Household Applia
Solid State Relays
Switching Power S
Various Controller
Signal Transmissi
Circuits

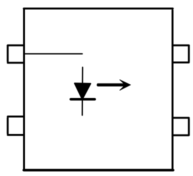
The TOSHIBA TLP781
optically coupled to a g
four lead plastic DIP (D
(AC: $5kV_{RMS}$ (min)).

TLP781 : 7.62mm
TLP781F : 10.16mm
Collector-emitter vo
Current transfer ra
Rank GB: 100% (m
Isolation voltage: 50
UL recognized: UL1
BSI approved: BS E
Appr
BS E
Appr
SEMKO approved:E
A

Option(D4)type
VDE approved : DI
Cer
(Note): When an EN60
Please desig

Construction mecha

Creepage distanc	
Clearance	
Insulation thickne	



Current Transfer Ratio

Type	Classification (Note 1)	Current Transfer Ratio (%) (I_C / I_F) I_F = 5mA, V_{CE} = 5V, Ta = 25°C		Marking Of Classification
		Min	Max	
	(None)	50	600	Blank, Y, Y+, YE,G, G+, B, B+,BL,GB
	Rank Y	50	150	YE
	Rank GR	100	300	GR
	Rank BL	200	600	BL
	Rank GB	100	600	GB
	Rank YH	75	150	Y+
	Rank GRL	100	200	G
	Rank GRH	150	300	G+ 200 150G 98(H)1( )(98(9k94 61.007 0 0828 2 15f19k94 0.TJ11.2262

Recommended Operating Conditions

Characteristic	Symbol	Min	Typ.	Max	Unit
Supply voltage	V_{CC}	—	5	24	V
Forward current	I_F	—	16	25	mA
Collector current	I_C	—	1	10	mA
Operating temperature	T_{opr}	25	—	85	°C

(Note): Recommended operating conditions are given as a design guideline to obtain expected performance of the device.
Additionally, each item is an independent guideline respectively.
In developing designs using this product, please confirm specified characteristics shown in this document.

Individual Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward voltage	V_F	I_F = 10 mA				

Switching Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Rise time	t_r	V_{CC} = 10 V, I_C = 2 mA R_L = 100Ω	—	2	—	μs
Fall time	t_f		—	3	—	
Turn on time	t_{on}		—	3	—	
Turn off time	t_{off}		—	3	—	
Turn on time	t_{ON}	R_L = 1.9 kΩ (Note 5) V	—	2	—	
Storage time	t_s		—	25	—	
Turn off time	t_{OFF}					

Specifications for Embossed-Tape Packing: (TP6), (TP7)

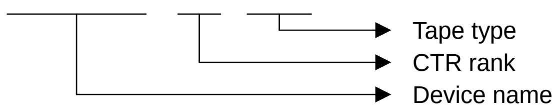
1. Applicable Package

Package Name	Product Type
DIP4LF6	TLP781
DIP4LF7	TLP781F

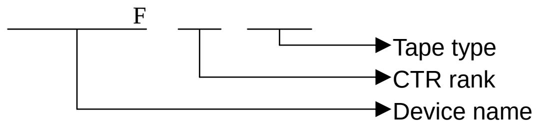
2. Product Naming System

Type of package used for shipment is denoted by a symbol suffix after a product number. The method of classification is as below.

(Example 1)



(Example 2)



3. Tape Dimensions

3.1 Orientation of Device in Relation to Direction of Tape Movement

Device orientation in the recesses is as shown in Figure 1.

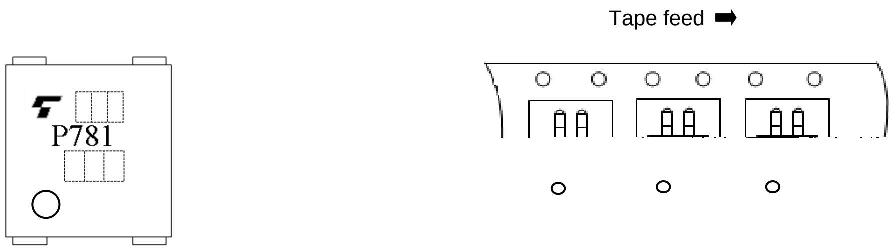


Figure1 Device Orientation

3.2 Tape Packing Quantity:2000 devices per reel

3.3 Empty Device Recesses Are as Shown in Table 1.

Table1 Empty Device Recesses

	Standard	Remarks
Occurrences of 2 or more successive empty device recesses	0	Within any given 40-mm section of tape, not including leader and trailer
Single empty device recesses	6 devices (max.) per reel	Not including leader and trailer

3.4 Start and End of Tape

The start of the tape has 30 or more empty holes. The end of the tape has 50 or more empty holes.

