



Maximum Ratings (Ta = 25°C)

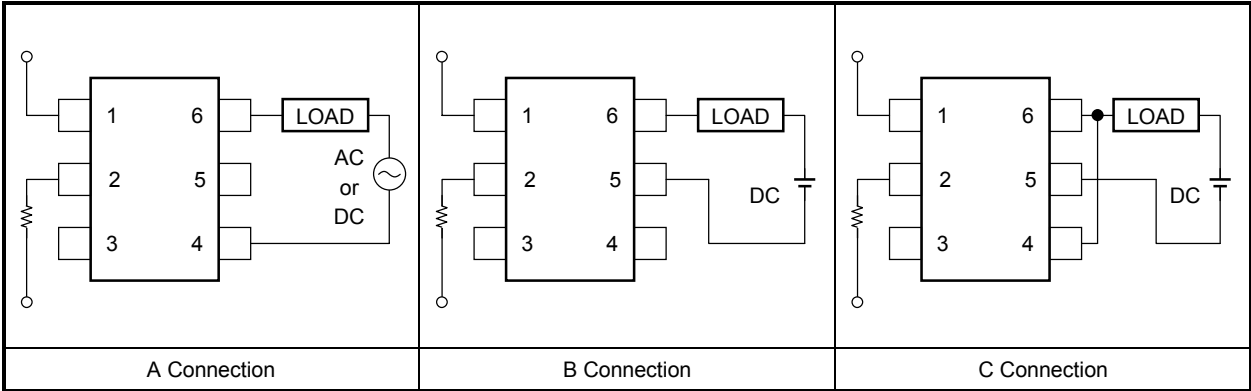
| Characteristics                                       |   |                  | Symbol               | Rating           | Unit  |
|---|---|------------------|----------------------|------------------|-------|
| LED   | Forward current   |                  | I <sub>F</sub>       | 50               | mA    |
|   | Forward current derating<br>(T <sub>a</sub> ≥ 25°C)     |                  | ΔI <sub>F</sub> /°C  | −0.5             | mA/°C |
|   | Peak forward current<br>(100 μs pulse, 100 pps)         |                  | I <sub>FP</sub>      | 1                | A     |
|   | Reverse voltage   |                  | V <sub>R</sub>       | 5                | V     |
|   | Junction temperature                                    |                  | T <sub>j</sub>       | 125              | °C    |
| Detector  | Off-state output terminal voltage                       |                  | V <sub>OFF</sub>     | 350              | V     |
|   | On-state current  | A connection     | I <sub>ON</sub>      | 150              | mA    |
|   |   | B connection     |                      | 150              |       |
|   |   | C connection     |                      | 300              |       |
|   | On-state current<br>derating<br>(T <sub>a</sub> ≥ 25°C) | A connection     | ΔI <sub>ON</sub> /°C | −1.5             | mA/°C |
|   |   | B connection     |                      | −1.5             |       |
|   |   | C connection     |                      | −3.0             |       |
|   | Junction temperature                                    |                  | T <sub>j</sub>       | 125              | °C    |
| Operating temperature range                           |   | T <sub>opr</sub> | −40 to 85            | °C               |       |
| Storage temperature range                             |   | T <sub>stg</sub> | −55 to 125           | °C               |       |
| Lead soldering temperature (10 s)                     |   | T <sub>sol</sub> | 260                  | °C               |       |
| Isolation voltage<br>(AC, 1 min, R.H. ≤ 60%) (Note 1) |   | BV <sub>S</sub>  | 2500                 | V <sub>rms</sub> |       |

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   |

Circuit Connections



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

| Characteristics |                   | 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  | $\mu\text{A}$ |
|                 | Capacitance       | $C_T$     | $V = 0, f = 1 \text{ MHz}$                     | —   | 30   | —   | pF            |
| Detector        | Off-state current | $I_{OFF}$ | $V_{OFF} = 350 \text{ V}, I_F = 5 \text{ mA}$  | —   | —    | 1   | $\mu\text{A}$ |
|                 | Capacitance       | $C_{OFF}$ | $V = 0, f = 1 \text{ MHz}, I_F = 5 \text{ mA}$ | —   | 65   | —   | pF            |

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

| Characteristics     |              | Symbol   | Test Condition             | Min | Typ. | Max | Unit     |
|---------------------|--------------|----------|----------------------------|-----|------|-----|----------|
| Trigger LED current |              | $I_{FC}$ | $I_{OFF} = 10 \mu\text{A}$ | —   | 1    | 3   | mA       |
| Return LED current  |              | $I_{FT}$ | $I_{ON} = 150 \text{ mA}$  | 0.1 | —    | —   | mA       |
| On-state resistance | A connection | $R_{ON}$ | $I_{ON} = 150 \text{ mA}$  | —   | 15   | 25  | $\Omega$ |
|                     | B connection |          | $I_{ON} = 150 \text{ mA}$  | —   | 8    | 14  |          |
|                     | C connection |          | $I_{ON} = 300 \text{ mA}$  | —   | 4    | —   |          |

