

● 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.

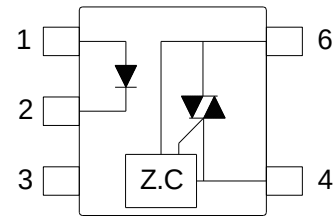
● Features

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 : 5300Vrms)
6. MSL class 1
7. Agency approvals:
 - UL and cUL approved (No. E169586)
 - VDE approved
 - FIMKO approved
 - CQC approved

● 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

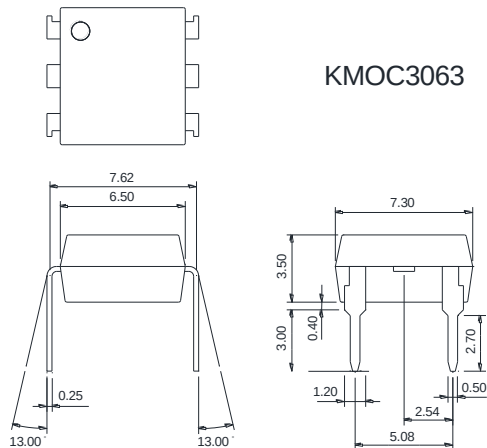


1. Anode
2. Cathode
3. NC
4. Main terminal
6. Main terminal

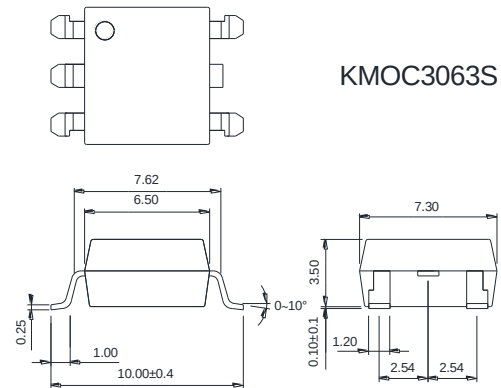
● Outside Dimension

Unit : mm

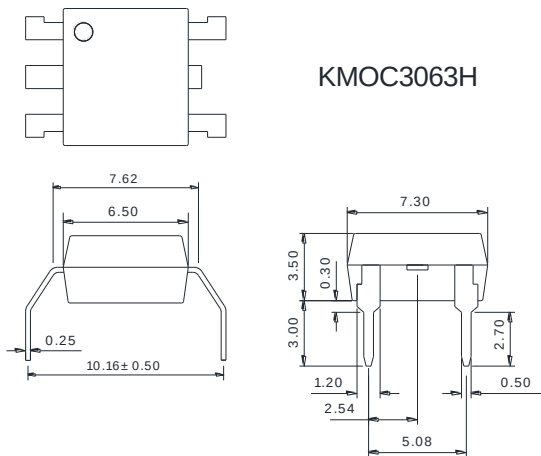
1. Dual-in-line type.



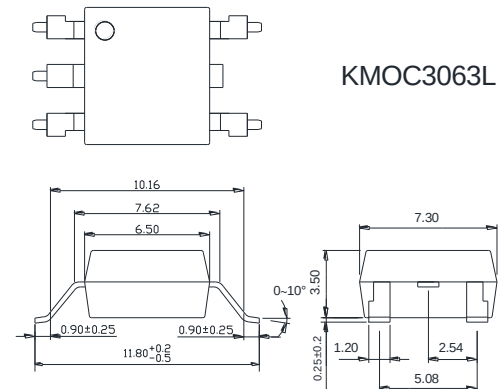
2. Surface mount type.



3. Long creepage distance type.

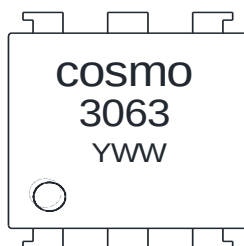


4. Long creepage distance for surface mount type.



TOLERANCE : ±0.2mm

● Device Marking



Notes :

cosmo

3061 、 3062 、 3063

YWW Y : Year code / WW : Week code

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	V _{rms}
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/√2)*Rated	1000	-	-	V/μs
	Inhibit voltage (MT1-MT2 voltage above which device will not trigger)	V _{INH}	I _F = Rated I _{FT}	-	10	20	V
	Leakage in inhibited state	I _{DRM2}	I _F =Rated I _{FT} , Rated V _{DRM} , Off State	-	-	500	μA
	Isolation resistance	R _{iso}	DC 500V	5x10 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

