

(TLP747J)

- OFFICE MACHINE.
- HOUSEHOLD USE EQUIPMENT.
- SOLID STATE RELAY.
- SWITCHING POWER SUPPLY.

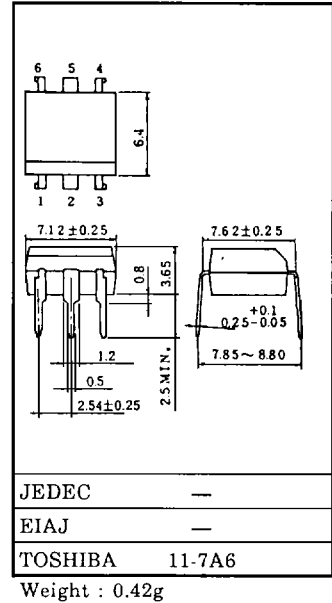
The TOSHIBA TLP747J consists of a photo-thyristor optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP package.

- Peak Off-State Voltage: 600V Min.
- Trigger LED Current : 15mA Max.
- On-State Current : 150mA Max.
- UL Recognized : UL1577, File No. E67349
- BSI Approved : BS415 : 1990, BS7002 : 1989 (EN60950)
Certificate No. 7364, 7365
- SEMKO Approved : SS4330784
Certificate No. 9203174
- Isolation Voltage : 4000Vrms Min.
- Option (D4) type
VDE Approved : DIN VDE0884 / 08.87
Certificate No. 74286
- Maximum Operating Insulation Voltage : 630V_{PK}
- Highest Permissible Over Voltage : 6000V_{PK}

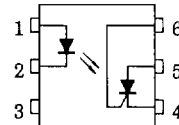
(Note) When a VDE0884 approved type is needed, Please designate the "Option (D4)"

| | 7.62mm pich standard type | 10.16mm pich TLP×××F type |
|---------------------|------------------------------|------------------------------|
| • Creepage Distance | 7.0mm (Min.) | 8.0mm (Min.) |
| Clearance | 7.0mm (Min.) | 8.0mm (Min.) |
| Isolation Thickness | 0.5mm (Min.) | 0.5mm (Min.) |

Unit in mm



PIN CONFIGURATIONS (TOP VIEW)



- 1 : ANODE
- 2 : CATHODE
- 3 : NC
- 4 : CATHODE
- 5 : ANODE
- 6 : GATE

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MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC | | SYMBOL | RATING | UNIT |
|--|---|---------------------|---------|------------------|
| I _F | Forward Current | I _F | 60 | mA |
| | Forward Current Derating (Ta ≥ 39°C) | ΔI _F /°C | -0.7 | mA/°C |
| | Peak Forward Current (100μs pulse, 100pps) | I _{FP} | 1 | A |
| | Reverse Voltage | V _R | 5 | V |
| | Junction Temperature | T _j | 125 | °C |
| E _{TR} D _{TC} | Peak Forward Voltage (R _{GK} = 27kΩ) | V _{DRM} | 600 | V |
| | Peak Reverse Voltage (R _{GK} = 27kΩ) | V _{RRM} | 600 | V |
| | On-State Current | I _{T(RMS)} | 150 | mA |
| | On-State Current Derating (Ta ≥ 25°C) | ΔI _T /°C | -2.0 | mA/°C |
| | Peak On-State Current (100μs pulse, 120pps) | I _{TP} | 3 | A |
| | Peak One Cycle Surge Current | I _{TSM} | 2 | A |
| | Peak Reverse Gate Voltage | V _{GM} | 5 | V |
| | Power Dissipation | P _D | 150 | mW |
| | Power Dissipation Derating (Ta ≥ 25°C) | ΔP _D /°C | -2.0 | mW/°C |
| | Junction Temperature | T _j | 100 | °C |
| Storage Temperature Range | | T _{stg} | -55~125 | °C |
| Operating Temperature Range | | T _{opr} | -40~100 | °C |
| Lead Soldering Temperatur(10 sec.) | | T _{sold} | 260 | °C |
| Total Package Power Dissipation | | P _T | 250 | mW |
| Total Package Power Dissipation Derating (Ta ≥ 25°C) | | ΔP _T /°C | -3.3 | mW/°C |
| Isolation Voltage (AC, 1min., R. H. ≤ 60%) (Note) | | BV _S | 4000 | V _{rms} |

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

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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 = 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 | |
| EETR DTCO | Off-State Current | I _{DRM} | V _{AK} = 600V R _{GK} = 27kΩ | Ta = 25°C | — | 10 | 5000 | nA |
| | | | | Ta = 85°C | — | 1 | 150 | μA |
| | Reverse Current | I _{RRM} | V _{KA} = 600V R _{GK} = 27kΩ | Ta = 25°C | — | 10 | 5000 | nA |
| | | | | Ta = 85°C | — | 1 | 150 | μA |
| | On-State Voltage | V _{TM} | I _{TM} = 100mA | — | 0.9 | 1.3 | V | |
| | Holding Current | I _H | R _{GK} = 27kΩ | — | 0.2 | — | mA | |
| | Off-State dv / dt | dv / dt | V _{AK} = 420V, R _{GK} = 27kΩ | — | 10 | — | V / μs | |
| Capacitance | C _j | V = 0, f = 1MHz | — | 20 | — | pF | | |
| | | Anode to Gate Gate to Cathode | — | 350 | — | | | |

COUPLED CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|------------------------------|------------------|--|----------------------|------------------|------|------------------|
| Trigger LED Current | I _{FT} | V _{AK} = 6V, R _{GK} = 27kΩ | — | — | 15 | mA |
| Turn-on Time | t _{on} | I _F = 30mA, V _{AA} = 50V R _{GK} = 27kΩ | — | 10 | — | μs |
| Coupled dv / dt | dv / dt | V _S = 500V, R _{GK} = 27kΩ | 500 | — | — | V / μs |
| 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 | B _V S | AC, 1 minute | 4000 | — | — | V _{rms} |
| | | AC, 1 second, in oil | — | 10000 | — | |
| | | DC, 1 minute, in oil | — | 10000 | — | V _{dc} |

RECOMMENDED OPERATING CONDITIONS

| CHARACTERISTIC | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|----------------------------|------------------|------|------|------|-----------------|
| Supply Voltage | V _{AC} | — | — | 240 | V _{ac} |
| Forward Current | I _F | 20 | — | 25 | mA |
| Operating Temperature | T _{opr} | -25 | — | 85 | °C |
| Gate to Cathode Resistance | R _{GK} | — | 10 | 27 | kΩ |
| Gate to Cathode Capacity | C _{GK} | — | 0.01 | 0.1 | μF |

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