

## Features

Gap : 2.0mm

Hight : 6.55mm

Incremental output method

Digital output (2ch)

Built in pull-up resistor

Resolution :45LPI/90LPI/150LPI

## Application

Disc drive

Copier

Facsimile

Printer

## Description

N36 series are optical encoder which use an infrared LED as a light source, by using in-house products for emitting components and detecting photo IC, establish both high-quality and high-cost performance, with a digital output and variation of resolutions, can be used in a wide range of applications.



## Maximum Ratings

(Ta=25°C)

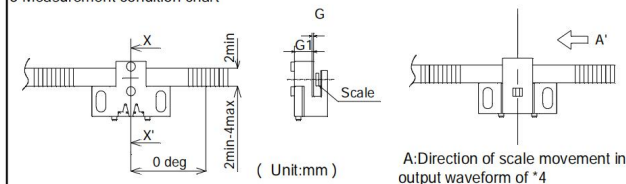
Item		Symbol	Ratings	Unit
Input	Forward current	$I_F$	40	mA
	Reverse voltage	$V_R$	3	V
Output	Supply voltage	$V_{CC}$	7	V
Operating temperature *1		Topr.	0~+85	°C
Storage temperature *1		Tstg.	-40~+85	°C
Soldering temperature *2		Tsol.	260	°C

## Elector-Optical Characteristics

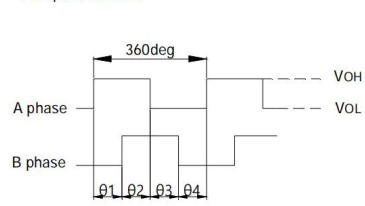
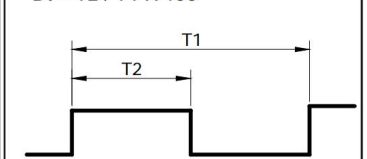
(Ta=25°C)

Item		Symbol	Conditions	Min	Typ	Max	Unit	
Input	Forward voltage	$V_F$	$I_F=20\text{mA}$	-	1.6	-	V	
	Peak wavelength	$\lambda_P$	$I_F=20\text{mA}$	-	820	-	nm	
Operating supply voltage range		$V_{CC}$	-	2.7	5	5.5	V	
A-B Phase Output	Phase difference *3*4*6	$\theta$	$V_{CC}=2.7 \text{ to } 5.5\text{V}$ $I_F=20\text{mA}$	45	90	135	deg	
	Duty ratio *3*5	Dt		30	50	70	%	
	High level output voltage *3*4	$V_{OH}$		$V_{CC} \times 0.8$	-	-	-	V
	Low level output voltage *3*4	$V_{OL}$		-	-	0.4	-	V
Response frequency		fmax		-	-	25 *7	KHZ	
				-	-	60 *7	KHZ	

