

ENCODER

LA2650-150

SIVAGO[®]
SEMICONDUCTOR

Features

Gap size: 2.0 mm

Height: 7.55 mm

Incremental output method

Digital output (2 ch)

Built in pull-up resistor

Resolution : 150 LPI

Pb free

Compliance with EU REACH

Compliance Halogen Free(Br < 900ppm, Cl < 900ppm, Br+Cl < 1500ppm)

The product itself will remain within RoHS compliant version.



Application

Printer

Copier

Facsimile

Disc drive

Description

LA2650-150 is an optical encoder which use an infrared LED to the light source, through assembly process combine emitting components and detecting photo IC, with a digital output and Variations of resolutions, can be used in a wide range of applications.

ABSOLUTE MAXIMUM RATINGS AT TA =25°C

	Parameter	Symbol	Rating	Unit
Input	Forward Current	I _F	20	mA
	Reverse Voltage	V _R	3	V
Output	Supply Voltage	V _{CC}	7	V
Storage Temperature *1		T _{stg.}	-40 ~ +85	°C
Operating Temperature *1		T _{opr.}	0~ +85	°C
Soldering Temperature *2		T _{sol.}	260	°C

Notes:

*1. No icebound or dew

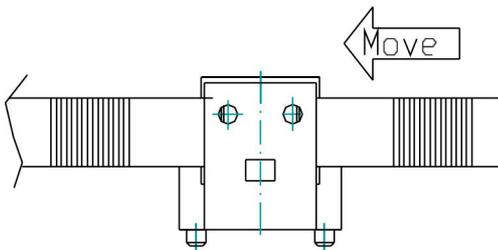
*2. For max 5 sec. At the position of 1 mm from the resin edge

ELECTRICAL OPTICAL CHARACTERISTICS AT TA=25°C

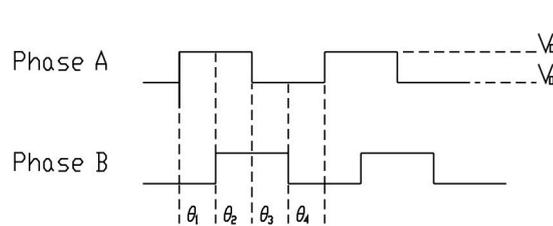
	Parameter		Symbol	Min.	Typ.	Max	Unit	Condition
LED Input	Forward Voltage		V_F	--	1.6	--	V	$I_F=10\text{ mA}$
	Peak Wavelength		λ_P	--	850	--	nm	$I_F=10\text{ mA}$
Operating supply voltage range			V_{CC}	2.7	5.0	5.5	V	--
	Phase difference	*3*4*6	θ	45	90	135	deg	$V_{CC}=2.7\text{ to }5.5\text{ V}$ $I_F=20\text{ mA}$
IC output	Duty ratio	*3*5	Dt	30	50	70	%	
A-B Phase output	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	
Maximum Response frequency			f_{max}	--	--	60	kHz	

Notes:

*3. Direction of scale movement

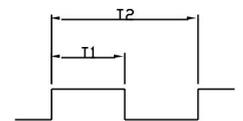


*4. Output waveform of *3



*5. Duty ratio (Dt)

