

KMOC306X Series

5PIN ZERO-CROSS TRIAC DRIVER

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● Description

The KMOC3061、KMOC3062、KMOC3063 series consist of a GaAs infrared emitting diode optically coupled to a monolithic silicon detector performing the function of a zero voltage crossing bilateral TRIAC driver. They are designed for use with a TRIAC in the interface of logic systems to equipment powered from 115/240 VAC lines, such as solid-state relays, industrial controls, motors, solenoids and consumer appliances, etc.

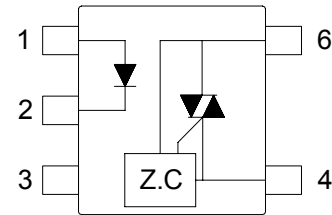
● Features

1. Pb free and RoHS compliant
2. 600V peak blocking voltage
3. Simplifies logic control of 115/240 VAC power
4. Zero voltage crossing
5. Isolation voltage between input and output (Viso : 5300Vms)
6. Agency Approvals :
 - UL1577, File No. E169586
 - CUL C22.2 No.1 & NTC No.5, File No. E169586
 - VDE EN60747-5-5, File No. 101347
 - FIMKO EN60065, File No. NCS/FI23146 A1 (for KMOC3063 series only)
 - FIMKO EN60950, File No. FI25802 (for KMOC3063 series only)
 - SEMKO EN60065, File No. 1016474 (for KMOC3063 series only)

● Applications

- Solenoid/Valve controls
- Lighting controls
- Static power switches
- AC motor drives
- Temperature controls
- E.M contactors
- AC motor starters
- Solid state relay
- Programmable controllers

● Schematic



1. Anode
2. Cathode
3. NC
4. Main terminal
6. Main terminal

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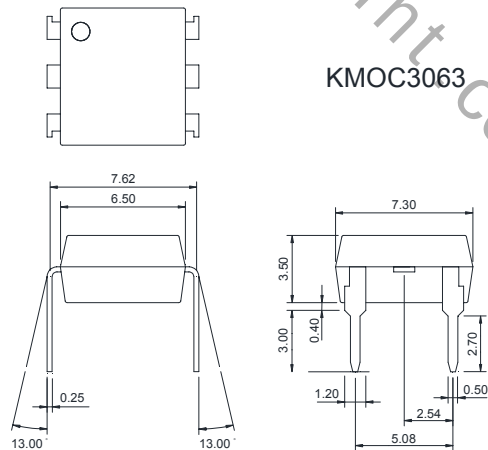
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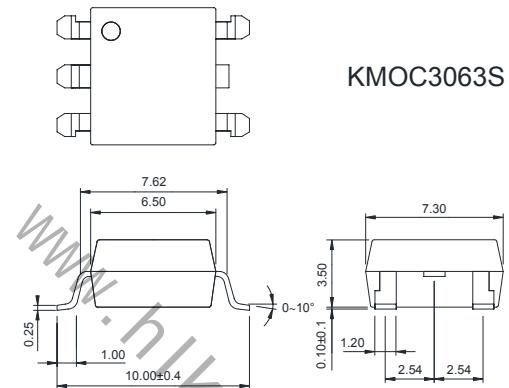
● Outside Dimension

Unit : mm

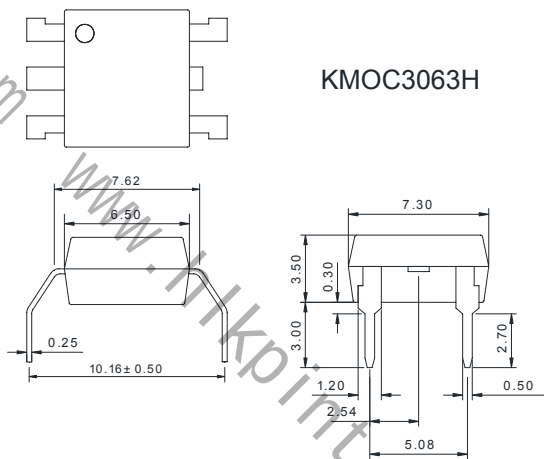
1. Dual-in-line type.



