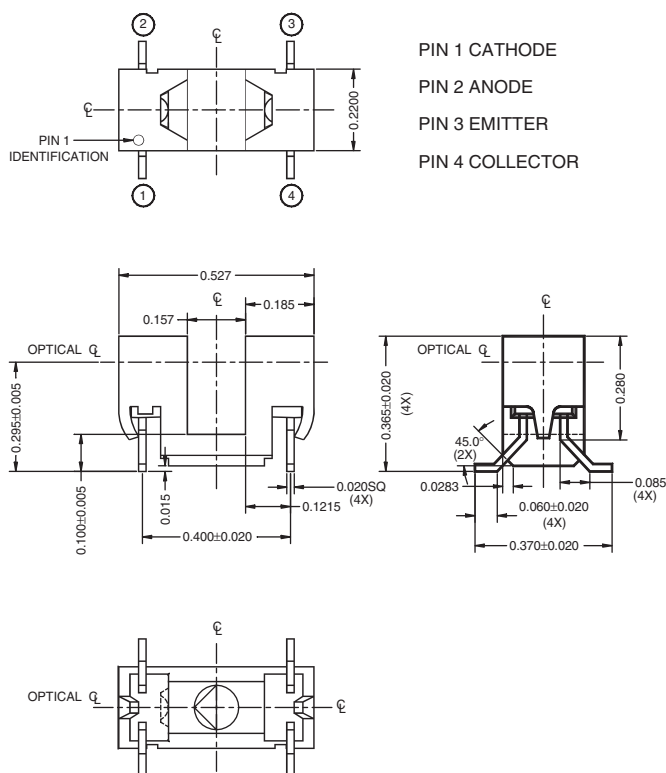


**QCK3**

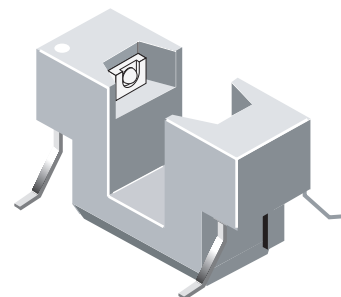
**QCK4**

**PACKAGE DIMENSIONS**

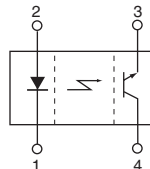


**NOTES:**

1. Dimensions for all drawings are in inches.
2. Tolerance of  $\pm .010$  on all non-nominal dimensions unless otherwise specified.
3. All leads are coplanar within .006".
4. Housing material is electrically conductive.



**SCHEMATIC**



**DESCRIPTION**

The QCK3/QCK4 is a slotted optical switch designed for surface mount applications where extreme temperatures are experienced during solder reflow. The switch consists of a GaAs LED and a silicon photodarlington facing each other across a .157" (4.0 mm) gap. The leads are formed to sit flush on a PCB during solder reflow.

**FEATURES**

- Unique single piece housing designed to reduce cost.
- High temperature housing material to withstand extreme temperature.
- Shipped in plastic tubes for protection of leads and to feed automatic placement equipment.
- Sensor package is infrared transparent and tinted to attenuate visible light.

**QCK3**

**QCK4**

**ABSOLUTE MAXIMUM RATINGS** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Rating	Units
Operating Temperature	$T_{OPR}$	-55 to +100	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-40 to +85	$^\circ\text{C}$
Soldering Temperature (Flow)	$T_{SOL-F}$		
Preheating Stage for 60 sec		183	$^\circ\text{C}$
Reflow Stage for 5 sec		230	$^\circ\text{C}$
Rate of Temperature Rise		3 to 10	$^\circ\text{C/S}$
<b>EMITTER</b>			
Continuous Forward Current	$I_F$	50	mA
Reverse Voltage	$V_R$	6	V
Power Dissipation <sup>(1)</sup>	$P_D$	100	mW
<b>SENSOR</b>			
Collector-Emitter Voltage	$V_{CEO}$	30	V
Emitter-Collector Voltage	$V_{ECO}$	6	V
Collector Current	$I_C$	40	mA
Power Dissipation <sup>(1)</sup>	$P_D$	150	mW

**NOTE:**

1. Derate power dissipation linearly 1.33 mW/ $^\circ\text{C}$  above  $25^\circ\text{C}$ .

PARAMETER	DEVICES	TEST CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
<b>EMITTER</b>							
Forward Voltage		$I_F = 20\text{ mA}$	$V_F$	—	—	1.4	V
Reverse Current		$V_R = 2\text{ V}$	$I_R$	—	—	100	$\mu\text{A}$
<b>SENSOR</b>							
Collector-Emitter Breakdown		$I_C = 1\text{ mA}, E_e = 0$	$BV_{CEO}$	30	—	—	V
Collector-Emitter Leakage		$V_{CE} = 5.25\text{ V}, E_e = 0$	$I_{CEO}$	—	—	30	$\mu\text{A}$
<b>COUPLED</b>							
On-State Collector Current	QCK3	$I_F = 5.0\text{ mA}, V_{CE} = 5\text{ V}$	$I_{C(ON)}$	1.0	—	—	mA
	QCK4			3.0		15.0	
Saturation Voltage		$I_F = 5\text{ mA}, I_C = 5.0\text{ mA}$	$V_{CE(SAT)}$	—	—	1.0	V

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**QCK3**

**QCK4**

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