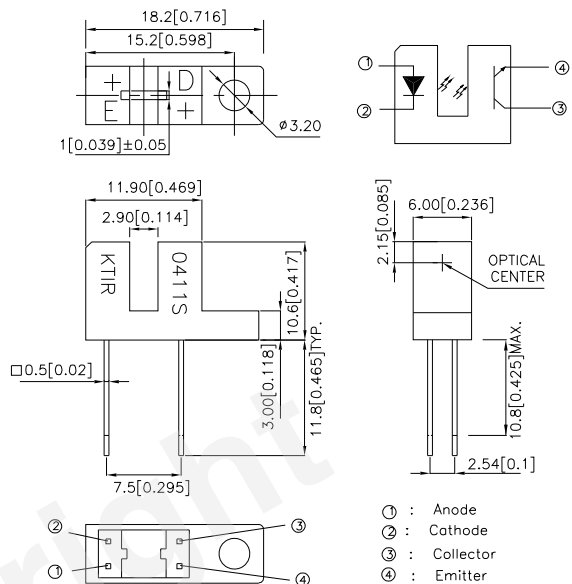


Part Number: KTIR0411S

### Features

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

### Package Dimensions



### 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. The specifications, characteristics and technical data described in the data sheet are subject to change without prior notice.

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

Parameter		Symbol	Rating	Unit
Input	Forward Current	$I_F$	50	mA
	Reverse Voltage	$V_R$	6	V
	Power Dissipation	$P_d$	75	mW
	Peak Forward Current (Pulse Width $\leq 100\mu\text{s}$ , Duty Cycle=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	$^\circ\text{C}$
Storage Temperature		$T_{stg}$	-40~+100	$^\circ\text{C}$
Soldering Temperature (1/16 inch from body for 5 seconds)		$T_{sol}$	260	$^\circ\text{C}$

#### Note:

1. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

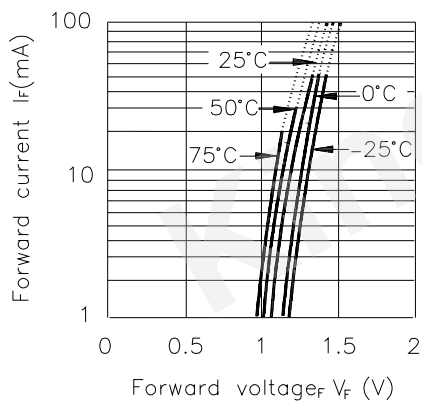


## Electro-optical Characteristics (T<sub>a</sub>=25°C)

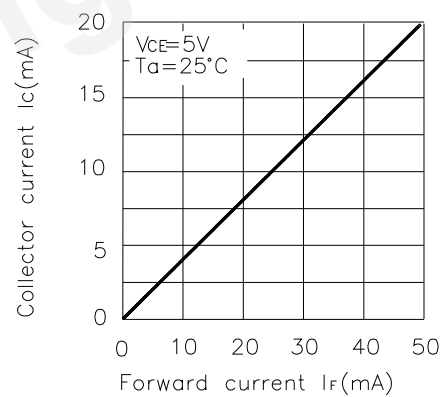
Parameter		Symbol	Conditions	Min.	Typ.	Max.	Unit
Input	Forward voltage	V <sub>F</sub>	I <sub>F</sub> =20mA	—	1.2	1.5	V
	Reverse current	I <sub>R</sub>	V <sub>R</sub> =5V	—	—	10	μA
Output	Collector dark current	I <sub>CEO</sub>	V <sub>CE</sub> =20V	—	—	100	nA
Transfer characteristics	Collector-emitter saturation voltage		I <sub>C</sub> =1mA I <sub>F</sub> =40mA	—	—	0.4	V
	Current transfer ratio		V <sub>CE</sub> =5V I <sub>F</sub> =20mA	—	38	—	%
	Response time	Rise time	V <sub>CE</sub> =2V I <sub>C</sub> =2mA R <sub>L</sub> =100Ω	—	5	25	μsec
		Fall time		—	4	20	μsec

\*1 Excess driving current and/or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

