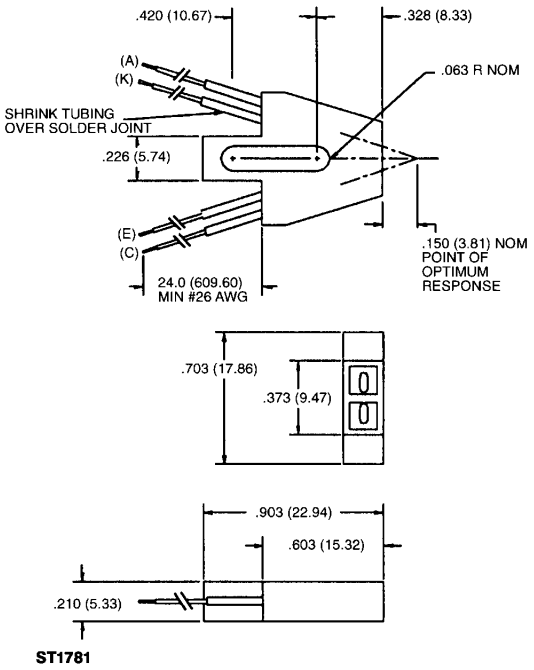
OPTOELECTRONICS

REFLECTIVE OBJECT SENSOR

QRC1133

PACKAGE DIMENSIONS



ST1781

FUNCTION	WIRE COLOR
(C) COLLECTOR	WHITE
(E) EMITTER	BLUE
(K) CATHODE	GREEN
(A) ANODE	ORANGE

NOTES:
1. DIMENSIONS ARE IN INCHES (mm).
2. TOLERANCE IS ±.010 (.25) UNLESS OTHERWISE SPECIFIED.

DESCRIPTION

The QRC1133 consists of an infrared emitting diode and an NPN silicon phototransistor mounted side by side on a converging optical axis in a black plastic housing. The phototransistor reponds to radiation from the emitting diode only when a reflective object passes within its field of view. The area of optimum response approximates a circle .200" in diameter.

FEATURES

- Phototransistor output
- High Sensitivity
- Low cost plastic housing
- #26 AWG, 24 inch PVC wire termination

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ABSOLUTE MAXIMUM RATINGS (T_A = 25°C Unless Otherwise Specified)

Storage Temperature ..... −40°C to +85°C
Operating Temperature ..... −40°C to +85°C
Soldering:
Lead Temperature (Iron) ..... 240°C for 5 sec.[2,3,4]
Lead Temperature (Flow) ..... 260°C for 10 sec.[2,3]

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

OUTPUT TRANSISTOR
Collector-Emitter Voltage ..... 30 V
Emitter-Collector Voltage ..... 5 V
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	—		1.70	V	I_F = 40 mA
Reverse Leakage Current	I_R	—		100	μA	V_R = 2.0 V
OUTPUT TRANSISTOR						
Emitter-Collector Breakdown	BV_{ECO}	5		—	V	I_E = 100 μA
Collector-Emitter Breakdown	BV_{CEO}	30		—	V	I_C = 1.0 mA
Collector-Emitter Leakage	I_{CEO}	—		100	nA	V_{CE} = 10.0 V
COUPLED						
On-State Collector Current	$I_{C(ON)}$	0.20		—	mA	I_F = 40 mA, V_{CE} = 5 V, D = .150"[5,7]
Crosstalk	I_{CX}	—		1.00	μA	I_F = 40 mA, V_{CE} = 5 V[6]
Saturation Voltage	$V_{CE(SAT)}$	—		0.40	V	I_F = 40 mA, I_C = 0.1 mA, D = .150"

NOTES

1. *Derate power dissipation linearly 1.67 mW/°C above 25°C.*
2. *RMA flux is recommended.*
3. *Methanol or Isopropyl alcohols are recommended as cleaning agents.*
4. *Soldering iron tip 1/16" (1.6 mm) from housing.*
5. *D is the distance from the assembly face to the reflective surface.*
6. *Cross talk is the photocurrent measured with current to the input diode and no reflecting surface.*
7. *Measured using Eastman Kodak neutral test card with 90% diffused reflecting surface.*