

LAMPIRAN

E50S Series

Diameter ø50mm Shaft type Incremental Rotary Encoder

Line-up

Features

- 12-24VDC power supply of line driver output(Line-up)
- Suitable for measuring angle, position, revolution, speed, acceleration and distance
- Power supply : 5VDC, 12-24VDC ±5%

Applications

- Various tooling machinery, packing machine and general industrial machinery etc.

⚠ Please read "Caution for your safety" in operation manual before using.



Ordering information (Former name : ENB)

E50S	8	8000	3	N	24	
Series	Shaft diameter	Pulse/1 Revolution	Output phase	Output	Power supply	Cable
Diameter ø50mm, shaft type	ø50mm	Refer to resolution	2: A, B 3: A, B, Z 4: A, B, Z, S 5: A, B, S, Z, Z'	1: Totem pole output N: NPN open collector output V: Voltage output L: Line driver output	5 : 5VDC ±5% 24: 12-24VDC ±5%	Remark: Cable type C: Connector cable type (H) CR: Axial connector type CS: Radial connector type

※ Standard : E305A (E50S) 3-A-04

※ Cable length: 250mm

Specifications

Item	Diameter ø50mm shaft type incremental rotary encoder	
Resolution (PRV) ^{*)}	* 1, 2, 3, 10, 12, 15, 20, 25, 30, 35, 40, 45, 50, 60, 75, 100, 120, 125, 150, 180, 200, 240, 250, 256, 300, 360, 400, 500, 512, 600, 800, 1000, 1024, 1200, 1500, 1600, 2000, 2048, 2500, 3000, 3600, 5000, 6000, 8000	
Output phase	A, B, Z phase (Line driver : A, X, B, S, Z, Z' phase)	
Phase difference of output	Phase difference between A and B : $\frac{1}{2} \pm \frac{1}{4}$ (1/4 cycle of A phase)	
Electrical specification	Control output	<ul style="list-style-type: none"> • Totem pole output • Low - Load current: Max. 30mA, Residual voltage : Max. 0.4VDC • High - Load current: Max. 10mA, Output voltage (Power voltage 5VDC) : Min. (Power voltage-2.0)VDC, Output voltage (Power voltage 12-24VDC) : Min. (Power voltage-3.0)VDC
	NPN open collector output	Load current : Max. 30mA, Residual voltage : Max. 0.4VDC
	Voltage output	Load current : Max. 10mA, Residual voltage : Max. 0.4VDC
	Line driver output	<ul style="list-style-type: none"> • Low - Load current : Max. 20mA, Residual : Max. 0.3VDC • High - Load current : Max. -20mA, Output voltage (Power voltage 5VDC) : Min. 2.5VDC, Output voltage (Power voltage 12-24VDC) : Min. (Power voltage-3.0)VDC
	Response time (Rise/Fall)	<ul style="list-style-type: none"> • Totem pole output • NPN open collector output • Voltage output • Line driver output
Max. Response frequency	Max. 0.5μs	
Power supply	300Hz	
Current consumption	<ul style="list-style-type: none"> • 5VDC ±5% (Ripple P-P : Max. 5%) • 12-24VDC ±5% (Ripple P-P : Max. 5%) 	
Insulation resistance	Max. 30mA (disconnection of the load), Line driver output : Max. 50mA (disconnection of the load)	
Dielectric strength	Min. 100V/0 (at 500VDC megger between all terminals and case)	
Connection	750VAC 50/60Hz for 1 minute (between all terminals and case)	
Mechanical specification	Starting torque	Cable type, 250mm connector cable type, Connector type (Axial, Radial)
	Moment of inertia	Max. 70g·cm ² (0.00771mm ⁴) ^{*)} / Max. 800g·cm ² (0.0817mm ⁴) ^{*)}
	Shaft loading	Max. 80g·cm (8×10 ⁻⁴ kgm ²) ^{*)} / Max. 400g·cm (4×10 ⁻⁴ kgm ²) ^{*)}
	Max. allowable revolution ^{**)}	Radial : 10kgf, Thrust : 2.5kgf
Vibration	500rpm	
Shock	1.5mm amplitude or 300m/s ² at frequency of 10 to 50Hz (for 1 min.) in each of X, Y, Z directions for 2 hours	
Environment	Ambient temperature	Approx. Max. 75G
	Ambient humidity	-10 to 70°C, storage : -25 to 85°C
Protection	35 to 85%RH, storage : 35 to 90%RH	
Cable	Cable type, Connector cable type: IP30 (IEC standard) ^{*)} , Connector type: IP65 (IEC standard)	
Accessory	Cable type, Connector cable type (Protector: IP64) / Connector type (Protector: IP65)	
Approval	eS, 5-wire, Length : 2m, Shield cable (Line driver output : ø5, 8-wire)	
Unit weight	I/AVG 24, Core diameter : 0.08mm, Number of cores : 40, Insulator out diameter : ø1)	
	ø8mm coupling, bracket	
	Cable type (C) (Except for line driver output)	
	Approx. 275g, Connector type : 180g	