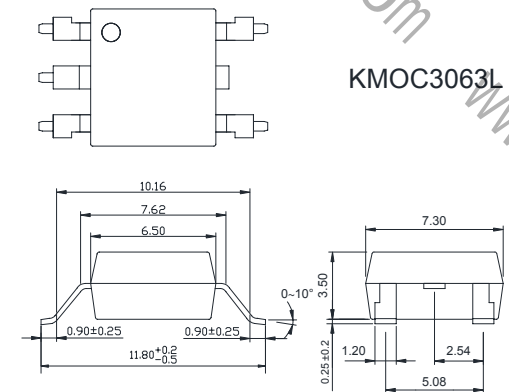
2. Surface mount type.



3. Long creepage distance type.

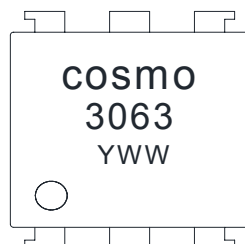


4. Long creepage distance for surface mount type.



TOLERANCE : ±0.2mm

● Device Marking



Notes :

cosmo

3061、3062、3063

YWW Y : Year code / W : Week code

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Absolute Maximum Ratings

(Ta=25°C)

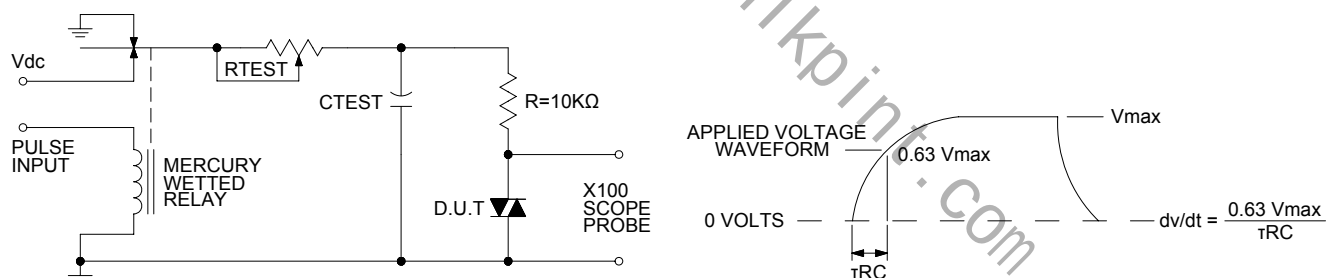
Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	Peak forward current	I_{FM}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P_D	70	mW
Output	Off-state output terminal voltage	V_{DRM}	600	V_{PEAK}
	On-state R.M.S. current	$I_{T(RMS)}$	100	mA
	Peak repetitive surge current (PW=10ms.DC 10%)	I_{TSM}	1	A
	Power dissipation	P_D	300	mW
Total power dissipation		P_{tot}	330	mW
Isolation voltage 1 minute		V_{iso}	5300	Vrms
Operating temperature		T_{opr}	-40 to +115	°C
Storage temperature		T_{stg}	-50 to +125	°C
Soldering temperature 10 seconds		T_{sol}	260	°C

Electro-optical Characteristics

(Ta=25°C)

Parameter		Symbol	Conditions	Min.	Typ.	Max.	Unit
Input	Forward voltage	V_F	$I_F=10mA$	-	1.2	1.4	V
	Reverse current	I_R	$V_R=4V$	-	-	10	μA
Output	Peak blocking current	I_{DRM}	V_{DRM} Rated	-	-	500	nA
	On-state voltage	V_{TM}	$I_{TM}=100mA$	-	1.8	3	V
Transfer characteristics	Holding current	I_H		-	0.1	-	mA
	Critical rate of rise of off-state voltage	dv/dt	$V_{DRM}=(1/\sqrt{2})*\text{Rated}$	1000	-	-	V/ μs
	Inhibit voltage (MT1-MT2 voltage above which device will not trigger)	V_{INH}	$I_F = \text{Rated } I_{FT}$	-	10	20	V
	Leakage in inhibited state	I_{DRM2}	$I_F = \text{Rated } I_{FT}, \text{ Rated } V_{DRM}, \text{ Off State}$	-	-	500	μA
	Isolation resistance	R_{iso}	DC 500V	5×10^{10}	10^{11}	-	Ω
	Minimum trigger current	I_{FT}	Main terminal voltage=3V				
			KMOC3061	-	-	15	mA
			KMOC3062	-	-	10	mA
			KMOC3063	-	-	5	mA

