

ENCODER LA2650-90

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 : 90 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

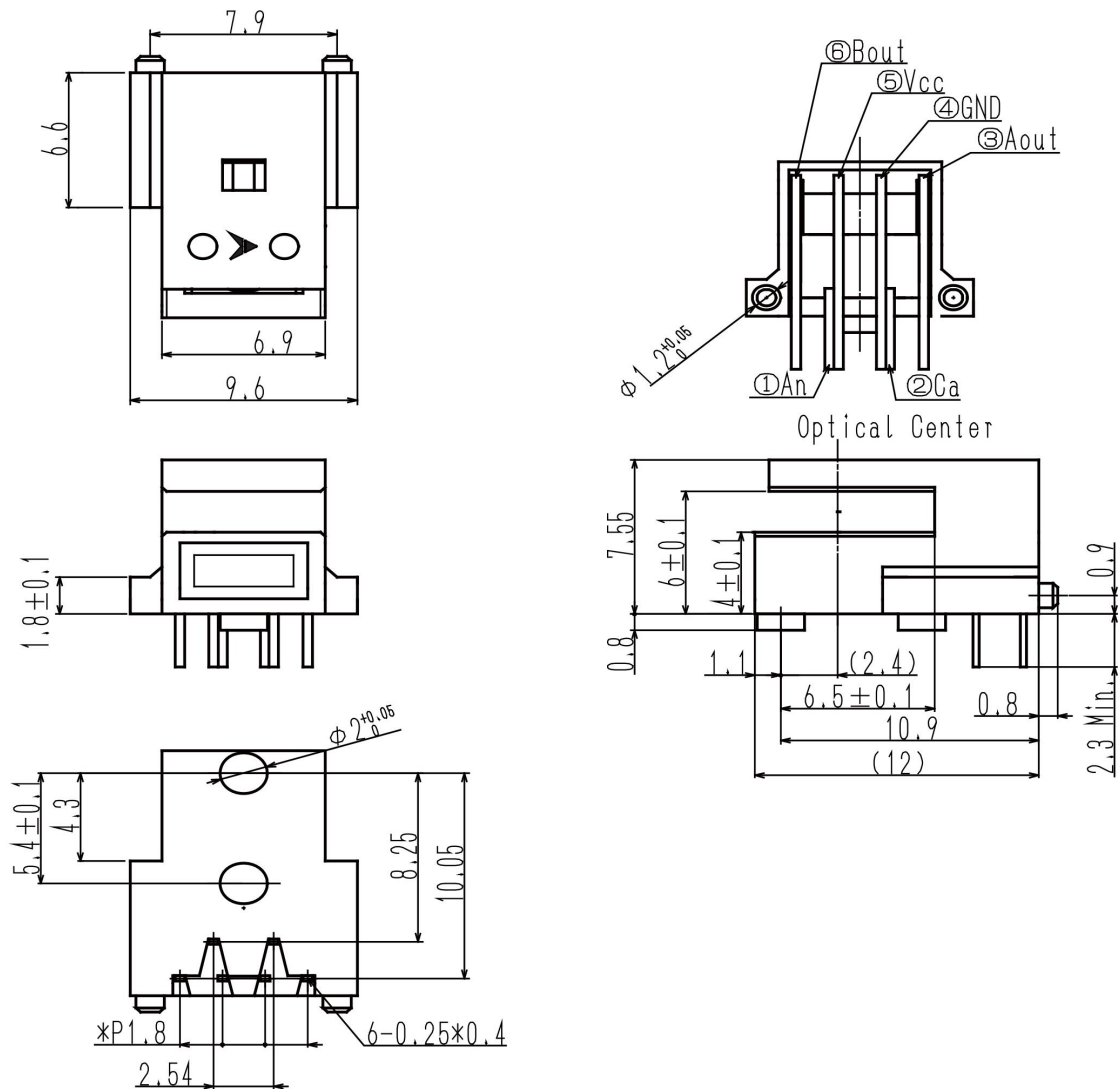
Facsimile

Disc drive

Description

LA2650-90 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.

PACKAGE DIMENSIONS



NOTES:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.2\text{mm}$ (.010") unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.

