

TLP561J

Triac Driver
 Programmable Controllers
 AC-Output Module
 Solid State Relay

The TOSHIBA TLP561J 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: 600V(min.)
- On-state current: 100mA(max.)
- Isolation voltage: 2500V_{rms}(min.)
- UL recognized: UL1577, file no. E67349
- Isolation operating voltage: 2500V_{ac} or 300V_{dc} for isolation
 Groupe C*¹
- Trigger LED current

| Classi- Fication* | Trigger LED Current (mA) | | Marking Of Classification |
|----------------------|-----------------------------|------|------------------------------|
| | V _T =6V, Ta=25°C | | |
| | Min. | Max. | |
| (IFT7) | — | 7 | T7 |
| Standard | — | 10 | T7, blank |

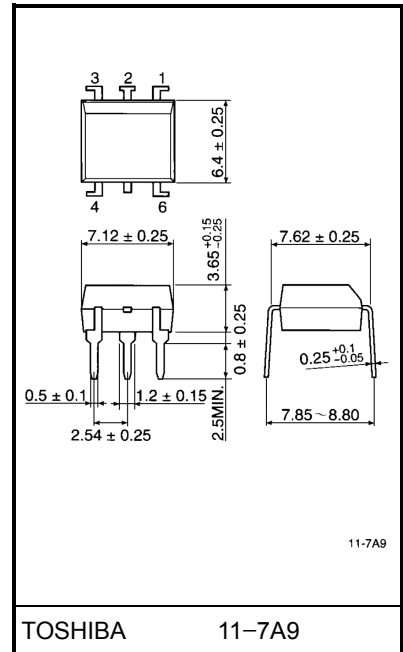
*Ex. (IFT7); TLP561J(IFT7)

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

TLP561J(IFT7): TLP561J

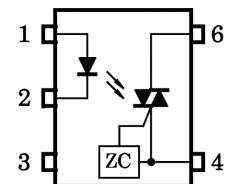
*1: According to VDE0110, table 4.

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} | 600 | 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, 1min., R.H. ≤ 60%) | BV_S | 2500 | V _{rms} | |

Recommended Operating Conditions

| Characteristic | Symbol | Min. | Typ. | Max. | Unit |
|-----------------------|-----------|------|------|------|-----------------|
| Supply voltage | V_{AC} | — | — | 240 | V _{ac} |
| Forward current | I_F | 15 | 20 | 25 | mA |
| Peak on-state current | I_{TP} | — | — | — | A |
| Operating temperature | T_{opr} | -25 | — | 85 | °C |

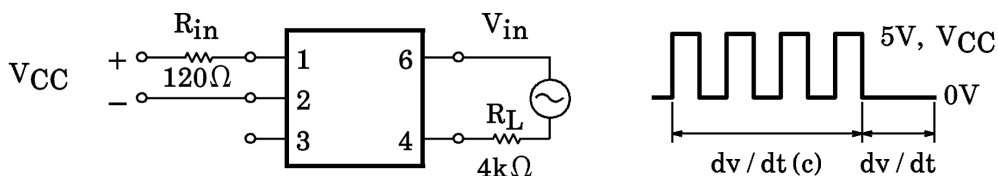
Individual Electrical Characteristics (Ta = 25°C)

