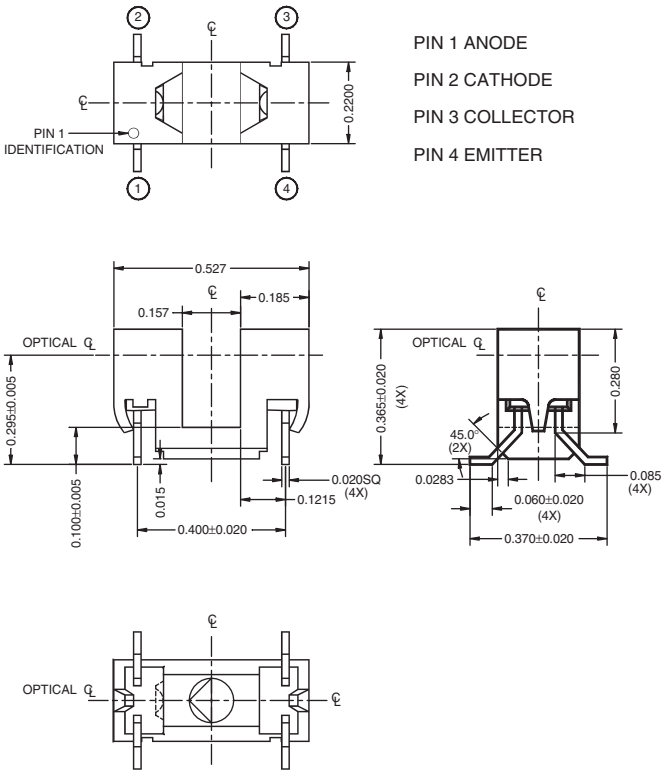
PHOTODARLINGTON OPTICAL INTERRUPTER SWITCH

QCK3 QCK4

PACKAGE DIMENSIONS



PIN 1 ANODE

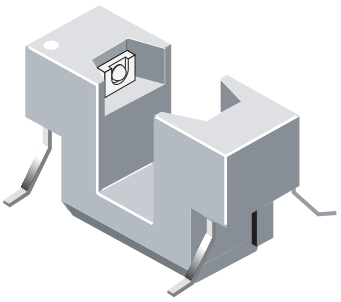
PIN 2 CATHODE

PIN 3 COLLECTOR

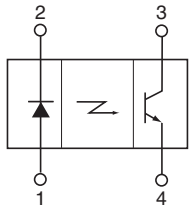
PIN 4 EMITTER

NOTES:

1. Dimensions for all drawings are in inches.
2. Tolerance of ± .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 opticalswitch 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°C unless otherwise specified)			
Parameter	**Symbol**	**Rating**	**Units**
Operating Temperature	T_{OPR}	-55 to +100	°C
Storage Temperature	T_{STG}	-40 to +85	°C
Soldering Temperature (Flow)	T_{SOL-F}		
Preheating Stage for 60 sec		183	°C
Reflow Stage for 5 sec		230	°C
Rate of Temperature Rise		3 to 10	°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/°C above 25°C.

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

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