## Absolute Maximum Ratings (Ta = 25°C)

| Characteristics | | | | Symbol | Rating | Unit |
|---|---|---|---|---|---|---|
| LED | Forward current | | | $I_F$ | 50 | mA |
| | Forward current derating (Ta ≥ 25°C) | | | $\Delta I_F$/°C | -0.5 | mA/°C |
| | Peak forward current (100 μs pulse, 100 pps) | | | $I_{FP}$ | 1 | A |
| | Reverse voltage | | | $V_R$ | 5 | V |
| | Diode power dissipation | | | $P_D$ | 50 | mW |
| | Diode power dissipation derating (Ta ≥ 25°C) | | | $\Delta P_D$ /°C | -0.5 | mW/°C |
| | Junction temperature | | | $T_j$ | 125 | °C |
| Detector | Off-state output terminal voltage | | | $V_{OFF}$ | 350 | V |
| | On-state current | TLP4227G | | $I_{ON}$ | 150 | mA |
| | | TLP4227G-2 | One channel | | | |
| | | | Both channel | | | |
| | On-state current derating (Ta ≥ 25°C) | TLP4227G | | $\Delta I_{ON}$/°C | -1.5 | mA/°C |
| | | TLP4227G-2 | One channel | | | |
| | | | Both channel | | | |
| | Output power dissipation | | | $P_O$ | 506 | mW |
| | Output power dissipation derating (Ta ≥ 25°C) | | | $\Delta P_O$ / °C | -5.06 | mW / °C |
| | Junction temperature | | | $T_j$ | 125 | °C |
| Storage temperature range | | | | $T_{stg}$ | -55 to 125 | °C |
| Operating temperature range | | | | $T_{opr}$ | -40 to 85 | °C |
| Lead soldering temperature (10 s) | | | | $T_{sol}$ | 260 | °C |
| Isolation voltage (AC, 60 s, R.H. ≤ 60 %) (Note 1) | | | | $BV_S$ | 2500 | Vrms |

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook (“Handling Precautions”/“Derating Concept and Methods”) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Note 1: Device considered a two-terminal device: LED side pins shorted together, and DETECTOR side pins shorted together.

## Recommended Operating Conditions

| Characteristics | Symbol | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|
| Supply voltage | $V_{DD}$ | — | — | 280 | V |
| Forward current | $I_F$ | 5 | — | 25 | mA |
| On-state current | $I_{ON}$ | — | — | 150 | mA |
| Operating temperature | $T_{opr}$ | -20 | — | 65 | °C |

Note: Recommended operating conditions are given as a design guideline to obtain expected performance of the device. Additionally, each item is an independent guideline respectively. In developing designs using this product, please confirm specified characteristics shown in this document.

## Electrical Characteristics (Ta = 25°C)

| Characteristics | | Symbol | Test Condition | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|---|
| LED | Forward voltage | $V_F$ | $I_F$ = 10 mA | 1.0 | 1.15 | 1.3 | V |
| | Reverse current | $I_R$ | $V_R$ = 5 V | — | — | 10 | μA |
| | Capacitance | $C_T$ | $V_F$ = 0 V, f = 1 MHz | — | 30 | — | pF |
| Detector | Off-state current | $I_{OFF}$ | $V_{OFF}$ = 350 V | — | — | 1 | μA |
| | Capacitance | $C_{OFF}$ | V = 0 V, f = 1 MHz, $I_F$ = 5 mA | — | 65 | — | pF |

## Coupled Electrical Characteristics (Ta = 25°C)

| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|
| Trigger LED current | $I_{FC}$ | $I_{OFF}$ = 10 μA | — | 1 | 3 | mA |
| Return LED current | $I_{FT}$ | $I_{ON}$ = 150 mA | 0.1 | — | — | mA |
| On-state resistance | $R_{ON}$ | $I_{ON}$ = 150 mA | — | 15 | 25 | Ω |

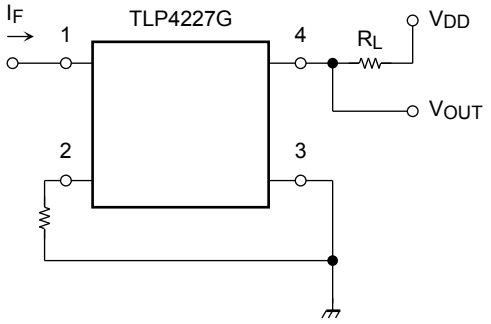
## Isolation Characteristics (Ta = 25°C)

