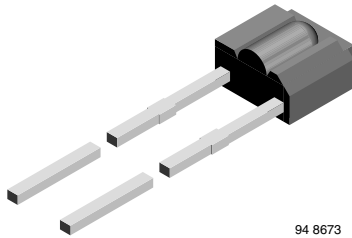


Silicon NPN Phototransistor, RoHS Compliant



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DESCRIPTION

TEST2600 is a silicon NPN phototransistor with high radiant sensitivity in black, miniature, side view plastic package with daylight blocking filter. Filter bandwidth is matched with 900 nm to 950 nm IR emitters.

FEATURES

- Package type: leaded
- Package form: side view
- Dimensions (L x W x H in mm): 3.6 x 2.2 x 3.4
- High radiant sensitivity
- Daylight blocking filter matches with 940 nm emitters
- Fast response times
- Angle of half sensitivity: $\varphi_1 = \pm 30^\circ$, horizontal
- Package matches with IR emitter series TSSS2600
- Lead (Pb)-free component in accordance with RoHS 2002/95/EC and WEEE 2002/96/EC


RoHS
COMPLIANT

APPLICATIONS

- Optical switches
- Counters and sorters
- Interrupters
- Tape and card readers
- Encoders
- Position sensors

PRODUCT SUMMARY

| COMPONENT | I_{ca} (mA) | φ (deg) | $\lambda_{0.5}$ (nm) |
|-----------|---------------|-----------------|----------------------|
| TEST2600 | 2.5 | ± 30 | 850 to 980 |

Note

Test condition see table "Basic Characteristics"

ORDERING INFORMATION

| ORDERING CODE | PACKAGING | REMARKS | PACKAGE FORM |
|---------------|-----------|------------------------------|--------------|
| TEST2600 | Bulk | MOQ: 5000 pcs, 5000 pcs/bulk | Side view |

Note

MOQ: minimum order quantity

ABSOLUTE MAXIMUM RATINGS

| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
|-------------------------------------|--|------------|---------------|------------------|
| Collector emitter voltage | | V_{CEO} | 70 | V |
| Emitter collector voltage | | V_{ECO} | 5 | V |
| Collector current | | I_C | 50 | mA |
| Collector peak current | $t_p/T = 0.5, t_p \leq 10$ ms | I_{CM} | 100 | mA |
| Total power dissipation | $T_{amb} \leq 55^\circ\text{C}$ | P_V | 100 | mW |
| Junction temperature | | T_j | 100 | $^\circ\text{C}$ |
| Operating temperature range | | T_{amb} | - 40 to + 85 | $^\circ\text{C}$ |
| Storage temperature range | | T_{stg} | - 40 to + 100 | $^\circ\text{C}$ |
| Soldering temperature | $t \leq 3$ s, 2 mm frpm case | T_{sd} | 260 | $^\circ\text{C}$ |
| Thermal resistance junction/ambient | Connected with Cu wire, 0.14 mm ² | R_{thJA} | 450 | K/W |