Static dv/dt Test Circuit



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Fig.1 Forward Current vs. Ambient Temperature

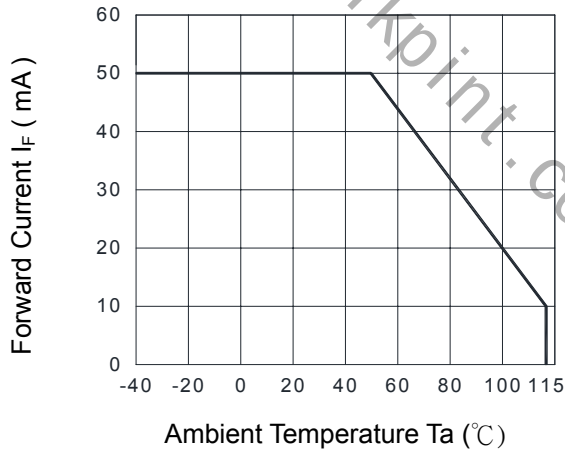


Fig.2 Diode Power Dissipation vs. Ambient Temperature

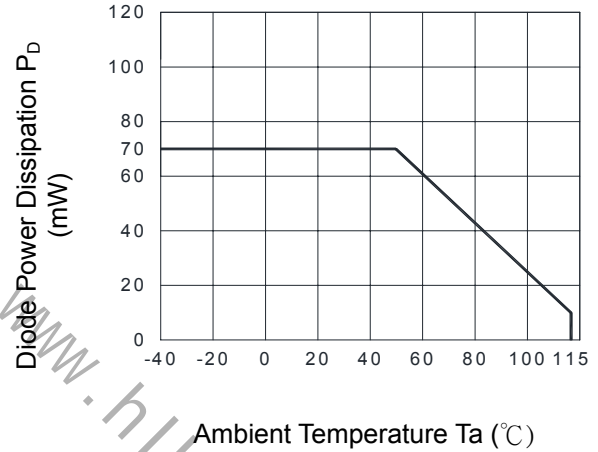


Fig.3 On-state R.M.S. Current vs. Ambient Temperature

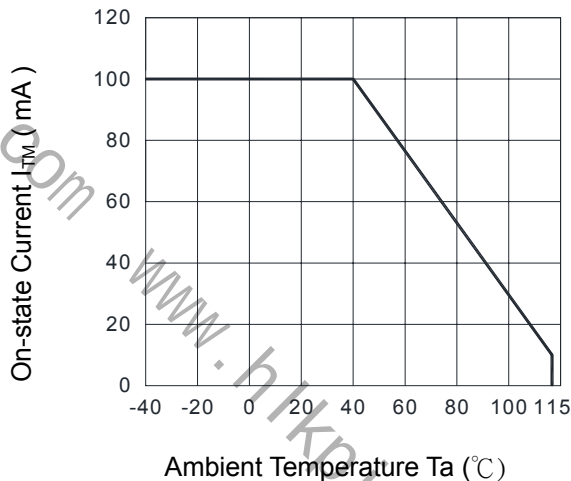


Fig.4 Total Power Dissipation vs. Ambient Temperature

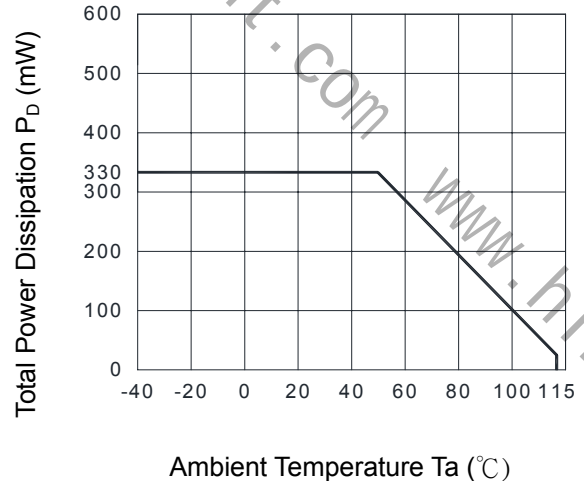


Fig.5 Peak Forward Current vs. Duty Ratio

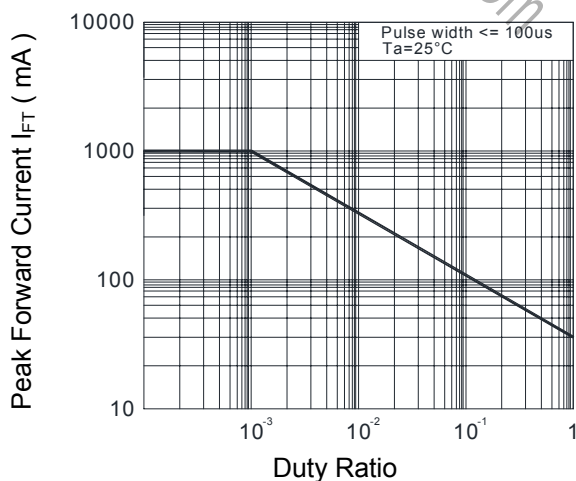
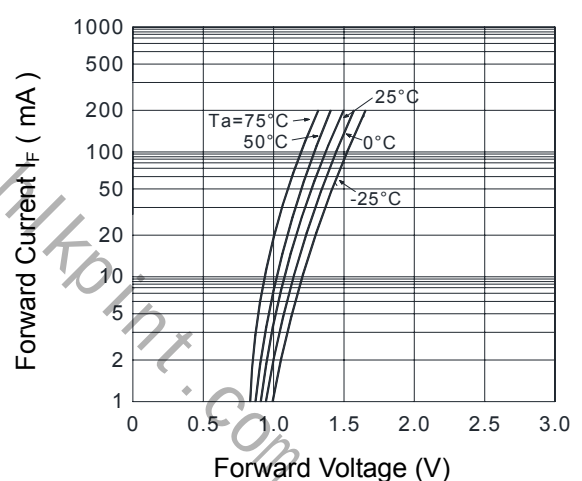


Fig.6 Forward Current vs. Forward Voltage



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Fig.7 On-state Characteristics