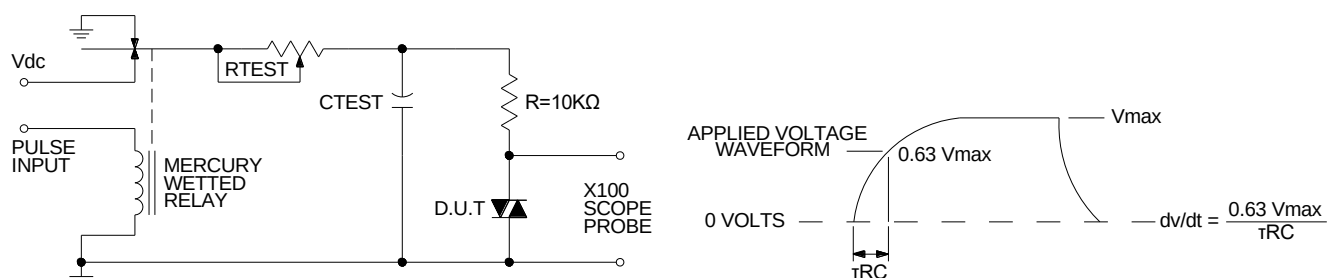


Fig.1 Forward Current vs. Ambient Temperature

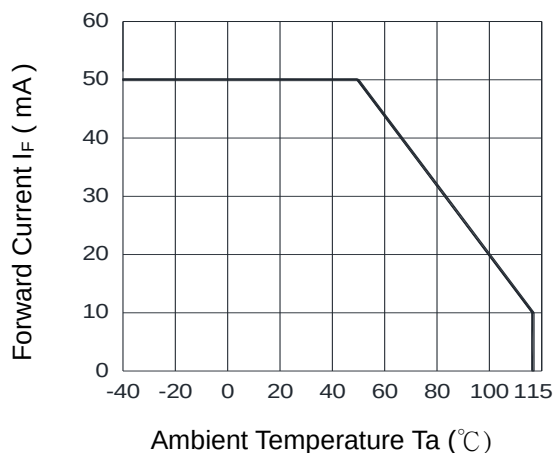


Fig.2 Diode Power Dissipation vs. Ambient Temperature

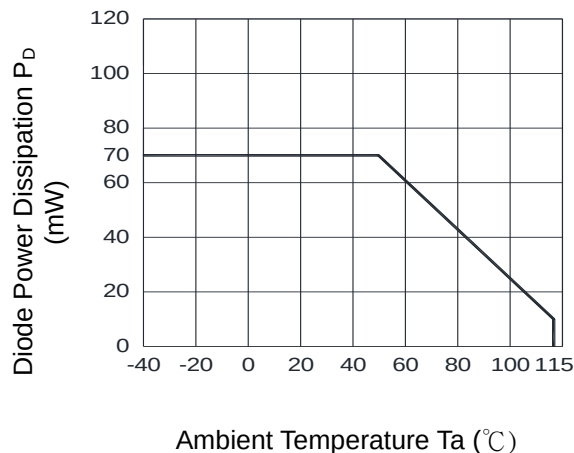


Fig.3 On-state R.M.S. Current vs. Ambient Temperature

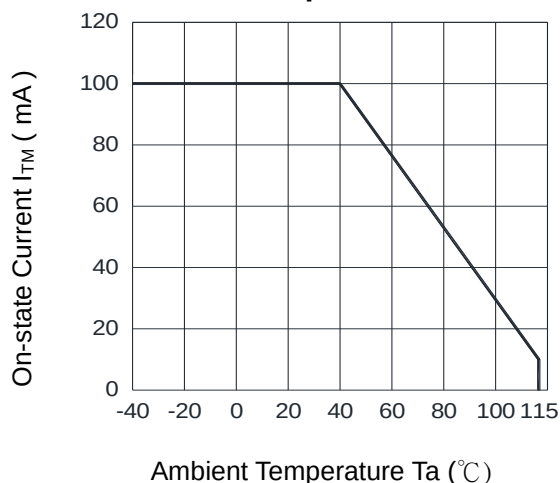