Note

$T_{amb} = 25^\circ\text{C}$, unless otherwise specified

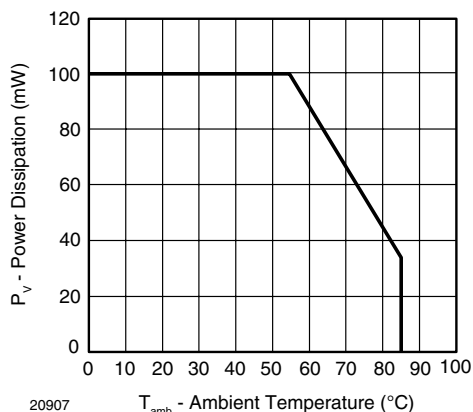


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

| BASIC CHARACTERISTICS | | | | | | |
|--------------------------------------|---|-----------------|------|------------|------|---------------|
| PARAMETER | TEST CONDITION | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| Collector emitter breakdown voltage | $I_C = 1 \text{ mA}$ | $V_{(BR)CEO}$ | 70 | | | V |
| Collector emitter dark current | $V_{CE} = 20 \text{ V}, E = 0$ | I_{CEO} | | 1 | 100 | nA |
| Collector emitter capacitance | $V_{CE} = 5 \text{ V}, f = 1 \text{ MHz}, E = 0$ | C_{CEO} | | 6 | | pF |
| Collector light current | $E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}, V_{CE} = 5 \text{ V}$ | I_{ca} | 1 | 2.5 | | mA |
| Angle of half sensitivity | horizontal | φ_1 | | ± 30 | | deg |
| | vertical | φ_2 | | ± 60 | | deg |
| Wavelength of peak sensitivity | | λ_p | | 920 | | nm |
| Range of spectral bandwidth | | $\lambda_{0.5}$ | | 850 to 980 | | nm |
| Collector emitter saturation voltage | $E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}, I_C = 0.1 \text{ mA}$ | V_{CEsat} | | | 0.3 | V |
| Turn-on time | $V_S = 5 \text{ V}, I_C = 5 \text{ mA}, R_L = 100 \Omega$ | t_{on} | | 6 | | μs |
| Turn-off time | $V_S = 5 \text{ V}, I_C = 5 \text{ mA}, R_L = 100 \Omega$ | t_{off} | | 5 | | μs |
| Cut-off frequency | $V_S = 5 \text{ V}, I_C = 5 \text{ mA}, R_L = 100 \Omega$ | f_c | | 110 | | kHz |

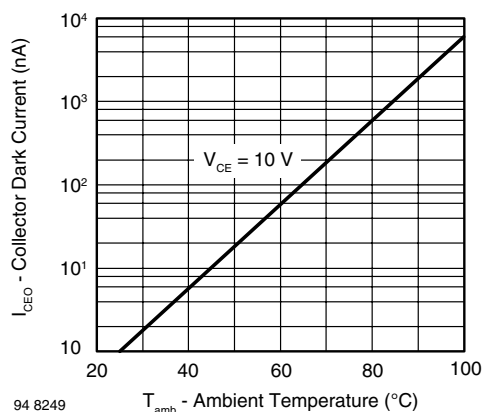
Note $T_{amb} = 25^\circ\text{C}$, unless otherwise specified**BASIC CHARACTERISTICS** $T_{amb} = 25^\circ\text{C}$, unless otherwise specified