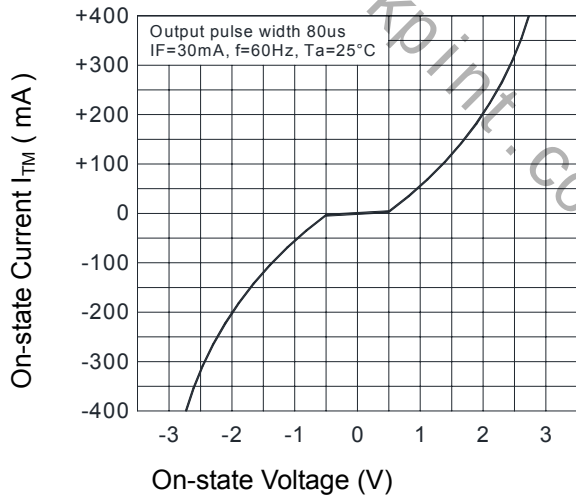


Fig.8 Inhibit Voltage vs. Ambient Temperature

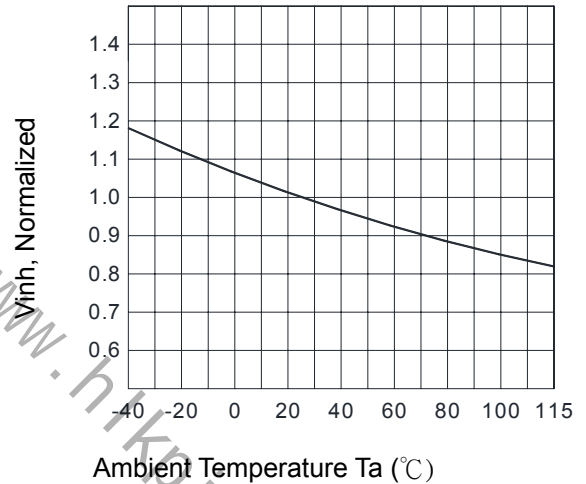


Fig.9 Leakage with LED off vs. Ambient Temperature

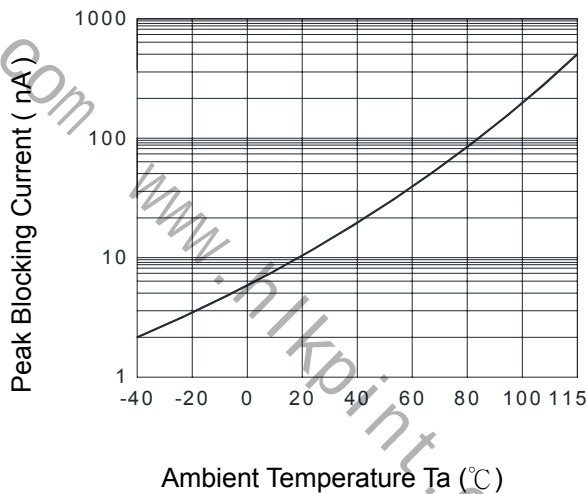


Fig.10 I_DRM2, Leakage in Inhibited State vs. Ambient Temperature

