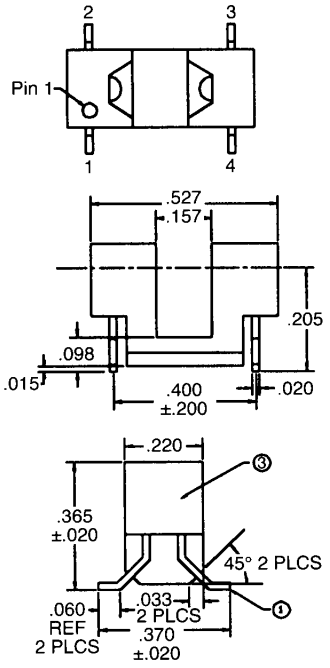
QT OPTOELECTRONICS

SLOTTED OPTICAL SWITCH

QCK3/QCK4 SURFACE MOUNTABLE OPTO INTERRUPTER

PACKAGE DIMENSIONS



ST2168

PIN OUT:
1 - ANODE
2 - CATHODE
3 - COLLECTOR
4 - EMITTER

NOTES:
1. ALL LEADS ARE CO-PLANAR WITHIN .006".
2. UNLESS SPECIFIED, GENERAL TOLERANCE IS ±.010".
3. HOUSING MATERIAL IS ELECTRICALLY CONDUCTIVE.

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.
- High current transfer ratios (CTR) for low drive current at 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)

Storage Temperature ..... −40°C to + 100°C
Operating Temperature ..... −40°C to + 100°C
Surface mount soldering temperature: (IR reflow solder chamber)
Pre-heating stage 60 seconds max. ..... 183°C
Reflow stage 5 seconds max. ..... 230°C
NOTE: The rate of temperature rise shall be between 3°C and 10°C per second.

INPUT DIODE
Continuous Forward Current ..... 50 mA
Reverse Voltage ..... 5.0 Volts
Power Dissipation ..... 100 mW(1)

OUTPUT TRANSISTOR
Collector-Emitter Voltage ..... 30 Volts
Emitter-Collector Voltage ..... 5.0 Volts
Collector Current ..... 40 mA
Power Dissipation ..... 100 mW(1)

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
INPUT DIODE						
Forward Voltage	V_F	—		1.40	V	I_F = 2.0 mA
Reverse Leakage Current	I_R	—		100	μA	V_R = 2.0 V
OUTPUT TRANSISTOR						
Collector-Emitter Breakdown	BV_{CEO}	30		—	V	I_C = 1.0 mA, Ee = 0
Collector-Emitter Leakage	I_{CEO}	—		30	μA	V_{CE} = 5.25 V, Ee = 0
COUPLED						
On-State Collector Current						
QCK3	$I_{C(ON)}$	1.0		—	mA	I_F = 5.0mA, V_{CC} = 5.0V
QCK4	$I_{C(ON)}$	3.0		15.0	mA	I_F = 5.0mA, V_{CC} = 5.0V
Saturation Voltage	$V_{CE(SAT)}$	—		1.0	V	I_F = 5.0mA, I_C = 5.0 mA

NOTES

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