3 Measurement condition chart

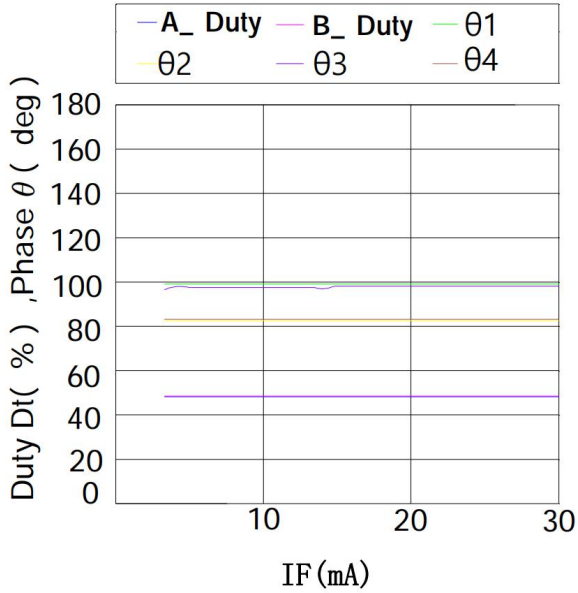


\*4 Output waveform

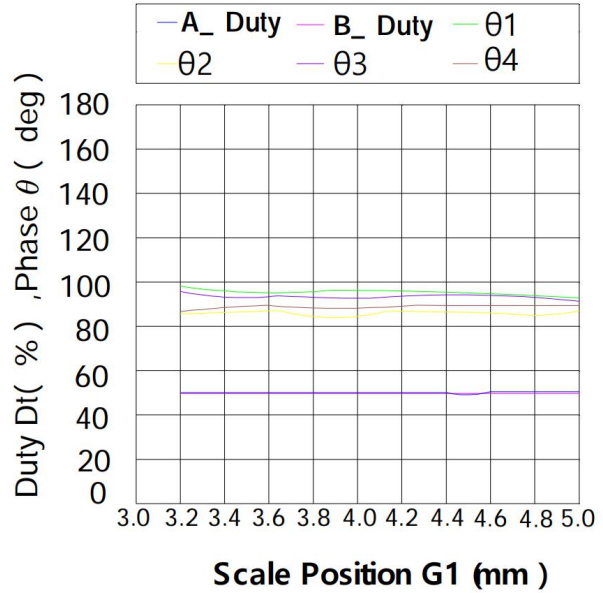
\*5 Duty ratio( Dt )  
Dt = T2 / T1 X 100

**REPRESENTATIVE CHARACTERISTICS**

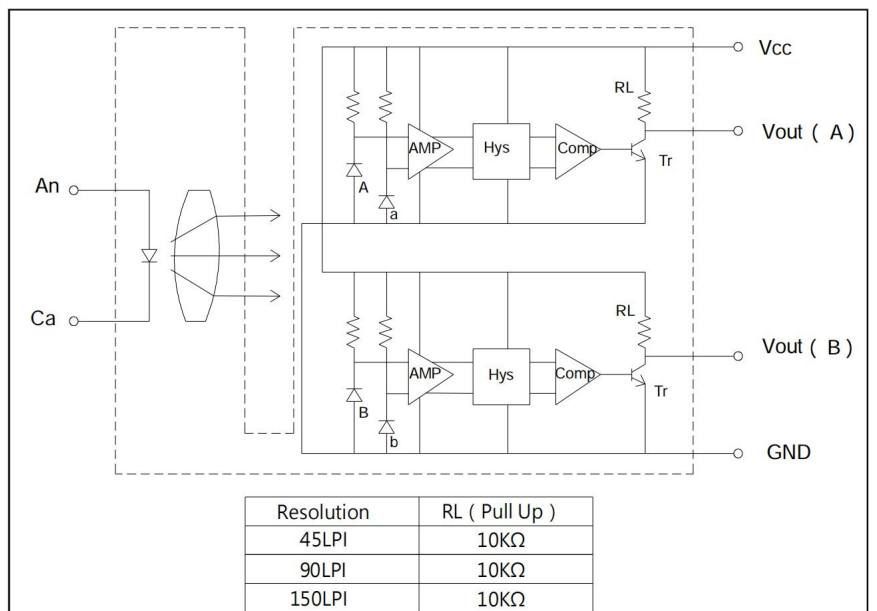
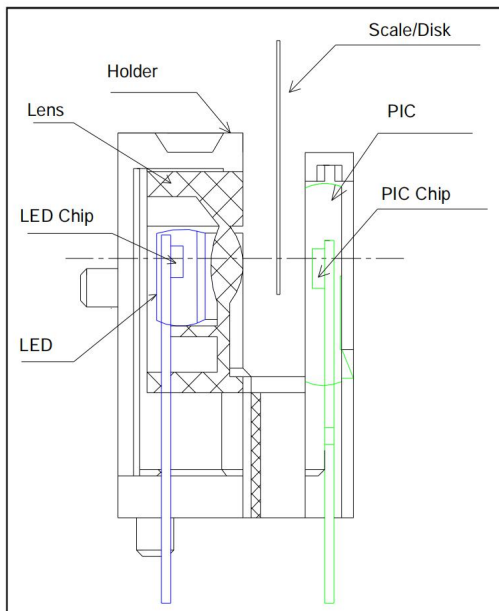
Duty Phase/IF Dependency