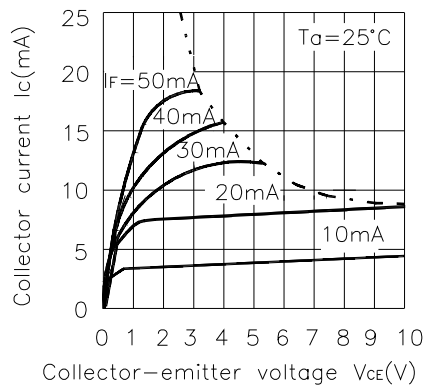
**Fig.1 Forward Current vs. Forward Voltage**



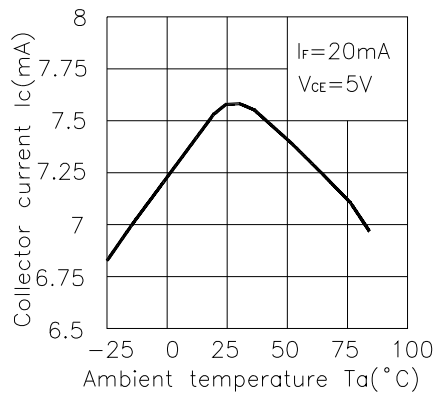
**Fig.2 Collector Current vs. Forward Current**



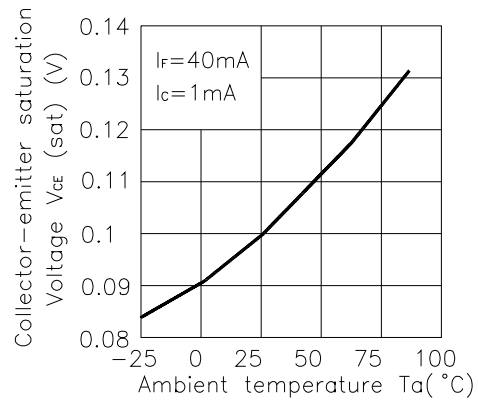
**Fig.3 Collector Current vs. Collector-emitter Voltage**



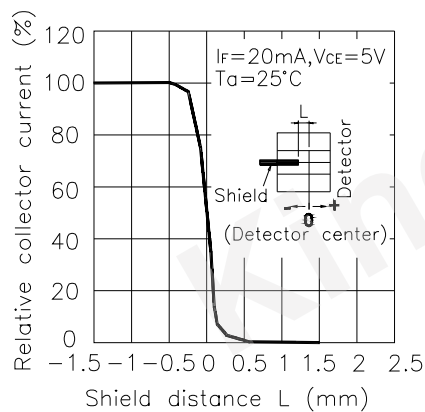
**Fig.4 Collector Current vs. Ambient Temperature**



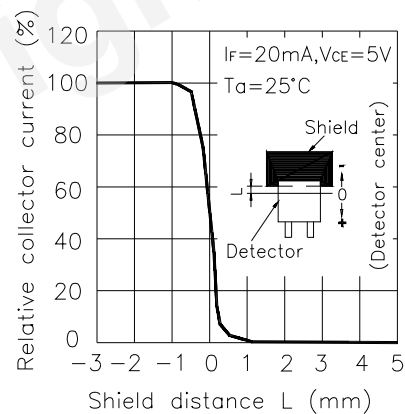
**Fig.5 Collector-emitter Saturation Voltage vs. Ambient Temperature**



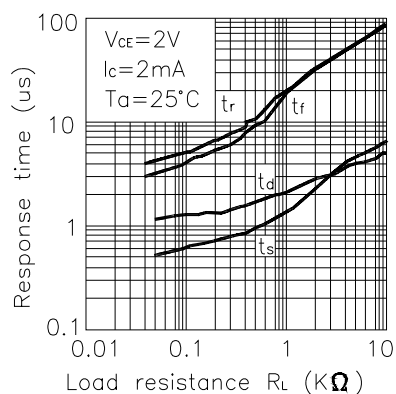
**Fig.6 Relative Collector Current vs. Shield Distance(1)**



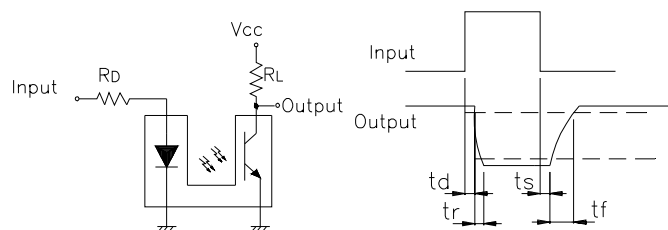
**Fig.7 Relative Collector Current vs. Shield Distance(2)**



