

PRODUCT SPECIFICATION

DATE:06/04/2012

cosmo ELECTRONICS CORPORATION	Photocoupler : KT1210	NO.61P04089	REV.
		SHEET 1 OF 8	8

4Pin Long Mini-Flat Package DC Input Response Darlington Phototransistor Output

● Features

1. Halogen Free.
2. Pb free and RoHS compliant.
3. Temperature range -55°C to 115°C
4. High isolation voltage 5000Vrms.
5. Opaque type,SMD low profile 4 lead package.
6. High current transfer ratio (CTR=2000%TYP.@ IF=1 mA, VCE=2V)
7. 8mm outer creepage distance.
8. Agency Approvals
 - UL approved : UL1577 , No.E169586
 - CUL approved : C22.2 No.1 & NTC No.5 , No.E169586
 - VDE approved : EN 60747-5-5 No.40031267
 - FIMKO approved : EN 60065 , EN 60950 , EN 60335-1
No.FI26204 M1

● Applications

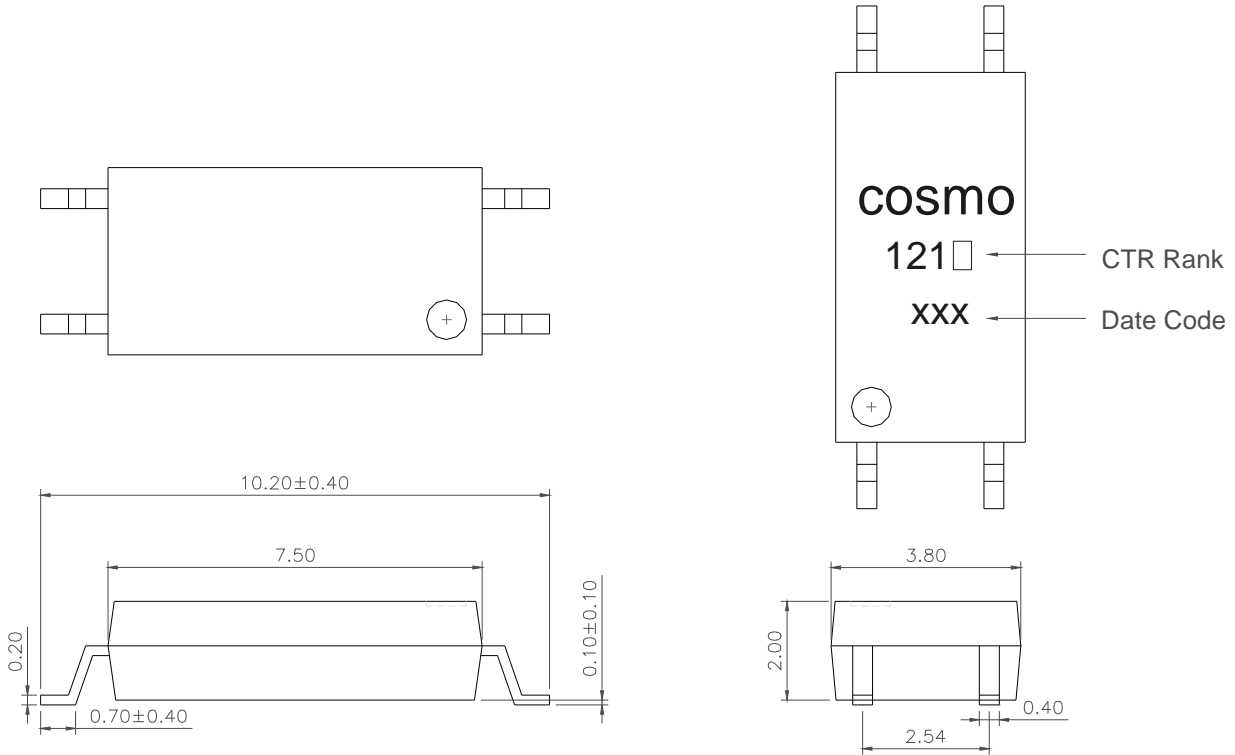
1. System appliances, measuring instruments.
2. Industrial robots.
3. Copiers, automatic vending machines.
4. Signal transmission between circuits of different potentials and impedances.
5. Telephone sets.
6. Copiers, facsimiles.
7. Interface with various power supply circuits, power distribution boards.
8. Numerical control machines.