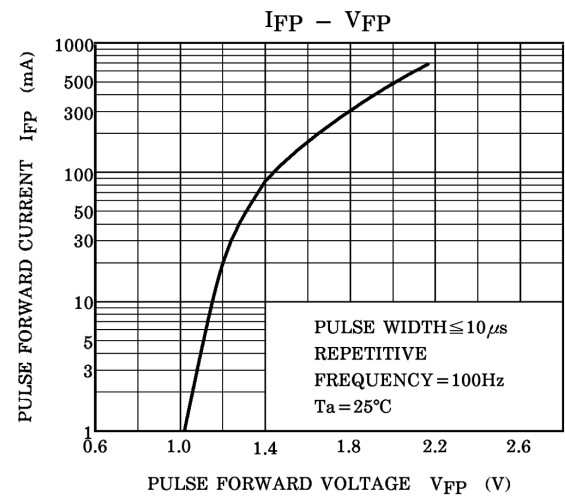
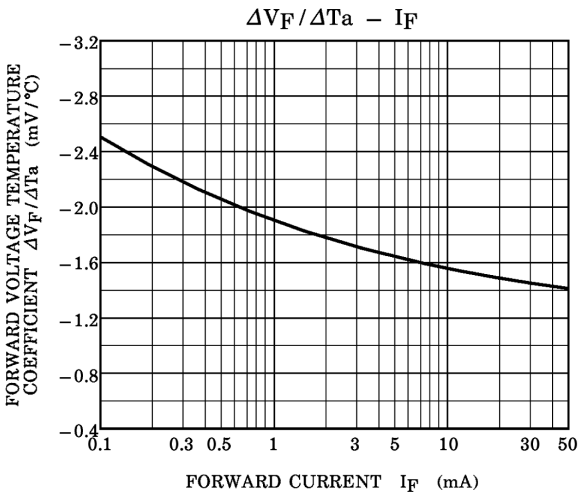
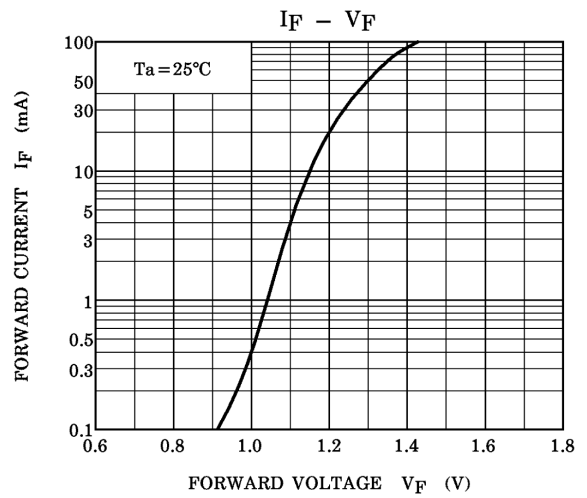
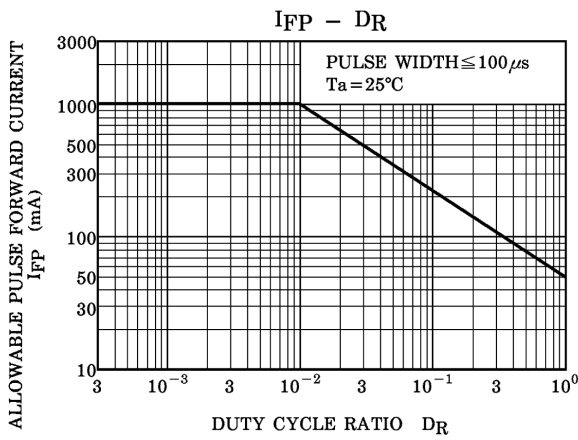
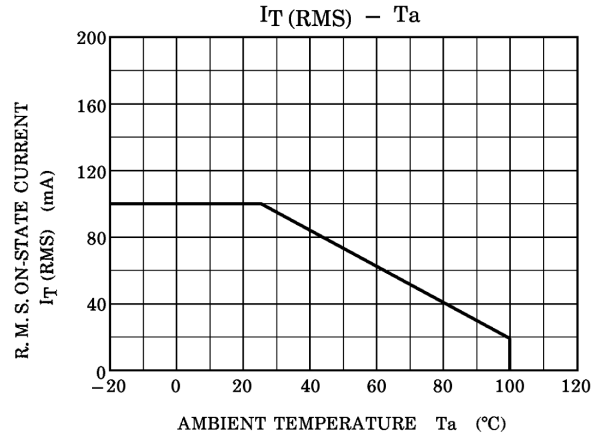
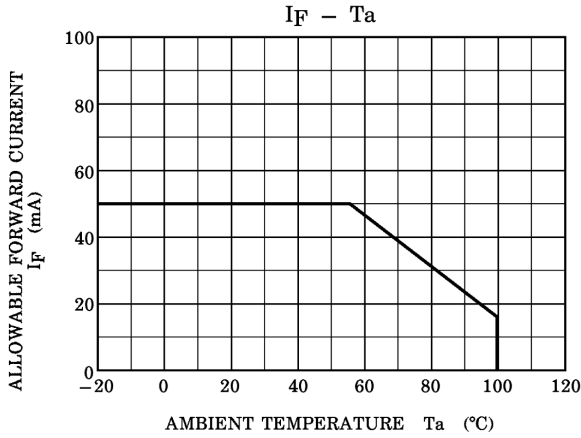
| Characteristic | | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|----------------|--|------------------|---|------|------|------|------------------------|
| LED | Forward voltage | V_F | $I_F = 10\text{mA}$ | 1.0 | 1.15 | 1.3 | V |
| | Reverse current | I_R | $V_R = 5\text{V}$ | — | — | 10 | μA |
| | Capacitance | C_T | $V = 0, f = 1\text{MHz}$ | — | 30 | — | pF |
| Detector | Peak off-state current | I_{DRM} | $V_{\text{DRM}} = 600\text{V}$ | — | 10 | 1000 | nA |
| | Peak on-state voltage | V_{TM} | $I_{\text{TM}} = 100\text{mA}$ | — | 1.7 | 3.0 | V |
| | Holding current | I_H | — | — | 0.6 | — | mA |
| | Critical rate of rise of off-state voltage | dv/dt | $V_{\text{in}} = 240\text{V}_{\text{rms}}, T_a = 85^\circ\text{C}$ (Fig.1) | 200 | 500 | — | $\text{V}/\mu\text{s}$ |
| | Critical rate of rise of commutating voltage | $dv/dt(c)$ | $V_{\text{in}} = 60\text{V}_{\text{rms}}, I_T = 15\text{mA}$ (Fig.1) | — | 0.2 | — | $\text{V}/\mu\text{s}$ |

