

PHOTODARLINGTON OPTICAL INTERRUPTER SWITCH

QCK3

QCK4





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.



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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	۱ _C	40	mA				
Power Dissipation ⁽¹⁾	PD	150	mW				

NOTE:

1. Derate power dissipation linearly 1.33 mW/°C above 25°C.

PARAMETER	DEVICES	TEST CONDITIONS	SYMBOL	MIN	ТҮР	МАХ	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		$I_{C} = 1 \text{ mA}, E_{e} = 0$	BV _{CEO}	30	_	—	V
Collector-Emitter Leakage		$V_{CE} = 5.25 \text{ V}, \text{ E}_{e} = 0$	I _{CEO}	—	—	30	μA
COUPLED							
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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