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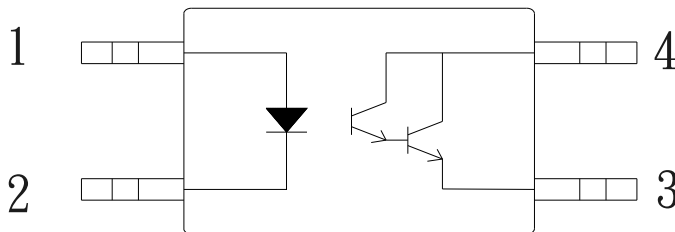
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1. OUTSIDE DIMENSION : UNIT (mm)



TOLERANCE : ±0.2mm

2. SCHEMATIC : TOP VIEW



1. Anode
2. Cathode
3. Emitter
4. Collector

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●Absolute Maximum Ratings(TA=25°C)

	Parameter	Symbol	Rating	Unit
Input	Forward current	I _F	50	mA
	Peak forward current	I _{FP}	1	A
	Reverse voltage	V _R	6	V
	Power dissipation	P _D	70	mW
Output	Collector-emitter voltage	V _{CEO}	35	V
	Emitter-collector voltage	V _{ECO}	5	V
	Collector current	I _C	150	mA
	Collector power dissipation	P _C	150	mW
	Total power dissipation	P _{tot}	170	mW
	Isolation voltage 1 minute	V _{iso}	5000	V _{rms}
	Operating temperature	T _{opr}	-55 to +115	°C
	Storage temperature	T _{stg}	-55 to +125	°C
	Soldering temperature 10 second	T _{sol}	260	°C

●Electro-optical Characteristics(TA=25°C)

	Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V _F	I _F =20mA	-	1.2	1.4	V
	Peak forward voltage	V _{FP}	I _{FP} =0.5A	-	-	3.5	V
	Reverse current	I _R	V _R =4V	-	-	10	uA
	Terminal capacitance	C _t	V=0, f=1kHz	-	30	-	pF
Output	Collector dark current	I _{CEO}	V _{CE} =10V, I _F =0	-	-	1.0	uA
Transfer characteristics	Current transfer ratio	CTR	I _F =1mA, V _{CE} =2V	200	2000	-	%
	Collector-emitter saturation voltage	V _{CE(sat)}	I _F =1mA, I _C =2mA	-	-	1.0	V
	Isolation resistance	R _{iso}	DC500V, 40 to 60%RH	5x10 ¹⁰	10 ¹¹	-	ohm
	Floating capacitance	C _f	V=0, f=1MHz	-	0.4	-	pF
	Cut-off frequency	f _c	V _{CC} =5V, I _C =2mA, R _L =100ohm	-	7	-	kHz
	Response time (Rise)	t _r	V _{CC} =5V, I _C =2mA, R _L =100ohm	-	200	-	us
	Response time (Fall)	t _f		-	200	-	us

●Classification table of current transfer ratio is shown below.

CTR RANK	CTR(%)
KT1210	Min.200

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Fig.1 Relative Current Transfer Ratio vs. Ambient Temperature

