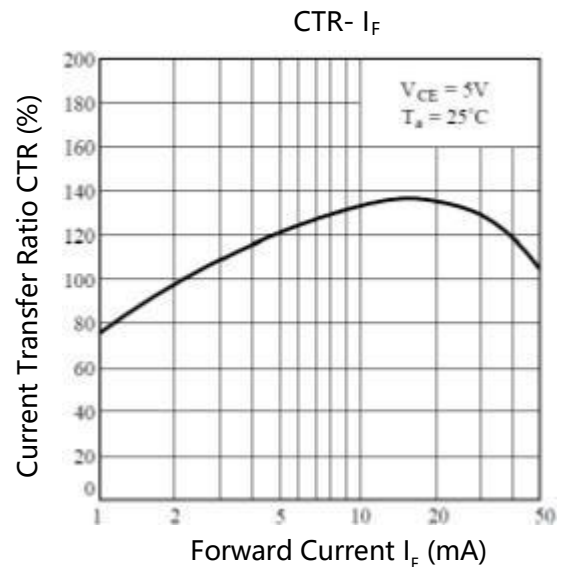
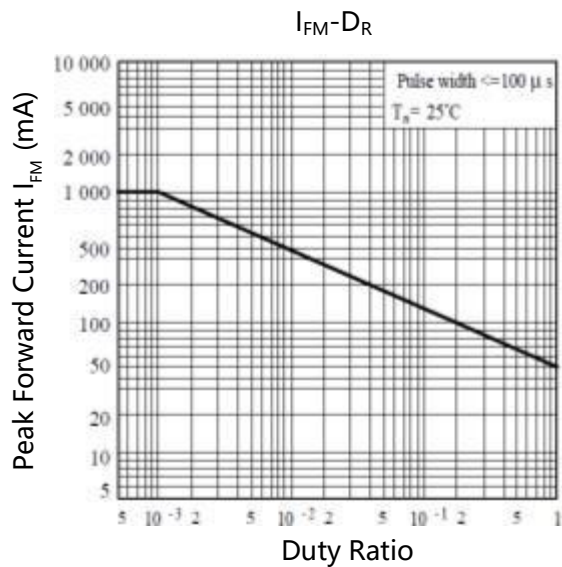
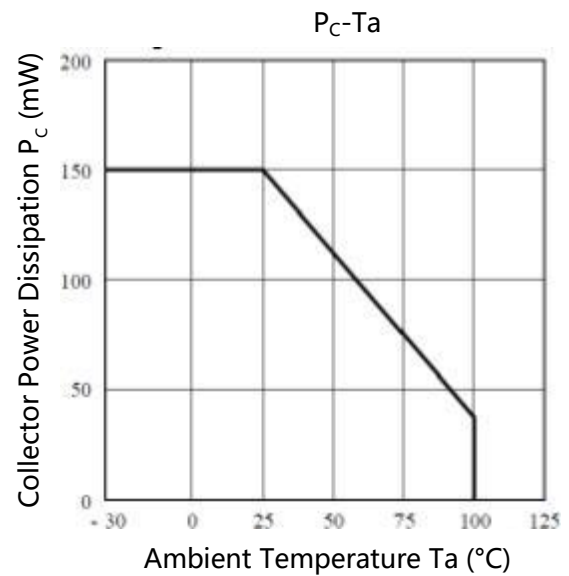
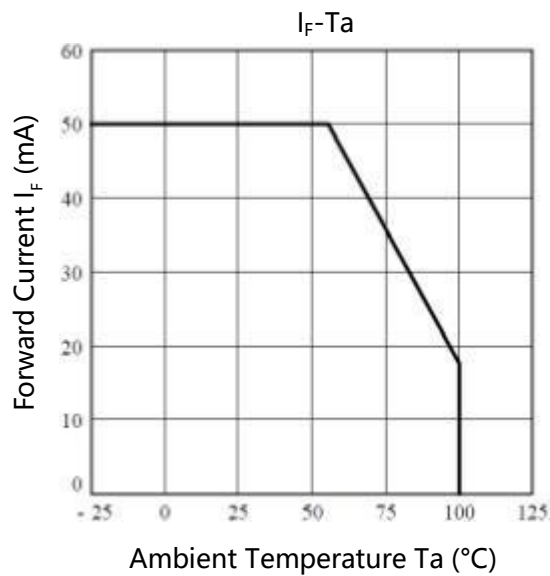
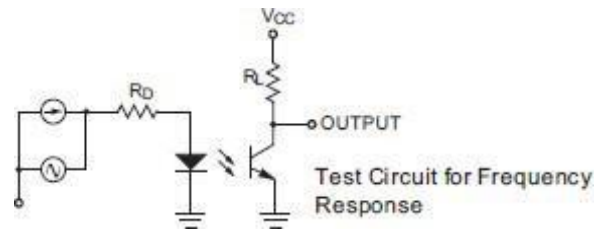
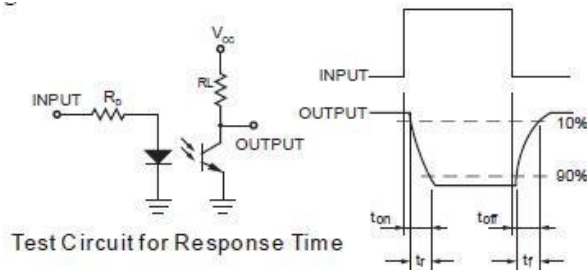
Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	$I_F=20\text{mA}$		1.2	1.4	V
	Reverse Current	I_R	$V_R=5\text{V}$	-	-	10	μA
	Terminal Capacitance	C_T	$V=0, f=1\text{kHz}$	-	30	250	pF
Output	Collector Dark Current	I_{CEO}	$V_{CE}=70\text{V}$	-	-	100	nA
	Collector-Emitter Breakdown 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.	1×10^{11}	-	-	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	$V_{CE}=10\text{V}, I_C=2\text{mA}, R_L=100\Omega$	-	4	18	μs
	Fall Time	T_f		-	3	18	μs