3.5 Tape Specification

[1] TLP781 (TP6)

(1)Tape material: Plastic

(2)Dimensions: The tape dimensions are as shown in Figure 2.

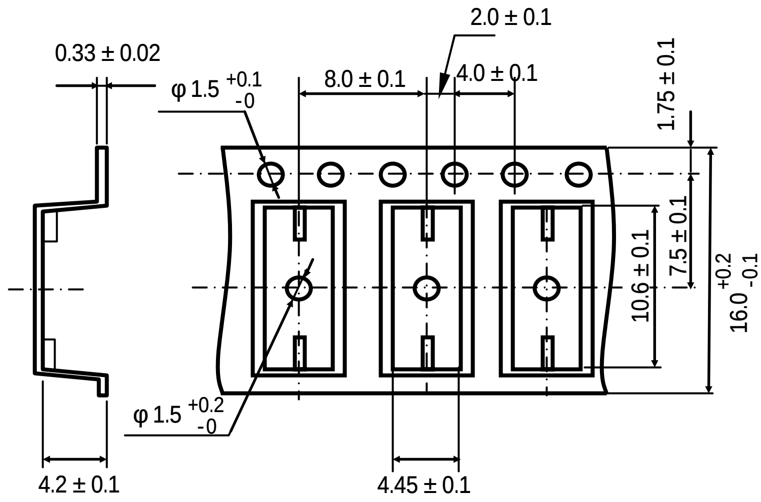


Figure 2 Tape Forms

[2] TLP781F (TP7)

(1)Tape material: Plastic

(2)Dimensions: The tape dimensions are as shown in Figure 3.

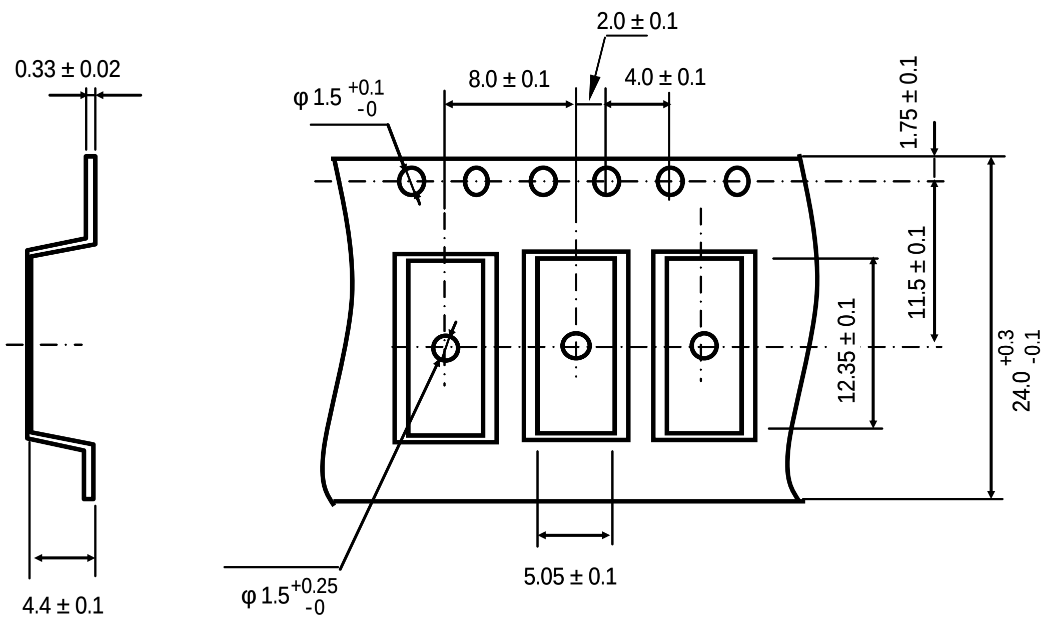


Figure 3 Tape Forms

3.6 Reel Specification

[1] TLP781 (TP6)

(1)Material: Plastic

(2)Dimensions: The reel dimensions are as shown in Figure 4.

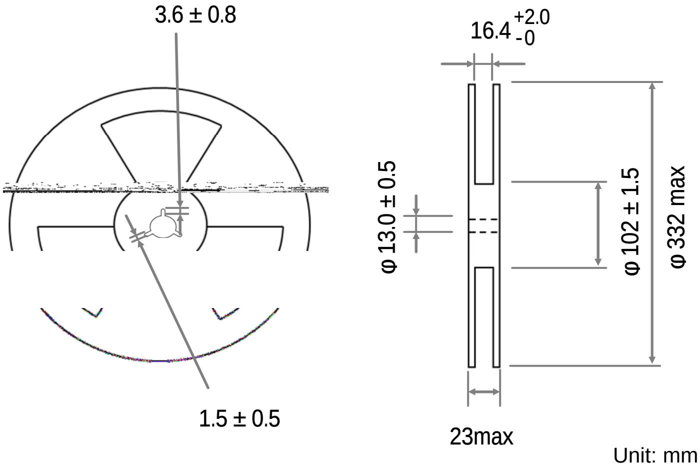


Figure 4 Reel Forms

[2] TLP781F (TP7)

(1)Material: Plastic

(2)Dimensions: The reel dimensions are as shown in Figure 5.