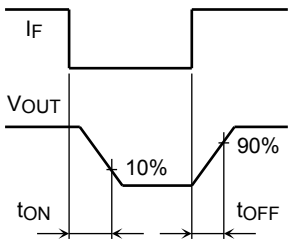
| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|
| Capacitance input to output | $C_S$ | $V_S$ = 0 V, f = 1 MHz | — | 0.8 | — | pF |
| Isolation resistance | $R_S$ | $V_S$ = 500 V, R.H. ≤ 60 % | $5 \times 10^{10}$ | $10^{14}$ | — | Ω |
| Isolation voltage | $BV_S$ | AC, 60 s | 2500 | — | — | Vrms |

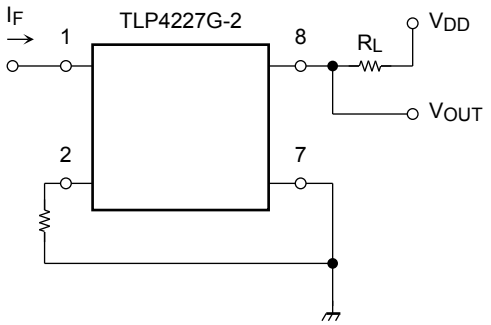
## Switching Characteristics (Ta = 25°C)

| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|
| Turn-on time | $t_{ON}$ | $R_L$ = 200 Ω | — | — | 1 | ms |
| Turn-off time | $t_{OFF}$ | $V_{DD}$ = 20 V, $I_F$ = 5 mA (Note 2) | — | — | 3 | ms |