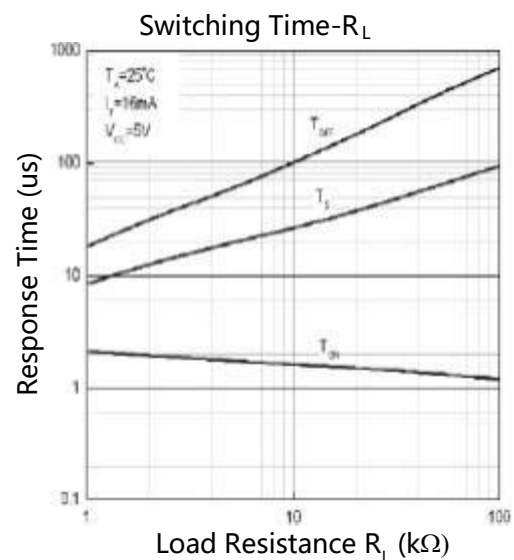
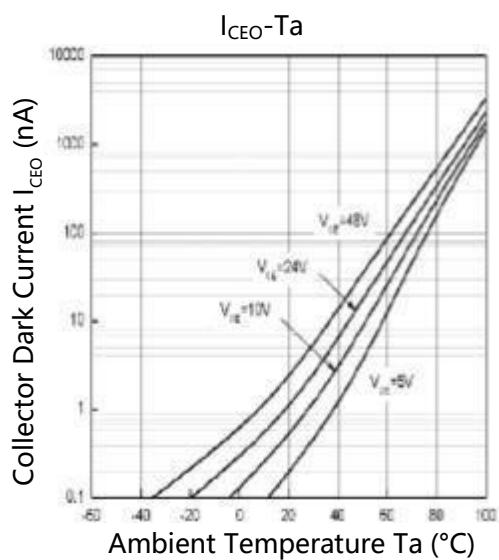
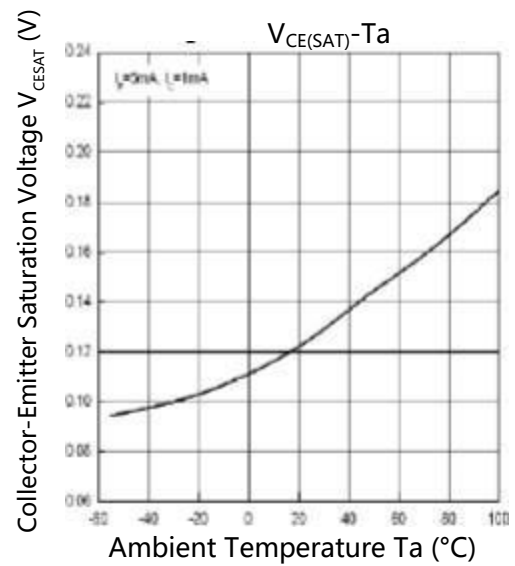
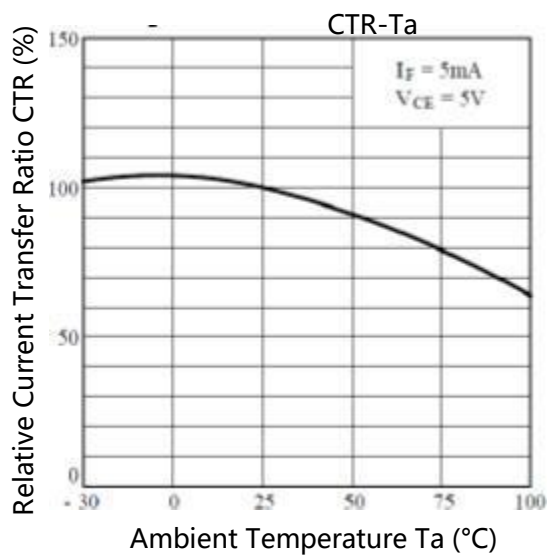
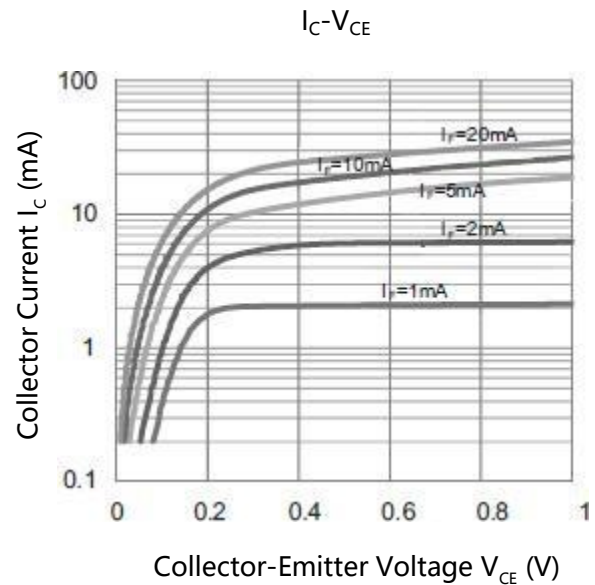
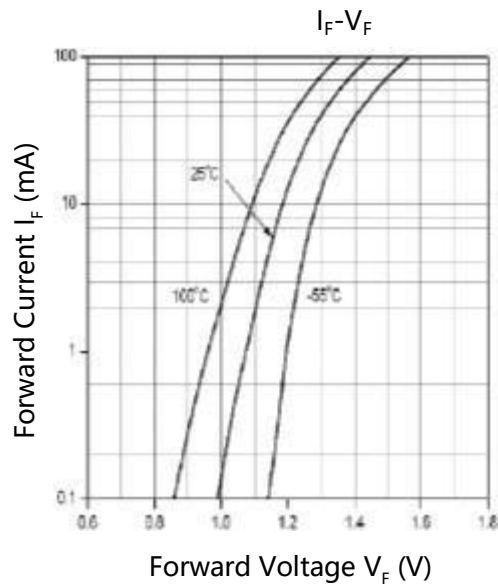
* $CTR = I_C / I_F \times 100\%$

