

TOSHIBA PHOTOCOUPLER GaAs IRED & PHOTO-TRIAC

TLP560G

TRIAC DRIVER

PROGRAMMABLE CONTROLLERS

AC-OUTPUT MODULE

SOLID STATE RELAY

The TOSHIBA TLP560G consists of a 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

| CLASSI- FICATION* | 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 |

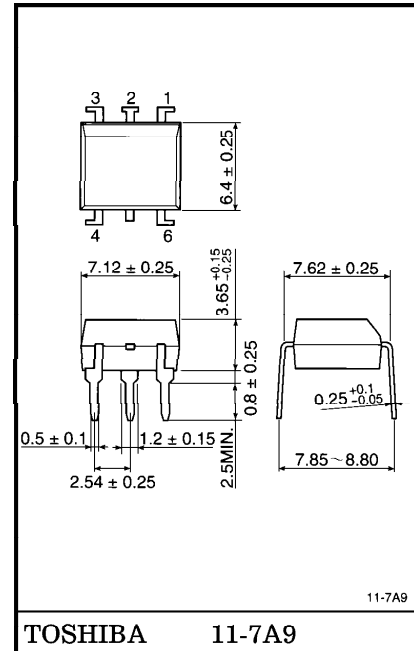
*Ex. (IFT5) ; TLP560G (IFT5)

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

TLP560G (IFT5) : TLP560G

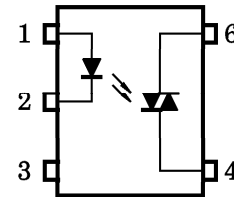
*1 : According to VDE0110, table 4.

Unit in mm



Weight : 0.39g

PIN CONFIGURATION (TOP VIEW)



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

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- Gallium arsenide (GaAs) is a substance used in the products described in this document. GaAs dust and fumes are toxic. Do not break, cut or pulverize the product, or use chemicals to dissolve them. When disposing of the products, follow the appropriate regulations. Do not dispose of the products with other industrial waste or with domestic garbage.
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MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC | | | SYMBOL | RATING | UNIT |
|---|--|-----------------|----------------------|------------------|---------|
| LED | Forward Current | | I _F | 50 | mA |
| | Forward Current Derating (Ta≥ 53°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 |
| DETECTOR | Off-State Output Terminal Voltage | | V _{DRM} | 400 | V |
| | On-State RMS Current | Ta=25°C | I _T (RMS) | 100 | mA |
| | | Ta=70°C | | 50 | |
| | On-State Current Derating (Ta≥ 25°C) | | ΔI _T / °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 |

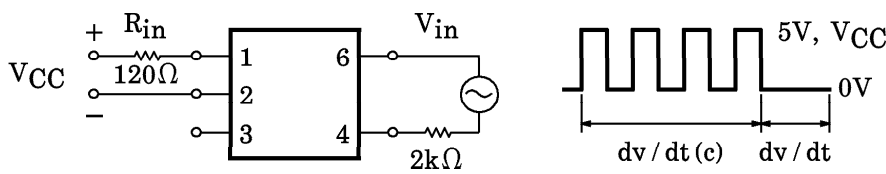
INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