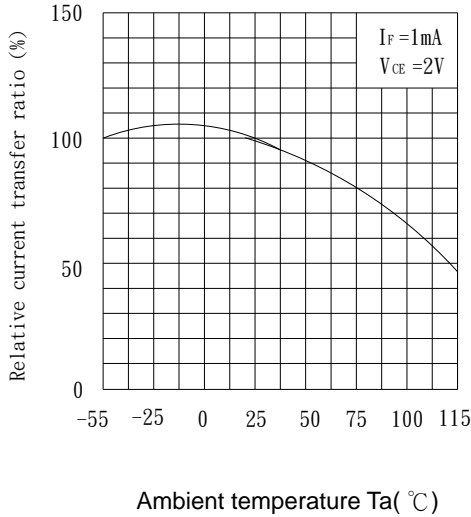


Fig.2 Diode Power Dissipation vs. Ambient Temperature

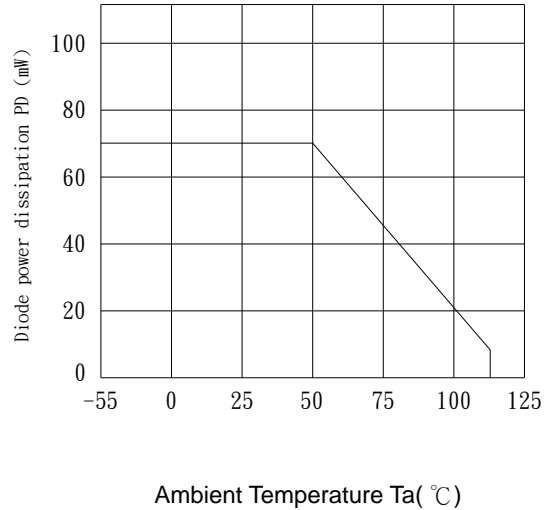


Fig.3 Collector-emitter Saturation Voltage vs. Forward current

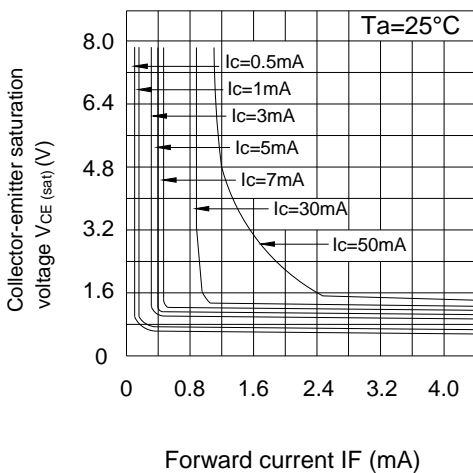


Fig.4 Collector-emitter Saturation Voltage vs. Ambient Temperature

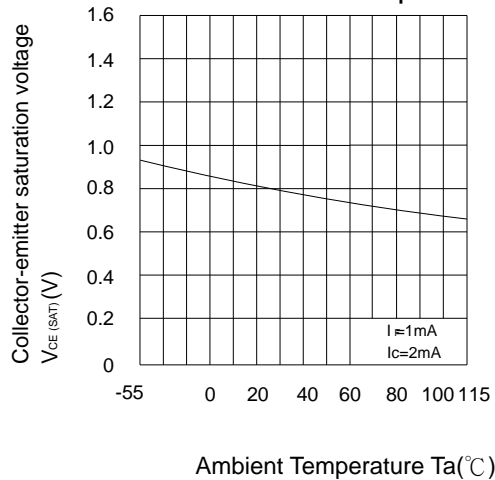


Fig.5 Current Transfer Ratio vs. Forward Current

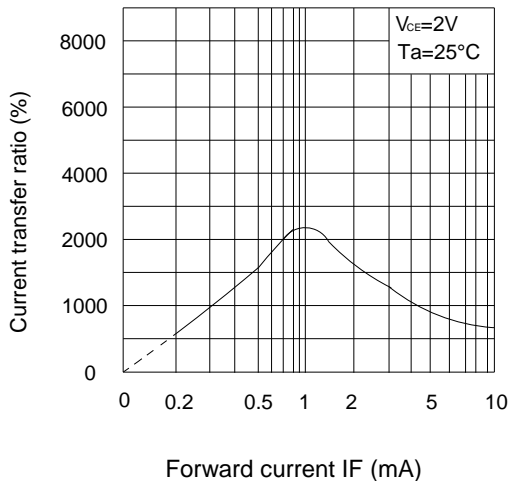
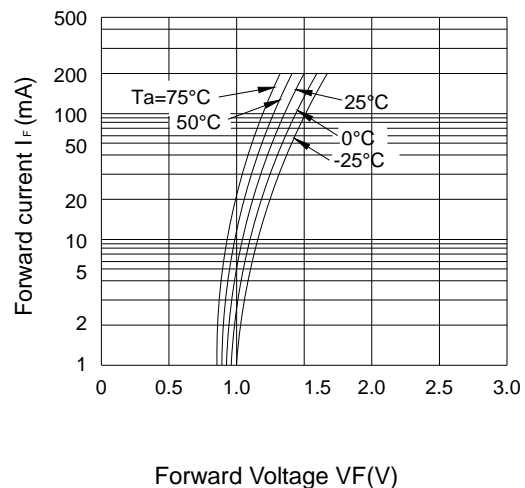


Fig.6 Forward Current vs. Forward Voltage



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Fig.7 Collector Dark Current vs. Ambient Temperature

