

# TPS622(F)

Lead-free Product

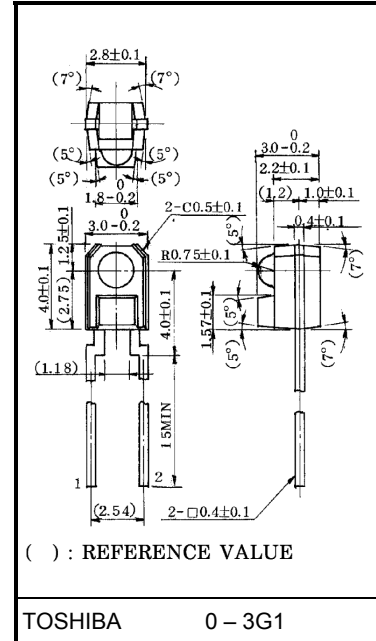
Opto-electronic Switch

Optical Mouse

Optical Touch Switch

- Compact side view epoxy resin package
- High response speed:  $t_r, t_f = 6\mu s$  (typ.)
- Half value angle:  $\theta_{1/2} = \pm 15^\circ$  (typ.)
- Visible light cut type (black package)
- Optimum in combination with infrared LED TLN117(F) with identical external dimensions.

Unit in : mm



## Maximum Ratings (Ta = 25°C)

| Characteristic                                   | Symbol                  | Rating       | Unit    |
|--|-------------------------|--------------|---------|
| Collector-emitter voltage                        | $V_{CEO}$               | 30           | V       |
| Emitter-collector voltage                        | $V_{ECO}$               | 5            | V       |
| Collector current                                | $I_C$                   | 50           | mA      |
| Collector power dissipation                      | $P_C$                   | 75           | mW      |
| Collector power dissipation derating (Ta > 25°C) | $\Delta P_C / ^\circ C$ | -1           | mW / °C |
| Operating temperature range                      | $T_{opr}$               | -25~85       | °C      |
| Storage temperature range                        | $T_{stg}$               | -40~100      | °C      |
| Soldering temperature (5s)                       | $T_{sol}$               | 260 (Note 1) | °C      |

Note 1. Soldering portion of lead: At least 2mm from the body of the device.

Weight: 0.1 g (typ.)

## Opto-electrical Characteristics (Ta = 25°C)

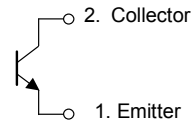
| Characteristic                       | Symbol                 | Test Condition                             | Min. | Typ.     | Max. | Unit    |
|--------------------------------------|------------------------|--|------|----------|------|---------|
| Dark current                         | $I_D(I_{CEO})$         | $V_{CE} = 24V, E = 0$                      | —    | 0.005    | 0.1  | $\mu A$ |
| Light current                        | $I_L$                  | $E = 0.1mW / cm^2, V_{CE} = 3V$ (Note 2,3) | 27   | 70       | —    | $\mu A$ |
| Collector-emitter saturation voltage | $V_{CE(sat)}$          | $E = 0.1mW / cm^2, I_L = 10\mu A$          | —    | 0.15     | 0.4  | V       |
| Peak sensitivity wavelength          | $\lambda_P$            | —  | —    | 870      | —    | nm      |
| Half value angle                     | $\theta_{\frac{1}{2}}$ | —  | —    | $\pm 15$ | —    | °       |
| Switching time                       | Rise time              | $V_{CC} = 5V, I_C = 2mA, R_L = 100\Omega$  | —    | 6        | —    | $\mu s$ |
|                                      | Fall time              |  | —    | 6        | —    |         |

Note 2. Color temperature = 2870K standard tungsten lamp

Note 3.  $I_L$  classification

| Rank | $I_L$ ( $\mu A$ ) |
|------|-------------------|
| (A)  | 27~80             |
| (B)  | 55~165            |
| —    | 27min.            |