Fig.4 Total Power Dissipation vs. Ambient Temperature

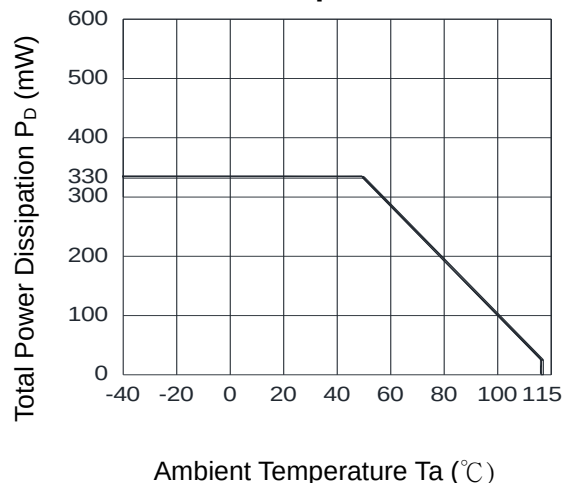


Fig.5 Peak Forward Current vs. Duty Ratio

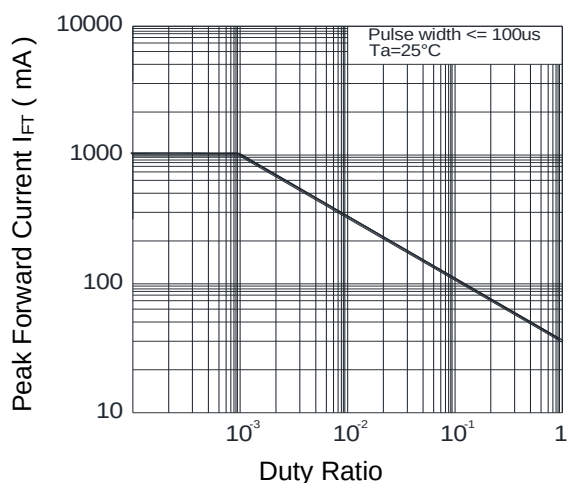


Fig.6 Forward Current vs. Forward Voltage

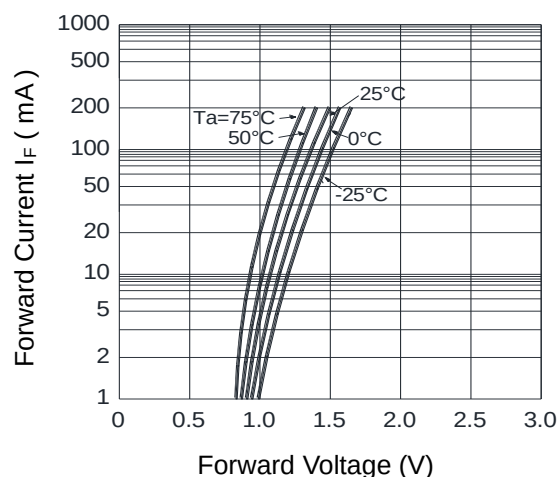


Fig.7 On-state Characteristics

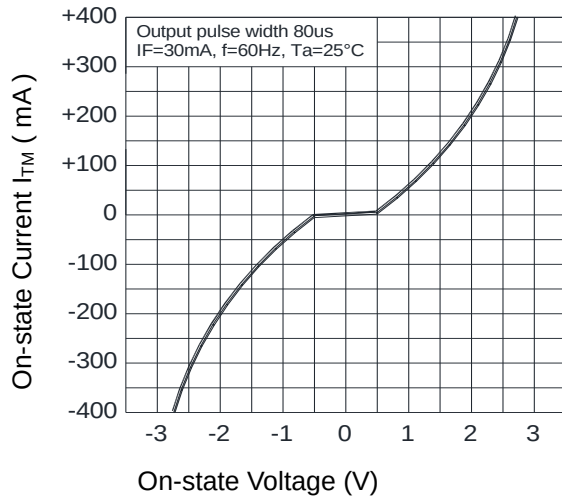