*) 1: ** pulse is only for A, B phase (Line driver output is for A, X, B, S phase). **) This value is for Cable type, Connector cable type (Protector: IP00)

*) 2: This value is for Cable type, Connector cable type (Protector: IP64) / Connector type (Protector: IP65)

*) 3: This value is for Cable type, Connector cable type (Protector: IP64) / Connector type (Protector: IP65)

*) 4: Make sure that max. response revolution should be lower than or equal to max. allowable revolution when selecting the resolution.

*) 5: Cable type, Connector cable type is option as IP64 protection.

*) 6: Environment resistance is rated at no freezing or condensation.

TLP250

Transistor Inverter
 Inverter For Air Conditionor
 IGBT Gate Drive
 Power MOS FET Gate Drive

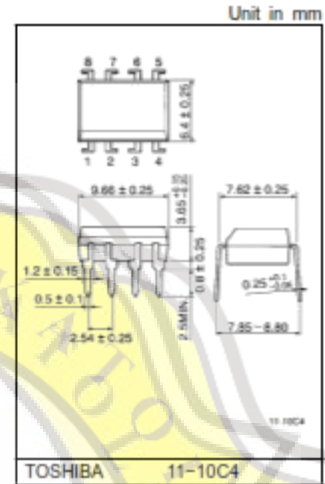
The TOSHIBA TLP250 consists of a GaAlAs light emitting diode and a integrated photodetector.
 This unit is 8-lead DIP package.
 TLP250 is suitable for gate driving circuit of IGBT or power MOS-FET.

- Input threshold current: $I_F=5\text{mA}(\text{max.})$
- Supply current (I_{CC}): $11\text{mA}(\text{max.})$
- Supply voltage (V_{CC}): $10\text{--}35\text{V}$
- Output current (I_O): $\pm 1.5\text{A}(\text{max.})$
- Switching time (t_{pLH}/t_{pHL}): $1.5\mu\text{s}(\text{max.})$
- Isolation voltage: $2500\text{V}_{\text{rms}}(\text{min.})$
- UL recognized: UL1577, file No.E67349
- Option (D4) type

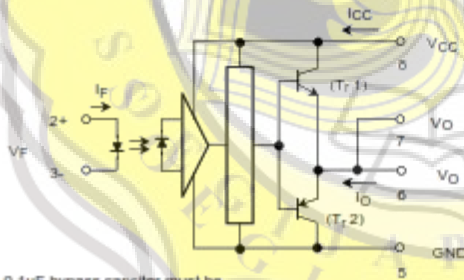
VDE approved: DIN VDE0884/06.92.certificate No.76823
 Maximum operating insulation voltage: 630V_{PK}
 Highest permissible over voltage: 4000V_{PK}

(Note) When a VDE0884 approved type is needed, please designate the "option (D4)"

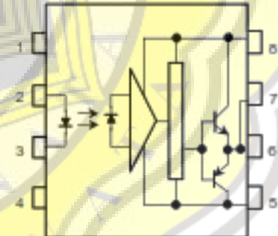
- Creepage distance: $6.4\text{mm}(\text{min.})$
- Clearance: $6.4\text{mm}(\text{min.})$



Schematic



Pin Configuration (top view)