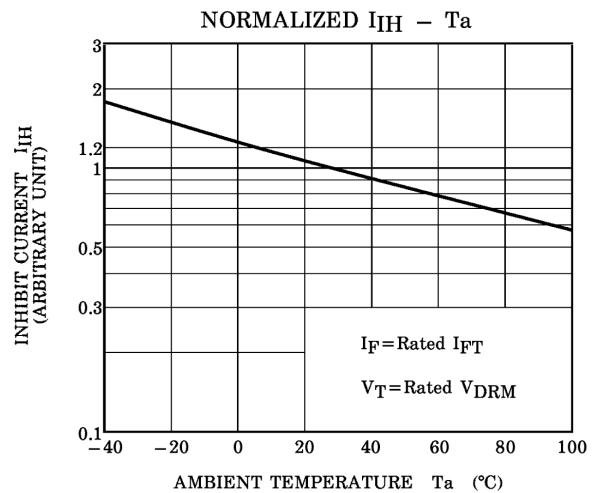
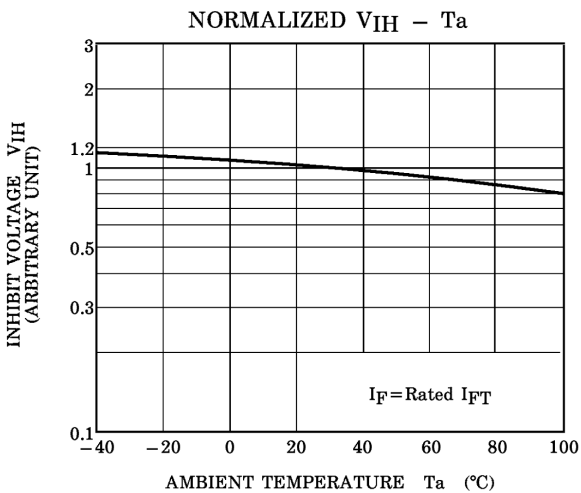
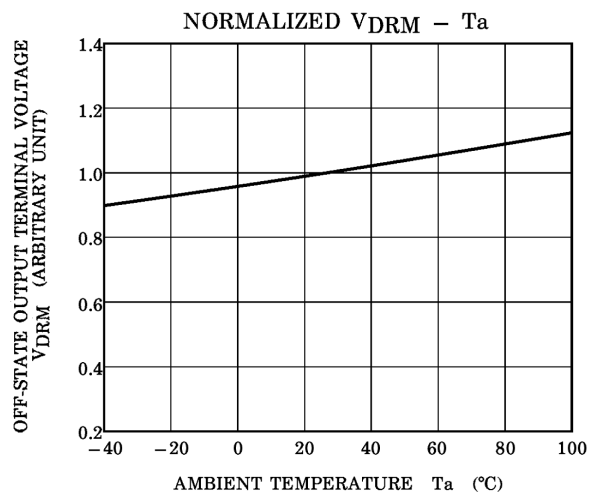
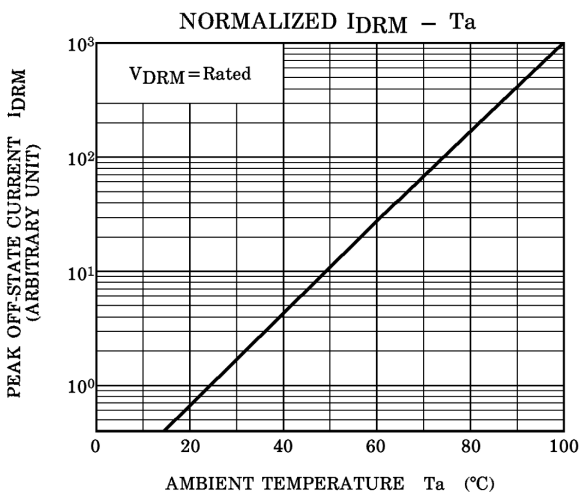
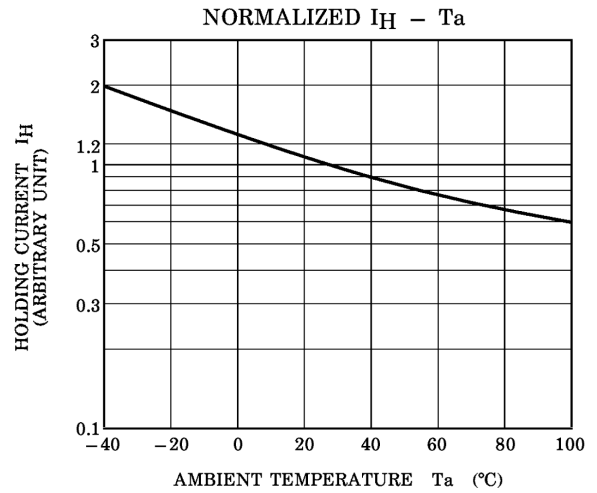
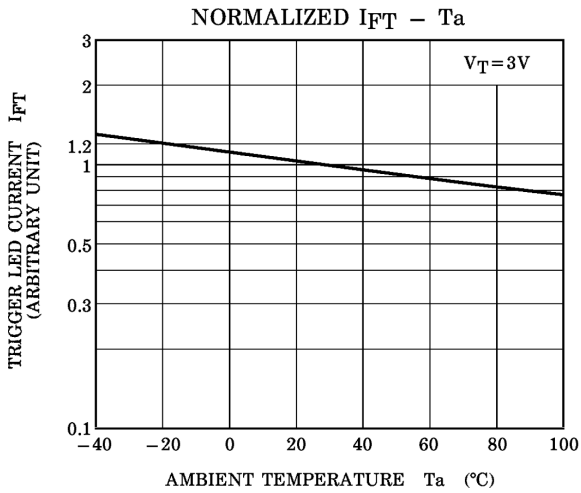
Coupled Electrical Characteristics (Ta = 25°C)

| Characteristics | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|-------------------------------|-----------------|---|--------------------|-----------|------|------------------|
| Trigger LED current | I_{FT} | $V_T = 6\text{V}, R_L = 100\Omega$ | — | 5 | 10 | mA |
| Inhibit voltage | V_{IH} | $I_F = \text{Rated } I_{\text{FT}}$ | — | — | 50 | V |
| Leakage in inhibited state | I_{IH} | $I_F = \text{Rated } I_{\text{FT}}$ $V_T = \text{Rated } V_{\text{DRM}}$ | — | 200 | 600 | 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

000707EBC

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