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}	630	Vpk
	TLPxxxF type		1140	
Input to output test voltage, method A Vpr = 1.5 × V_{IORM}, type and sample test t_p = 60s, partial discharge < 5pC	TLPxxx type	Vpr	945	Vpk
	TLPxxxF type		1710	
Input to output test voltage, method B Vpr = 1.875 × V_{IORM}, 100% production test t_p = 1s, partial discharge < 5pC	TLPxxx type	Vpr	1180	Vpk
	TLPxxxF type		2140	
Highest permissible overvoltage (transient overvoltage, t_{pr} = 10s)	TLPxxx type	V_{TR}	4000	Vpk
	TLPxxxF type		6000	
Safety limiting values (max. permissible ratings in case of fault, also refer to thermal derating curve) Current (input current I_F, Psi = 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, Ta = 25°C V_{IO} = 500V, Ta = Tsi		R_{si}	$\geq 10^{12}$ $\geq 10^{9}$	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

0884

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

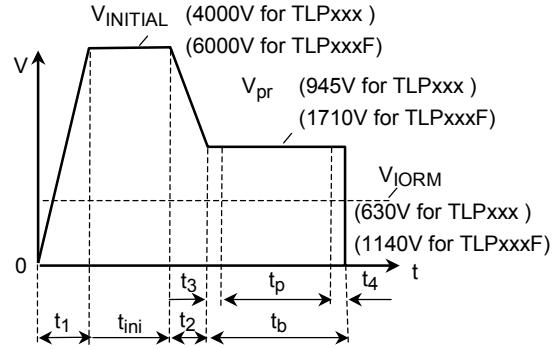


Figure 2 Partial discharge measurement procedure according to VDE0884
Non-destructive test for 100% inspection.

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

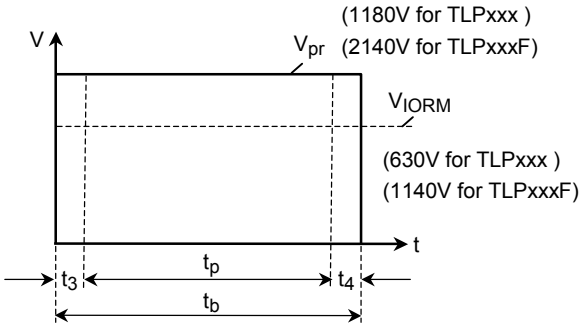
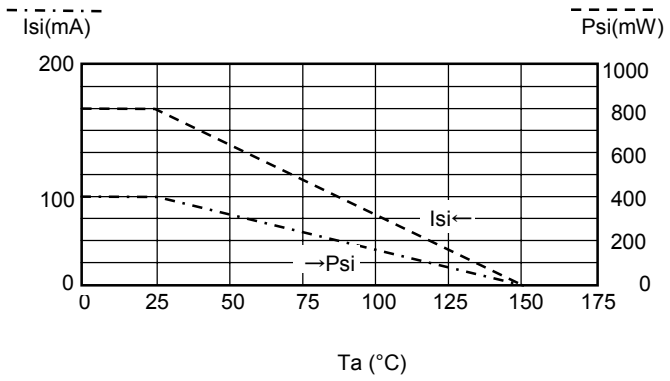


Figure 3 Dependency of maximum safety ratings on ambient temperature



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