TOSHIBA new Phototransistor Couplers TLP781 / TLP781F

Minimum isolation voltage of 5000VACrms in two DIP4 package options

Toshiba Electronics Europe (TEE) has announced a new miniature photocoupler that combines transistor output with extended temperature operation and a high isolation voltage of 5000VACrms (min).

Available in two DIP4 package options, the TLP781 is ideal for a variety of applications including switching power supplies, home appliances, solid state relays, office equipment, various controllers and signal transmission systems.

Package options comprise a 7.62mm pitch type 4-pin DIP package and a 10.16mm pitch type 4-pin DIP (TLP781F). Both package options are rated for extended temperature operation between -55ºC and 110°C.

Features

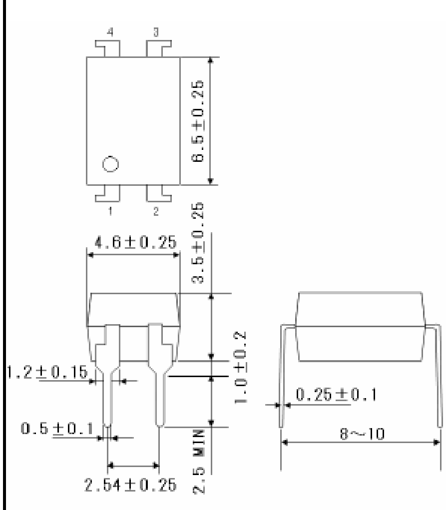
- 4-pin DIP package:
    - TLP781 : 7.62 - mm lead pitch
    - TLP781F : 10.16 - mm lead pitch
- Collector - to - emitter voltage : 80 V (min)
- Current transfer ratio : 50% (min)
    - Rank GB: 100% (min)
- High isolation voltage : 5000 Vrms (min)
- Operating temperature : Topr = -55°C to 110°C

Applications

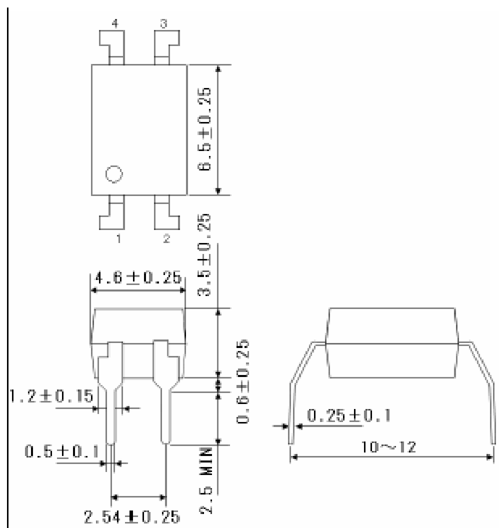
- Office equipment
- Home appliances
- Solid state relays
- Switching power supplies
- Various controllers
- Signal transmission systems between circuits with different voltages

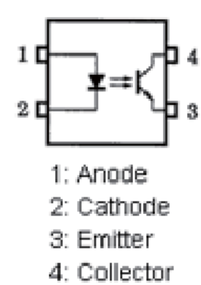
Package details:

TLP781



TLP781F





Recommended Operating Conditions

Characteristics	Symbol	Min	Typ.	Max	Unit
Supply voltage	V_{CC}	-	5	24	V
Forward current	I_F	-	16	25	mA
Collector current	I_C	-	1	10	mA
Operating temperature	Topr	- 25	-	85	°C

Note: These operating ranges are only provided as a design guide to achieve expected performance. These parameters are independent of one another. The electrical characteristics provided in the relevant technical sheet must also not be exceeded.

Main Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Conditions	Min	Typ.	Max	Unit
LED	Forward voltage	V_F	I_F = 10mA	1.0	1.15	1.3	V
	Reverse current	I_R	V_R = 5V	-	-	10	μA
	Capacitance between terminals	C_T	V = 0, f = 1MHz	-	30	-	pF
Detector	Collector-to-emitter breakdown voltage	$V_{(BR)CEO}$	I_C = 0.5 mA	80	-	-	V
	Emitter-to-collector breakdown voltage	$V_{(BR)ECO}$	I_E = 0.1 mA	7	-	-	V
	Collector dark current	$I_D(I_{CEO})$	V_{CE} = 24 V	-	0.01	0.1	μA
	Collector-to-emitter Capacitance	C_{CE}	V = 0, f = 1 MHz	-	10	-	pF
Current transfer ratio (CTR)		I_C/I_F	I_F = 5 mA, V_{CE} = 5 V	50	-	600	%
Saturated CTR		$I_C/I_{F(sat)}$	I_F = 1 mA, V_{CE} = 0.4 V	-	60	-	%
Collector-to-emitter saturation voltage		$V_{CE(sat)}$	I_C = 2.4 mA, I_F = 8 mA	-	-	0.4	V
Input-to-output stray capacitance		C_S	V_S = 0, f = 1 MHz	-	0.8	-	pF
Isolation resistance		R_S	V_S = 500 V	1×10^{12}	10^{14}	-	Ω
Isolation voltage		BV_S	AC, 1 min	5000	-	-	Vrms

Additional Information: Ordering Code

TLP781(D4-xx-yy,F or TLP781F(D4xx-yy,F

- D4: VDE approved (DIN EN 60747-5-2) *)
- xx: CTR rank option (Y,GB,BL,GR,GRL,GRH)
- yy: leadforming and taping option
    - LF6 - SMD lead forming for TLP781
    - TP6 – T&R version of TLP781(LF6)
    - LF7 – SMD lead forming for TLP781F
    - TP7 – T&R version of TLP781F(LF7)
- ,F: indicates, that TLP781 is Pb-free / RohS compliant **)

Notes:

*) only VDE approved version (with D4) is available

**) only Pb-free version is available