

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.

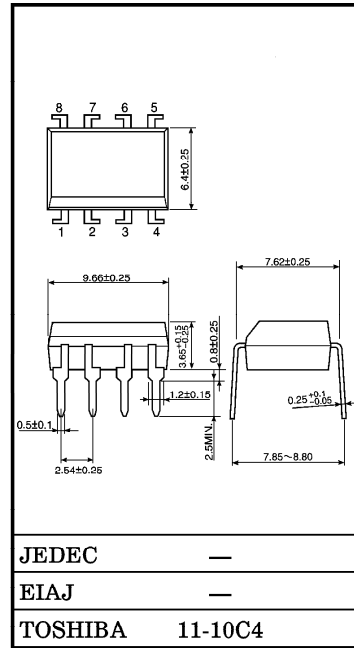
The TLP296G is a bi-directional switch which can replace mechanical relay in many applications.

- 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_{rms} (MIN.)
- Trigger LED Current (Ta=25°C)

| CLASSIFICATION | TRIGGER LED CURRENT (mA) | | MARKING OF CLASSIFICATION |
|----------------|--------------------------|------|---------------------------|
| | @I _{ON} = 100mA | | |
| | MIN. | MAX. | |
| (IFT2) | — | 2 | T2 |
| Standard | — | 5 | T2, blank |

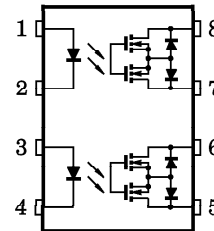
* Ex. Rank IFT2 : TLP296G (IFT2)

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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(TLP296G)

MAXIMUM RATINGS (Ta = 25°C)

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

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 _{DD} | — | — | 320 | V |
| Forward Current | I _F | 7.5 | 15 | 25 | mA |
| On-State Current | I _{ON} | — | — | 100 | mA |
| Operating Temperature | T _{opr} | -20 | — | 80 | °C |

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TOSHIBA CORPORATION

(TLP296G)

INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | | SYMBOL | TEST CONDITION | 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 | C _T | V = 0, f = 1MHz | — | 30 | — | pF |
| DETECTOR | Off-State Current | I _{OFF} | V _{OFF} = 400V | — | — | 1 | μA |
| | Capacitance | C _{OFF} | V = 0, f = 1MHz | — | — | — | pF |

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---------------------|-----------------|--|------|------|------|------|
| Trigger LED Current | I _{FT} | I _{ON} = 100mA | — | 2 | 5 | mA |
| On-State Resistance | R _{ON} | I _{ON} = 100mA, I _F = 10mA | — | 20 | 30 | Ω |

ISOLATION CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|-----------------------------|-----------------|-----------------------------------|----------------------|------------------|------|------------------|
| Capacitance Input to Output | C _S | V _S = 0, f = 1MHz | — | 0.8 | — | pF |
| Isolation Resistance | R _S | V _S = 500V, R.H. ≤ 60% | 5 × 10 ¹⁰ | 10 ¹⁴ | — | Ω |
| Isolation Voltage | BV _S | AC, 1 minute | 2500 | — | — | V _{rms} |
| | | AC, 1 second (in oil) | — | 5000 | — | |
| | | DC, 1 minute (in oil) | — | 5000 | — | V _{dc} |

SWITCHING CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|----------------|------------------|--|------|------|------|------|
| Turn-on Time | t _{ON} | R _L = 200Ω (Note 1) | — | — | 4 | ms |
| Turn-off Time | t _{OFF} | V _{DD} = 20V, I _F = 10mA | — | — | 4 | |

Note 1 : SWITCHING TIME TEST CIRCUIT