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

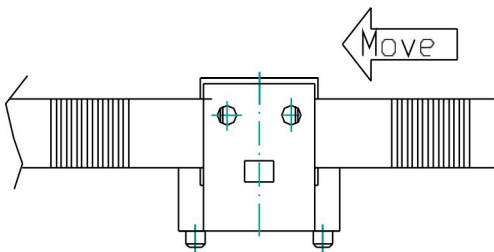
*2. For max 5 sec. At the position of 1 mm from the resin edge

ELECTRICAL OPTICAL CHARACTERISTICS AT TA=25°C

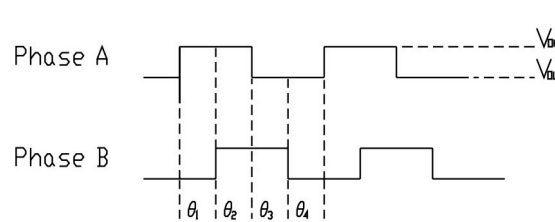
	Parameter		Symbol	Min.	Typ.	Max	Unit	Condition
LED Input	Forward Voltage		V_F	--	1.6	--	V	$I_F=20\text{ mA}$
	Peak Wavelength		λ_P	--	850	--	nm	$I_F=20\text{ mA}$
Operating supply voltage range			V_{CC}	2.7	5.0	5.5	V	--
	Phase difference	*3*4*6	θ	45	90	135	deg	$V_{CC}=2.7\text{ to }5.5\text{ V}$ $I_F=20\text{ mA}$
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

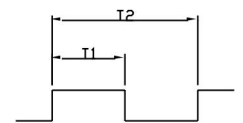


*4. Output waveform of *3



*5. Duty ratio (Dt)