Fig.8 Inhibit Voltage vs. Ambient Temperature

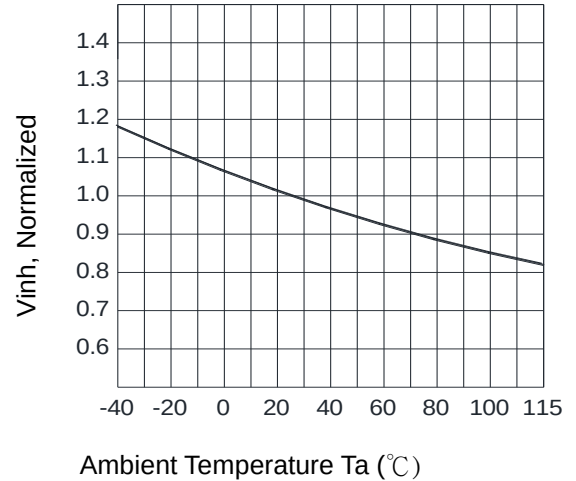


Fig.9 Leakage with LED off vs. Ambient Temperature

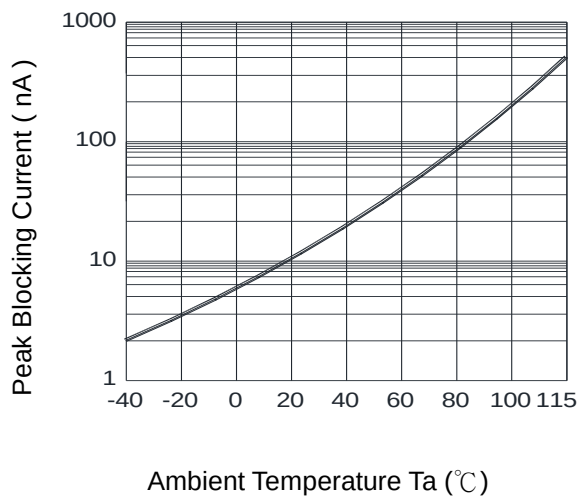


Fig.10 I_{DRM2} , Leakage in Inhibited State vs. Ambient Temperature

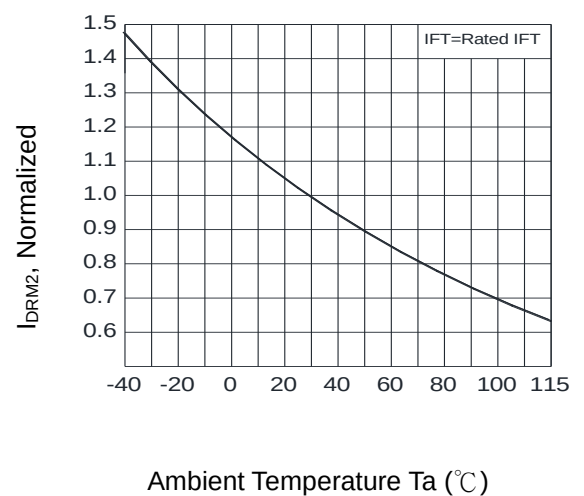
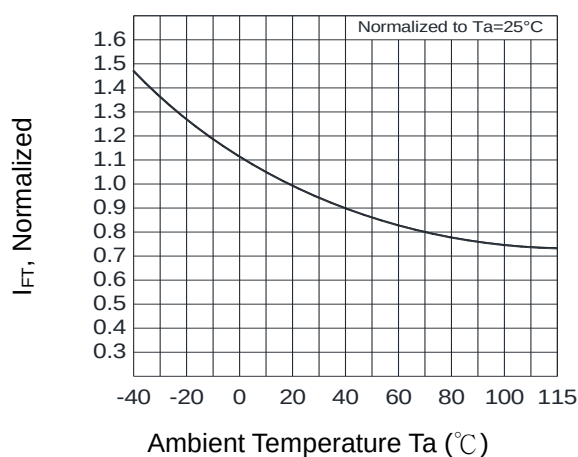