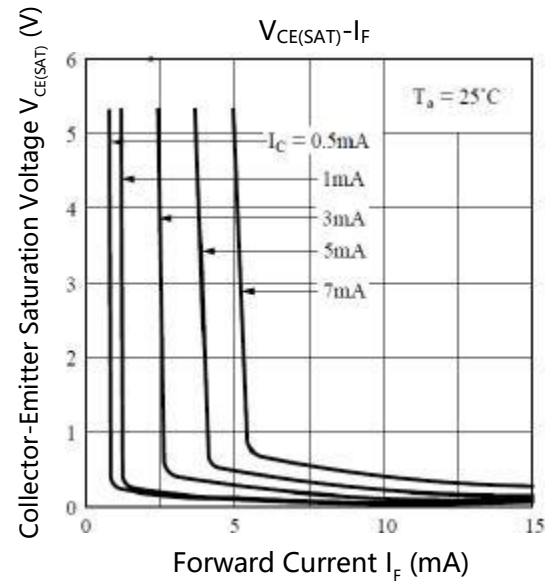
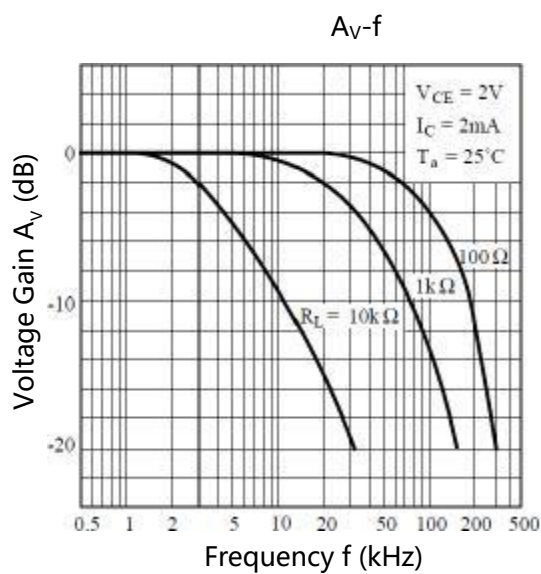
Rank Table of CTR

