

PHOTO-INTERRUPTER

KTIR0921DS

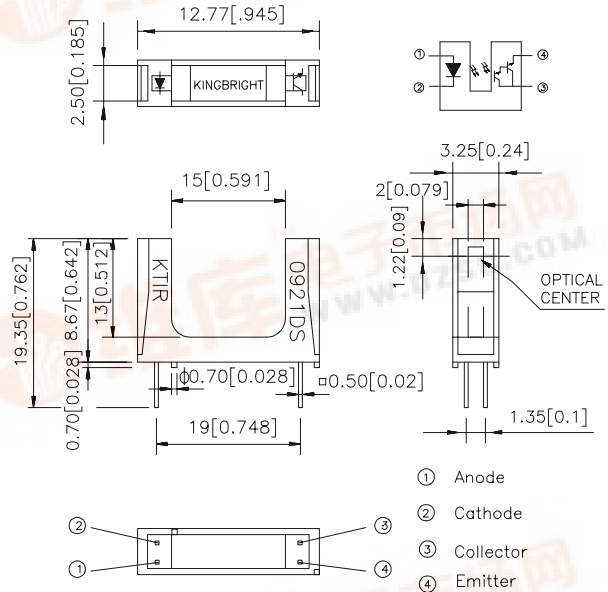
Features

- High sensing accuracy
- High current transfer ratio
- Both-sides mounting type

Applications

- OA equipment, such as floppy disk drives, printers, facsimiles, etc
- VCRs

Package Dimensions



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.15$  (0.006") unless otherwise noted.
3. Lead spacing is measured where the lead emerge package.
4. Specifications are subject to change without notice.

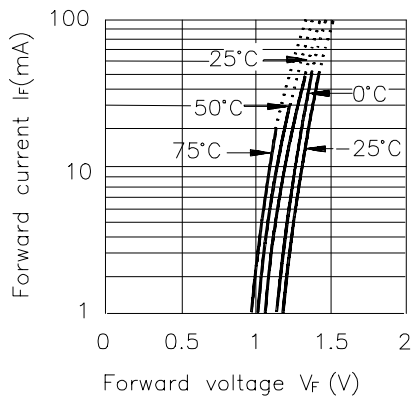
Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

Parameter		Symbol	Rating	Unit
Input	Forward current	$I_F$	50	mA
	Reverse voltage	$V_R$	5	V
	Power dissipation	P	75	mW
Output	Collector-emitter voltage	$V_{CEO}$	30	V
	Emitter-collector voltage	$V_{ECO}$	5	V
	Collector current	$I_C$	40	mA
	Collector power dissipation	$P_C$	75	mW
Operating temperature		$T_{opr}$	-25~+85	$^\circ\text{C}$
Storage temperature		$T_{stg}$	-40~+100	$^\circ\text{C}$
Soldering temperature (1/16 inch from body for 5 seconds)		$T_{sol}$	260	$^\circ\text{C}$

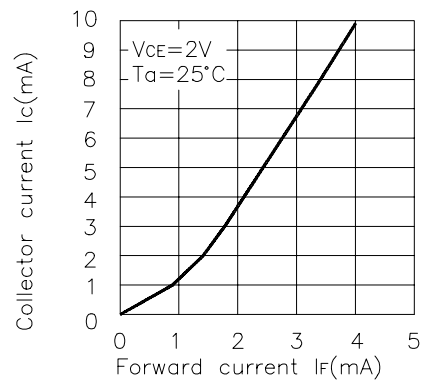
## Electro-optical Characteristics (T<sub>a</sub>=25°C)

Parameter		Symbol	Conditions	Min.	Typ.	Max.	Unit	
Input	Forward voltage	V <sub>F</sub>	I <sub>F</sub> =20mA	—	1.2	1.5	V	
	Peak forward voltage	V <sub>FM</sub>	I <sub>FM</sub> =0.5A	—	2	4	V	
	Reverse current	I <sub>R</sub>	V <sub>R</sub> =5V	—	—	10	μA	
Output	Collector dark current	I <sub>CEO</sub>	V <sub>CE</sub> =10V, I <sub>F</sub> =0mA	—	—	10 <sup>-6</sup>	A	
Transfer characteristics	Current transfer ratio	CTR	V <sub>CE</sub> =2V, I <sub>F</sub> =1mA	—	120	—	%	
	Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>F</sub> =2mA, I <sub>C</sub> =1mA	—	—	1.0	V	
	Response time	Rise time	t <sub>r</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =10mA R <sub>L</sub> =100Ω	—	90	400	μsec
		Fall time	t <sub>f</sub>		—	80	300	μsec