Fig.11 Trigger Current vs. Ambient Temperature

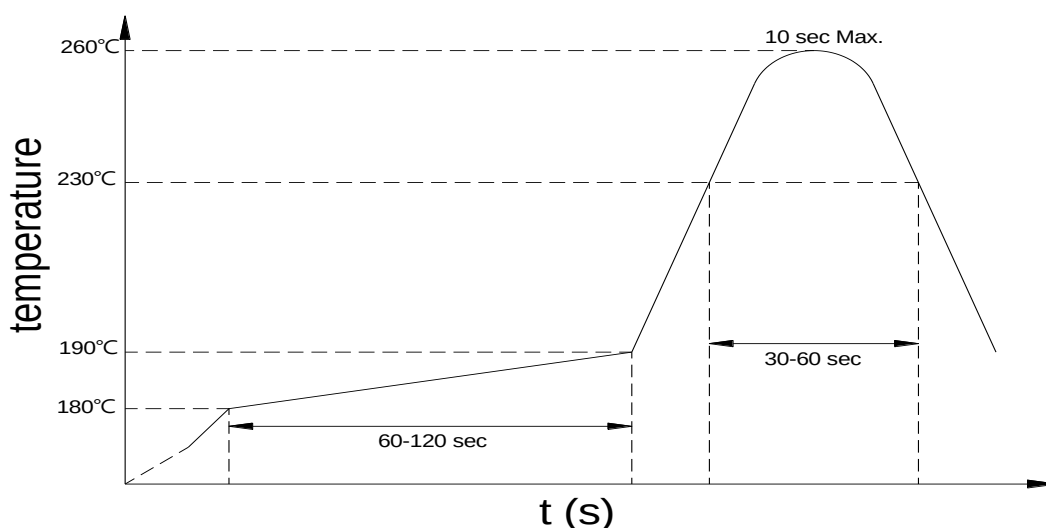


● Recommended Soldering Conditions

(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.

● Numbering System

KMOC3061 X (Y)

KMOC3062 X (Y)

KMOC3063 X (Y)

Notes:

KMOC3061 / KMOC3062 / KMOC3063 = Part No.

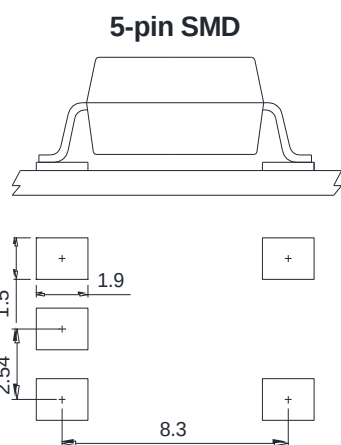
X = Lead form option (blank 、 S 、 H 、 L)

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

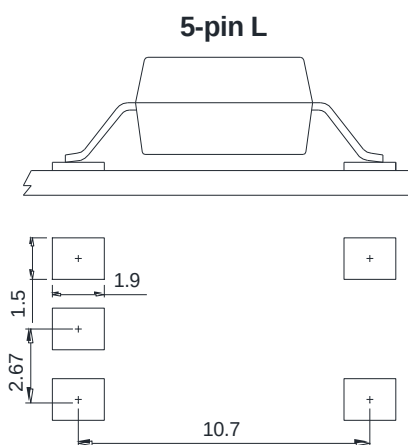
Option	Description	Packing quantity
S (TL)	surface mount type package + TL tape & reel option	1000 units per reel
S (TR)	surface mount type package + TR tape & reel option	1000 units per reel
L (TLD)	long creepage distance for surface mount type package + TLD tape & reel option	1000 units per reel
L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