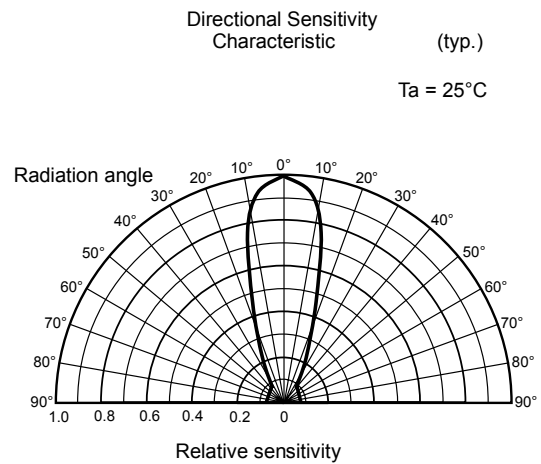
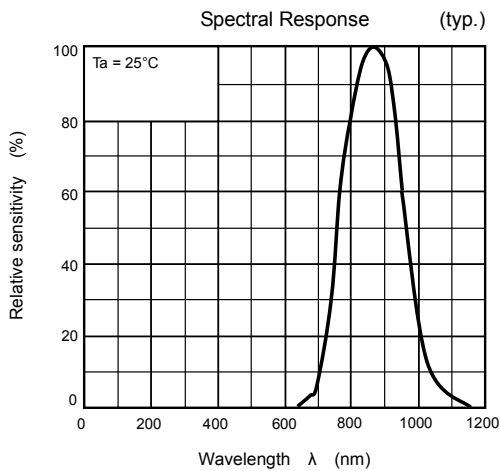
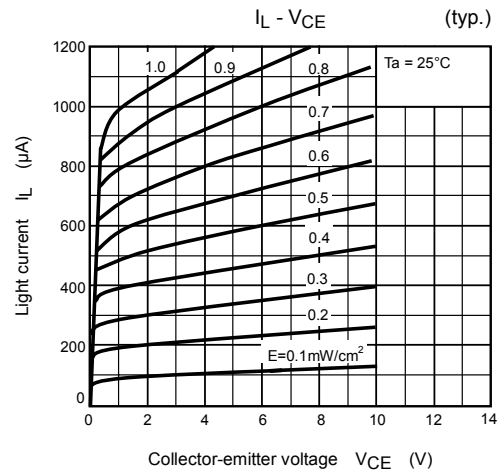
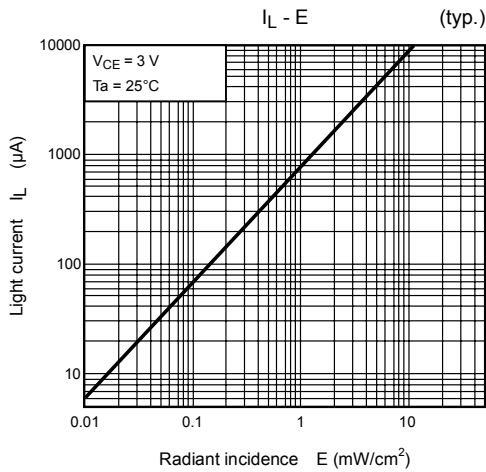
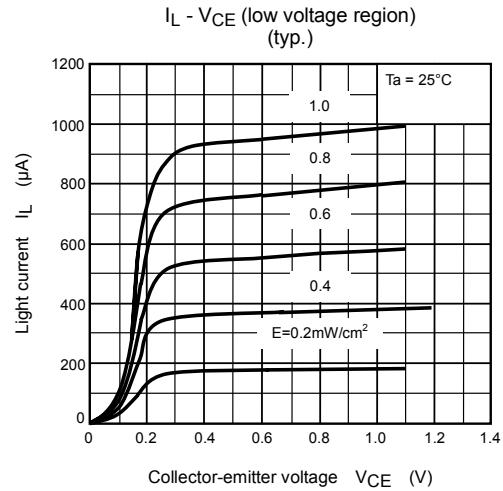
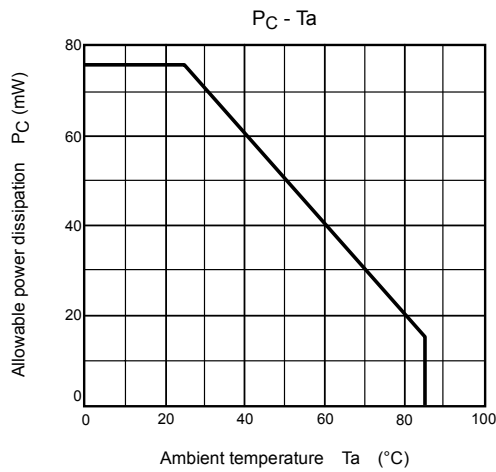
### Pin Connection