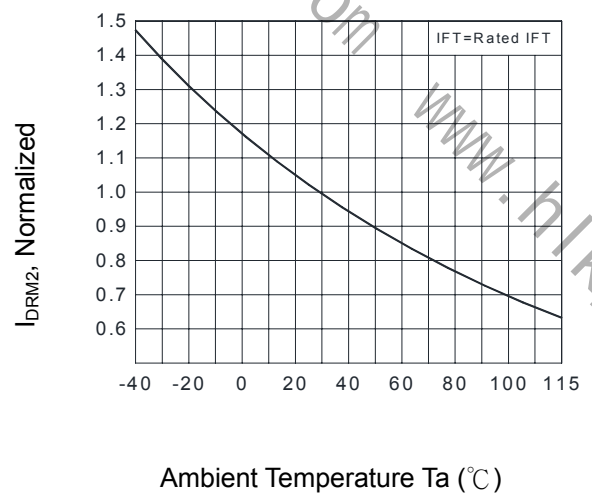
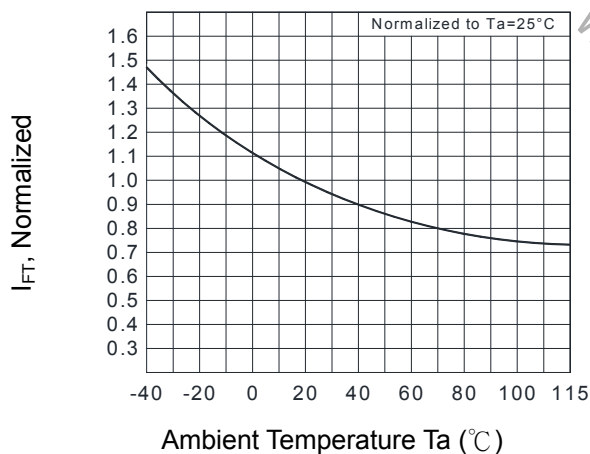


Fig.11 Trigger Current vs. Ambient Temperature



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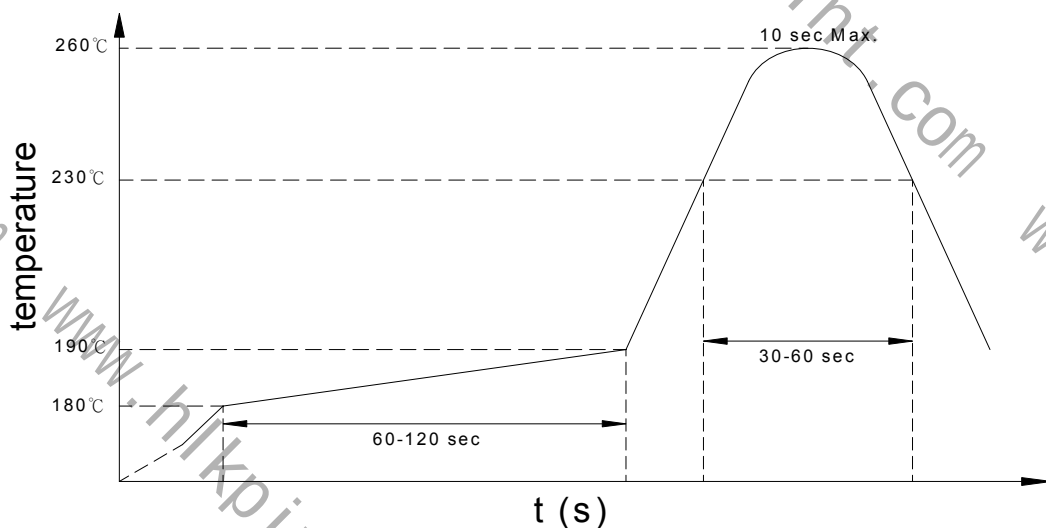
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● Recommended Soldering Conditions

