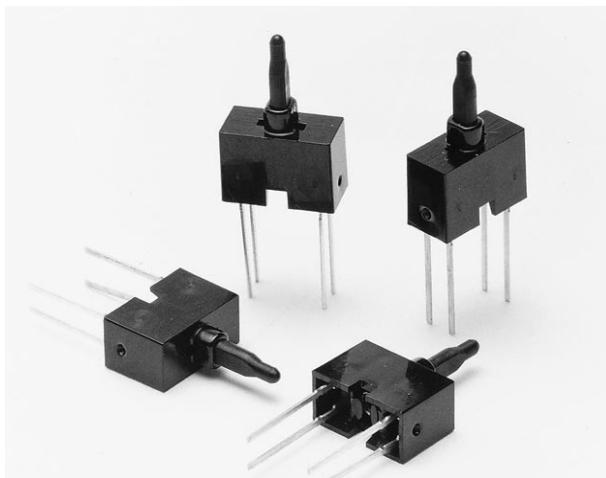
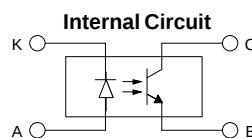
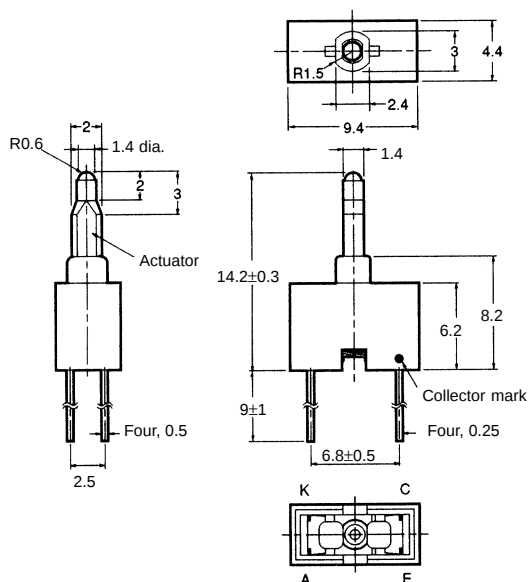


Actuator

- Phototransistor output.
- Incorporates built-in actuator.
- Small size allows use in confined spaces.
- No mechanical contacts ensure long life expectancy.
- Low operating force (15gf (0.15N)).



Dimensions



Terminal No.	Name
A	Anode
K	Cathode
C	Collector
E	Emitter

Unless otherwise specified, the tolerances are as shown below.

Dimensions	Tolerance
3 mm max.	±0.3
3 < mm ≤ 6	±0.375
6 < mm ≤ 10	±0.45
10 < mm ≤ 18	±0.55
18 < mm ≤ 30	±0.65

Specifications

■ Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Rated value
Emitter	Forward current	I_F	50 mA (see note 1)
	Pulse forward current	I_{FP}	1 A (see note 2)
	Reverse voltage	V_R	4 V
Detector	Collector–Emitter voltage	V_{CEO}	30 V
	Emitter–Collector voltage	V_{ECO}	5 V
	Collector current	I_C	20 mA
	Collector dissipation	P_C	100 mW (see note 1)
Ambient temperature	Operating	T_{opr}	–25°C to 70°C
	Storage	T_{stg}	–40°C to 100°C
	Soldering	T_{sol}	260°C

Note:

1. Refer to the temperature rating chart if the ambient temperature exceeds 25°C.
2. The pulse width is 10 μ s maximum with a frequency of 100 Hz.

■ Electrical and Optical Characteristics (Ta = 25°C)

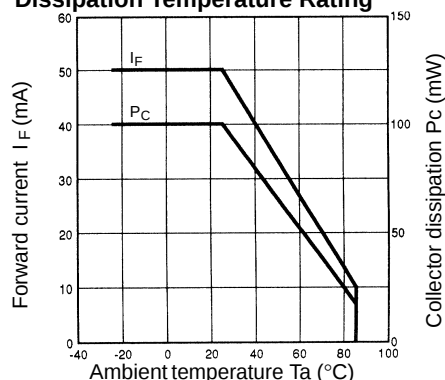
Item		Symbol	Value	Condition
Emitter	Forward voltage	V_F	1.2 V typ., 1.5 V max.	$I_F = 30$ mA
	Reverse current	I_R	0.01 μ A typ., 10 μ A max.	$V_R = 4$ V
	Peak emission wavelength	λ_P	940 nm typ.	$I_F = 20$ mA
Detector	Light current	I_L	0.5 mA min.	$I_F = 20$ mA, $V_{CE} = 5$ V at free position (FP)
	Dark current	I_D	2 nA typ., 200 nA max.	$V_{CE} = 10$ V, 0 lx
	Leakage current	I_{LEAK}	10 μ A max.	$I_F = 20$ mA, $V_{CE} = 5$ V at operating position (OP)
	Collector-Emitter saturated voltage	$V_{CE(sat)}$	0.15 V typ., 0.4 V max.	$I_F = 20$ mA, $I_L = 0.1$ mA
	Peak spectral sensitivity wavelength	λ_P	850 nm typ.	$V_{CE} = 10$ V
Rising time		t_r	---	---
Falling time		t_f	---	---