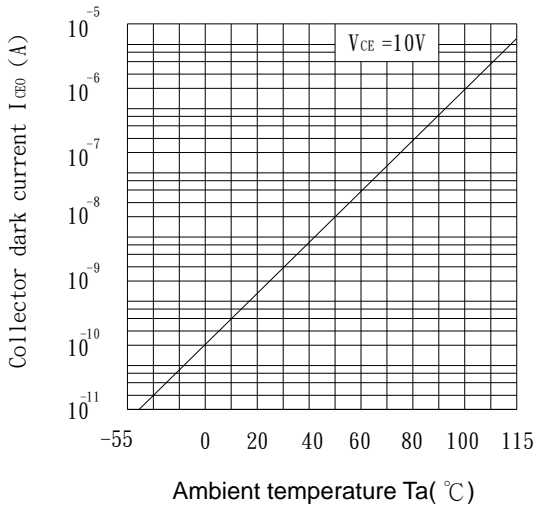


Fig.8 Collector Current vs. Collector-emitter Voltage

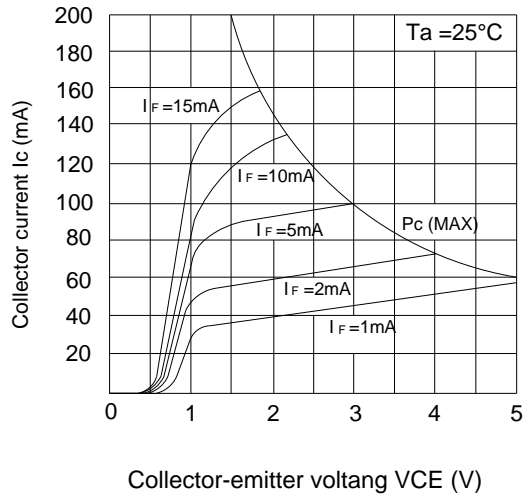


Fig.9 Response Time vs. Load Resistance

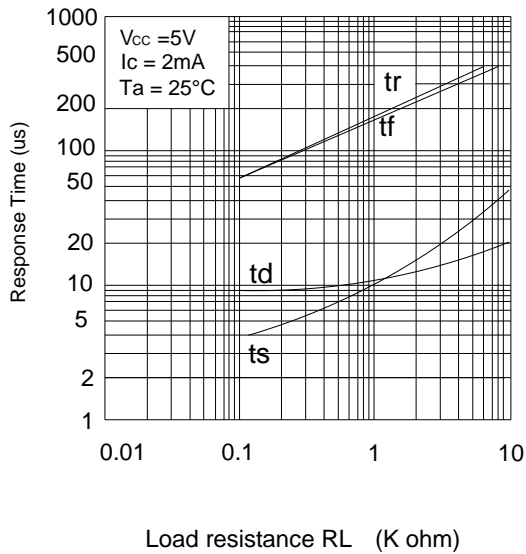
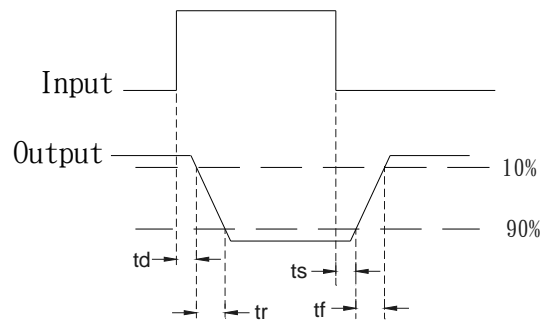
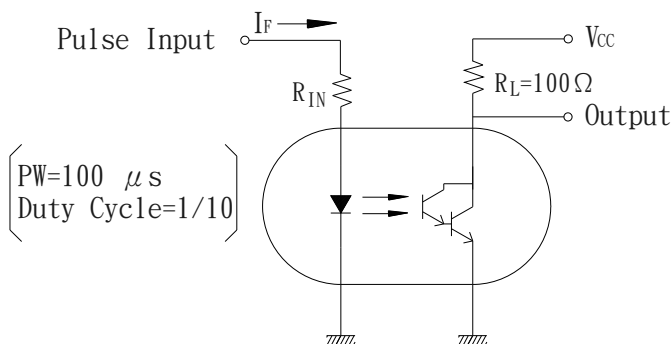