(a) Infrared reflow soldering :

- Peak reflow soldering : 260°C or below (package surface temperature)
- Time of peak reflow temperature : 10 sec
- Time of temperature higher than 230°C : 30-60 sec
- Time to preheat temperature from 180~190°C : 60-120 sec
- Time(s) of reflow : Two
- Flux : Rosin flux containing small amount of chlorine (The flux with a maximum chlorine content of 0.2 Wt% is recommended.)

Recommended Temperature Profile of Infrared Reflow



(b) Wave soldering :

- Temperature : 260°C or below (molten solder temperature)
- Time : 10 seconds or less
- Preheating conditions : 120°C or below (package surface temperature)
- Time(s) of reflow : One
- Flux : Rosin flux containing small amount of chlorine (The flux with a maximum chlorine content of 0.2 Wt% is recommended.)

(c) Cautions :

- Fluxes : Avoid removing the residual flux with freon-based and chlorine-based cleaning solvent.
- Avoid shorting between portion of frame and leads.

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● Numbering System

KMOC3061 X (Y)

KMOC3062 X (Y)

KMOC3063 X (Y)

Notes:

KMOC3061 / KMOC3062 / KMOC3063 = Part No.

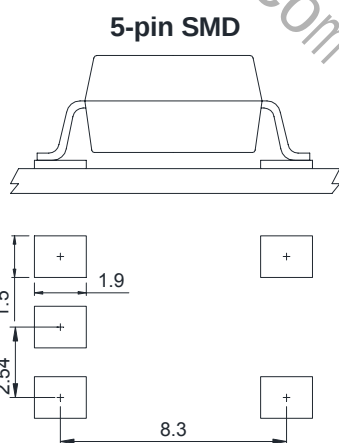
X = Lead form option (blank 、 S 、 H 、 L)

Y = Tape and reel option (TL 、 TR 、 TLD 、 TRU)

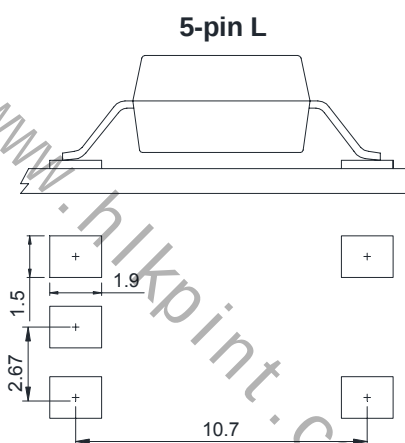
Option	Description	Packing quantity
S (TL)	surface mount type package + TL tape & reel option	1000 units per reel
S (TR)	surface mount type package + TR tape & reel option	1000 units per reel
L (TLD)	long creepage distance for surface mount type package + TLD tape & reel option	1000 units per reel
L (TRU)	long creepage distance for surface mount type package + TRU tape & reel option	1000 units per reel