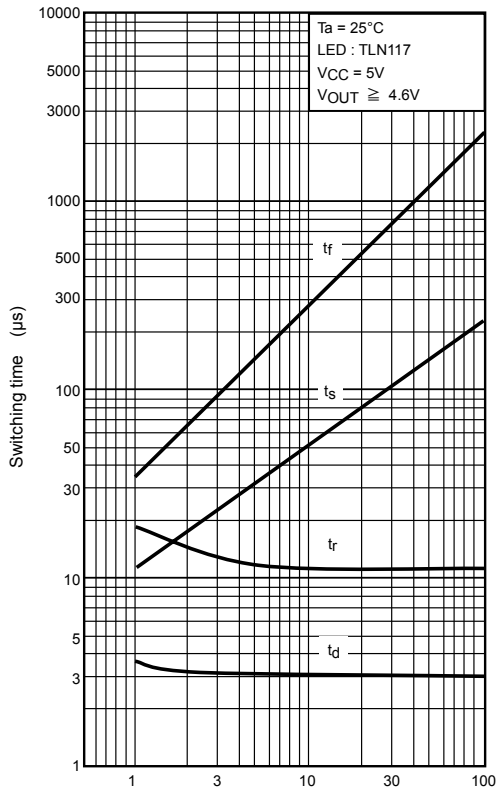
### Precaution

Take particular care with the following:

1. Lead forming should be carried out at least 2 mm from the body of the device without applying forming stress to the plastic.  
Soldering should be performed after lead forming.

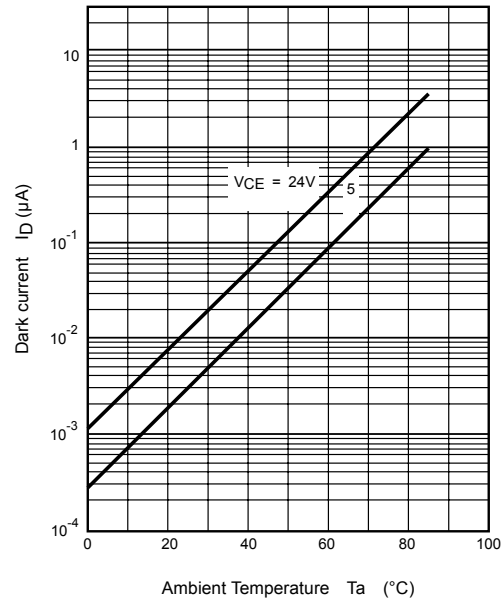


Switching Characteristics  
(saturated operation) (typ.)

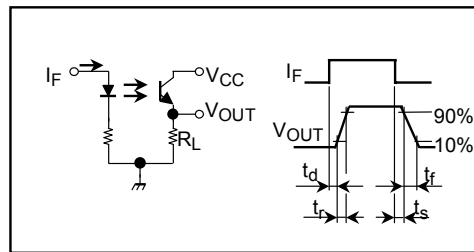


Load Resistance  $R_L$  (kΩ)

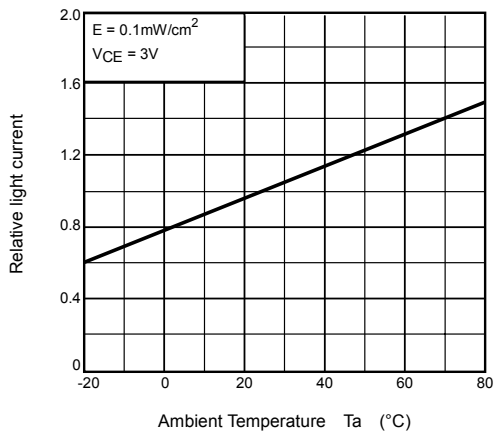
$I_D(I_{CEO}) - T_a$  (typ.)



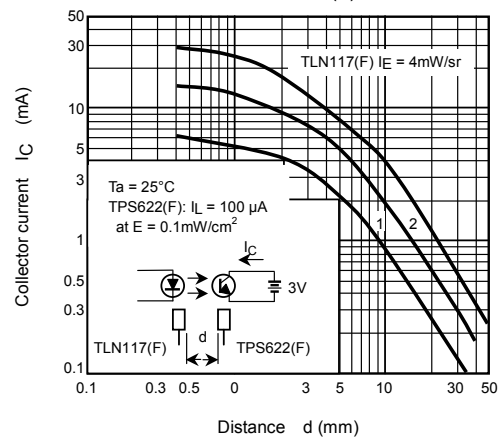
Switching Time Test Circuit



Relative  $I_L - T_a$  (typ.)



Coupling Characteristics  
with TLN117(F)



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