

TLP561G

- Triac Driver
- Programmable Controllers
- AC-Output Module
- Solid State Relay

The TOSHIBA TLP561G consists of a zero voltage crossing turn-on photo-triac optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP package.

- Peak off-state voltage: 400V(min.)
- On-state current: 100mA(max.)
- Isolation voltage: 2500V_{rms}(min.)
- UL recognized: file no. E67349
- Isolation operating voltage: 2500V_{ac} or 300V_{dc} for isolation groupe C*1
- Trigger LED current

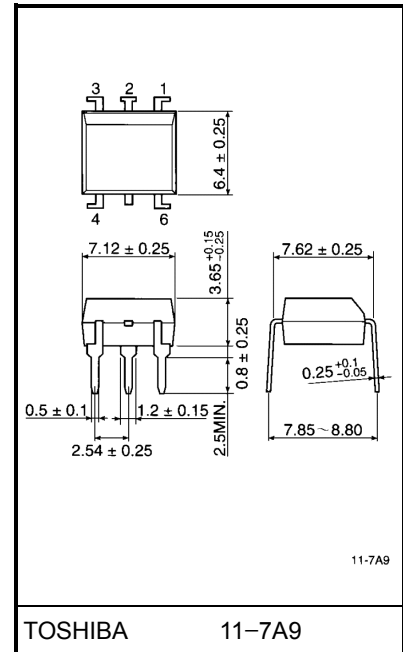
| Classification* | Trigger LED Current (mA) | | Marking Of Classification |
|-----------------|--|------|---------------------------|
| | V _T = 6V, T _a = 25°C | | |
| | Min. | Max. | |
| (IFT5) | — | 5 | T5 |
| (IFT7) | — | 7 | T5, T7 |
| Standard | — | 10 | T5, T7, blank |

*Ex. (IFT5); TLP561G (IFT5)

(Note) Application type name for certification test, please use standard product type name, i.e. TLP561G (IFT5): TLP561G

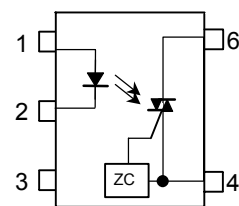
*1: According to VDE0110, table 4.

Unit in mm



Weight: 0.39g

Pin Configuration (top view)



- 1 : ANODE
- 2 : CATHODE
- 3 : N.C.
- 4 : TERMINAL 1
- 6 : TERMINAL 2

Maximum Ratings (Ta = 25°C)

| Characteristic | | Symbol | Rating | Unit |
|--|--|-------------------------------|---------|------------------|
| LED | Forward current | I_F | 50 | mA |
| | Forward current derating (Ta ≥ 53°C) | $\Delta I_F / ^\circ\text{C}$ | -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 |
| Detector | Off-state output terminal voltage | V_{DRM} | 400 | V |
| | On-state RMS current | Ta = 25°C | 100 | mA |
| | | Ta = 70°C | 50 | |
| | On-state current derating (Ta ≥ 25°C) | $\Delta I_T / ^\circ\text{C}$ | -1.1 | mA / °C |
| | Peak on-state current (100µs pulse, 120pps) | I_{TP} | 2 | A |
| | Peak nonrepetitive surge current (Pw = 10ms, DC = 10%) | I_{TSM} | 1.2 | A |
| Junction temperature | T_j | 115 | °C | |
| Storage temperature range | | T_{stg} | -55~125 | °C |
| Operating temperature range | | T_{opr} | -40~100 | °C |
| Lead soldering temperature (10s) | | T_{sol} | 260 | °C |
| Isolation voltage (AC, 1 min., R.H. ≤ 60%) | | BV_S | 2500 | V _{rms} |

Recommended Operating Conditions

| Characteristic | Symbol | Min. | Typ. | Max. | Unit |
|-----------------------|-----------|------|------|------|-----------------|
| Supply voltage | V_{AC} | — | — | 120 | V _{ac} |
| Forward current | I_F | 15 | 20 | 25 | mA |
| Peak on-state current | I_{TP} | — | — | 1 | A |
| Operating temperature | T_{opr} | -25 | — | 85 | °C |

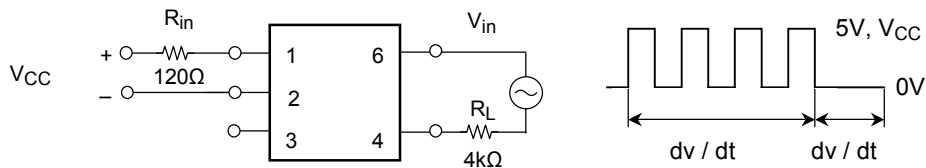
Individual Electrical Characteristics (Ta = 25°C)

