

Part Number: KTIR0511S

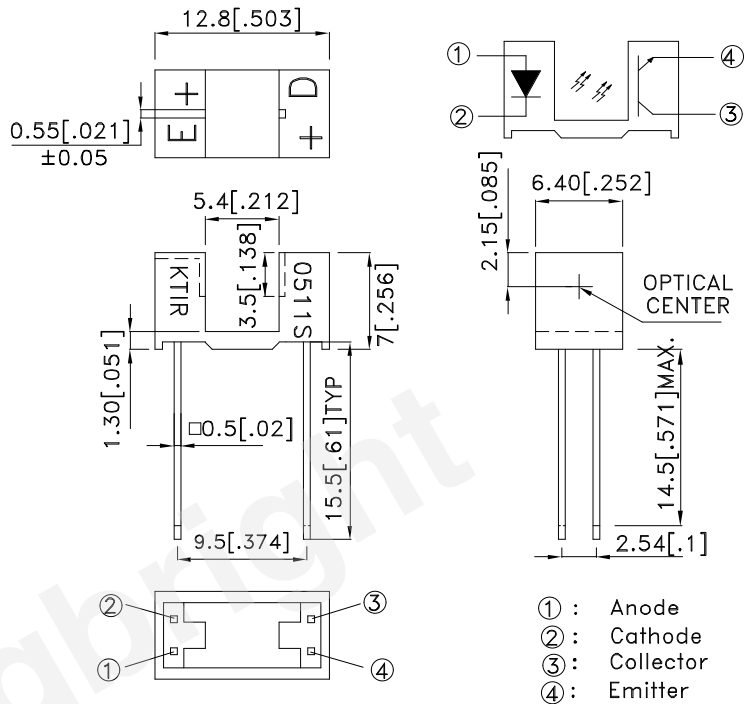
### Package Dimensions

#### Features

- Ultra-small.
- Minimal influence from stray light.
- Low collector-emitter saturation voltage.
- RoHS Compliant.

#### Applications

- Optical control equipment.
- Cameras.
- Floppy disk drives.



#### Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25$  (0.01") unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.
4. Specifications are subject to change without notice.

### Absolute Maximum Ratings (Ta=25°C)

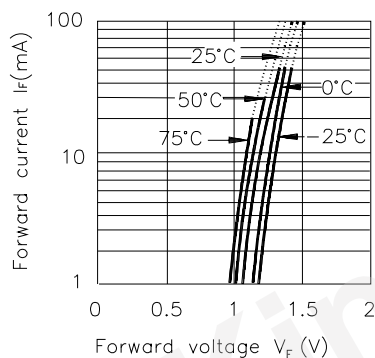
Parameter		Symbol	Rating	Unit
Input	Forward current	$I_F$	50	mA
	Reverse voltage	$V_R$	6	V
	Power dissipation	$P_d$	75	mW
	Peak Forward Current (Pulse Width $\leq 100\mu s$ , Duty Cycle $\approx 1\%$ )	$I_{FP}$	1	A
Output	Collector-emitter voltage	$V_{CEO}$	35	V
	Emitter-collector voltage	$V_{ECO}$	6	V
	Collector current	$I_C$	20	mA
	Collector power dissipation	$P_C$	75	mW
Operating temperature		$T_{opr}$	-25~+85	°C
Storage temperature		$T_{stg}$	-40~+100	°C
soldering temperature (1/16 inch from body for 5 seconds)		$T_{sol}$	260	°C



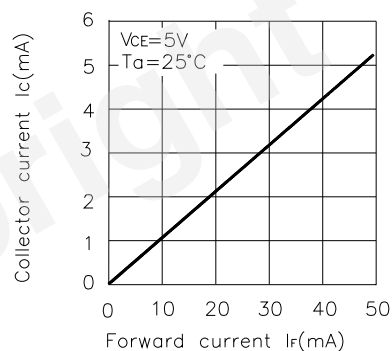
### Electro-optical Characteristics (Ta=25°C)

