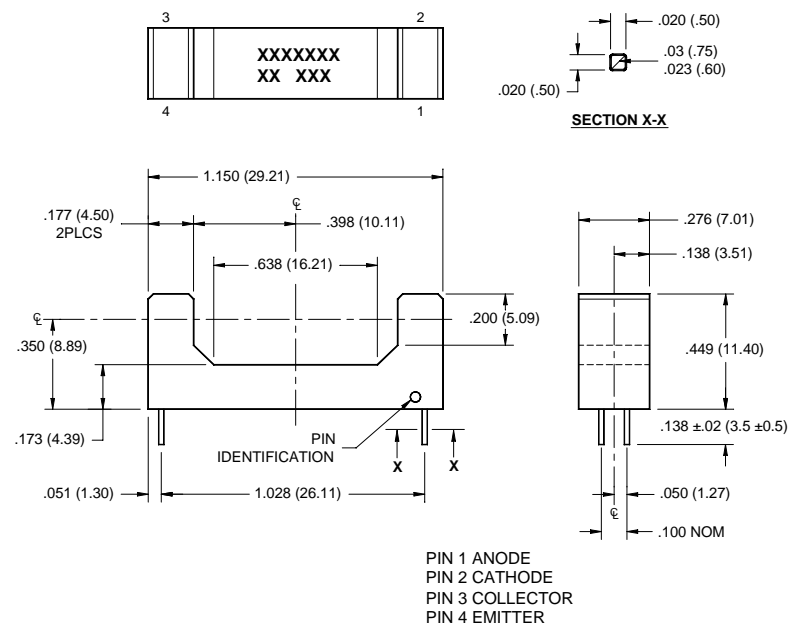
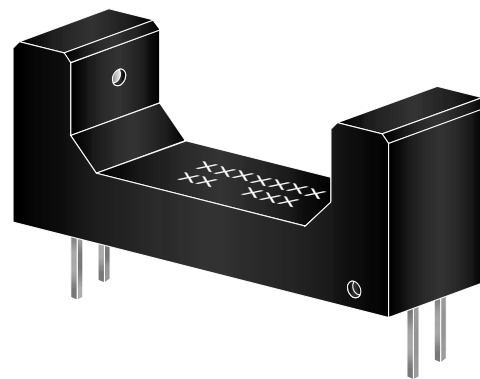


**PACKAGE DIMENSIONS**

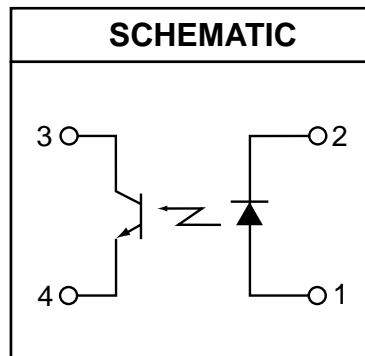


**NOTES:**

1. Dimensions for all drawings are in inches (mm).
2. Tolerance of  $\pm .010 (.25)$  on all non-nominal dimensions unless otherwise specified.



**SCHEMATIC**



**DESCRIPTION**

The QVL21653 consists of an infrared light emitting diode coupled to an NPN silicon phototransistor packaged into an injection molded housing. The housing is designed for wide gap, non contact sensing.

**FEATURES**

- 20 mm wide gap
- PC Board mount
- .060" apertures
- Sensor filter to attenuate visible light

<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise specified)			
Parameter	Symbol	Rating	Unit
Operating Temperature	$T_{\text{OPR}}$	-40 to +85	$^\circ\text{C}$
Storage Temperature	$T_{\text{STG}}$	-40 to +85	$^\circ\text{C}$
Soldering Temperature (Iron) <sup>(2,3 and 4)</sup>	$T_{\text{SOL-I}}$	240 for 5 sec	$^\circ\text{C}$
Soldering Temperature (Flow) <sup>(2 and 3)</sup>	$T_{\text{SOL-F}}$	260 for 10 sec	$^\circ\text{C}$
<b>INPUT (EMITTER)</b>			
Continuous Forward Current	$I_F$	50	mA
Reverse Voltage	$V_R$	6	V
Power Dissipation <sup>(1)</sup>	$P_D$	100	mW
<b>OUTPUT (SENSOR)</b>			
Collector to Emitter Voltage	$V_{\text{CEO}}$	30	V
Emitter to Collector Voltage	$V_{\text{ECO}}$	4.5	V
Collector Current	$I_C$	20	mA
Power Dissipation <sup>(1)</sup>	$P_D$	150	mW

**NOTES:**

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

<b>ELECTRICAL / OPTICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ )						
PARAMETER	TEST CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
<b>INPUT (EMITTER)</b>						
Forward Voltage	$I_F = 20 \text{ mA}$	$V_F$	—	—	1.7	V
Reverse Leakage Current	$V_R = 5 \text{ V}$	$I_R$	—	—	100	$\mu\text{A}$
<b>OUTPUT (SENSOR)</b>						
Emitter to Collector Breakdown	$I_E = 100 \mu\text{A}$	$BV_{\text{ECO}}$	5	—	—	V
Collector to Emitter Breakdown	$I_C = 1 \text{ mA}$	$BV_{\text{CEO}}$	30	—	—	V
Collector to Emitter Leakage	$V_{\text{CE}} = 10 \text{ V}$	$I_{\text{CEO}}$	—	—	100	nA
<b>COUPLED</b>						
On-State Collector Current	$I_F = 20 \text{ mA}, V_{\text{CE}} = 5 \text{ V}$	$I_{\text{C(ON)}}$	100	—	—	$\mu\text{A}$
Saturation Voltage	$I_F = 20 \text{ mA}, I_C = 50 \mu\text{A}$	$V_{\text{CE(SAT)}}$	—	—	0.5	V

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.