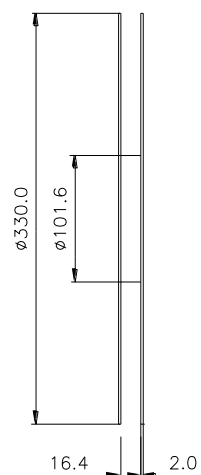
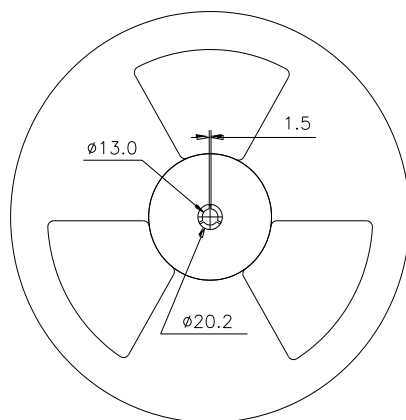
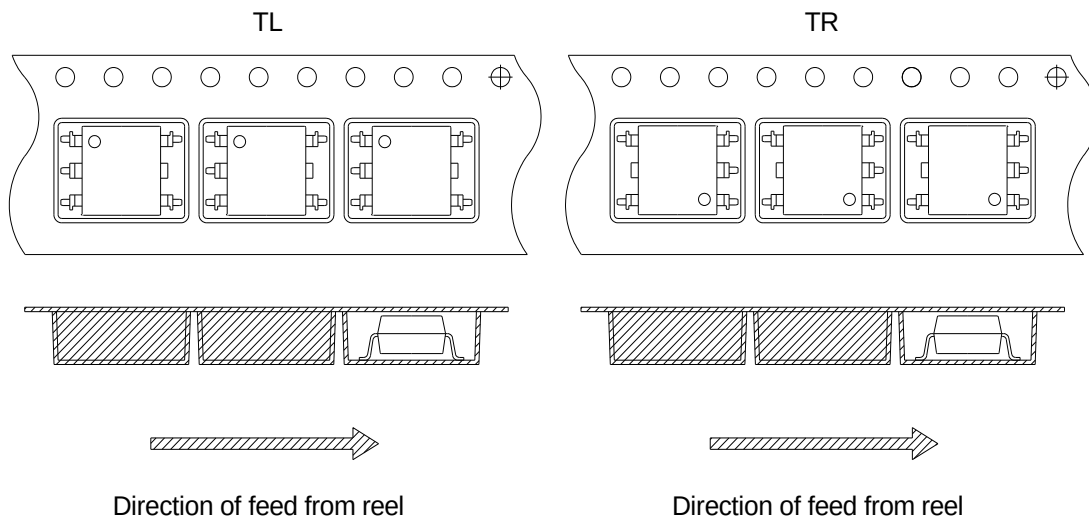
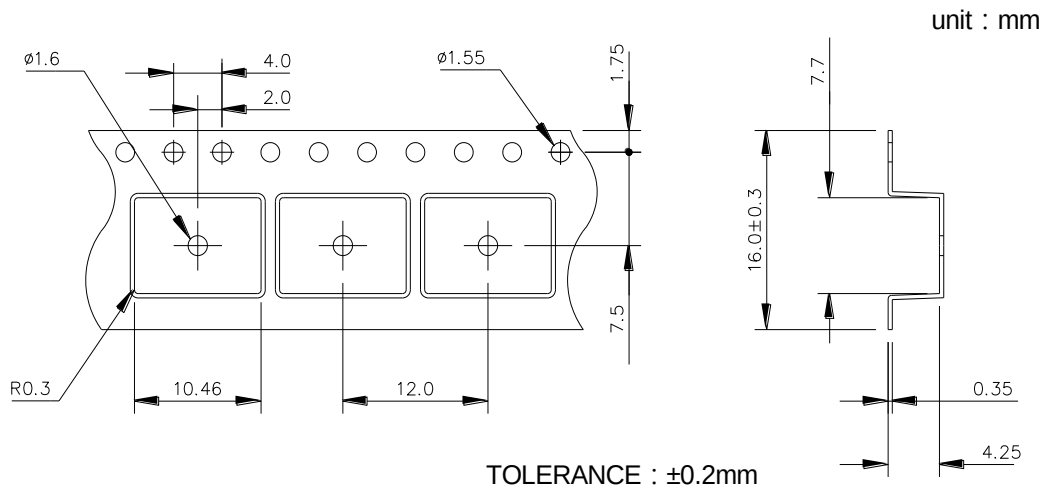