■ Mechanical Characteristics

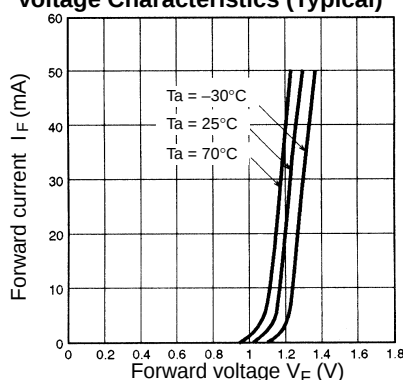
Actuator operation ($I_F = 20$ mA, $V_{CE} = 5$ V) (see note 1)	Free position (FP): 14.2±0.3 mm Operating position (OP): 13.0 mm min. Total travel position (TTP): 12.1 mm max.
Operating force (see note 2)	15 gf (0.15 N) max.
Mechanical life expectancy	500,000 operations min. (The actuator traveling from its FP to FP via TTP is regarded as one operation.)

Engineering Data

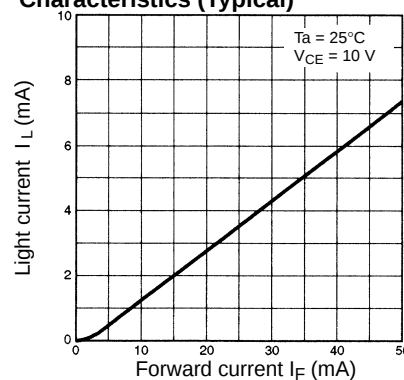
Forward Current vs. Collector Dissipation Temperature Rating



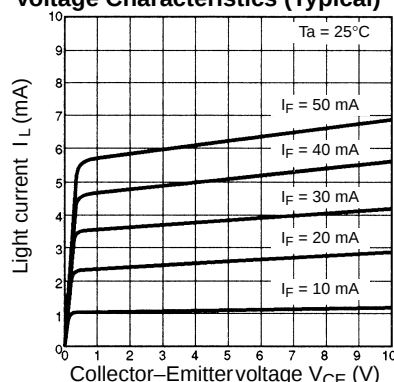
Forward Current vs. Forward Voltage Characteristics (Typical)



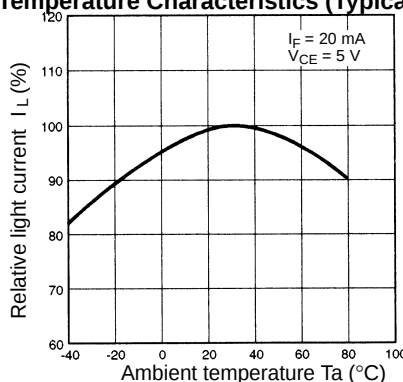
Light Current vs. Forward Current Characteristics (Typical)



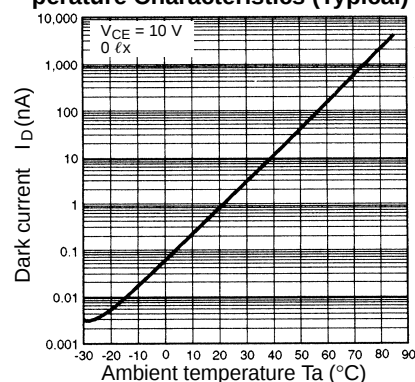
Light Current vs. Collector-Emitter Voltage Characteristics (Typical)



Relative Light Current vs. Ambient Temperature Characteristics (Typical)



Dark Current vs. Ambient Temperature Characteristics (Typical)



Sensing Position Characteristics (Typical)