● Recommended Pad Layout for Surface Mount Lead Form

1. Surface mount type.



2. Long creepage distance for surface mount type.



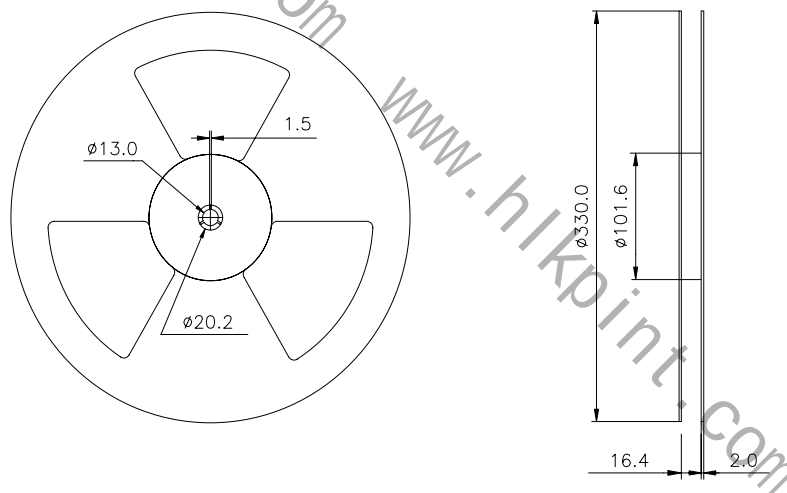
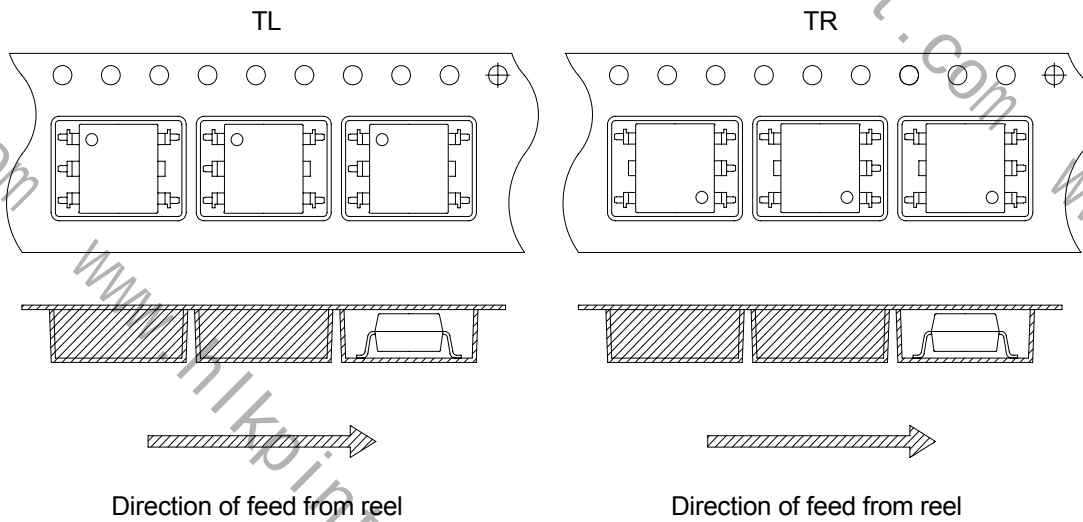
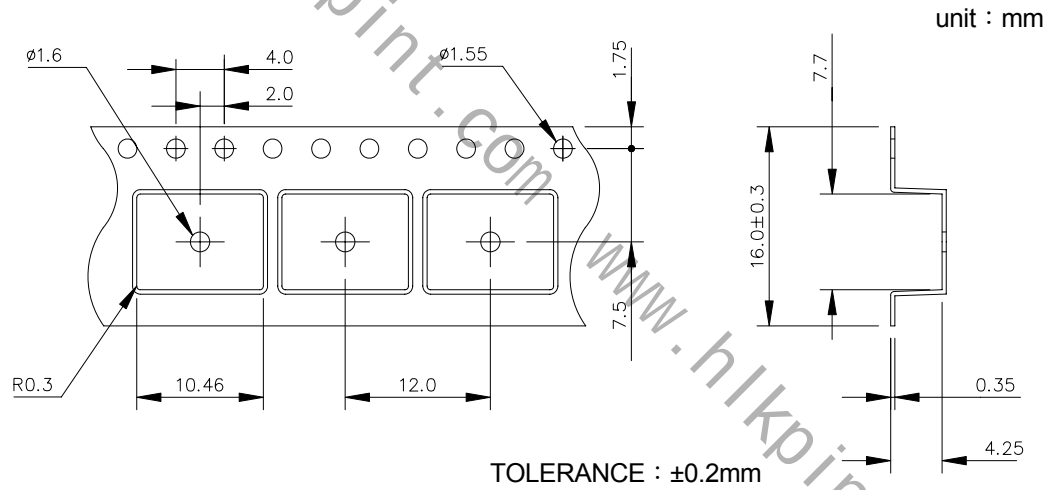
Unit : mm

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● SMD Carrier Tape & Reel



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● L Carrier Tape & Reel