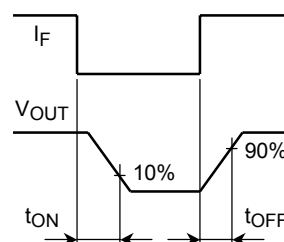
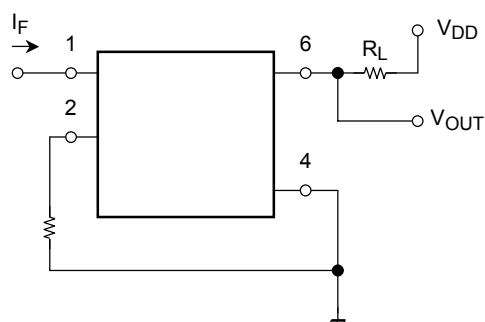
## Isolation Characteristics (Ta = 25°C)

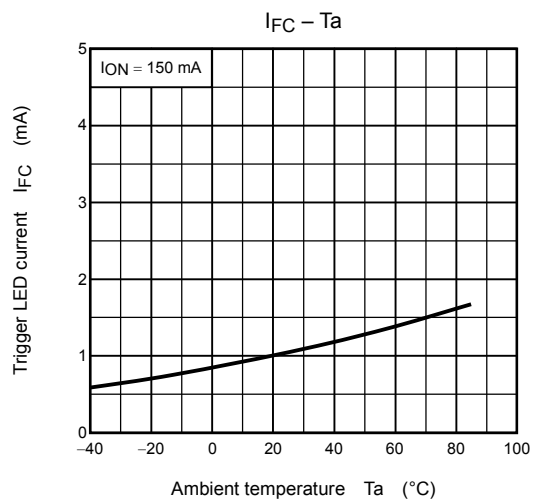
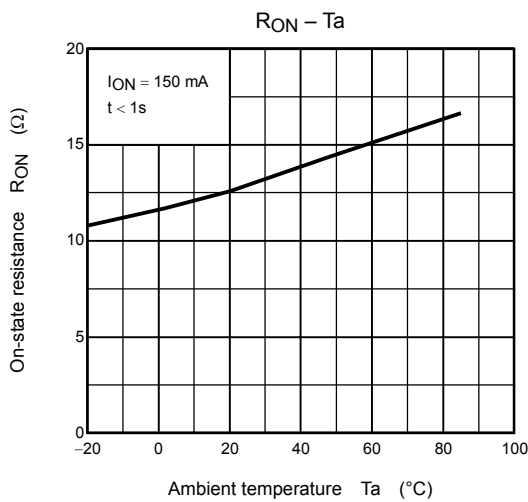
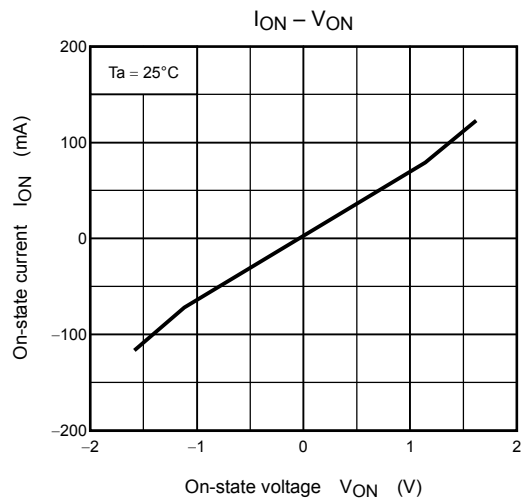
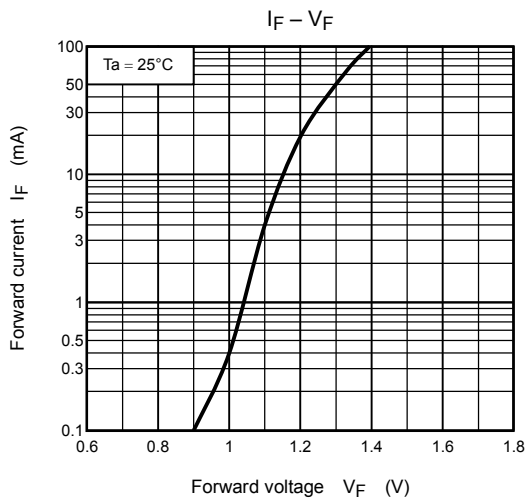
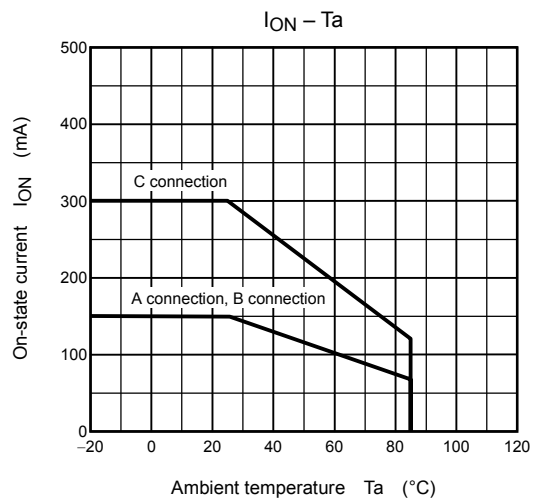
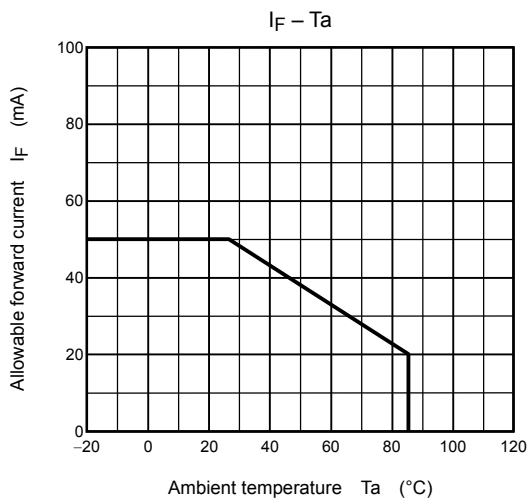
| Characteristics             | Symbol | Test Condition                               | Min                | Typ.      | Max | Unit     |
|-----------------------------|--------|--|--------------------|-----------|-----|----------|
| Capacitance input to output | $C_S$  | $V_S = 0, f = 1 \text{ MHz}$                 | —                  | 0.8       | —   | pF       |
| Isolation resistance        | $R_S$  | $V_S = 500 \text{ V}, \text{R.H.} \leq 60\%$ | $5 \times 10^{10}$ | $10^{14}$ | —   | $\Omega$ |
| Isolation voltage           | $BV_S$ | AC, 1 min                                    | 2500               | —         | —   | Vrms     |
|                             |        | AC, 1 s, in oil                              | —                  | 5000      | —   |          |
|                             |        | DC, 1 min, in oil                            | —                  | 5000      | —   | Vdc      |