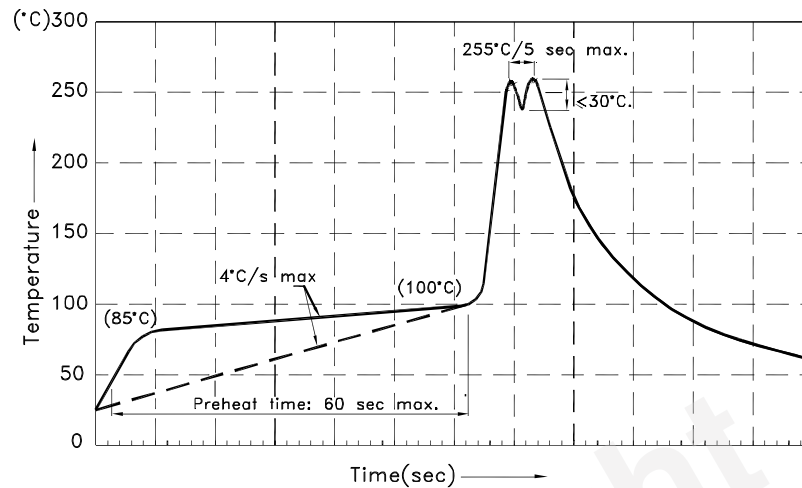
**Fig.8 Response Time vs. Load Resistance**



**Test Circuit for Response Time**



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

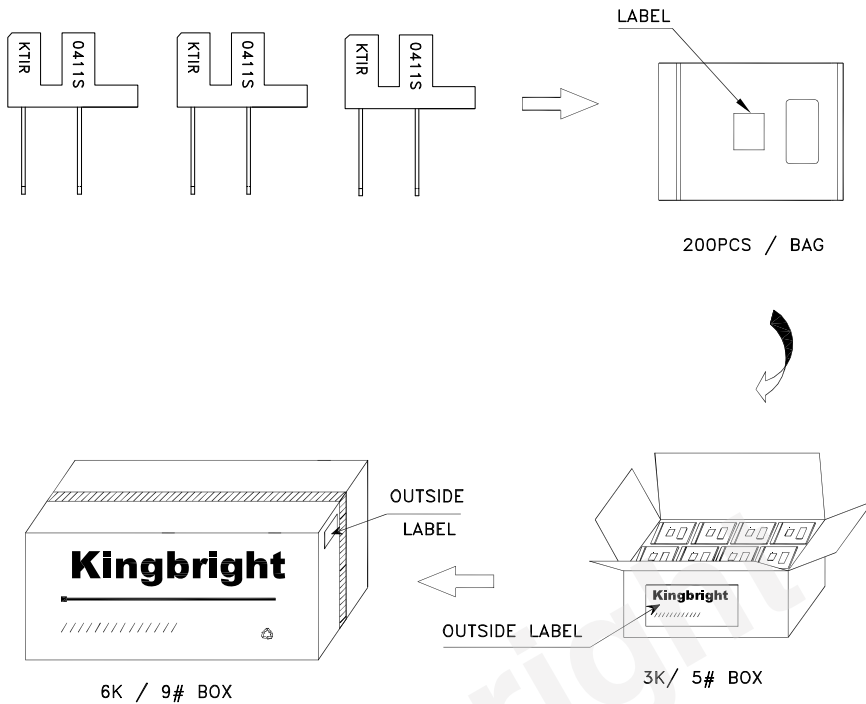



Notes:

1. Recommend pre-heat temperature of 105°C or less (as measured with a thermocouple attached to the LED pins) prior to immersion in the solder wave with a maximum solder bath temperature of 260°C
2. Peak wave soldering temperature between 245°C ~ 255°C for 3 sec (5 sec max).
3. Do not apply stress to the epoxy resin while the temperature is above 85°C.
4. Fixtures should not incur stress on the component when mounting and during soldering process.
5. SAC 305 solder alloy is recommended.
6. No more than one wave soldering pass.

## PACKING & LABEL SPECIFICATIONS

KTIR0411S



<b>Kingbright</b>	
P/NO: KTIR0411S	
QTY: 200 pcs	Q.C. <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">Q C XX XX XXXX PASSED</span>
S/N: XXXX	
CODE: XXX	
LOT NO:	
	
RoHS Compliant	

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