

TLP580, TLP581

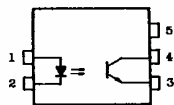
GaAlAs Infrared Emitting Diode & NPN Silicon Photo-Transistor

The TOSHIBA TLP580 and TLP581 consists of a gallium aluminum arsenide, infrared emitting diode coupled with a silicon photo transistor in a dual in-line package. TLP580 is no-base internal connection for high-EMI environments.

- AC Isolation Voltage : 5kV
- Nominal Isolation Operating Voltage (Note 1) : 1000Vac or 1200Vdc for Isolation Group B
750Vac or 900Vdc for Isolation Group C
- Climatic Test Class : 25/100/21 DIN40045
- Internal Isolation Thickness Between Metal Parts : 2mm (Min.) (Note 2)
- External Creepage Distance and Airgaps : 14.5mm (Min.) (Note 3)
- Housing : Epoxy Molded
- TOSHIBA Unique Double Molded Construction
- High Efficiency Low Degradation Liquid Epitaxial IRED
- Low Coupling Capacity : 0.3pF (Typ.)
- Current Transfer Ratio : 60% (Typ.)
- UL Recognized : File No. E67349
- VDE Approved : Certificate No. 37411

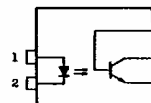
PIN CONFIGURATION (TOP VIEW)

TLP580



1. ANODE
2. CATHODE
3. EMITTER
4. COLLECTOR
5. NC

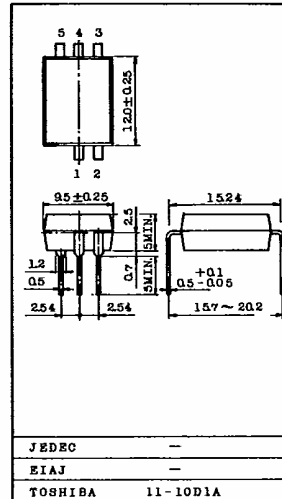
TLP581



1. ANODE
2. CATHODE
3. EMITTER
4. COLLECTOR
5. BASE

- Note 1. According to VDE0110b/2.79
2. According to VDE0730-2P
3. Creeping current resistance : Group I (KB>100-KC>100) According to VDE011b/2.79 Table 3.

Unit in mm



ABSOLUTE MAXIMUM RATINGS

(Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
LED	Reverse Voltage	V _R	5 V
	Forward Current	I _F	50 mA
	Forward Surge Current (t _p ≤ 100ms)	I _{FSM}	1 A
	Power Dissipation	P _D	100 mW
	Junction Temperature	T _J	100 °C
PHOTO-TRANSISTOR	Collector-Emitter Voltage	V _{CE0}	35 V
	Collector-Base Voltage (TLP581)	V _{CB0}	50 V
	Emitter-Collector Voltage	V _{EC0}	5 V
	Collector Current	I _C	50 mA
	Peak Collector Current (t _p /I _C = 0.5, t _p ≤ 10ms)	I _{CM}	100 mA
	Power Dissipation	P _C	150 mW
	Junction Temperature	T _J	125 °C
COUPLED	AC Isolation Voltage	BV _G	5 kV
	Storage Temperature	T _{stg}	-55 ~ 125 °C
	Operating Temperature	T _{opr}	-55 ~ 100 °C
	Lead Soldering Temperature (at 10 sec.)	T _{sold}	260 °C
	Total Power Dissipation	P _T	250 mW

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V _F I _F =10mA	-	1.65	1.8	V
	Reverse Current	I _R V _R =5V	-	-	10	μA
	Capacitance	C _D V=0, f=1MHz	-	45	-	pF
PHOTO-TRANSISTOR	Collector-Emitter Breakdown Voltage	V _{(BR)CEO} I _C =0.5mA, I _F =0	35	-	-	V
	Collector-Base Breakdown Voltage (TLP581)	V _{(BR)CBO} I _C =100mA, I _F =0	50	-	-	V
	Emitter-Collector Breakdown Voltage	V _{(BR)ECO} I _E =100mA, I _F =0	5	-	-	V
	Collector Dark Current	I _{C0} V _{CE} =10V, I _F =0	-	1	50	nA
	Collector-Emitter Capacitance	C _{CE} V=0, f=1MHz	-	15	-	pF
	Current Transfer Ratio	I _C /I _F I _F =10mA, V _{CE} =5V	25	60	-	%
	Saturation Voltage	V _{CE(sat)} I _F =10mA, I _C =2.4mA	-	0.1	0.4	V
COUPLED	Capacitance Input to Output	C _S V=0, f=1MHz	-	0.3	-	pF
	Isolation Resistance	R _S V=1000V, 50% R.H.	-	10 ¹²	-	Ω
	AC Isolation Voltage	BV _G t=1 minute	5	-	-	kV
	Turn-On Time	t _{on} V _{CE} =10V, I _C =2mA R _L =100Ω	-	6	-	μs
	Turn-Off Time	t _{off} V _{CE} =10V, I _C =2mA R _L =100Ω	-	6	-	μs

