# **TOSHIBA Photocoupler**

# **TLP759(D4)**

 $\underline{Attachment:}\ Specifications\ for\ \underline{VDE0884}\ option:\ (D4)$ 

Types: TLP759, TLP759F

Type designations for 'option: (D4) ', which are tested under VDE0884 requirements.

Ex.: TLP759 (D4–O) D4: VDE0884 option

O: CTR rank

Note: Use TOSHIBA standard type number for safety standard application.

Ex. TLP759 (D4–O)  $\rightarrow$  TLP759

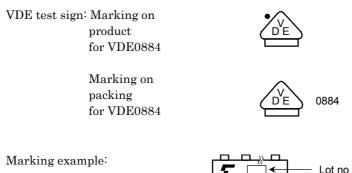
## **VDE0884 Isolation Characteristics**

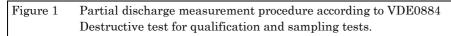
Description		Symbol	Rating	Unit
Application classification (DIN VDE0109 / 12.83, table 1) for rated mains voltage ≤ 300 V <sub>RMS</sub> for rated mains voltage ≤ 600 V <sub>RMS</sub>			I–IV I–III	_
Climatic classification (DIN IEC68 teil 1 / 09.80)		55 / 100 / 21	_	
Pollution degree (DIN VDE0109 / 12.83)			2	_
Maximum operating insulation voltage	TLPxxx	V <sub>IORM</sub>	890	Vpk
	TLPxxxF		1140	
Input to output test voltage, method A	TLPxxx	Vpr	1335	Vpk
$V_{pr} = 1.5 \times V_{IORM}$ , 100% production test $t_p = 60$ s, partial discharge < 5pC	TLPxxxF		1710	
Input to output test voltage, method B	TLPxxx	Vpr	1670	Vpk
Vpr = $1.875 \times V_{IORM}$ , $100\%$ production test $t_p = 1s$ , partial discharge < $5pC$	TLPxxxF		2140	
Highest permissible overvoltage (transient overvoltage, t <sub>pr</sub> = 10s)		V <sub>TR</sub>	6000	Vpk
Safety limiting values (max. permissible ratings in case of fault, also refer to thermal derating curve)  Current (input current I <sub>F</sub> , Psi = 0)  Power (output or total power dissipation)  Temperature		I <sub>si</sub> P <sub>si</sub> T <sub>si</sub>	300 500 150	mA mW °C
Insulation resistance at Tsi, V <sub>IO</sub> = 500V	R <sub>si</sub>	≥10 <sup>9</sup>	Ω	

# **Insulation Related Specifications**

			7.62mm pitch TLP759	10.16mm pitch TLP759F
Minimum creepage distance	(*)	Cr	6.4 mm	8.0 mm
Minimum clearance	(*)	CI	6.4 mm	8.0 mm
Minimum insulation thickness		ti	0.4 mm	
Comperative tracking index (DIN IEC112 / VDE0303, part 1)		CTI	175 (VDE0109 / 12.83 group III a)	

- (\*) in accordance with DIN VDE0109 / 12.83, table 2, & 4
- 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.





### Method A

 $\begin{array}{ll} \text{(for type and sampling tests, destructive tests)} \\ \text{t1, t2} &=\text{1 to } 10\text{s} \\ \text{t3, t4} &=\text{1s} \\ \text{tp(measuring time for partial discharge)=60s} \\ \text{tb} &=\text{62s} \\ \text{tini} &=\text{10s} \\ \end{array}$ 

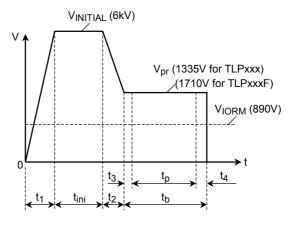


Figure 2 Partial discharge measurement procedure according to VDE0884 Non-destructive test for 100% inspection.

## Method B

(for sample test, non-destructive test)

t3, t4 =0.1s tp(measuring time for partial discharge)=1s  $t_b$  =1.2s

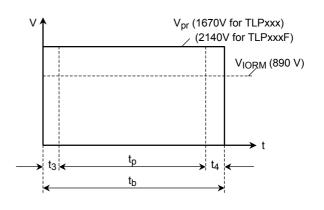


Figure 3 Dependency of maximum safety ratings on ambient temperature Isi (mA) Psi (mW) 1000 500 400 800 300 600 200 400 l<sub>si</sub> ← 100 200 0 25 50 100 125 150 175 Ta (°C)

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