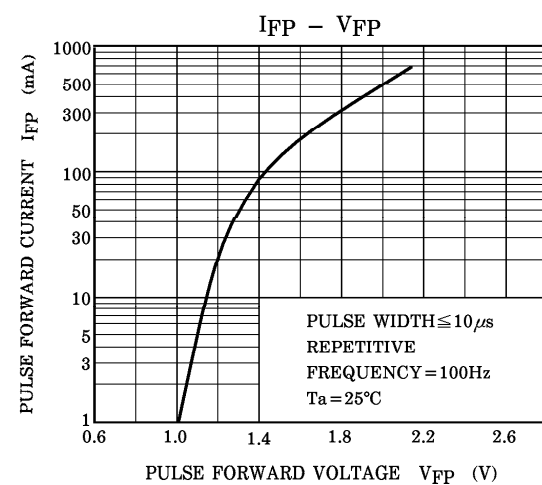
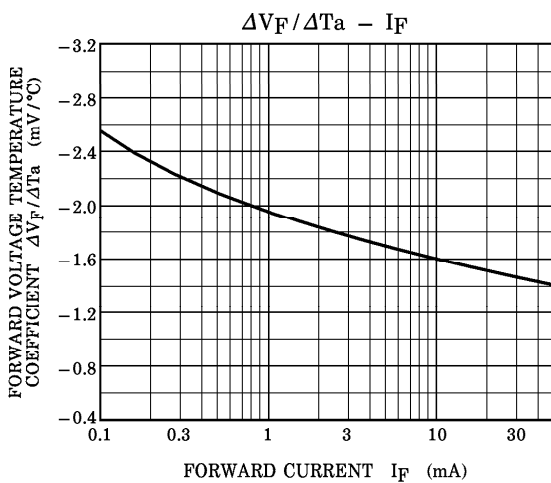
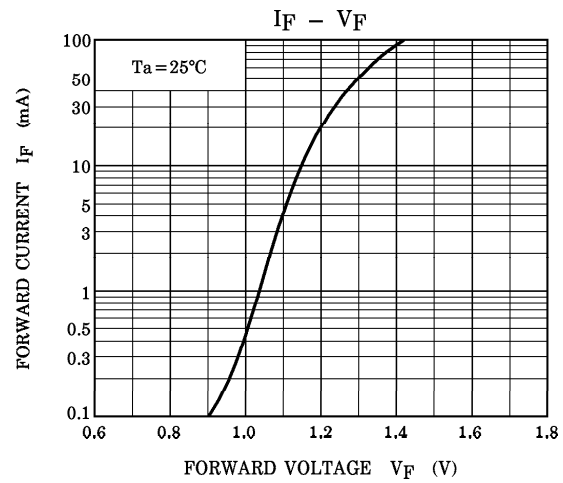
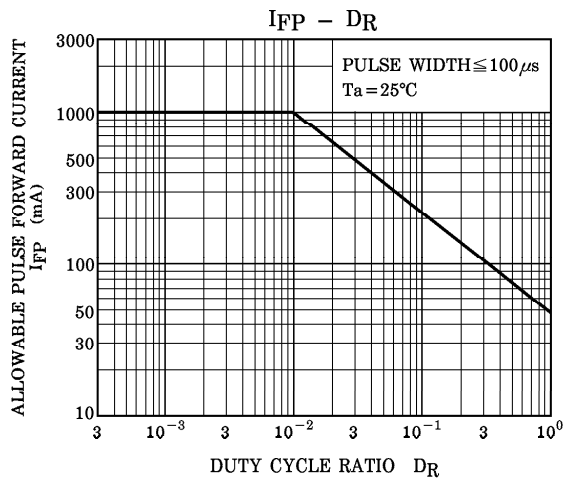
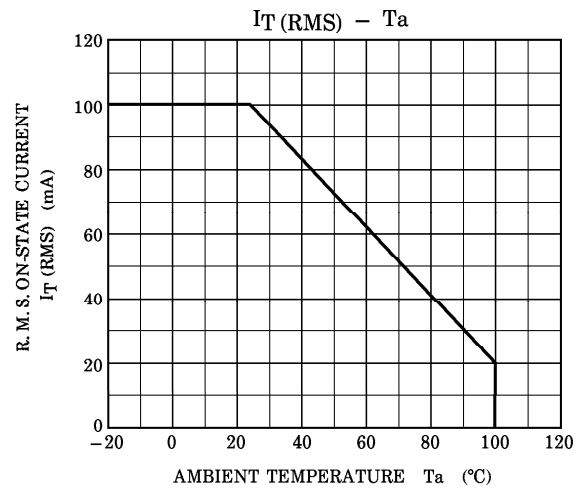
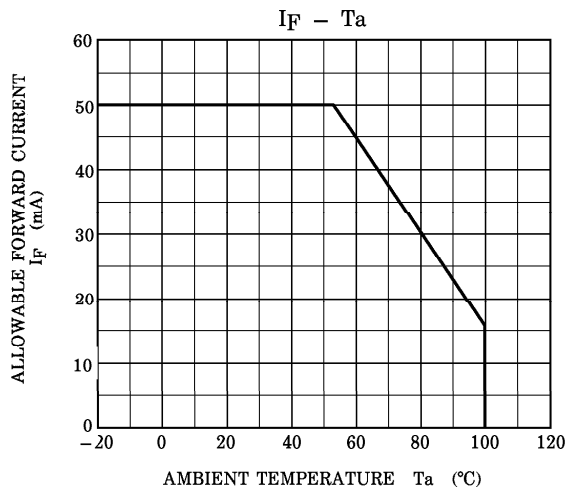
| CHARACTERISTIC | | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|----------------|--|------------------|---|------|------|------|--------------------------|
| LED | Forward Voltage | V_F | $I_F = 10\text{mA}$ | 1.0 | 1.15 | 1.3 | V |
| | Reverse Current | I_R | $V_R = 5\text{V}$ | — | — | 10 | μA |
| | Capacitance | C_T | $V = 0, f = 1\text{MHz}$ | — | 10 | — | pF |
| DETECTOR | Peak Off-State Current | I_{DRM} | $V_{\text{DRM}} = 400\text{V}$ | — | 10 | 100 | 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 | $V_{\text{in}} = 120\text{V}_{\text{rms}}, T_a = 85^\circ\text{C}$ (Fig.1) | 200 | 500 | — | $\text{V} / \mu\text{s}$ |
| | Critical Rate of Rise of Commutating Voltage | $dv/dt(c)$ | $V_{\text{in}} = 30\text{V}_{\text{rms}}, I_T = 15\text{mA}$ (Fig.1) | — | 0.2 | — | $\text{V} / \mu\text{s}$ |

