

ST - 1KA · ST - 1KB

The ST - 1KA and 1KB are high - sensitivity NPN silicon phototransistors mounted in durable, hermetically sealed TO - 18 metal cans, which provide years of reliable performance, even under demanding conditions such as use out - doors.

FEATURES

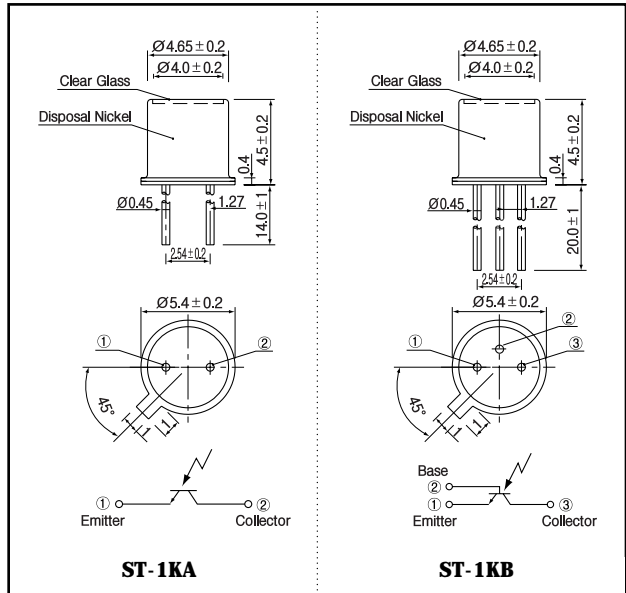
- Wide angular response
- Durable
- High reliability in demanding environments
- Two leads (Collector, Emitter) ST - 1KA
- Three leads (Collector Emitter, Base) ST - 1KB

APPLICATIONS

- Optical counters
- Optical detectors
- Infrared sensors
- Fiber optic communications

DIMENSIONS

(Unit : mm)



MAXIMUM RATINGS

(Ta=25 °C)

| Item | Symbol | Rating | Unit |
|-----------------------------|------------|--------------|------|
| C - E voltage | V_{CE0} | 40 | V |
| E - C voltage | V_{ECO} | 4 | V |
| Collector current | I_C | 50 | mA |
| Collector power dissipation | P_C | 150 | mW |
| Operating temp. | $T_{opr.}$ | - 30 ~ + 100 | |
| Storage Temp. | $T_{stg.}$ | - 50 ~ + 150 | |
| Soldering temp. *1 | $T_{sol.}$ | 260 | |

*1.For MAX.5 seconds at the position of 2 mm from the package

ELECTRO-OPTICAL CHARACTERISTICS

(Ta=25 °C)

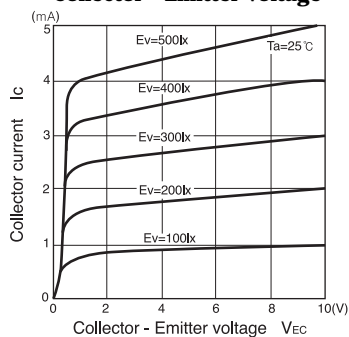
| Item | Symbol | Conditions | Min. | Typ. | Max. | Unit. |
|--------------------------|---------------|--------------------------------------|------|-------------|------|------------|
| Collector dark current | I_{CE0} | $V_{CE0} = 10V$ | | 1 | 200 | nA |
| Light current | I_L | $V_{CE} = 10V, 200lx^2$ | 0.5 | 2.0 | 5.0 | mA |
| C - E saturation voltage | $V_{CE(sat)}$ | $I_C = 2mA, 2,000lx^2$ | | 0.2 | 0.4 | V |
| Switching speeds | Rise time | $V_{CE} = 10V, I_C = 5mA, R_L = 100$ | | 0.8 | | $\mu sec.$ |
| | Fall time | | | 10 | | $\mu sec.$ |
| Spectral sensitivity | | | | 500 ~ 1,050 | | nm |
| Peak wavelength | λ_p | | | 880 | | nm |
| Half angle | | | | ± 50 | | deg. |

*2. Color temp. = 2856K standard Tungsten lamp

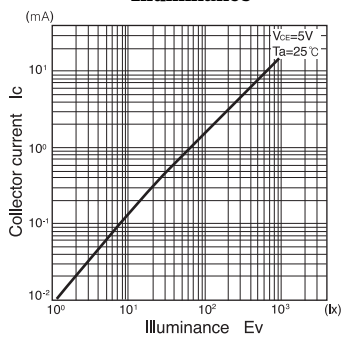
Photo transistors

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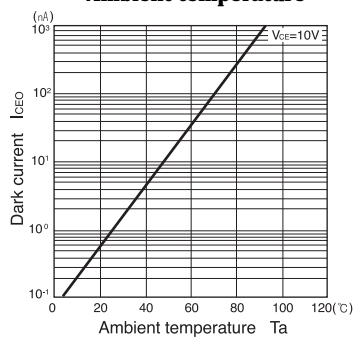
**Collector current Vs.
Collector - Emitter voltage**



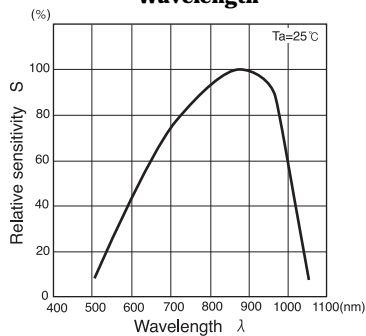
**Collector current Vs.
Illuminance**



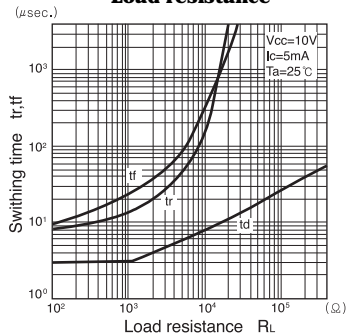
**Dark current Vs.
Ambient temperature**



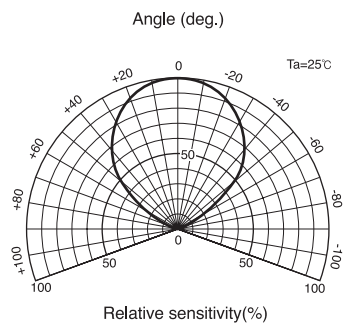
**Relative sensitivity Vs.
Wavelength**



**Switching time Vs.
Load resistance**



Radiant Pattern



**Collector power dissipation Vs.
Ambient temperature**