Parameter		Symbol	Conditions	Min.	TYP.	Max.	Unit
Input	Forward Voltage	$V_F$	$I_F=20\text{mA}$	1.0	1.2	1.5	V
	Reverse Current	$I_R$	$V_R=6\text{V}$	-	-	10	$\mu\text{A}$
Output	Collector dark current	$I_{CEO}$	$V_{CE}=20\text{V}$	-	-	100	nA
Transfer characteristics	Collector-emitter saturation voltage		$I_C=1\text{mA}$ $I_F=40\text{mA}$	-	-	0.4	V
	Current transfer ratio		$V_{CE}=5\text{V}$ $I_F=20\text{mA}$	-	10	-	%
	Response time	Rise time	$V_{CE}=2\text{V}$ $I_C=2\text{mA}$ $R_L=100\Omega$	-	5	25	$\mu\text{s}$
		Fall time		-	4	20	$\mu\text{s}$

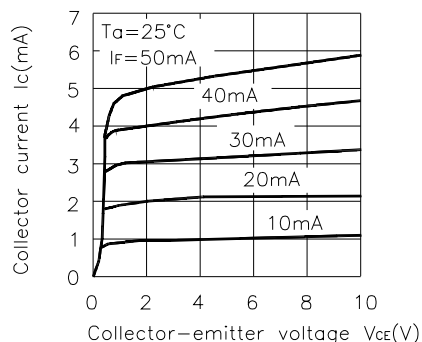
**Fig.1 Forward Current vs. Forward Voltage**



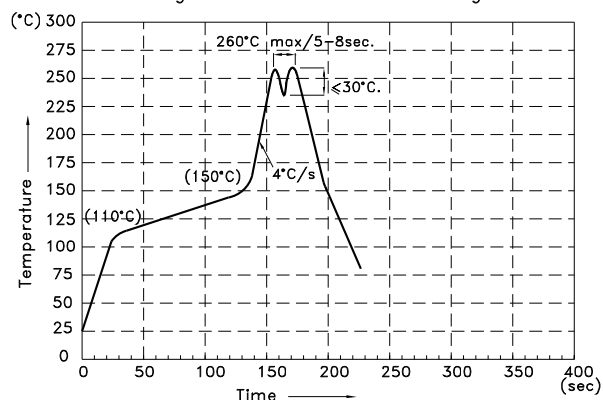
**Fig.2 Collector Current vs. Forward Current**



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



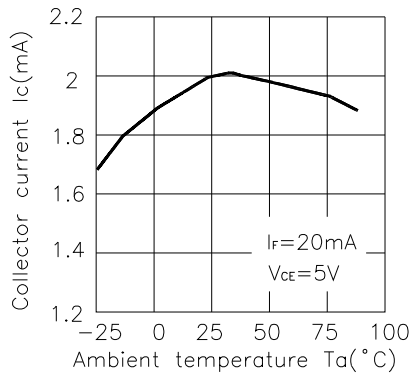
Wave Soldering Profile For Lead-free Through-hole LED.



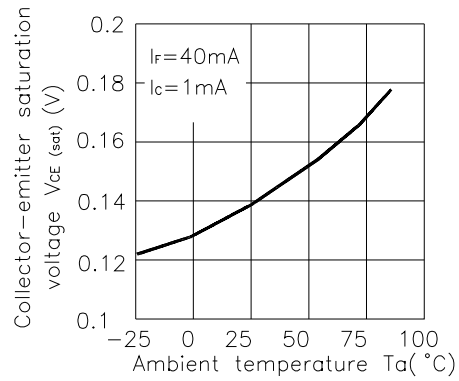
**NOTES:**

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

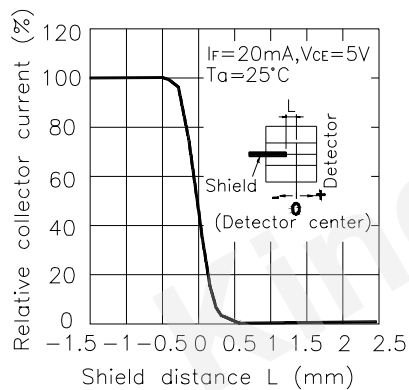
**Fig. 4 Collector Current vs. Ambient Temperature**