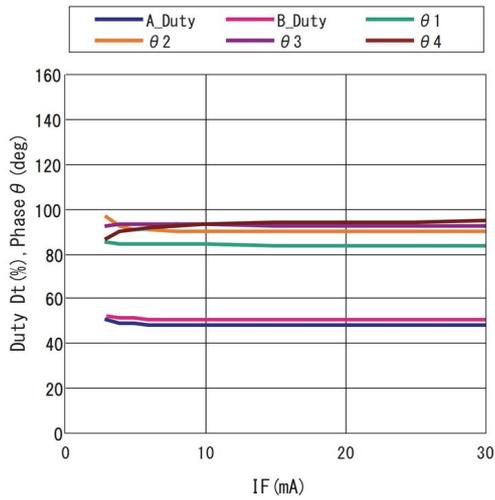
$$Dt = (T1/T2) \times 100 (\%)$$



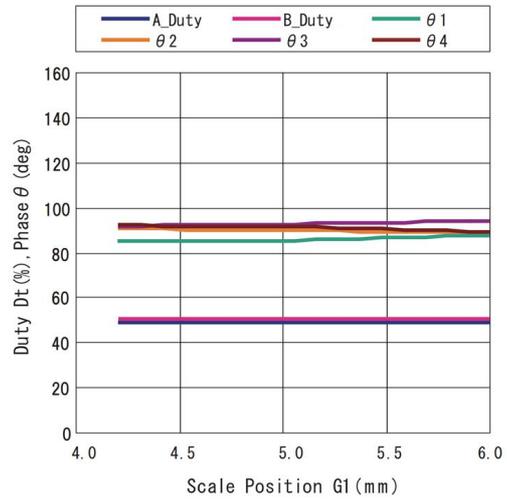
*6. No reverse in phase difference

REPRESENTATIVE CHARACTERISTICS

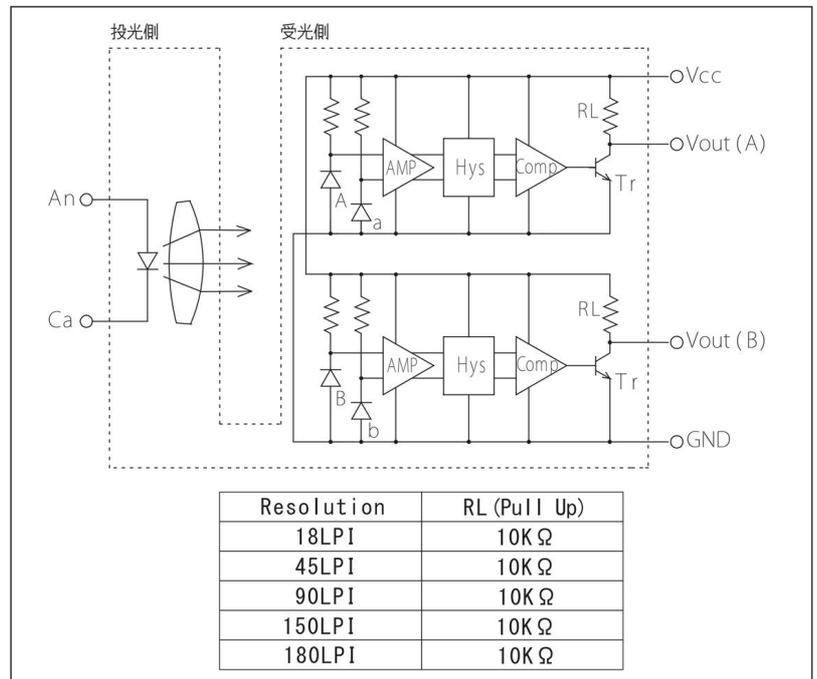
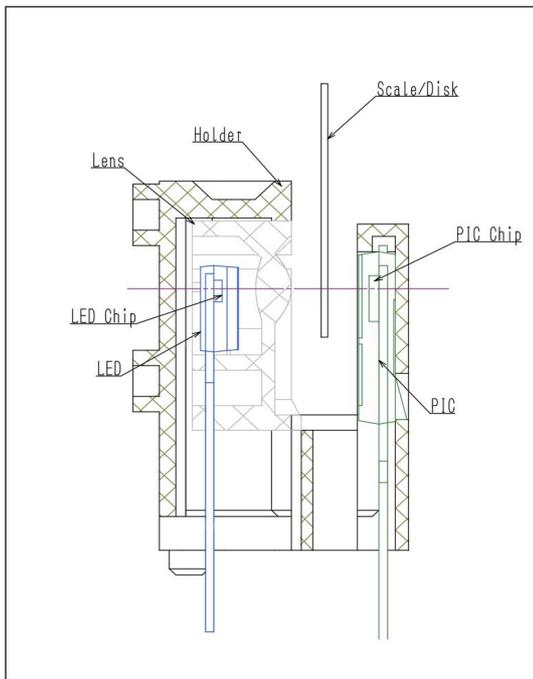
Duty-Phase/IF Dependency



Duty-Phase/Scale Position(G1) Dependency



Structural & Chart Block Diagram



Packing Quantity Specification

1. 50Pcs/Tube, 20 Tube/1Box
2. 4Boxes/1Carton

Label Form Specification

製品名 PRODUCT	
コードNo. CODE No.	
数量 Q'TY	
ロットNo. LOT No.	
備考 REMARKS	
	

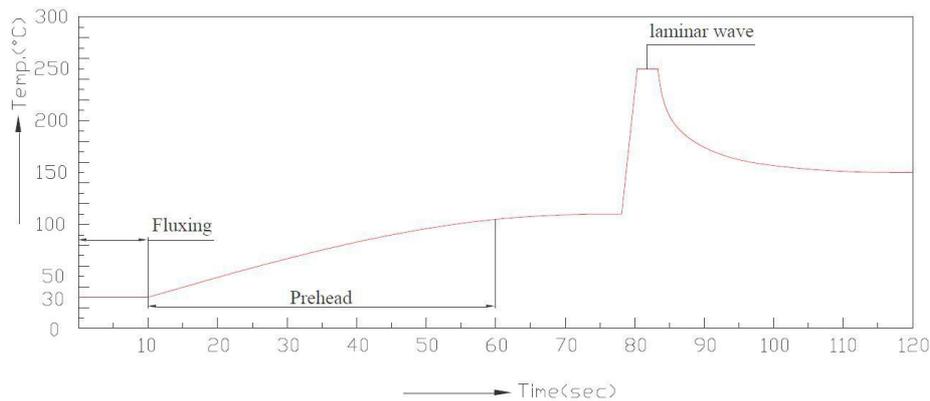
- PRODUCT: Part Number
- CODE NO.: Product Serial Number
- QTY: Packing Quantity
- LOT No: Lot Number
- REMARKS:Remarks

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	1mm Min.(From solder joint to epoxy bulb)	Distance	1mm Min. (From solder joint to epoxy bulb)

3. Recommended soldering profile



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

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