Fig.10 Test Circuit For Response Time

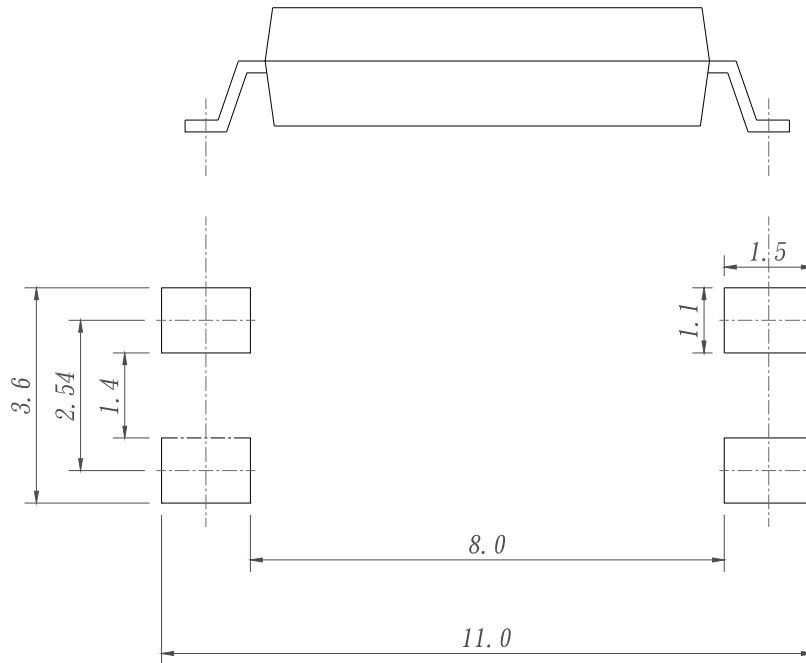


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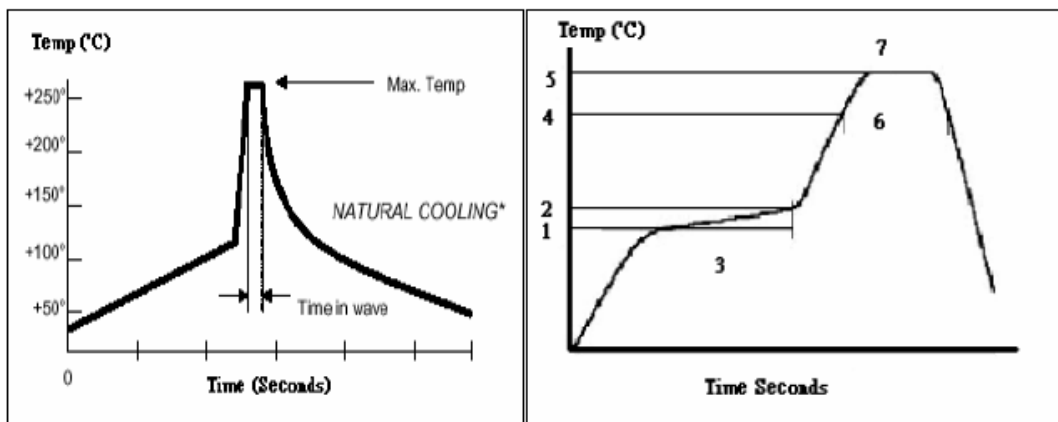
Fig.11 Recommended Mount Pad Dimensions



(Unit:mm)

Recommended Reflow / Wave Soldering Profile Conditions

	Recommended Profile Parameter	Wave Soldering	Infrared Red Reflow
1	Preheat start temperature, °C	N/A	150°C
2	Preheat finish temperature, °C	N/A	180°C
3	Preheat time, seconds	N/A	90 to 120 seconds
4	Melting temperature, °C	N/A	230°C
5	Peak temperature, °C	260°C	260°C
6	Time above melting, seconds	N/A	30 seconds
7	Peak temperature retained time, seconds	10 seconds	10 seconds