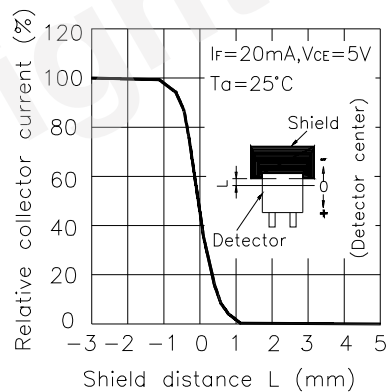
**Fig.5 Collector-emitter Saturation Voltage vs. Ambient Temperature**



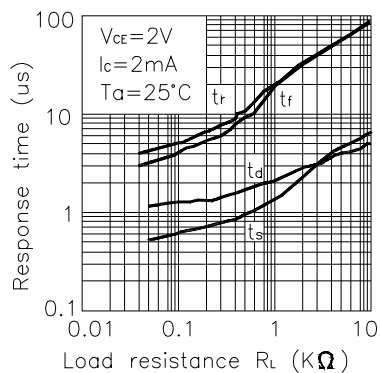
**Fig.6 Relative Collector Current vs. Shield Distance (1)**



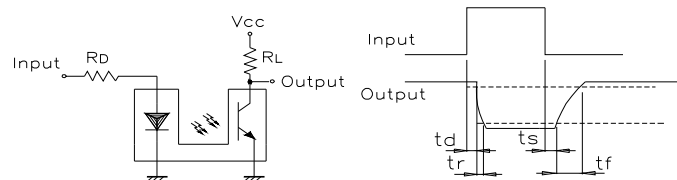
**Fig.7 Relative Collector Current vs. Shield Distance (2)**



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

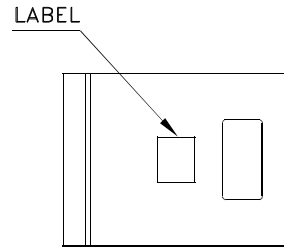
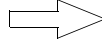
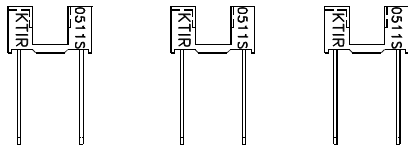


**Test Circuit for Response Time**

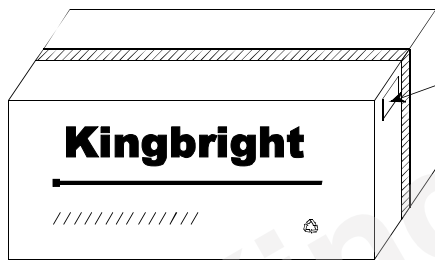


### PACKING & LABEL SPECIFICATIONS

KTIR0511S



200PCS / BAG

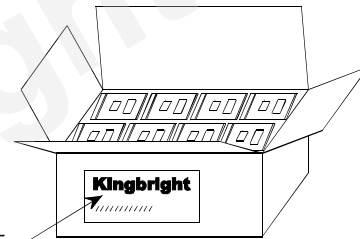


6.4K / 9# BOX


OUTSIDE  
LABEL



OUTSIDE LABEL



3.2K / 5# BOX

<h1>Kingbright</h1>	
P/NO: KTIRxxx	
QTY: 200 pcs	Q.C. <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">Q C XX XX XX PASSED</span>
S/N: XXXX	
CODE: XXX	
LOT NO:	
 XXXXXXXXXXXXXXXXXXXX	
RoHS Compliant	