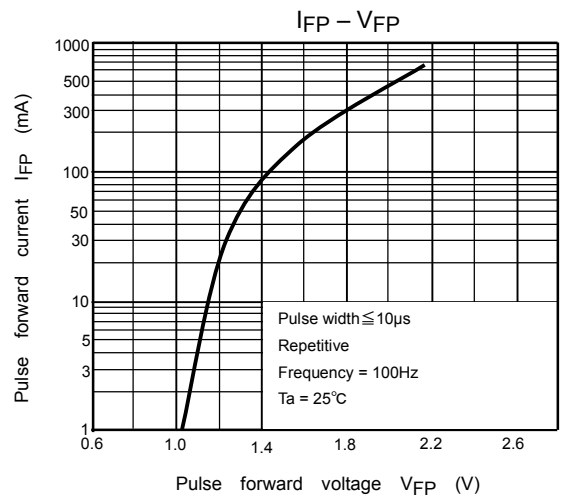
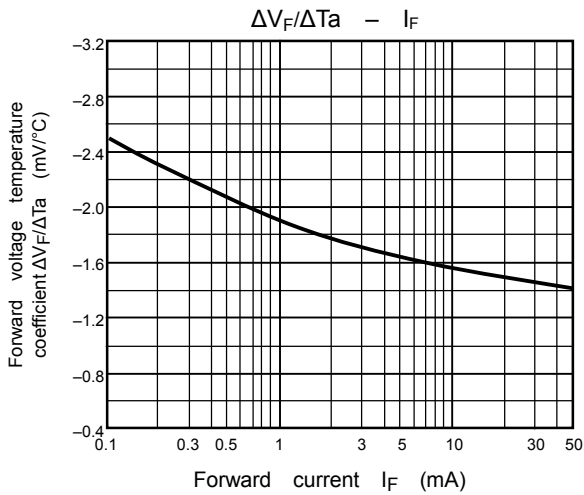
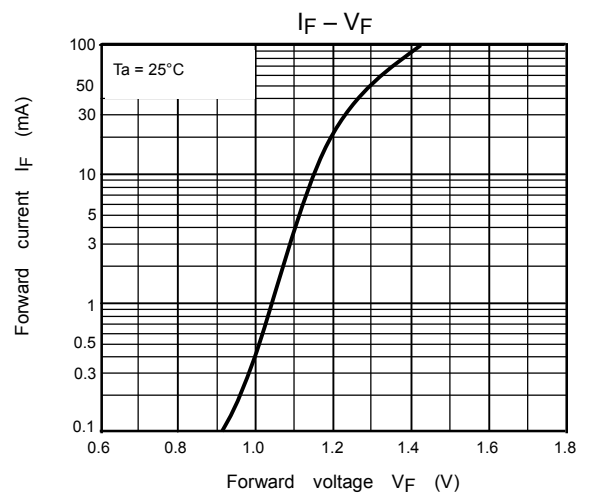
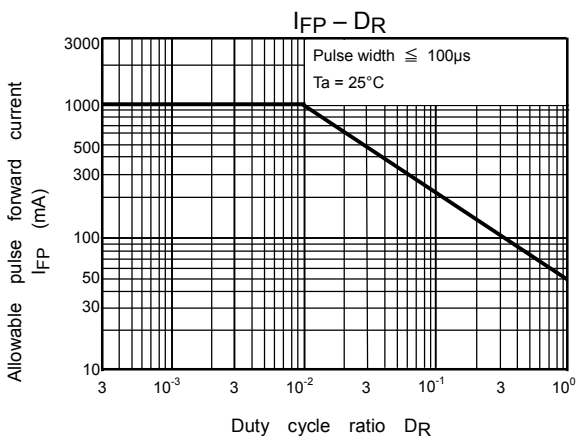
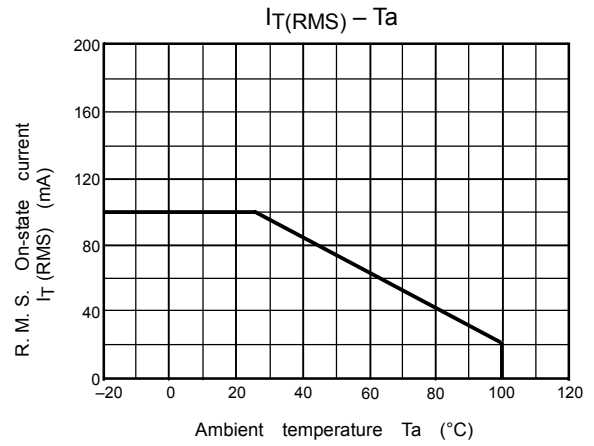
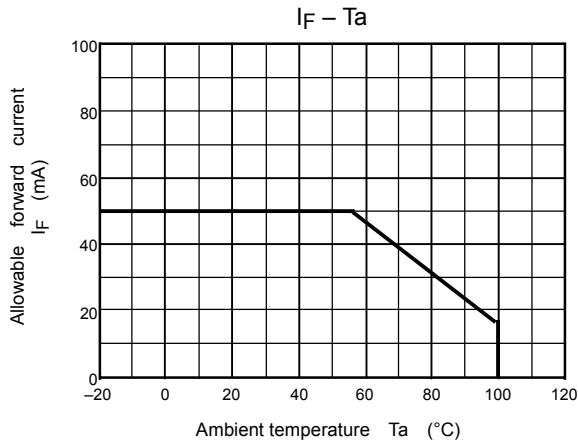
| Characteristic | | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|----------------|--|-------------|--|------|------|------|-------------------|
| LED | Forward voltage | V_F | $I_F = 10\text{mA}$ | 1.0 | 1.15 | 1.3 | V |
| | Reverse current | I_R | $V_R = 5\text{V}$ | — | — | 10 | μA |
| | Capacitance | C_T | $V = 0, f = 1\text{MHz}$ | — | 30 | — | pF |
| Detector | Peak off-state current | I_{DRM} | $V_{DRM} = 400\text{V}$ | — | 10 | 100 | nA |
| | Peak on-state voltage | V_{TM} | $I_{TM} = 100\text{mA}$ | — | 1.7 | 3.0 | V |
| | Holding current | I_H | — | — | 0.6 | — | mA |
| | Critical rate of rise of off-state voltage | dv/dt | $V_{in} = 120V_{rms}, T_a = 85^\circ\text{C}$ (Fig.1) | 200 | 500 | — | V / μs |
| | Critical rate or rise of commutating voltage | $dv/dt (c)$ | $V_{in} = 30V_{rms}, I_T = 15\text{mA}$ (Fig.1) | — | 0.2 | — | V / μs |