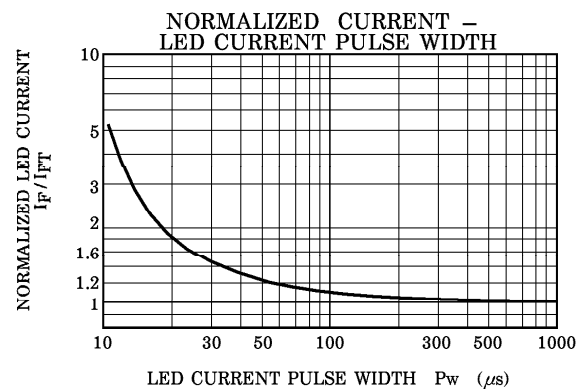
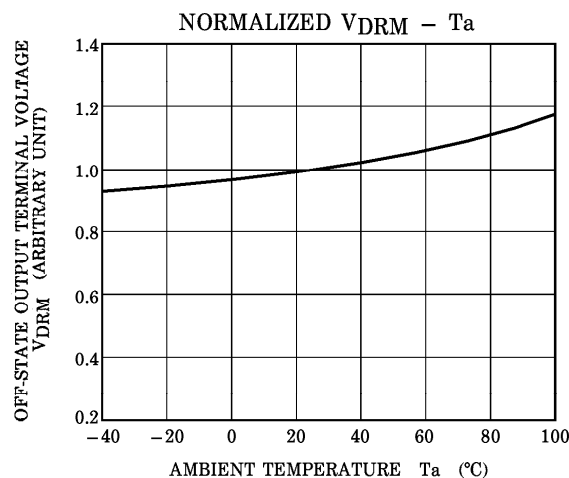
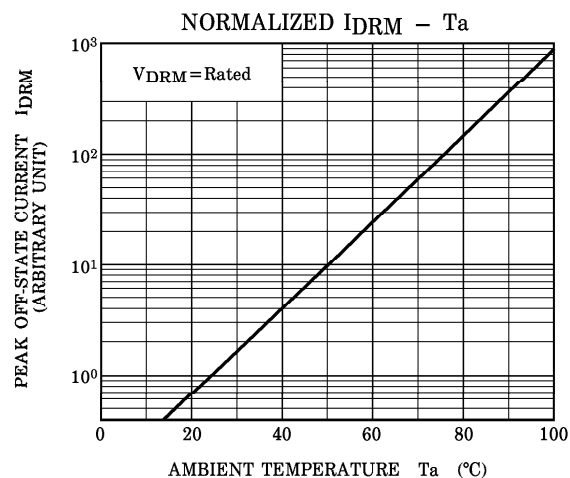
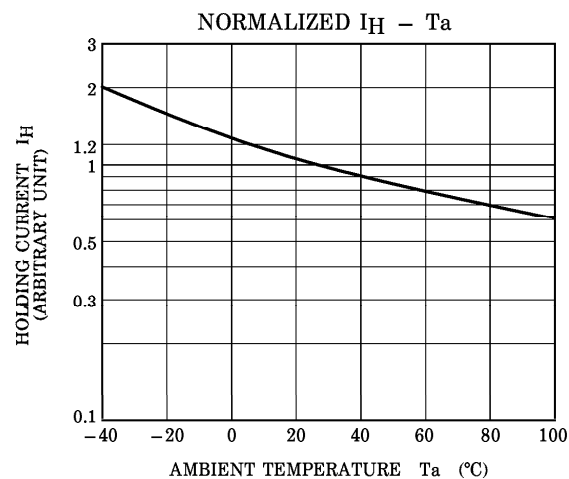
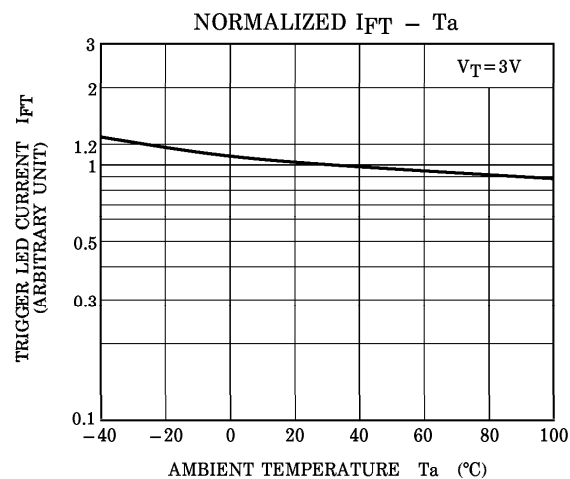
COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|-------------------------------|-----------------|----------------------------|--------------------|-----------|------|------------------|
| Trigger LED Current | I_{FT} | $V_T = 3\text{V}$ | — | 5 | 10 | mA |
| 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







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