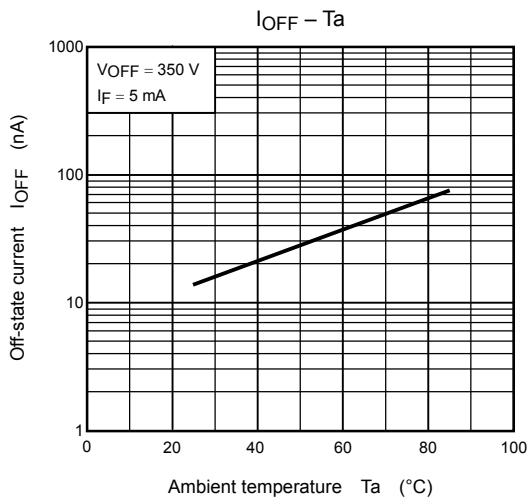
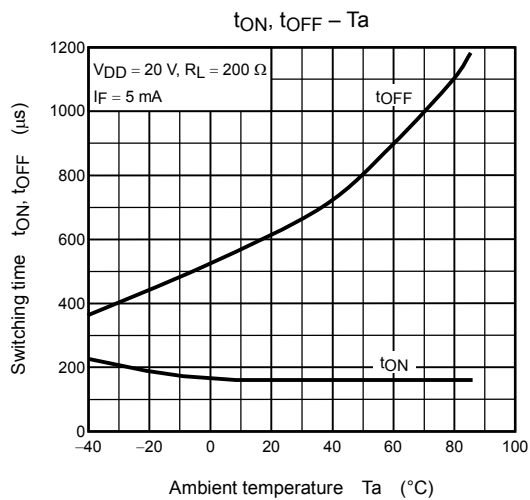
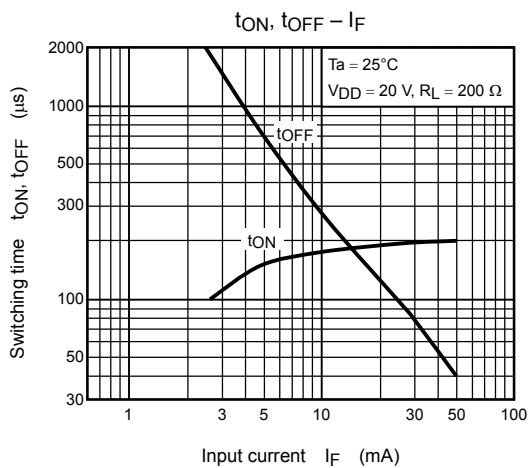
## Switching Characteristics (Ta = 25°C)

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

Note 2: Switching time test circuit







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