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
CYPC356	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
	B,C or D	6.5	30.0	130	600
	A,B,C or D	4.0	30.0	80	600

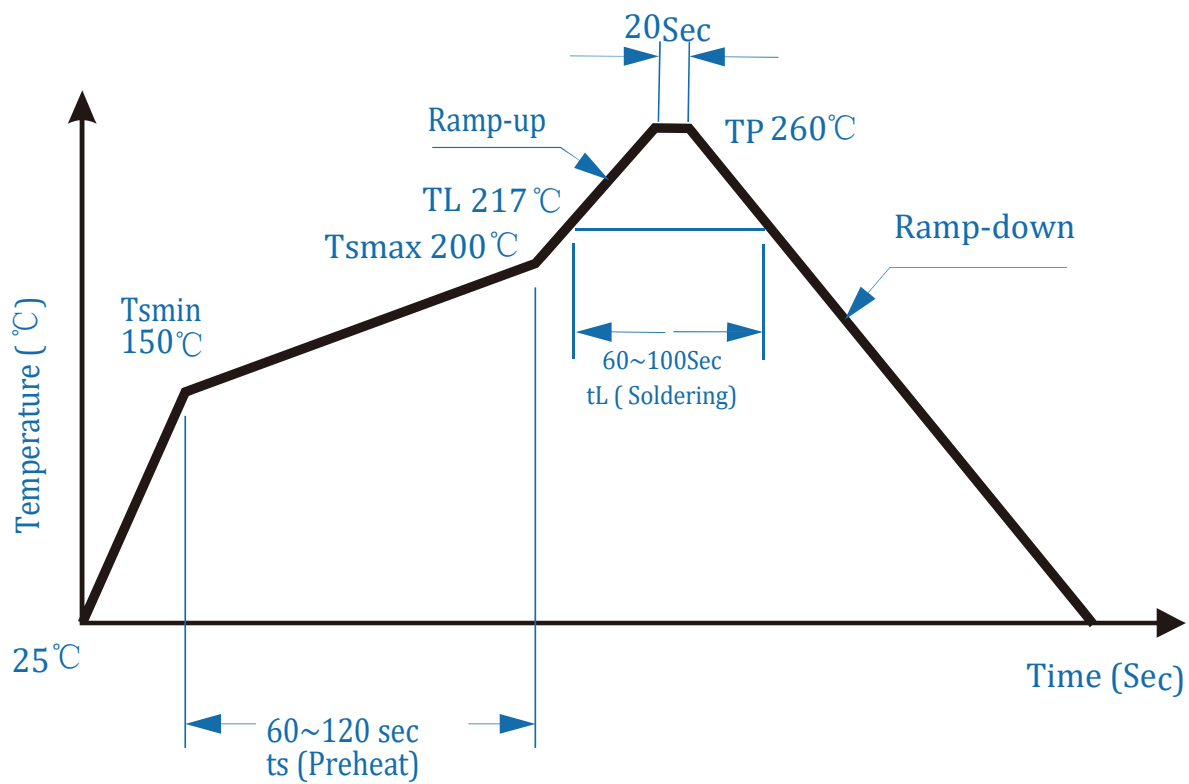
Test Circuits





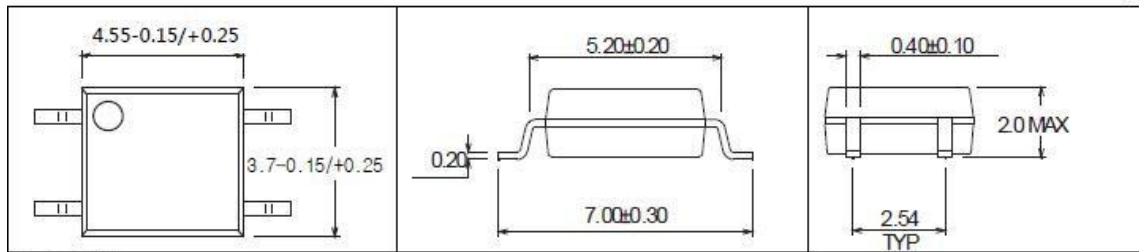


Solder Reflow Profile



Outline Dimension

Unit: mm



4-pin SOP

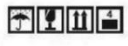
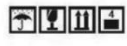
Packing

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

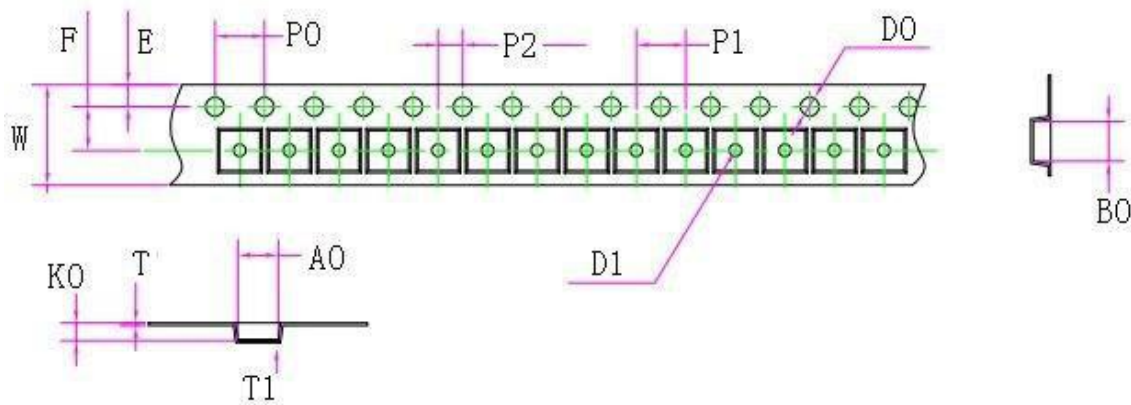
1) INNER BOX DEMENSION



2) CARTONBOX SIZE

 卓睿科 CHEUK YUI INNOVATION CO.,LIMITED	  N.W.: KGS G.W.: KGS MEAS:37.7X34.7X35.5CM	 卓睿科 CHEUK YUI INNOVATION CO.,LIMITED	  N.W.: KGS G.W.: KGS MEAS:37.7X34.7X35.5CM
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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

CHEUYUI Research and Development co., Ltd reserves the right to alter the design or specifications in this data sheet without prior notice. Customers are solely responsible for obtaining the latest version of relevant documents before placing orders. It is the responsibility of the user to ensure that the circuit is fit for the user's application and meets with the user's requirements. No representation or warranty is given and no liability whatsoever is assumed by CHEUYUI with respect to the accuracy or use of such information, or infringement of patents or other intellectual property rights arising from such use or otherwise. CHEUYUI Research and Development co., Ltd does not assume any legal responsibility or will not be held legally liable (whether in contract, tort (including negligence), breach of statutory duty, restriction or otherwise) for any damages, loss of profit, business, contract, It is advised that normal static precautions be taken in handling and assembly of this component to prevent damage and/or degradation which may be induced by ESD.