Fig. 2 - Collector Dark Current vs. Ambient Temperature

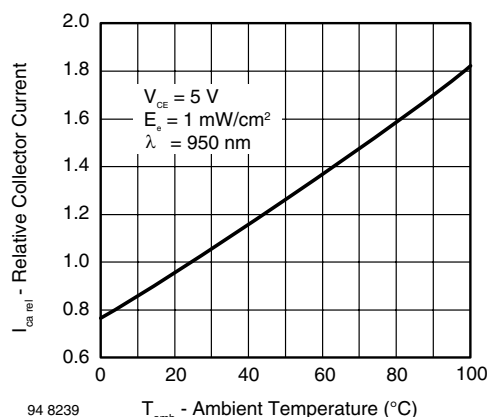


Fig. 3 - Relative Collector Current vs. Ambient Temperature

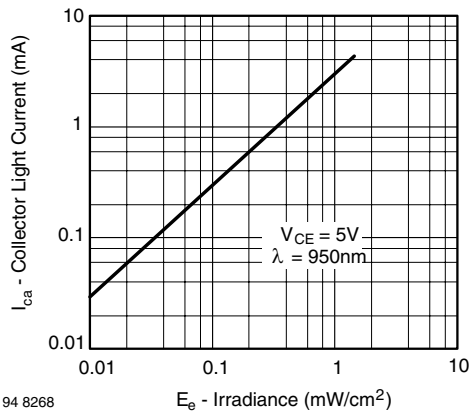


Fig. 4 - Collector Light Current vs. Irradiance

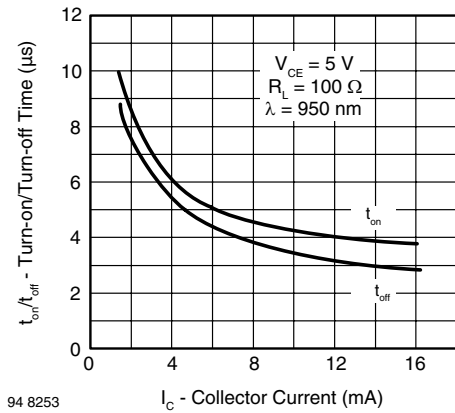


Fig. 7 - Turn-on/Turn-off Time vs. Collector Current

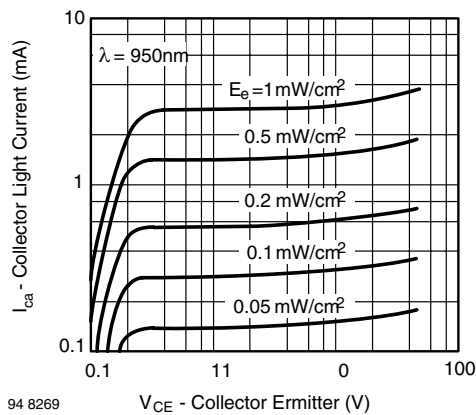


Fig. 5 - Collector Light Current vs. Collector Emitter Voltage

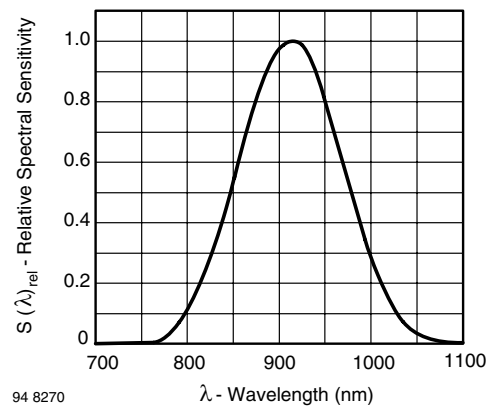


Fig. 8 - Relative Spectral Sensitivity vs. Wavelength

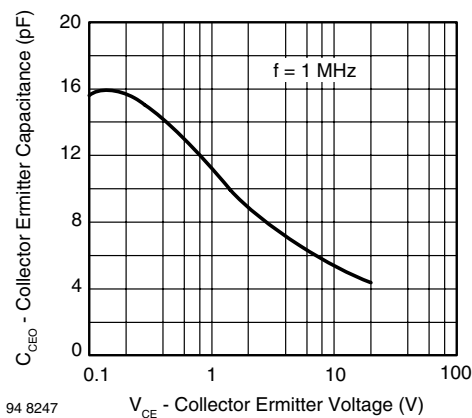


Fig. 6 - Collector Emitter Capacitance vs. Collector Emitter Voltage

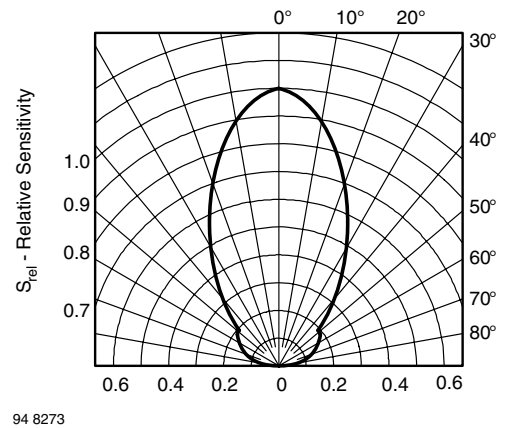
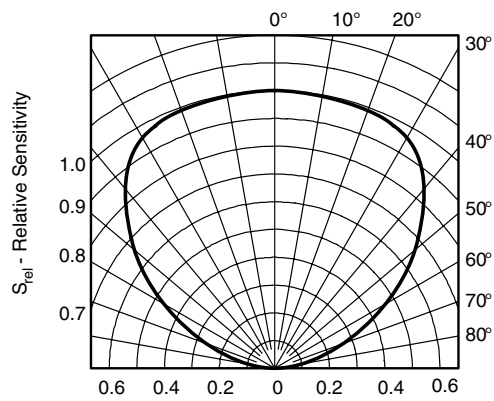