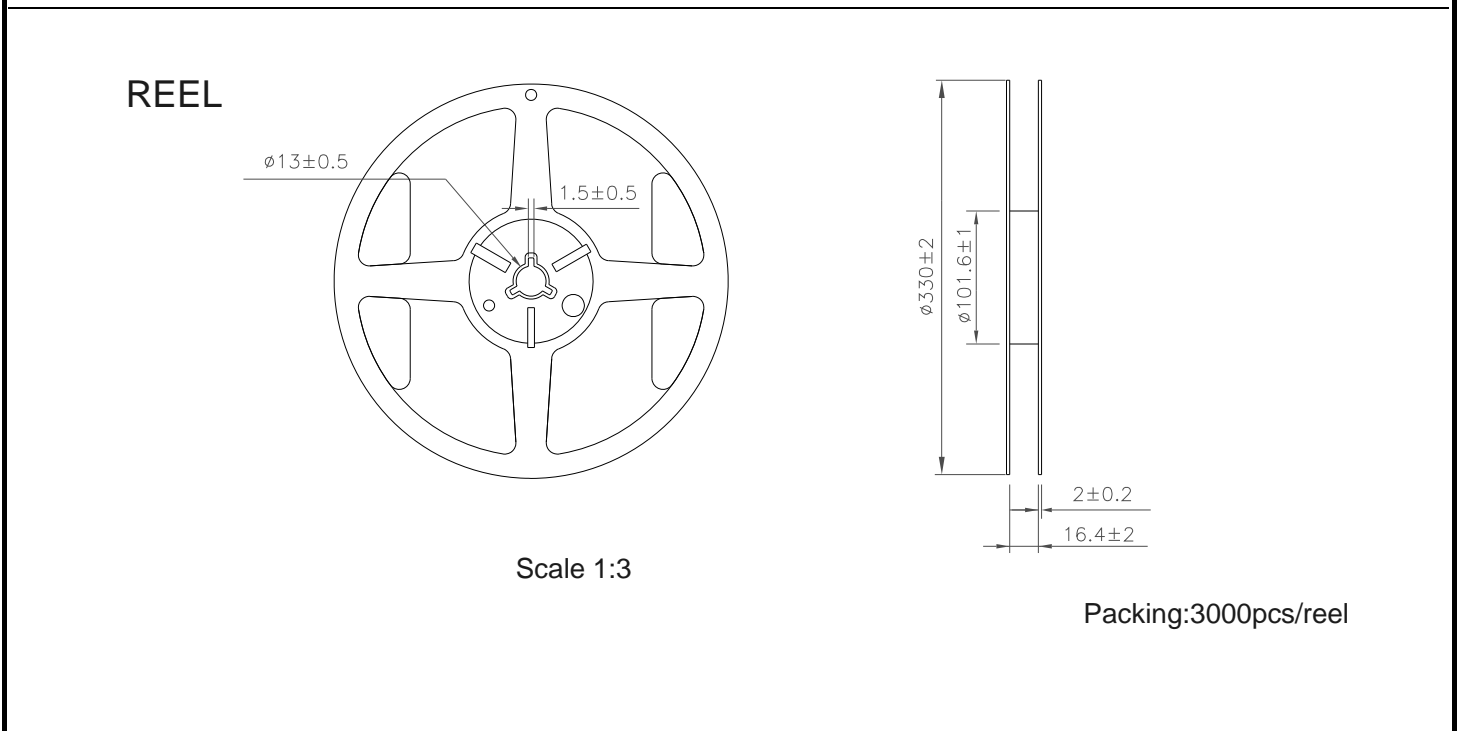
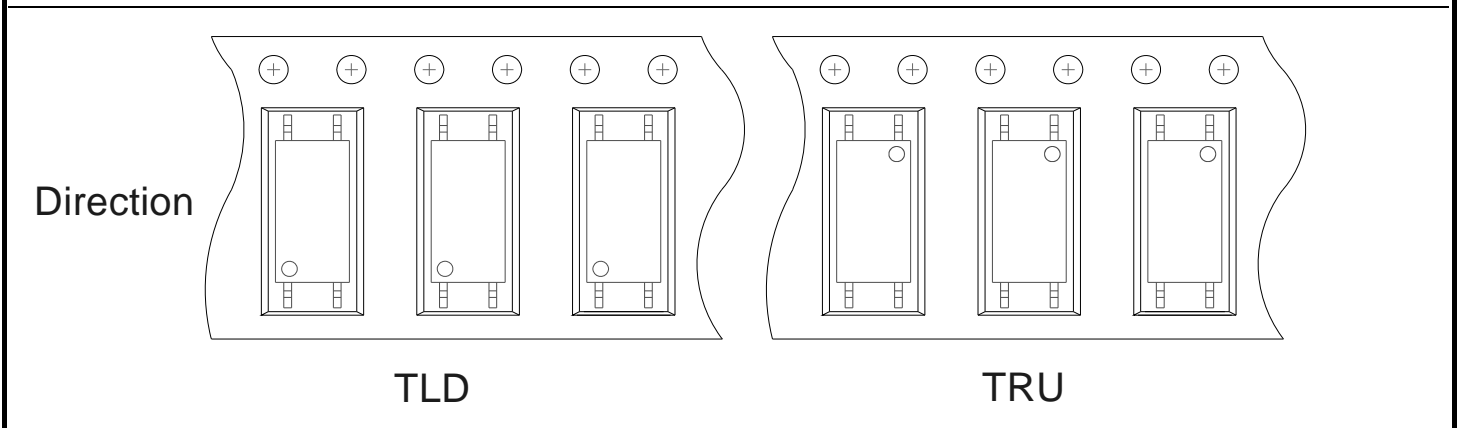
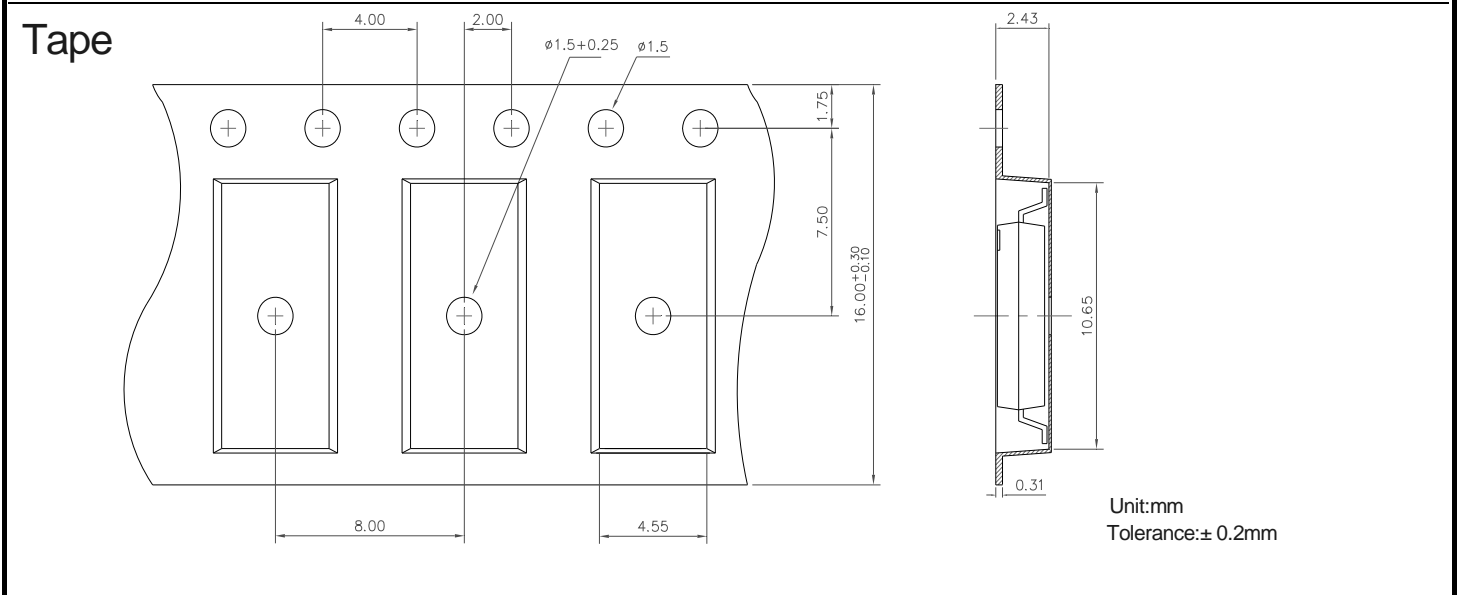
The recommended soldering conditions of Hand Soldering Test is Temperature=380±10°C, Duration=3+1 / -0 sec.

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TAPING SPECIFICATIONS



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