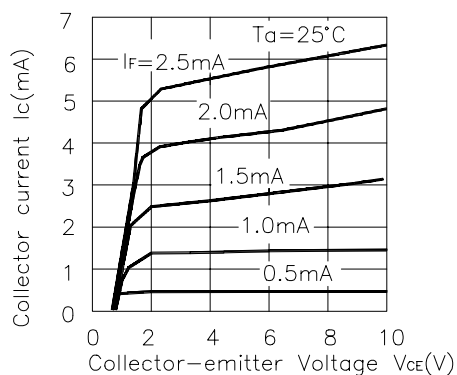
**Fig.1 Forward Current vs. Forward Voltage**



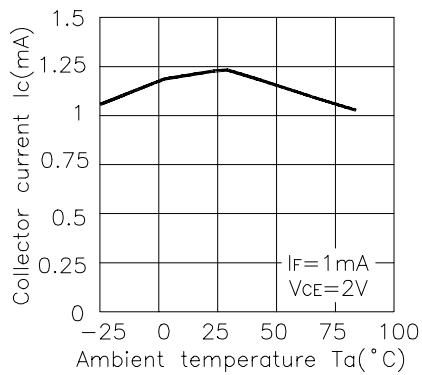
**Fig.2 Collector Current vs. Forward Current**



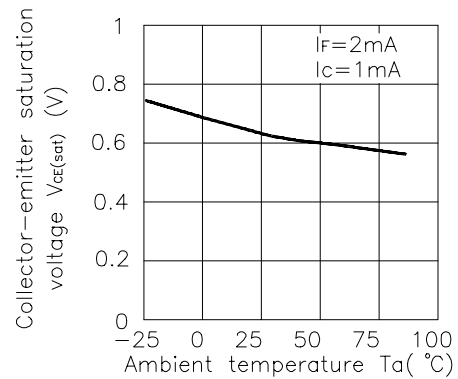
**Fig.3 Collector Current vs. Collector-emitter Voltage**



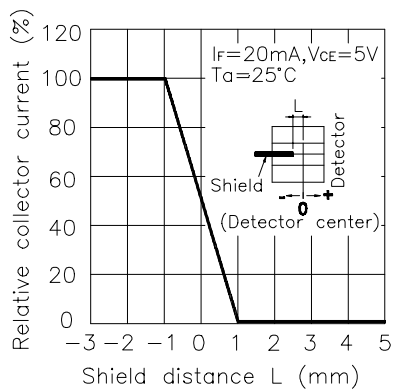
**Fig.4 Collector Current vs. Ambient Temperature**



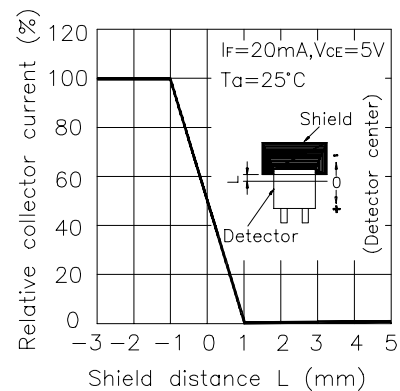
**Fig.5 Collector-emitter Saturation Voltage vs. Ambient Temperature**



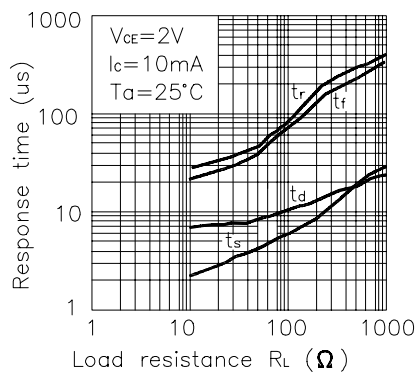
**Fig.6 Relative Collector Current vs. Shield Distance(1)**



**Fig.7 Relative Collector Current vs. Shield Distance(2)**



**Fig.8 Response Time vs. Load Resistance**



**Test Circuit for Response Time**