2. Long creepage distance for surface mount type.

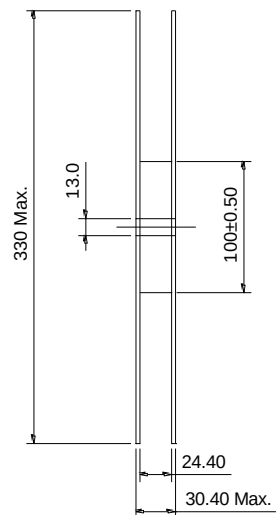
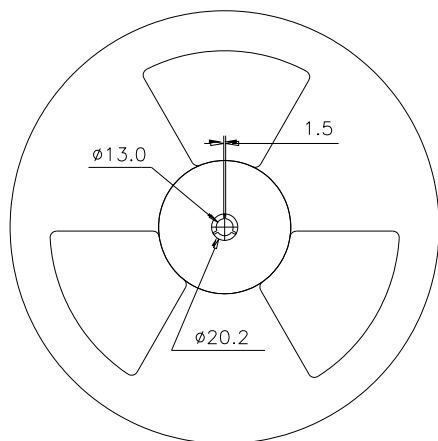
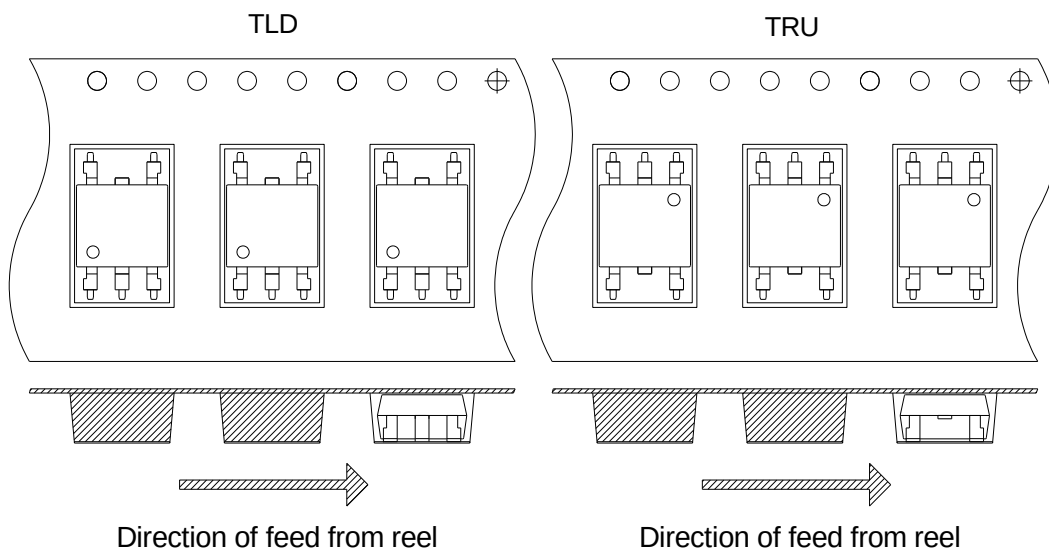
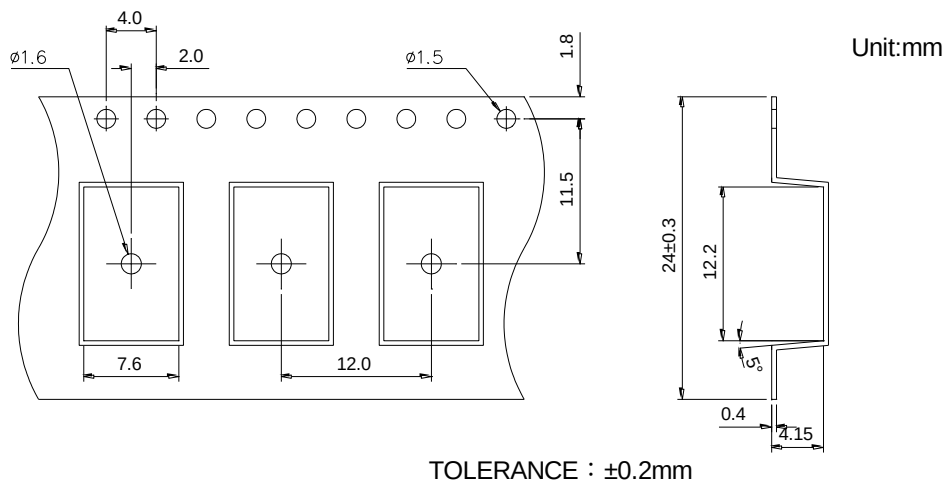


Unit : mm

● SMD Carrier Tape & Reel



● L Carrier Tape & Reel



● Application Notice

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