

**TENTATIVE DATA**

(TLP296G)

**TELECOMMUNICATION**

**DATA ACQUISITION**

**MEASUREMENT INSTRUMENTATION**

The TOSHIBA TLP296G consists of gallium arsenide infrared emitting diode optically coupled to a photo-MOS FET in a 8 lead DIP package.

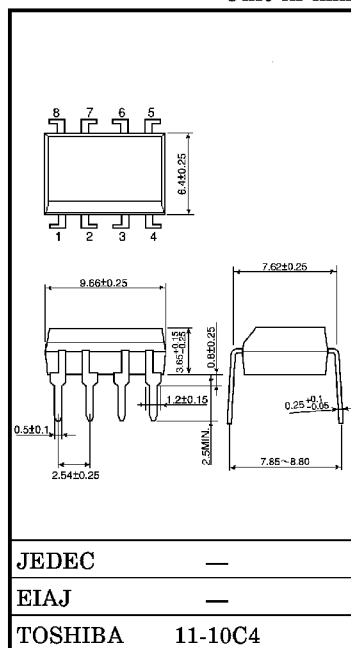
The TLP296G is a bi-directional switch which can replace mechanical relay in many applications.

- 8 PIN DIP, 2 Channel Type (2 Form A)
- Peak Off-State Voltage : 400V (MIN.)
- Trigger LED Current : 5mA (MAX.)
- On-State Current : 100mA (MAX.)
- On-State Resistance : 30Ω (MAX.)
- Isolation Voltage : 2500V<sub>rms</sub> (MIN.)
- Trigger LED Current (Ta = 25°C)

CLASSIFICATION	TRIGGER LED CURRENT (mA)		MARKING OF CLASSIFICATION
	@I <sub>ON</sub> = 100mA		
	MIN.	MAX.	
(IFT2)	—	2	T2
Standard	—	5	T2, blank

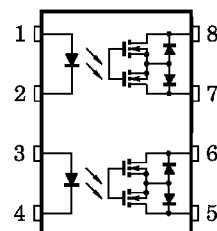
\* Ex. Rank IFT2 : TLP296G (IFT2)

Unit in mm



Weight : 0.54g

**PIN CONFIGURATION (Top view)**



- 1, 3 : ANODE
- 2, 4 : CATHODE
- 5 : DRAIN D1
- 6 : DRAIN D2
- 7 : DRAIN D3
- 8 : DRAIN D4

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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC			SYMBOL	RATING	UNIT
LED	Forward Current		I <sub>F</sub>	50	mA
	Forward Current Derating (Ta≥25°C)		ΔI <sub>F</sub> /°C	−0.5	mA/°C
	Peak Forward Current (100μs pulse, 100pps)		I <sub>FP</sub>	1	A
	Reverse Voltage		V <sub>R</sub>	5	V
	Junction Temperature		T <sub>j</sub>	125	°C
DETECTOR	Off-State Output Terminal Voltage		V <sub>OFF</sub>	400	V
	On-State Current	Both Channel Note 1	I <sub>ON</sub>	100	mA
		One Channel		120	
	On-State Current Derating (Ta≥25°C)	Both Channel Note 1	ΔI <sub>ON</sub> /°C	−1.0	mA/°C
		One Channel		−1.2	
	Junction Temperature		T <sub>j</sub>	125	°C
	Storage Temperature Range		T <sub>stg</sub>	−55~100	°C
Operating Temperature Range		T <sub>opr</sub>	−20~85	°C	
Lead Soldering Temperature (10s)		T <sub>sol</sub>	260	°C	
Isolation Voltage (AC, 1min., R.H.≤60%)		Note 2	BV <sub>S</sub>	2500	V <sub>rms</sub>

Note 1 : Two channels operating simultaneously.

Note 2 : Device considered a two-terminal device : Pins 1, 2, 3 and 4 shorted together and Pins 5, 6, 7 and 8 shorted together.

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V <sub>DD</sub>	—	—	320	V
Forward Current	I <sub>F</sub>	7.5	15	25	mA
On-State Current	I <sub>ON</sub>	—	—	100	mA
Operating Temperature	T <sub>opr</sub>	−20	—	80	°C

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INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	$V_F$	$I_F = 10\text{mA}$	1.0	1.15	1.3	V
	Reverse Current	$I_R$	$V_R = 5\text{V}$	—	—	10	$\mu\text{A}$
	Capacitance	$C_T$	$V = 0, f = 1\text{MHz}$	—	30	—	pF
DETECTOR	Off-State Current	$I_{OFF}$	$V_{OFF} = 400\text{V}$	—	—	1	$\mu\text{A}$
	Capacitance	$C_{OFF}$	$V = 0, f = 1\text{MHz}$	—	—	—	pF

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	$I_{FT}$	$I_{ON} = 100\text{mA}$	—	2	5	mA
On-State Resistance	$R_{ON}$	$I_{ON} = 100\text{mA}, I_F = 10\text{mA}$	—	20	30	$\Omega$

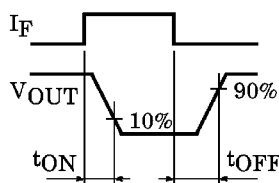
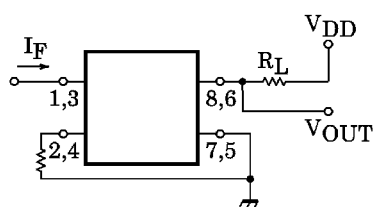
ISOLATION CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Capacitance Input to Output	$C_S$	$V_S = 0, f = 1\text{MHz}$	—	0.8	—	pF
Isolation Resistance	$R_S$	$V_S = 500\text{V}, \text{R.H.} \leq 60\%$	$5 \times 10^{10}$	$10^{14}$	—	$\Omega$
Isolation Voltage	$BV_S$	AC, 1 minute	2500	—	—	$V_{rms}$
		AC, 1 second (in oil)	—	5000	—	
		DC, 1 minute (in oil)	—	5000	—	Vdc

SWITCHING CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Turn-on Time	$t_{ON}$	$R_L = 200\Omega$ (Note 1)	—	—	4	ms
Turn-off Time	$t_{OFF}$	$V_{DD} = 20\text{V}, I_F = 10\text{mA}$	—	—	4	

Note 1 : SWITCHING TIME TEST CIRCUIT



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