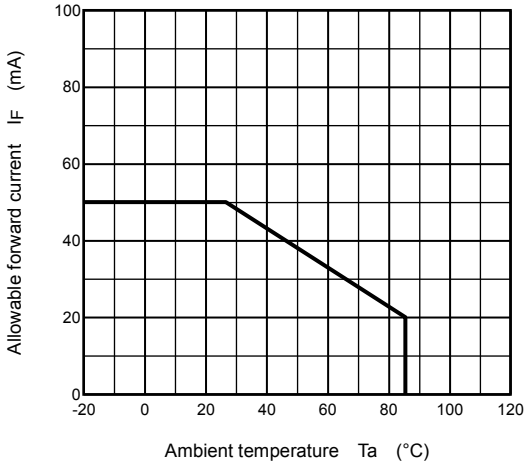
Note 2: Switching time test circuit



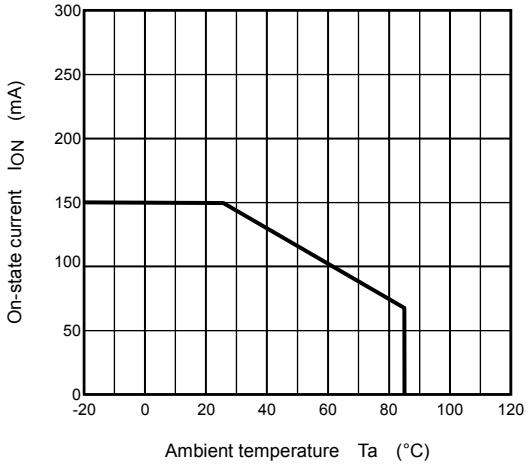



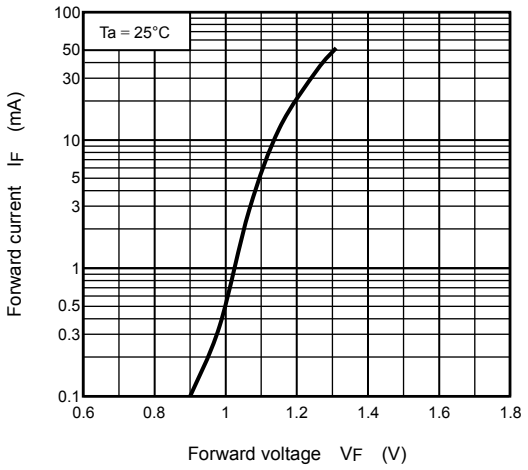
$I_F$ – Ta



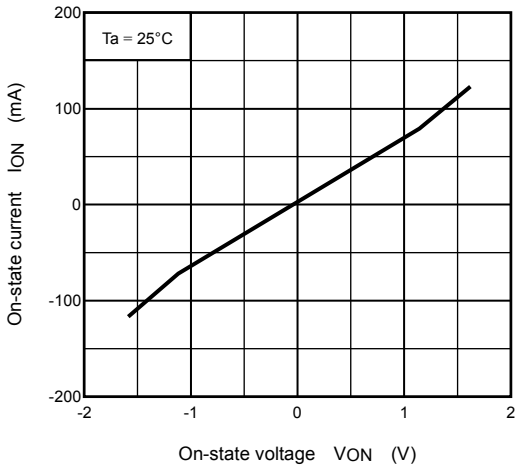

$I_{ON}$ – Ta



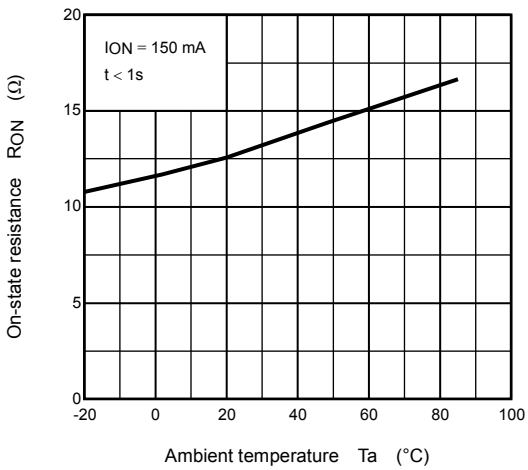

$I_F$ – $V_F$



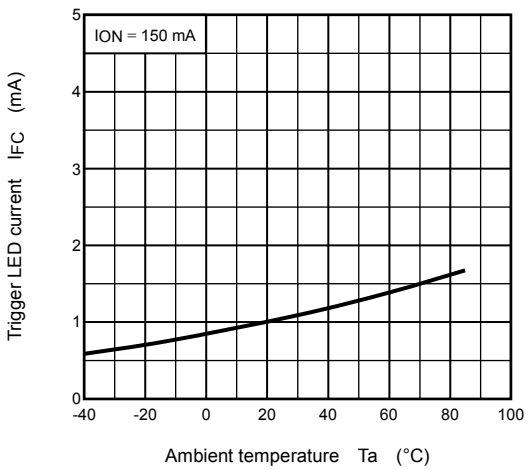

$I_{ON}$ – $V_{ON}$




$R_{ON}$ – Ta




$I_{FC}$ – Ta

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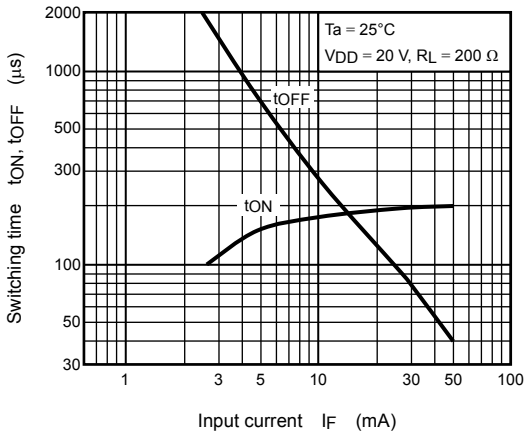
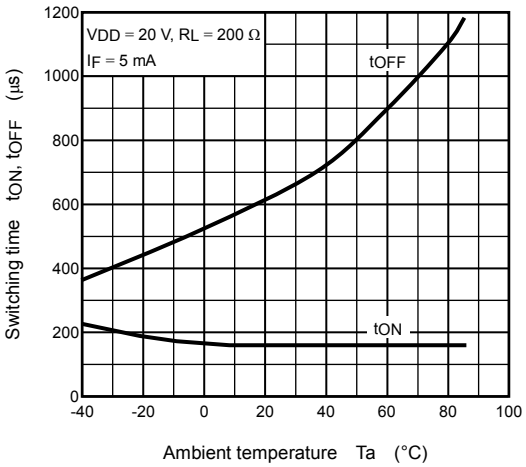
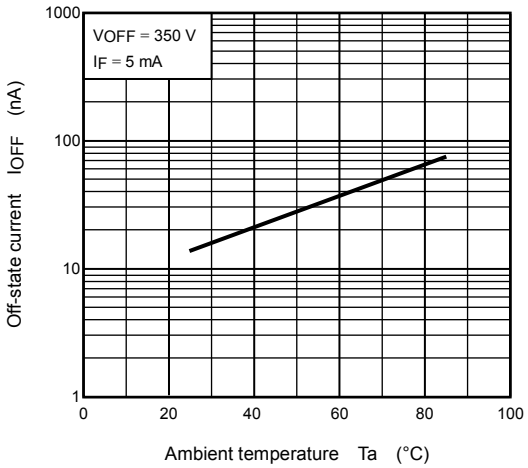
$t_{ON}$, $t_{OFF}$ – $I_F$




$t_{ON}$, $t_{OFF}$ – Ta




$I_{OFF}$ – Ta




NOTE: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

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