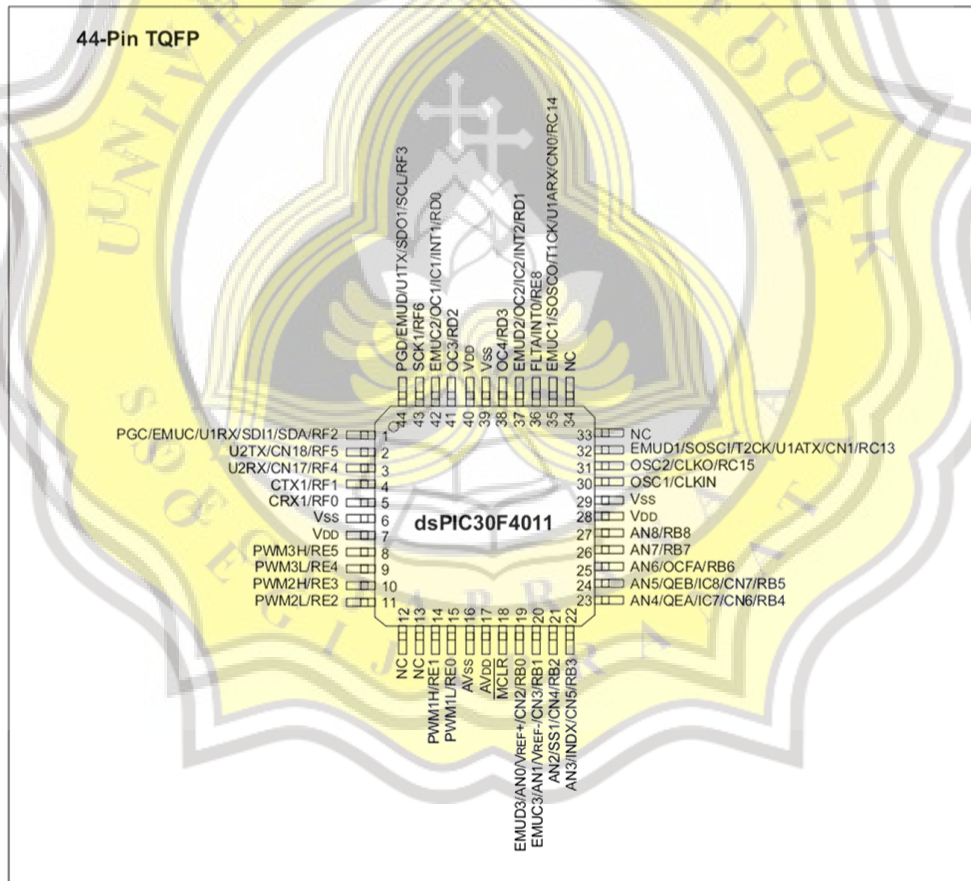
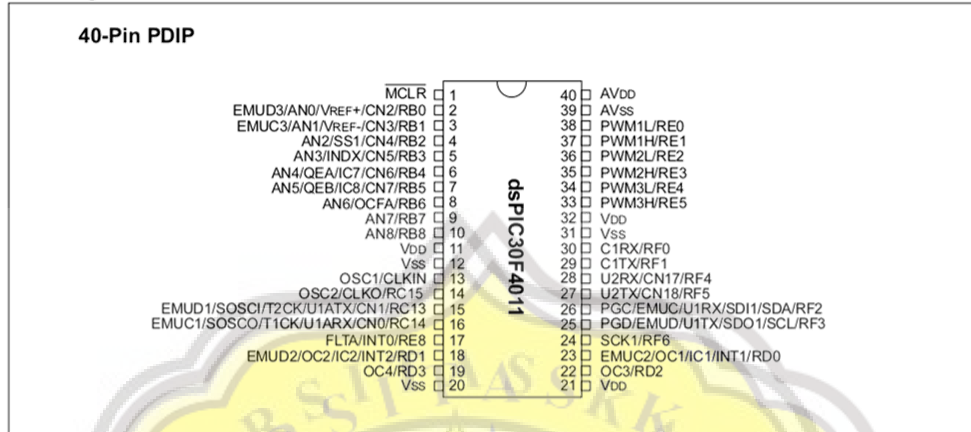
- 1 : N.C.
- 2 : Anode
- 3 : Cathode
- 4 : N.C.
- 5 : GND
- 6 : V_O (Output)
- 7 : V_O
- 8 : V_{CC}

Truth Table

		Tr1	Tr2
Input LED	On	On	Off
	Off	Off	On

dsPIC30F4011/4012

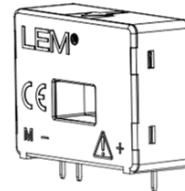
Pin Diagrams



Current Transducer LA 55-P/SP1

For the electronic measurement of currents: DC, AC, pulsed..., with galvanic isolation between the primary circuit (high power) and the secondary circuit (electronic circuit).

