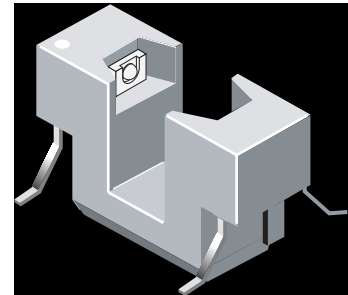
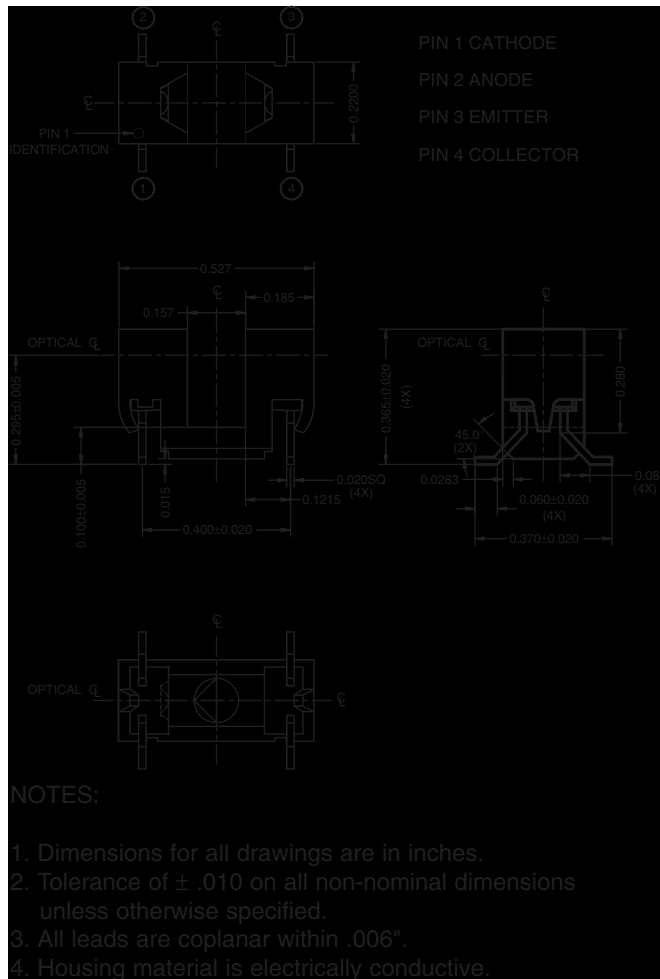


PHOTODARLINGTON OPTICAL INTERRUPTER SWITCH

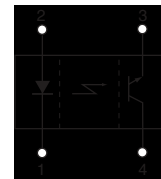
QCK3

QCK4

PACKAGE DIMENSIONS



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.

PHOTODARLINGTON OPTICAL INTERRUPTER SWITCH

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)	$T_{\text{SOL-F}}$		
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	$^\circ\text{C/S}$
EMITTER			
Continuous Forward Current	I_F	50	mA
Reverse Voltage	V_R	6	V
Power Dissipation ⁽¹⁾	P_D	100	mW
SENSOR			
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Collector Voltage	V_{ECO}	6	V
Collector Current	I_C	40	mA
Power Dissipation ⁽¹⁾	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
EMITTER							
Forward Voltage		$I_F = 20 \text{ mA}$	V_F	—	—	1.4	V
Reverse Current		$V_R = 2 \text{ V}$	I_R	—	—	100	μA
SENSOR							
Collector-Emitter Breakdown		$I_C = 1 \text{ mA}, E_e = 0$	BV_{CEO}	30	—	—	V
Collector-Emitter Leakage		$V_{\text{CE}} = 5.25 \text{ V}, E_e = 0$	I_{CEO}	—	—	30	μA
COUPLED							
On-State Collector Current	QCK3	$I_F = 5.0 \text{ mA}, V_{\text{CE}} = 5 \text{ V}$	$I_{\text{C(ON)}}$	1.0	—	—	mA
	QCK4			3.0		15.0	
Saturation Voltage		$I_F = 5 \text{ mA}, I_C = 5.0 \text{ mA}$	$V_{\text{CE (SAT)}}$	—	—	1.0	V



PHOTODARLINGTON OPTICAL INTERRUPTER SWITCH

QCK3**QCK4**

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