

TOSHIBA PHOTOCOUPLER

# TLP721(D4)SERIES

ATTACHMENT : SPECIFICATIONS FOR VDE0884 OPTION : (D4)

Types : TLP721, TLP721F

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

Ex. : TLP721 (D4-GR-LF4)	D4 : VDE0884 option
	GR : CTR rank
	LF4 : lead bend

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

Ex. TLP721 (D4-GR-LF4) → TLP721

### VDE0884 ISOLATION CHARACTERISTICS



DESCRIPTION	SYMBOL	RATING	UNIT
Application Classification (DIN VDE0110 Teil 1/01.89, Table 1) for rated mains voltage $\leq 300V_{rms}$ for rated mains voltage $\leq 600V_{rms}$		I-IV I-III	—
Climatic Classification (DIN IEC68 Teil 1/09.80)		40 / 100 / 21	—
Pollution Degree (DIN VDE0110 Teil 1/01.89)		2	—
Maximum Operating Insulation Voltage	TLP721 TLP721F	630 890	V <sub>pk</sub>
Input to output Test Voltage, Method A V <sub>pr</sub> = 1.5 × V <sub>IORM</sub> , Type and Sample Test t <sub>p</sub> = 60s, Partial Discharge < 5pC	TLP721 TLP721F	945 1335	V <sub>pk</sub>
Input to output Test Voltage, Method B V <sub>pr</sub> = 1.875 × V <sub>IORM</sub> , 100% Production Test t <sub>p</sub> = 1s, Partial Discharge < 5pC	TLP721 TLP721F	1180 1670	V <sub>pk</sub>
Highest Permissible Overvoltage (Transient Overvoltage, t <sub>pr</sub> = 10s)	V <sub>TR</sub>	6000	V <sub>pk</sub>
Safety Limiting Values (Max. permissible ratings in case of fault, also refer to thermal derating curve) Current (Input current I <sub>F</sub> , P <sub>si</sub> = 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, V <sub>IO</sub> = 500V, T <sub>a</sub> = 25°C V <sub>IO</sub> = 500V, T <sub>a</sub> = T <sub>si</sub>	R <sub>si</sub>	$\geq 10^{12}$ $\geq 10^9$	$\Omega$

- This data sheet refers to TLP721 (D4, M), TLP721F (D4, M) that previously has a white-resin mold and have been changed. When designing new products please use black mold-resin devices.

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● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.


INSULATION RELATED SPECIFICATIONS

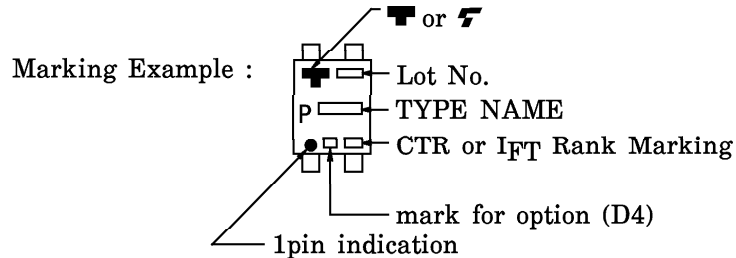
		 7.62mm pitch TLP721	 10.16mm pitch TLP721F
Minimum Creepage Distance (*)	Cr	7.0mm	8.0mm
Minimum Clearance (*)	Cl	7.0mm	8.0mm
Minimum Insulation Thickness	ti	0.5mm	
Comperative Tracking Index (DIN IEC112 / VDE0303, Part 1)	CTI	175 (VDE0110 Teil 1 / 01.89 Group III a)	

((\*) in accordance with DIN VDE0110 Teil 1 / 01.89, 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.

VDE Test sign : Marking on product **4**  
for VDE0884

Marking on packing  **0884**  
for VDE0884



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- Gallium arsenide (GaAs) is a substance used in the products described in this document. GaAs dust and fumes are toxic. Do not break, cut or pulverize the product, or use chemicals to dissolve them. When disposing of the products, follow the appropriate regulations. Do not dispose of the products with other industrial waste or with domestic garbage.
- The products described in this document are subject to foreign exchange and foreign trade control laws.
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Figure 1 Partial discharge measurement procedure according to VDE0884  
Destructive test for qualification and sampling tests.

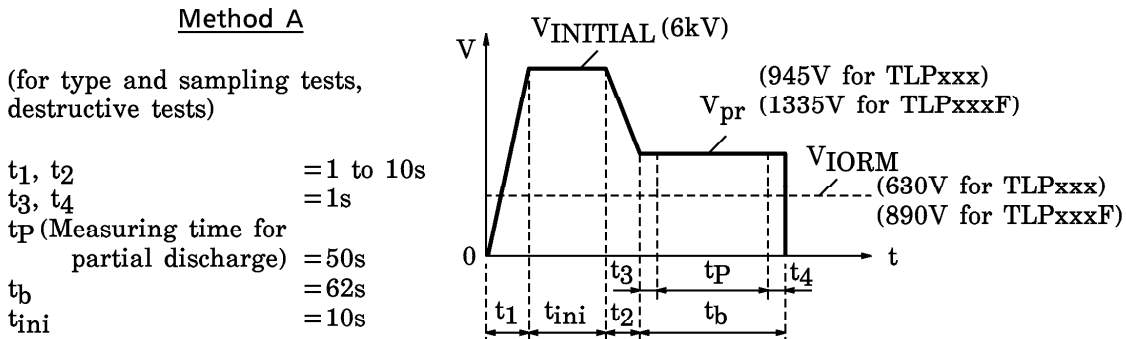


Figure 2 Partial discharge measurement procedure according to VDE0884  
Non-destructive test for 100% inspection.

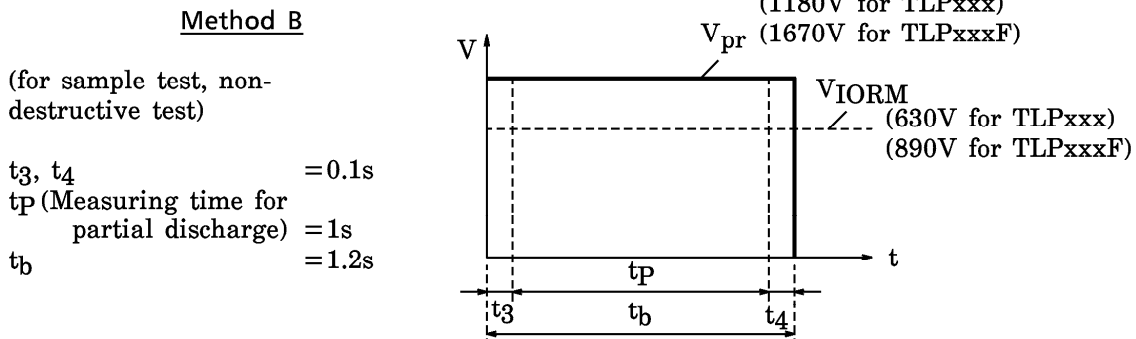


Figure 3 Dependency of maximum safety ratings on ambient temperature

