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QVE11233 Slotted Optical Switch

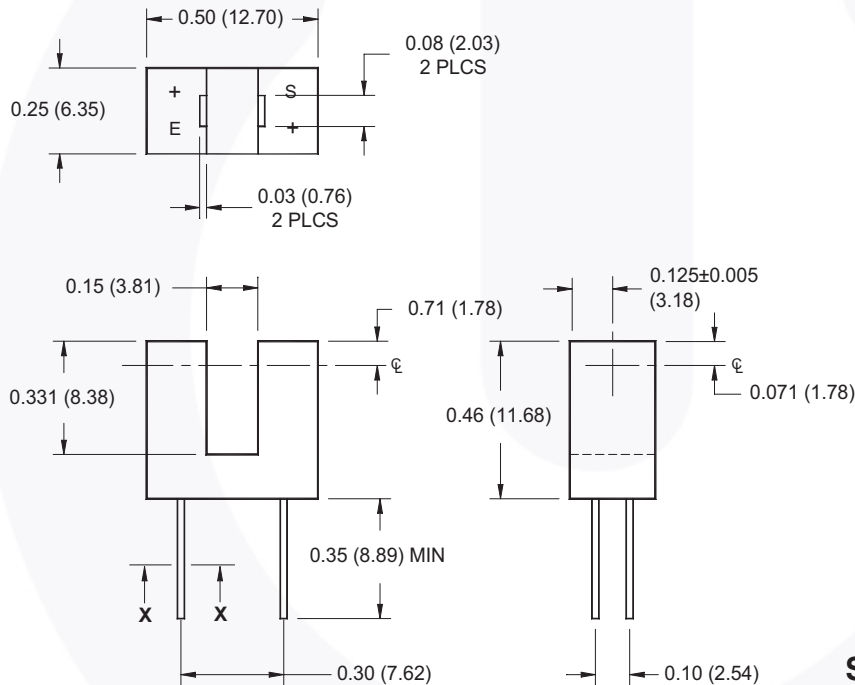
Features

- Lead spacing 0.300"
- Gap width of 0.150"
- Printed circuit board mounting
- 2mm aperture width

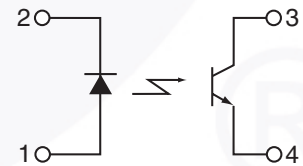
Description

The QVE11233 is designed to allow the user maximum flexibility in applications. Each switch consists of an infrared emitting diode facing an NPN phototransistor across a 0.150" (3.81mm) gap.

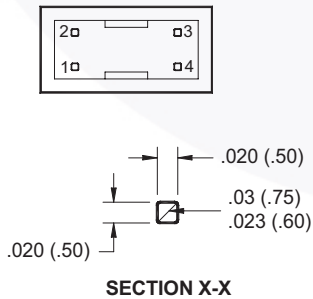
Package Dimensions



Schematic



PIN 1 ANODE
PIN 2 CATHODE
PIN 3 COLLECTOR
PIN 4 EMITTER



Notes:

1. Dimensions for all drawings are in inches (millimeters).
2. Tolerance of ± 0.010 (0.25) on all non-nominal dimensions unless otherwise specified.

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only.

Symbol	Parameter	Rating	Units
T_{OPR}	Operating Temperature	-40 to +85	$^\circ\text{C}$
T_{STG}	Storage Temperature	-40 to +85	$^\circ\text{C}$
T_{SOL-I}	Soldering Temperature (Iron) ⁽²⁾⁽³⁾⁽⁴⁾	240 for 5 sec	$^\circ\text{C}$
T_{SOL-F}	Soldering Temperature (Flow) ⁽²⁾⁽⁴⁾	260 for 10 sec	$^\circ\text{C}$
INPUT (EMITTER)			
I_F	Continuous Forward Current	50	mA
V_R	Reverse Voltage	6	V
P_D	Power Dissipation ⁽¹⁾	100	mW
OUTPUT (SENSOR)			
V_{CEO}	Collector to Emitter Voltage	30	V
V_{ECO}	Emitter to Collector Voltage	4.5	V
I_C	Collector Current	20	mA
P_D	Power Dissipation ⁽¹⁾	150	mW

Notes:

1. Derate power dissipation linearly, on each component, 1.67mW/ $^\circ\text{C}$ above 25 $^\circ\text{C}$.
2. RMA flux is recommended.
3. Methanol or isopropyl alcohols are recommended as cleaning agents.
4. Soldering iron tip 1/16" (1.6mm) from housing.





Electrical/Optical Characteristics ($T_A = 25^\circ\text{C}$)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
INPUT (EMITTER)						
V_F	Forward Voltage	$I_F = 20\text{mA}$			1.7	V
I_R	Reverse Leakage Current	$V_R = 2\text{V}$			100	μA
OUTPUT (SENSOR)						
BV_{ECO}	Emitter to Collector Breakdown	$I_E = 100\mu\text{A}, E_e = 0$	5.0			V
BV_{CEO}	Collector to Emitter Breakdown	$I_C = 1\text{mA}, E_e = 0$	30			V
I_{CEO}	Collector to Emitter Leakage	$V_{CE} = 10\text{V}, E_e = 0$			100	nA
COUPLED						
$I_{C(ON)}$	On-State Collector Current	$I_F = 20\text{mA}, V_{CE} = 5\text{V}$	0.5			mA
$V_{CE(SAT)}$	Saturation Voltage	$I_F = 20\text{mA}, I_C = 0.25\text{mA}$			0.40	V



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Rev. I62

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