

### KTIR0221DS

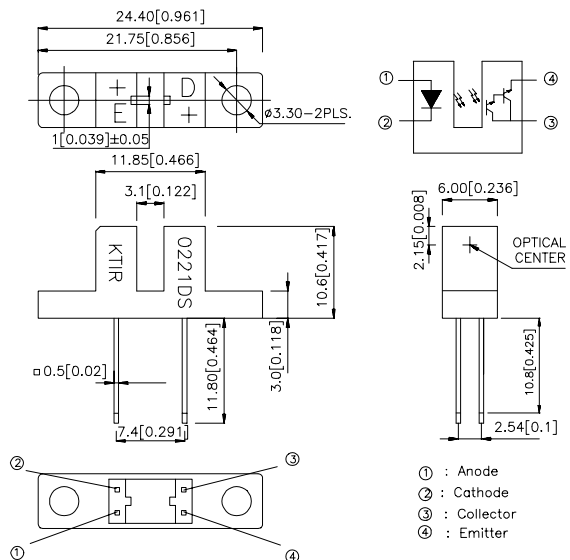
#### Features

- 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.

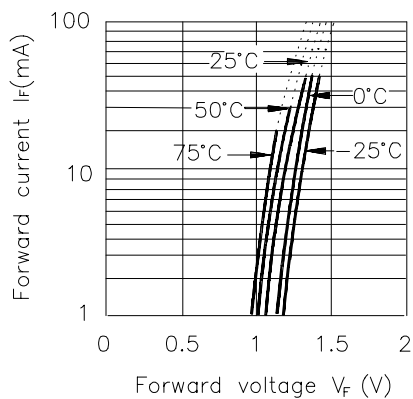
#### Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

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	$^\circ\text{C}$

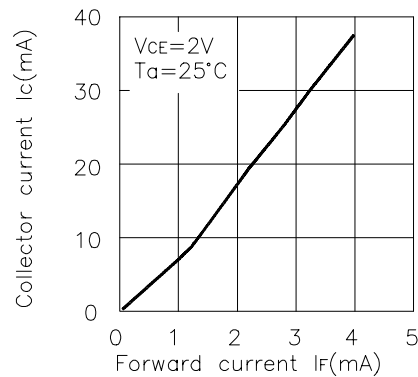
## Electro-optical Characteristics (Ta=25°C)

Parameter		Symbol	Conditions	Min.	Typ.	Max.	Unit	
Input	Forward voltage	$V_F$	$I_F=20\text{mA}$	—	1.2	1.5	V	
	Peak forward voltage	$V_{FM}$	$I_{FM}=0.5\text{A}$	—	2	4	V	
	Reverse current	$I_R$	$V_R=5\text{V}$	—	—	10	$\mu\text{A}$	
Output	Collector dark current	$I_{CEO}$	$V_{CE}=10\text{V}, I_F=0\text{mA}$	—	—	$10^{-6}$	A	
Transfer characteristics	Current transfer ratio	CTR	$V_{CE}=2\text{V}, I_F=1\text{mA}$	—	600	—	%	
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F=2\text{mA}, I_C=1\text{mA}$	—	—	1.0	V	
	Response time	Rise time	$t_r$	$V_{CE}=2\text{V}, I_C=10\text{mA}$ $R_L=100\Omega$	—	90	400	$\mu\text{sec}$
		Fall time	$t_f$		—	80	300	$\mu\text{sec}$

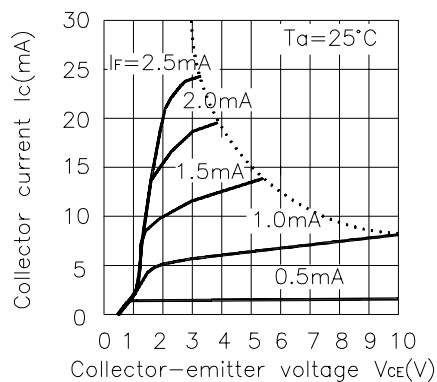
**Fig.1 Forward Current vs. Forward Voltage**



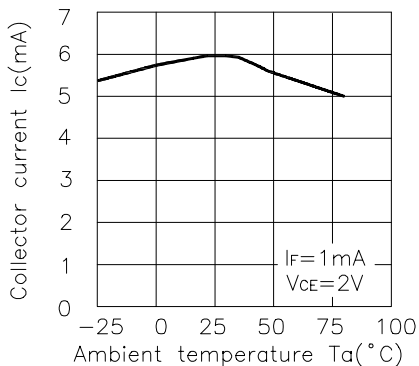
**Fig.2 Collector Current vs. Forward Current**



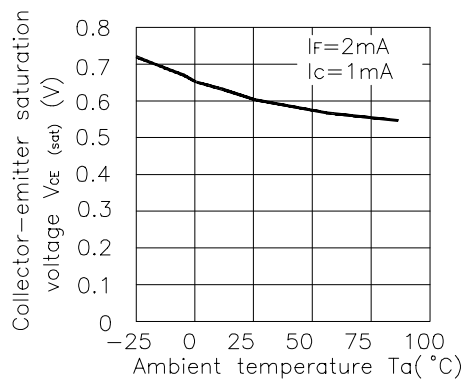
**Fig.3 Collector Current vs. Collector-emitter Voltage**



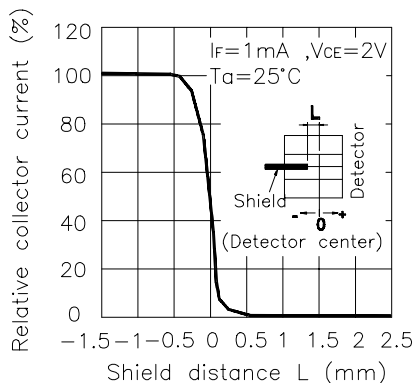
**Fig.4 Collector Current vs. Ambient Temperature**



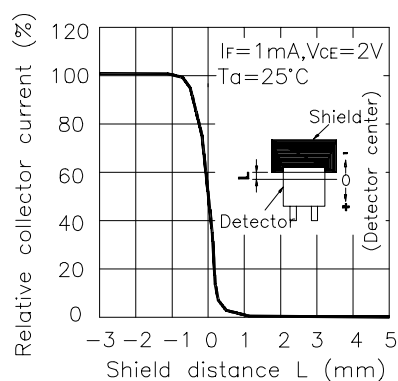
**Fig.5 Collector-emitter Saturation Voltage vs. Ambient Temperature**



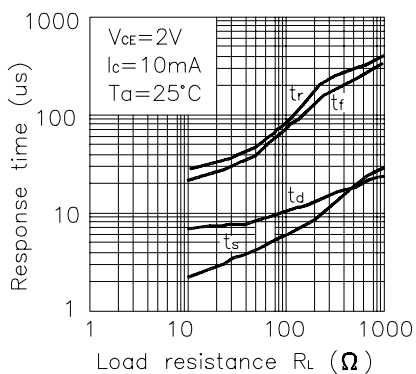
**Fig.6 Relative Collector Current vs. Shield Distance(1)**



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



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



**Test Circuit for Response Time**

