

TOSHIBA Photocoupler

TLP281(V4)

ATTACHMENT: Specifications for VDE0884 option

Types: TLP281

Type designations for 'Option: (V4)', which are tested under VDE0884 requirements.

Ex. : TLP281 (V4-GR-TP)

V4 : VDE0884 option

GR : CTR rank name

TPR: standard taping name

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

Ex. TLP281 (V4-GR-TP) → TLP281

VDE0884 Isolation Characteristics

Description	Symbol	Rating	Unit
Application classification (DIN VDE0110 teil 1/01.89, table 1) for rated mains voltage $\leq 150 V_{RMS}$ for rated mains voltage $\leq 300 V_{RMS}$		I-IV I-III	—
Climatic classification (DIN IEC68 teil 1/09.80)		55/100/21	—
Pollution degree (DIN VDE0110 teil 1/01.89)		2	—
Maximum operating insulation voltage	V_{IORM}	565	Vpk
Input to output test voltage, method A $V_{pr} = 1.5 \times V_{IORM}$, Type and sample test $t_p = 60$ sec, Partial discharge < 5 pC	V_{pr}	850	Vpk
Input to output test voltage, method B $V_{pr} = 1.875 \times V_{IORM}$, 100% production test $t_p = 1$ sec, Partial discharge < 5 pC	V_{pr}	1060	Vpk
Highest permissible overvoltage (Transient overvoltage, $t_{pr} = 10$ s)	V_{TR}	4000	Vpk
Safety limiting values (Max permissible ratings in case of fault, also refer to thermal derating curve) Current (Input current I_f , $P_s = 0$) Power (Output or total power dissipation) Temperature	I_{si} P_{si} T_{si}	250 400 150	mA mW °C
Insulation resistance, $V_{IO} = 500$ V, $T_a = 25^\circ\text{C}$ $V_{IO} = 500$ V, $T_a = 100^\circ\text{C}$ $V_{IO} = 500$ V, $T_a = T_s$	R_{si}	$\geq 10^{12}$ $\geq 10^{11}$ $\geq 10^9$	Ω

Insulation Related Characteristics

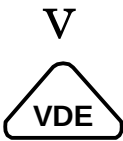
Minimum creepage distance (*)	Cr	4.0 mm
Minimum clearance (*)	Cl	4.0 mm
Minimum insulation thickness	ti	0.4 mm
Comperative tracking index (DIN IEC112/VDE0303, part 1)	CTI	175 (VDE0110 teil 1/01.89 group IIIa)

*: 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. 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 paking for VDE0884



Marking example :

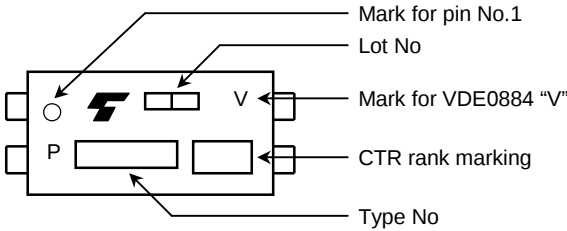


Figure 1 Partial discharge measurement procedure according to VDE0884
Destructive test for qualification and sampling tests.

Method A

(for type and sampling tests, destructive tests)

t_1, t_2	= 1 to 10 s
t_3, t_4	= 1 s
t_P (Measuring time for partial discharge)	= 60 s
t_b	= 62 s
t_{ini}	= 10 s

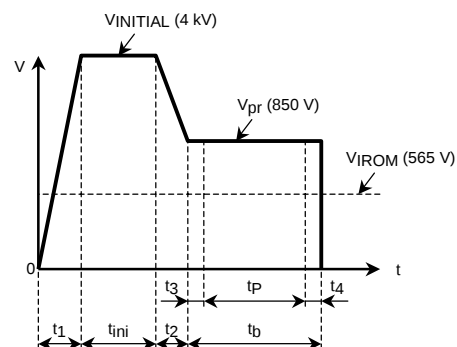


Figure 2 Partial discharge measurement procedure according to VDE0884
Non-destructive test for 100% inspection.

Method B

(for sample test, non-destructive test)

t_3, t_4	= 0.1 s
t_P (Measuring time for partial discharge)	= 1 s
t_b	= 1.2 s

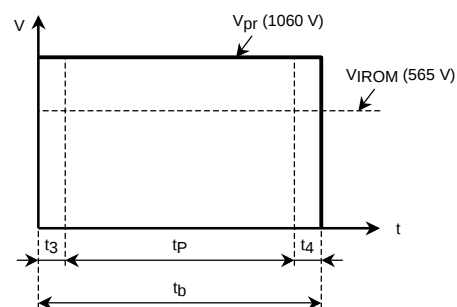
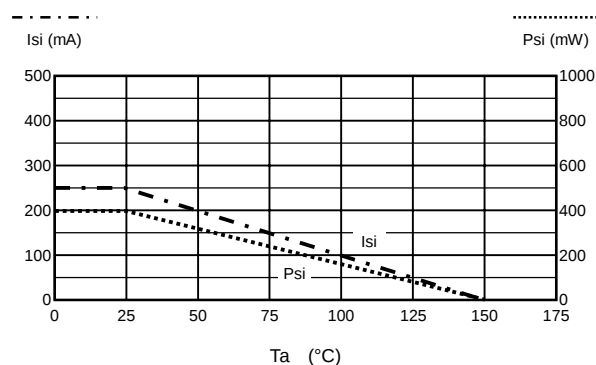


Figure 3 Dependency of maximum safety ratings on ambient temperature



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