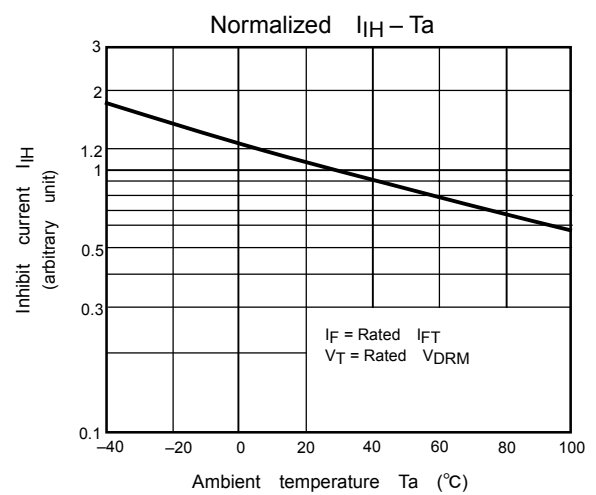
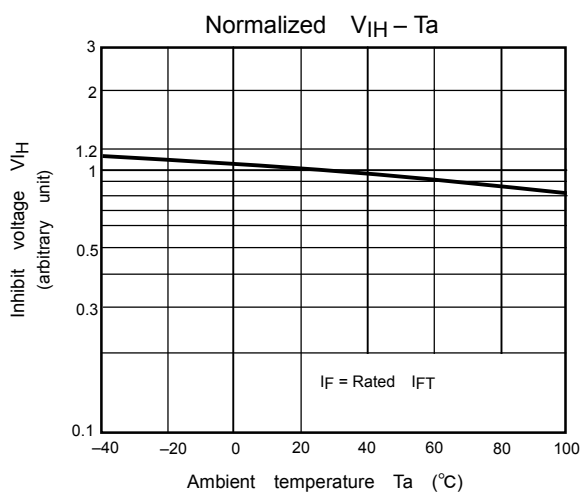
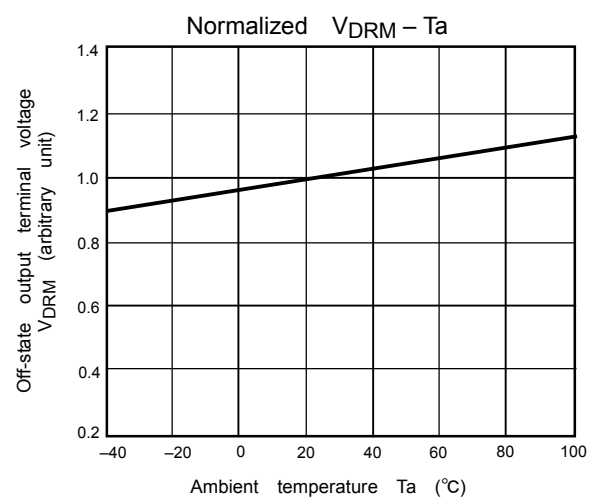
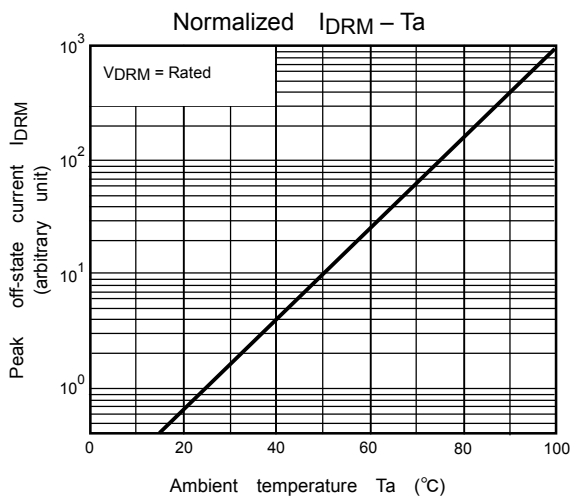
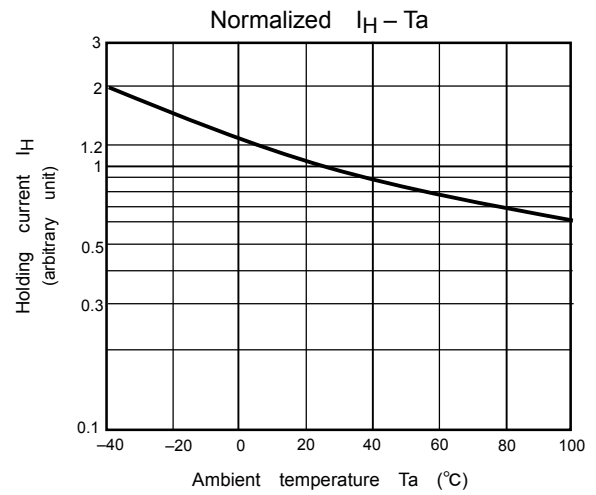
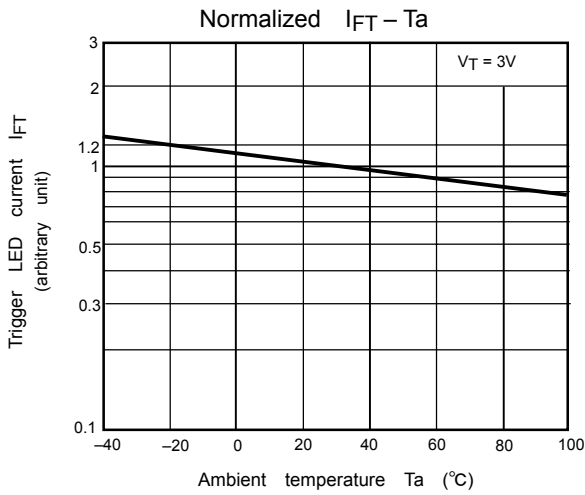
Coupled Electrical Characteristics (Ta = 25°C)

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|-------------------------------|----------|---|--------------------|-----------|------|---------------|
| Trigger LED current | I_{FT} | $V_T = 3\text{V}, R_L = 100\Omega$ | — | 5 | 10 | mA |
| Inhibit voltage | V_{IH} | $I_F = \text{rated } I_{FT}$ | — | — | 40 | V |
| Leakage in inhibited state | I_{IH} | $I_F = \text{rated } I_{FT}$ $V_T = \text{rated } V_{DRM}$ | — | 100 | 300 | μA |
| Capacitance (input to output) | C_S | $V_S = 0, f = 1\text{MHz}$ | — | 0.8 | — | pF |
| Isolation resistance | R_S | $V_S = 500\text{V}$ | 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} |

Fig.1: dv/dt test circuit







RESTRICTIONS ON PRODUCT USE

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