Duty Phase/ Scale Position( G1 ) Dependency



**Structural Chart & Block Diagram**



## Packing Quantity Specification

1. 170Pcs/1Plate,20 Plate/1Box
2. 2Boxes/1Carton

## Label Form Specification

製品名 PRODUCT	
コードNo. CODE No.	
数量 QTY	
ロットNo. LOT No.	
備考 REMARKS	
	

- PRODUCT: Part Number
- CODE NO.: Product Serial Number
- QTY: Packing Quantity
- LOT No: Lot Number
- REMARKS:Remarks

## Notes

### Lead Forming

1. During lead frame bending, the lead frame should be bent at a distance more than 3mm from bottom of the epoxy.

Note: Must fix lead frame and do not touch epoxy before bending to avoid Photo Interrupter broken.

2. Lead forming should be done before soldering.

3. Avoid stressing the Photo Interrupter package during leads forming. The stress to the base may damage the characteristics of Photo Interrupter, or it may break the Photo Interrupter.

4. Cut the Photo Interrupter lead frame at room temperature. Cutting the lead frame at high temperatures may cause failure of the Photo Interrupter.

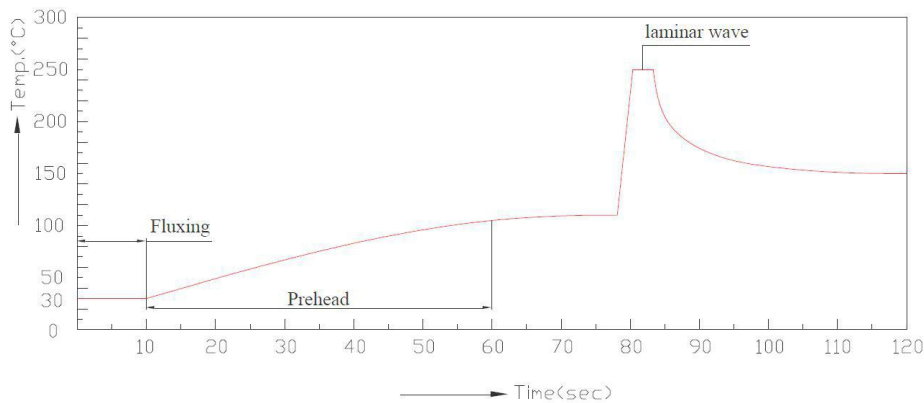
5. When mounting the Photo Interrupter onto a PCB, the PCB holes must be aligned exactly with the lead position of the Photo Interrupter. If the Photo Interrupter are mounted with stress at The leads, it causes deterioration of the epoxy resin and this will degrade the Photo Interrupter.

## Soldering

- Careful attention should be paid during soldering. When soldering, leave more than 3mm from solder joint to epoxy bulb, and soldering beyond the base of the tie bar is recommended.
- Recommended soldering conditions:

Hand Soldering		DIP Soldering	
Temp. at tip of iron	300°C Max. (30W Max.)	Preheat temp.	100°C Max. (60 sec Max.)
Soldering time	3 sec Max.	Bath temp. & time	260 Max., 5 sec Max
Distance	3mm Min.(From solder joint to epoxy bulb)	Distance	3mm Min. (From solder joint to epoxy bulb)

### 3. Recommended soldering profile



- Avoiding applying any stress to the lead frame while the Photo Interrupter are at high temperature particularly when soldering.
- Dip and hand soldering should not be done more than one time
- After soldering the Photo Interrupter, the epoxy bulb should be protected from mechanical shock or vibration until the Photo Interrupter return to room temperature.
- A rapid-rate process is not recommended for cooling the Photo Interrupter down from the peak temperature.
- Although the recommended soldering conditions are specified in the above table, dip or hand soldering at the lowest possible temperature is desirable for the Photo Interrupter.
- Wave soldering parameter must be set and maintain according to recommended temperature and dwell time in the solder wave.

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