

SUBMINIATURE, TRANSMISSIVE TYPE PHOTO INTERRUPTER

PRELIMINARY SPEC

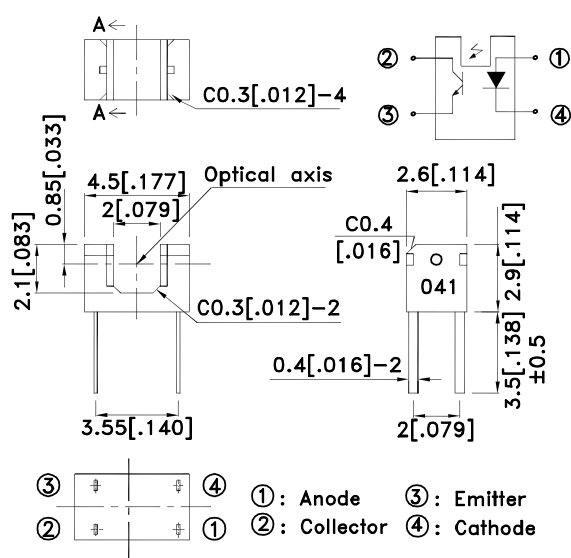
Part Number: KRA041

*Applications

- 1.Copiers,printers and Fax Machines.
- 2.VCRs and CD players.
- 3.various position detection sensor.

*Dimensions

Note: All units are in millimeters unless otherwise indicated.



Unless otherwise specified, the tolerances are $\pm 0.15\text{mm}$.

*Features

- Compact package.
- Low profile (Height: 2.9mm).
- Wide gap (Gap width: 2.0mm)
- Slit width (Detector side): 0.3mm.
- Compliant with European RoHS directives.

***Absolute Maximum Ratings (T_a=25°C)**

Parameter		Symbol	Rating	Unit
Input	Forward current [1]	I _F	50	mA
	Reverse voltage	V _R	6	V
	Power dissipation	P _d	75	mW
	Peak Forward Current [2]	I _{FP}	100	mA
Output	Collector-emitter voltage	V _{CEO}	35	V
	Emitter-collector voltage	V _{ECO}	6	V
	Collector current	I _C	20	mA
	Collector power dissipation	P _C	75	mW
Operating temperature		T _{opr}	-30~+85	°C
Storage temperature		T _{stg}	-40~+100	°C
Soldering temperature(5s) [3]		T _{sol}	260	°C

Notes: 1.Refer to the temperature rating chart if the ambient temperature exceeds 25°C.

2.Duty: 1/100 ; Pulse Width: 0.1ms.

3. At the location of 1.5mm from the package bottom.

***Electrical / Optical Characteristics at T_A=25°C**

Parameter		Symbol	Value			Conditions
			Min.	Typ.	Max.	
Input	Forward voltage	V _F	-	1.2V	1.4V	I _F =10mA
	Reverse current	I _R	-	-	10μA	V _R =5V
	Peak Wavelength	λ _p	-	940nm	-	I _F =10mA
Output	Current transfer ratio	I _C /I _F	2%	-	24%	I _F =5mA, V _{CE} =2V
	Collector dark current	I _D	-	-	100nA	V _{CE} =24V, I _F =0
	Collector-Emitter saturation voltage	V _{CE(sat)}	-	-	0.4V	I _C =40uA, I _F =10mA
	Peak spectral sensitivity wavelength	λ _p	-	920nm	-	-
Rise time		t _r	-	15μsec	50μsec	V _{CC} =5V, R _L =1KΩ I _C =1mA
Fall time		t _f	-	15μsec	50μsec	