$I_{PN} = 50 \text{ A}$



16024

Electrical data

I_{PN}	Primary nominal current rms	50	A					
I_{PM}	Primary current, measuring range	$0 \dots \pm 100$	A					
R_M	Measuring resistance	$T_A = 70^\circ\text{C}$	$T_A = 85^\circ\text{C}$					
		$R_{M \min}$	$R_{M \max}$					
		with $\pm 12 \text{ V}$	@ $\pm 50 \text{ A}_{\max}$	0	215	0	210	Ω
			@ $\pm 100 \text{ A}_{\max}$	0	35	0	30	Ω
		with $\pm 15 \text{ V}$	@ $\pm 50 \text{ A}_{\max}$	0	335	30	330	Ω
	@ $\pm 100 \text{ A}_{\max}$	0	95	30	90	Ω		
I_{SN}	Secondary nominal current rms	25	mA					
K_N	Conversion ratio	1 : 2000						
V_C	Supply voltage ($\pm 5\%$)	$\pm 12 \dots 15$	V					
I_C	Current consumption	10 (@ $\pm 15 \text{ V}$) + I_S	mA					

Features

- Closed loop (compensated) current transducer using the Hall effect
- Printed circuit board mounting
- Insulated plastic case recognized according to UL 94-V0.

Special features

- $I_{PM} = 0 \dots \pm 100 \text{ A}$
- $K_N = 1 : 2000$.

Advantages

- Excellent accuracy
- Very good linearity
- Low temperature drift
- Optimized response time
- Wide frequency bandwidth
- No insertion losses
- High immunity to external interference
- Current overload capability.

Applications

- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Battery supplied applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power supplies for welding applications.

Application domain

- Industrial.

Accuracy - Dynamic performance data

X	Accuracy @ $I_{PN}, T_A = 25^\circ\text{C}$	@ $\pm 15 \text{ V} (\pm 5\%)$	± 0.65	%
		@ $\pm 12 \dots 15 \text{ V} (\pm 5\%)$	± 0.90	%
ϵ_L	Linearity error		< 0.15	%
I_O	Offset current @ $I_p = 0, T_A = 25^\circ\text{C}$	Typ	Max	
I_{OM}	Magnetic offset current ¹⁾ @ $I_p = 0$ and specified R_{M1} after an overload of $3 \times I_{PN}$		± 0.10	mA
I_{OT}	Temperature variation of I_O	- $25^\circ\text{C} \dots + 85^\circ\text{C}$	$\pm 0.05 \pm 0.30$	mA
		- $40^\circ\text{C} \dots - 25^\circ\text{C}$	$\pm 0.10 \pm 0.50$	mA
t_{ra}	Reaction time to 10 % of I_{PN} step		< 500	ns
t_r	Response time ²⁾ to 90 % of I_{PN} step		< 1	μs
di/dt	di/dt accurately followed		> 200	A/ μs
BW	Frequency bandwidth (-1 dB)		DC .. 200	kHz

General data

T_A	Ambient operating temperature	-40 .. +85	$^\circ\text{C}$
T_S	Ambient storage temperature	-40 .. +90	$^\circ\text{C}$
R_S	Secondary coil resistance	@ $T_A = 70^\circ\text{C}$	145
		@ $T_A = 85^\circ\text{C}$	150
m	Mass	18	g
	Standards	EN 50178: 1997	

Notes: ¹⁾ Result of the coercive field of the magnetic circuit

²⁾ With a di/dt of 100 A/ μs .

PAPER NAME
TA-18.F1.0015.docx

WORD COUNT
7226 Words

CHARACTER COUNT
46175 Characters

PAGE COUNT
42 Pages

FILE SIZE
93.3KB

SUBMISSION DATE
Oct 14, 2022 8:49 AM GMT+7

REPORT DATE
Oct 14, 2022 8:50 AM GMT+7

● **15% Overall Similarity**

The combined total of all matches, including overlapping sources, for each database.

- 13% Internet database
- 2% Publications database
- Crossref database
- Crossref Posted Content database
- 9% Submitted Works database



Summary