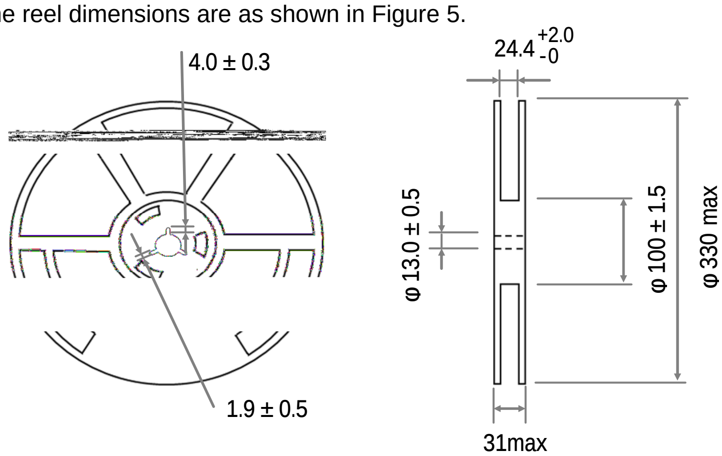


Figure 5 Reel Forms

4. Packing

One reel of photocouplers is packed in a shipping carton.

5. Label Indication

The carton bears a label indicating the product number, the symbol representing classification of standard, the quantity, the lot number and the Toshiba company name.

6. Ordering Information

When placing an order, please specify the product number, the CTR rank, the tape type and the quantity as shown in the following example.

(Example)

2000Pcs.

- Quantity (must be a multiple of 2000)
- Tape type
- CTR rank
- Device name

(Note): The order code may be suffixed with wither a letter or a digit.
Please contact your nearest Toshiba sales representative for more details.

Soldering and Storage

1. Soldering

1.1 Soldering

When using a soldering iron or medium infrared ray/hot air reflow, avoid a rise in device temperature as much as possible by observing the following conditions.

1) Using solder reflow

·Temperature profile example of lead (Pb) solder

Time (s)most once.

·Temperature profile example of using lead (Pb)-free solder

2) Using solder flow (for lead (Pb) solder, or lead (Pb)-free solder)

Please preheat it at 150°C between 60 and 120 seconds.

Complete soldering within 10 seconds below 260°C. Each pin may be heated at most once.

3) Using a soldering iron

Complete soldering within 10 seconds below 260°C, or within 3 seconds at 350°C. Each pin may be heated at most once.

2. Storage

1) Avoid storage locations where devices may be exposed to moisture or direct sunlight.
2) Follow the precautions printed on the packing label of the device for transportation and storage.
3) Keep the storage location temperature and humidity within a range of 5°C to 35°C and 45% to 75%, respectively.
4) Do not store the products in locations with poisonous gases (especially corrosive gases) or in dusty conditions.
5) Store the products in locations with minimal temperature fluctuations. Rapid temperature changes during storage can cause condensation, resulting in lead oxidation or corrosion, which will deteriorate the solderability of the leads.
6) When restoring devices after removal from their packing, use anti-static containers.
7) Do not allow loads to be applied directly to devices while they are in storage.
8) If devices have been stored for more than two years under normal storage conditions, it is recommended that you check the leads for ease of soldering prior to use.

Insulation Related Specifications

		7.62mm pitch TLPxxx type	10.16mm pitch TLPxxxF type
Minimum creepage distance	Cr	6.5mm	8.0mm
Minimum clearance	Cl	6.5mm	8.0mm
Minimum insulation thickness	ti	0.4 mm	
Comparative tracking index	CTI	175	

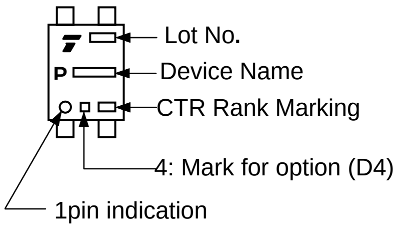
(1) If a printed circuit is incorporated, the creepage distance and clearance may be reduced below this value. (e.g.at a standard distance between soldering eye centres of 7.5mm). If this is not permissible, the user shall take suitable measures.

(2) This photocoupler is suitable for ‘safe electrical isolation’ only within the safety limit data. Maintenance of the safety data shall be ensured by means of protective circuits.

VDE test sign: Marking on product for EN60747 4

Marking on packing for EN60747

Marking Example: TLP781, TLP781F

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