Fig.1 Forward Current vs. Forward Voltage

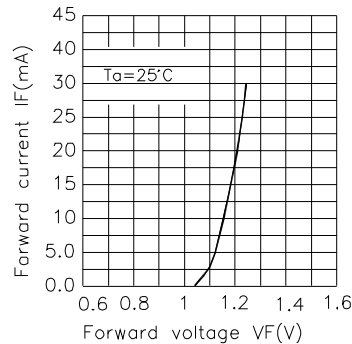


Fig.2 Collector Current vs. Forward Current

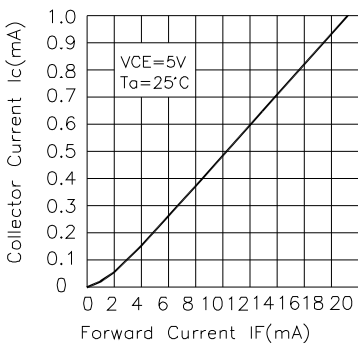


Fig.3 Collector Current vs. Ambient Temperature

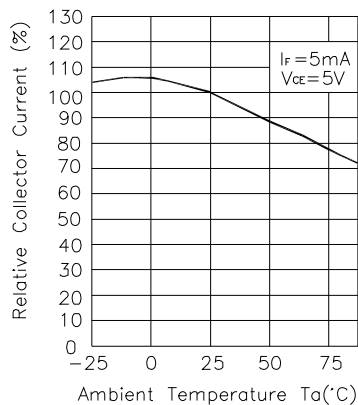


Fig.4 Collector-Emmitter Saturation Voltage vs. Ambient Temperature

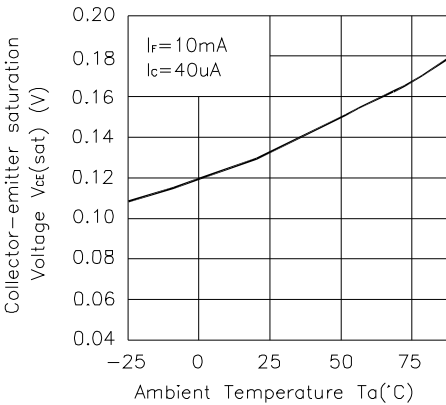


Fig.5 Forward Current vs. Collector Dissipation Temperature Rating

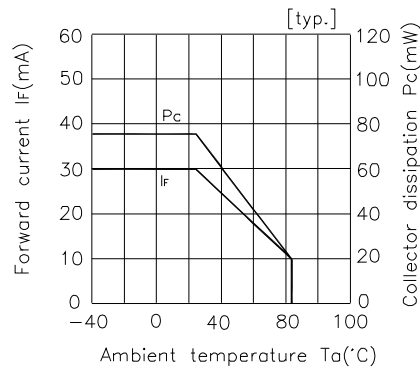


Fig.6 Forward Current vs. Collector-Emmitter Voltage

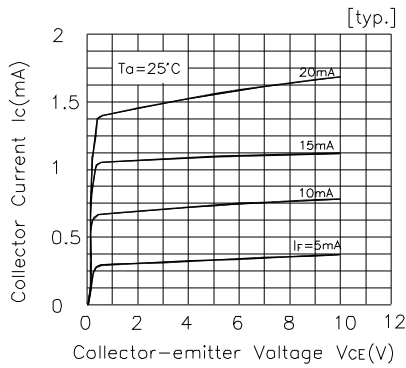


Fig.7 Relative Collector Current vs. Shield Distance(1)

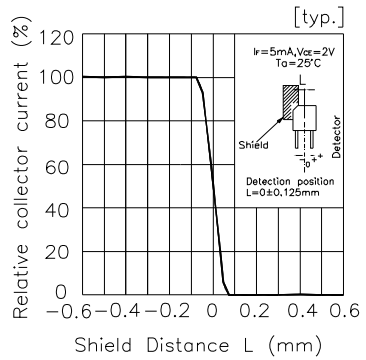


Fig.8 Relative Collector Current vs. Shield Distance(2)

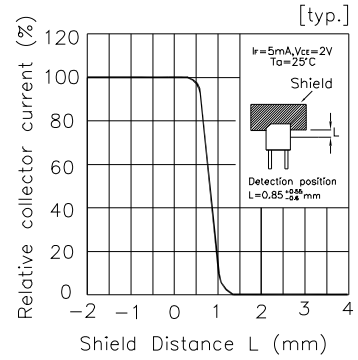
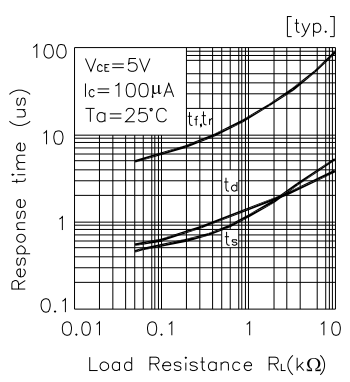
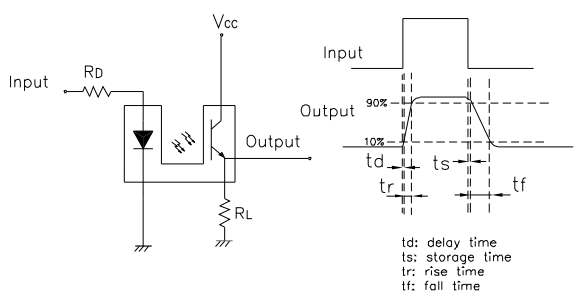


Fig.9 Response Time. vs Load Resistance

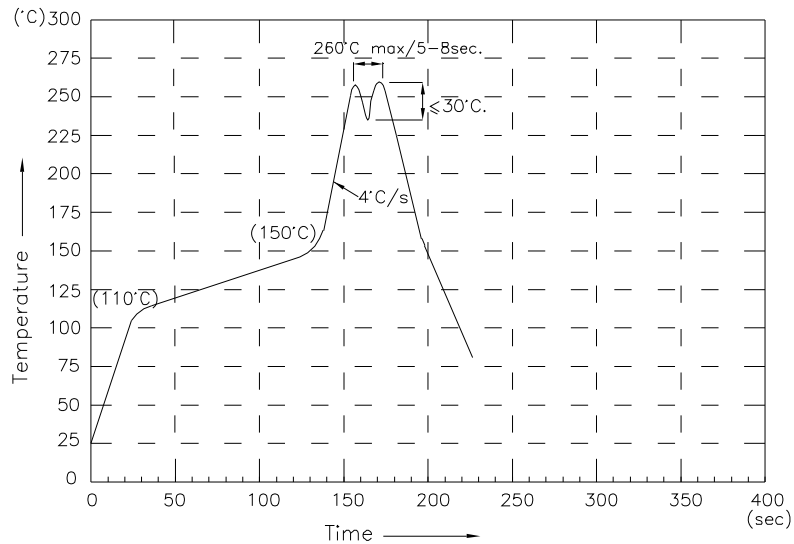


Test Circuit for Response Time



KRA041

Wave Soldering Profile For Lead-free Through-hole LED.



NOTES:

1. Recommend the wave temperature 245°C~260°C. The maximum soldering temperature should be less than 260°C.
2. Do not apply stress on epoxy resins when temperature is over 85 degree°C.
3. The soldering profile apply to the lead free soldering (Sn/Cu/Ag alloy).
4. No more than once.