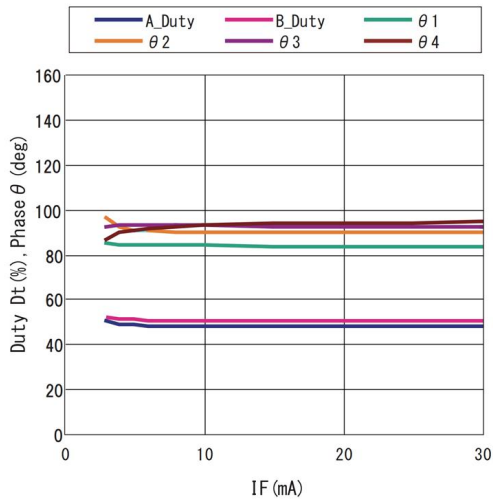
$$Dt = (T1/T2) \times 100 (\%)$$



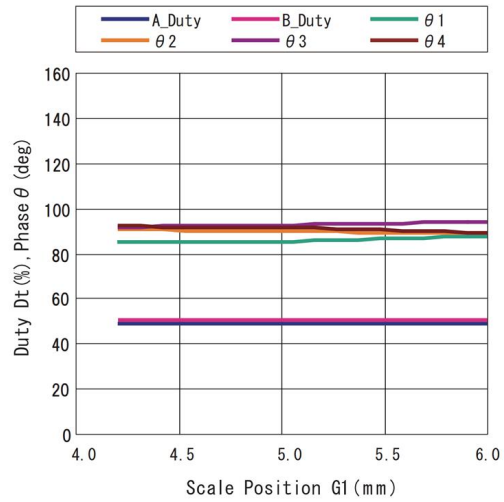
*6. No reverse in phase difference

REPRESENTATIVE CHARACTERISTICS

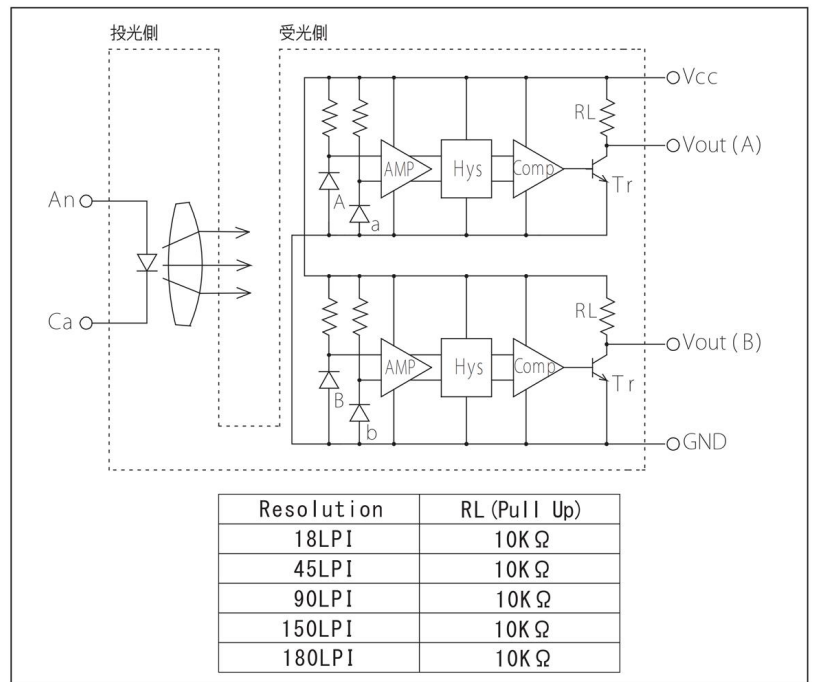
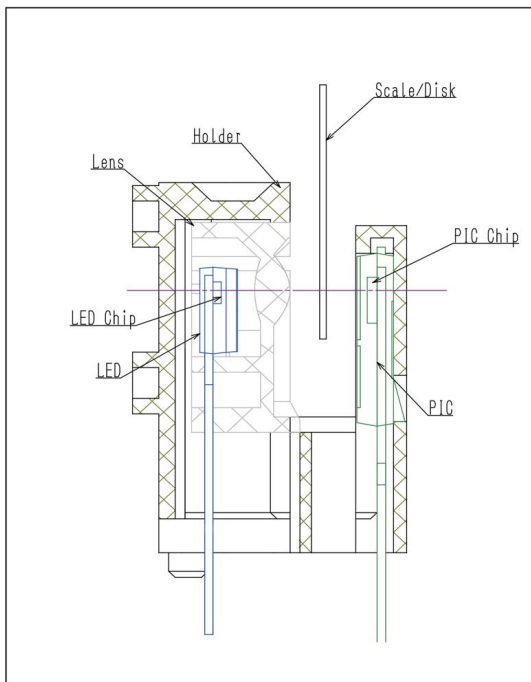
Duty-Phase/IF Dependency



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	
	

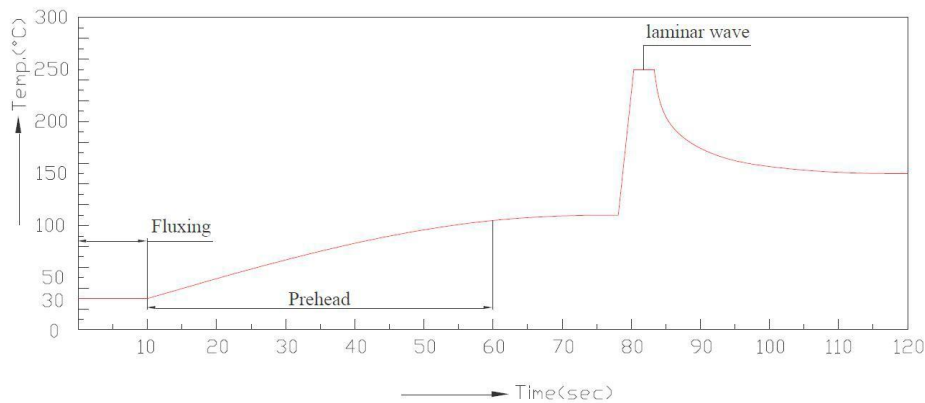
- PRODUCT: Part Number
- CODE NO.: Product Serial Number
- QTY: Packing Quantity
- LOT No: Lot Number
- REMARKS:Remarks

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.

Legal Disclaimer Notice

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

SIVAGO SEMICONDUCTOR CO.,LTD its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively,“SIVAGO”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

SIVAGO makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, SIVAGO disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special,consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on SIVAGO’s knowledge of typical requirements that are often placed on SIVAGO products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application.Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer’s technical experts. Product specifications do not expand or otherwise modify SIVAGO’s terms and conditions of purchase,including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, SIVAGO products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the SIVAGO product could result in personal injury or death.Customers using or selling SIVAGO products not expressly indicated for use in such applications do so at their own risk.Please contact authorized SIVAGO personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of SIVAGO. Product names and markings noted herein may be trademarks of their respective owners.