

TOSHIBA Photocoupler

TLP250(D4), TLP250F(D4), TLP251(D4), TLP251F(D4)

Attachment: Specifications for VDE0884 option: (D4)

Types: TLP250, TLP251
 TLP250F, TLP251F

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

Ex.: TLP250F (D4-LF4) D4: VDE0884 option
 LF4: Standard lead bend



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

Ex. TLP250F (D4-LF4) → TLP250F

VDE0884 Isolation Characteristics

Description	Symbol	Rating	Unit
Application classification (DIN VDE0110 teil 2 / 01.89, table 1) for rated mains voltage≤300V _{RMS} for rated mains voltage≤600 V _{RMS}		I-III I-II	—
Climatic classification (DIN IEC68 teil 1 / 09.80)		40 / 100 / 21	—
Pollution degree (DIN VDE0110 teil 2 / 01.89)		2	—
Maximum operating insulation voltage	TLPxxx type	V _{IORM}	V _{pk}
	TLPxxxF type		
			1140
Input to output test voltage, method A V _{pr} = 1.5 × V _{IORM} , type and sample test t _p = 60s, partial discharge < 5pC	TLPxxx type	V _{pr}	V _{pk}
	TLPxxxF type		
Input to output test voltage, method B V _{pr} = 1.875 × V _{IORM} , 100% production test t _p = 1s, partial discharge < 5pC	TLPxxx type	V _{pr}	V _{pk}
	TLPxxxF type		
Highest permissible overvoltage (transient overvoltage, t _{pr} = 10s)	TLPxxx type	V _{TR}	V _{pk}
	TLPxxxF type		
			2140
			6000
Safety limiting values (max. permissible ratings in case of fault, also refer to thermal derating curve) Current (input current I _F , P _{si} = 0) Power (output or total power dissipation) Temperature	I _{si} P _{si} T _{si}	100 800 150	mA mW °C
Insulation resistance, V _{IO} = 500V, T _a = 25°C V _{IO} = 500V, T _a = T _{si}	R _{si}	≥10 ¹² ≥10 ⁹	Ω

Insulation Related Specifications

		 7.62mm pitch TLPxxx type	 10.16mm pitch TLPxxxF type
Minimum creepage distance(*)	Cr	6.4 mm	8.0mm
Minimum clearance(*)	Cl	6.4 mm	8.0mm
Minimum insulation thickness	ti	—	
Comperative tracking index (DIN IEC112 / VDE0303, part 1)	CTI	175 (VDE0110 teil 2 / 01.89 group III a)	

(*) in accordance with DIN VDE0110 teil 2 / 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
for VDE0884



Marking on packing
for VDE0884



Figure 1 Partial discharge measurement procedure according to VDE0884
Destructive test for qualification and sampling tests.

Method A

(for type and sampling tests, destructive tests)

- t_1, t_2 = 1 to 10s
- t_3, t_4 = 1s
- t_p (measuring time for partial discharge) = 50s
- t_b = 62s
- t_{ini} = 10s

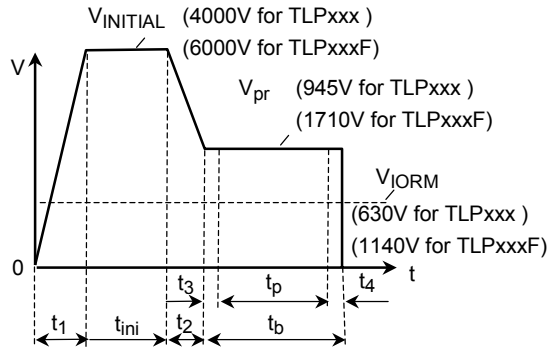


Figure 2 Partial discharge measurement procedure according to VDE0884
Non-destructive test for 100% inspection.

Method B

(for sample test, non-destructive test)

- t_3, t_4 = 0.1s
- t_p (measuring time for partial discharge) = 1s
- t_b = 1.2s

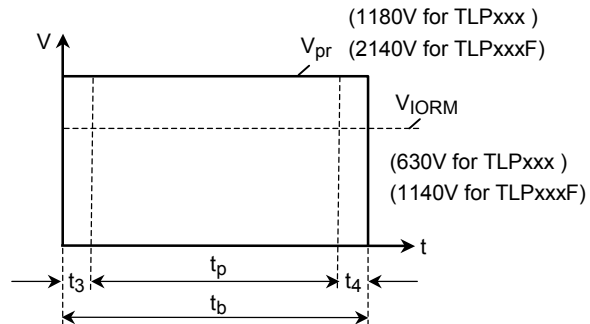
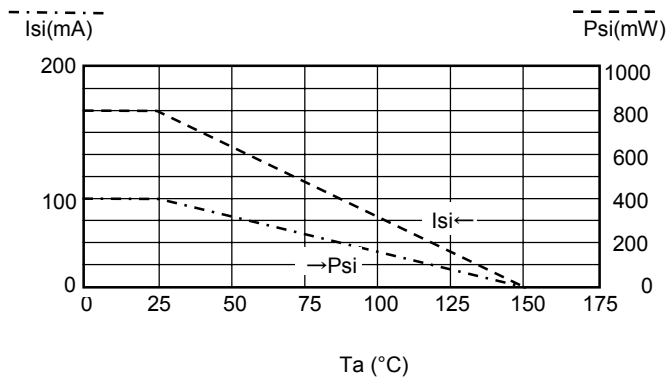


Figure 3 Dependency of maximum safety ratings on ambient temperature



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