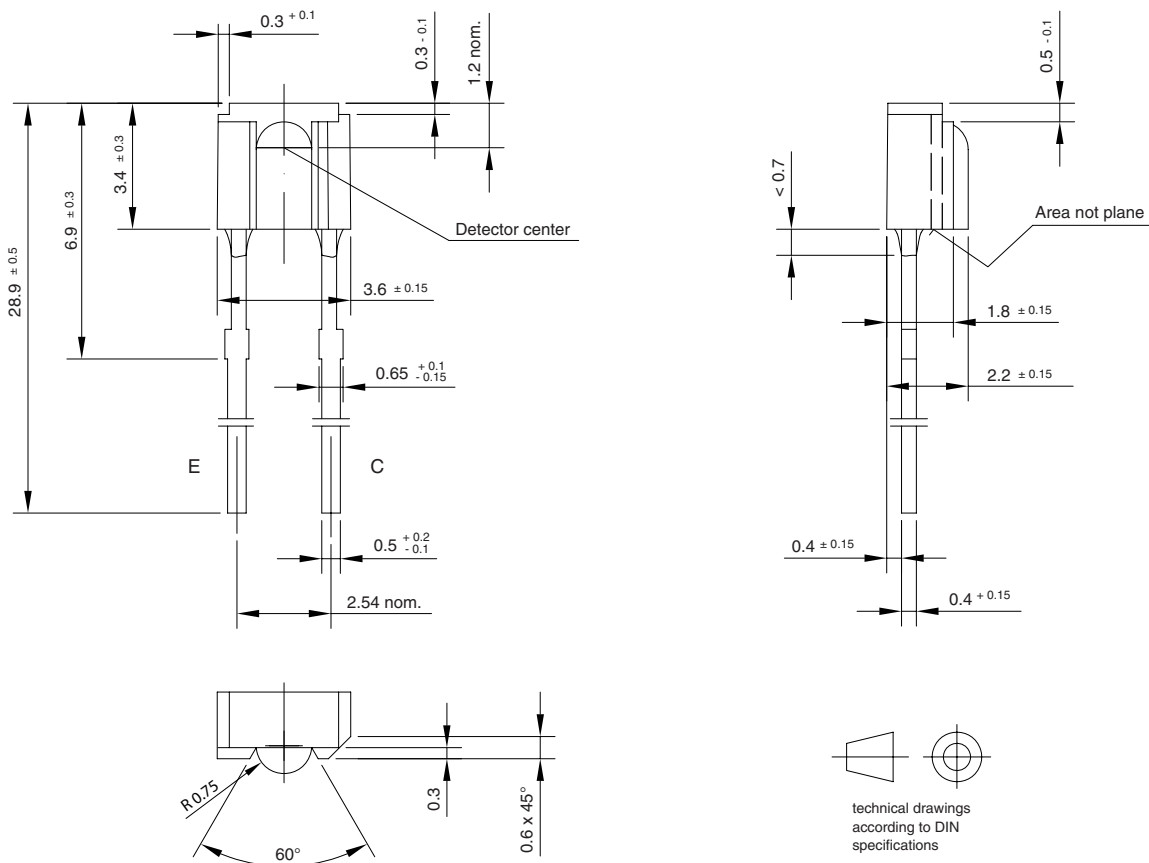
Fig. 9 - Relative Radiant Sensitivity vs. Angular Displacement



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Fig. 10 - Relative Radiant Sensitivity vs. Angular Displacement

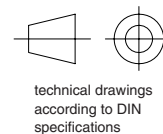
PACKAGE DIMENSIONS in millimeters



Drawing-No.: 6.544-5242.01-4

Issue: 3; 18.04.96

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