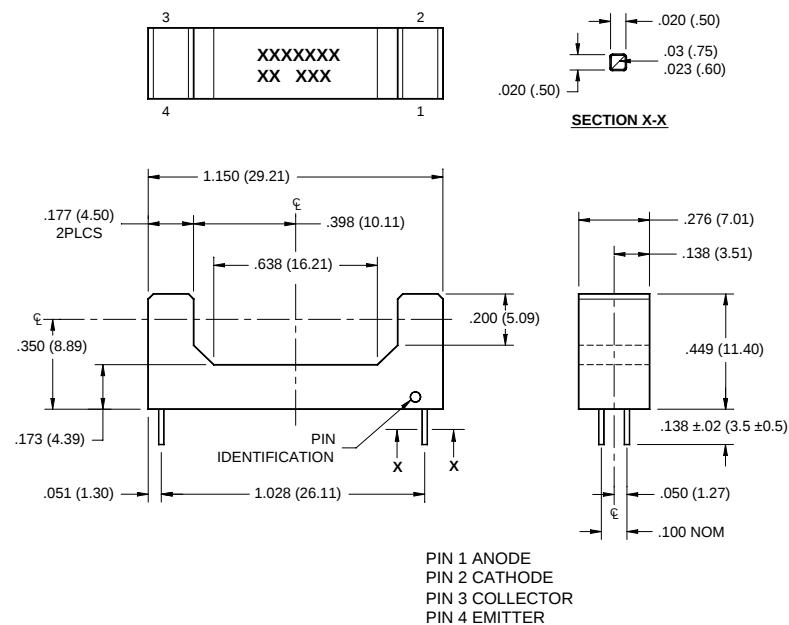
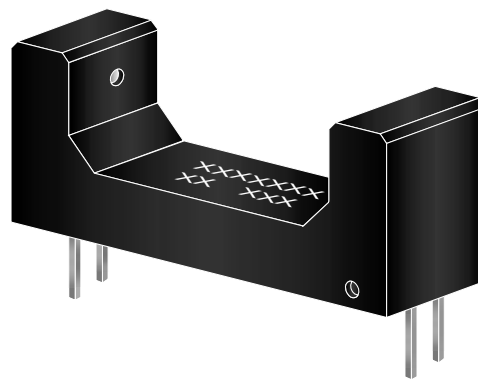


PACKAGE DIMENSIONS

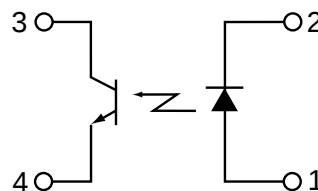


NOTES:

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

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

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

NOTES:

1. Derate power dissipation linearly 1.67 mW/ $^\circ\text{C}$ above 25°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.

ELECTRICAL / OPTICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

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

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in labeling, can be reasonably expected to result in a significant injury of the user.
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.