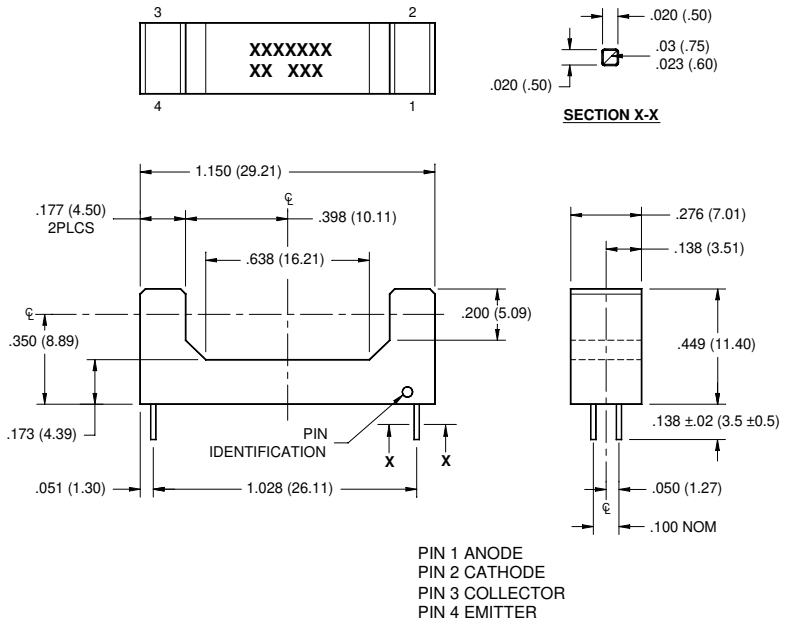
FAIRCHILD
SEMICONDUCTOR®

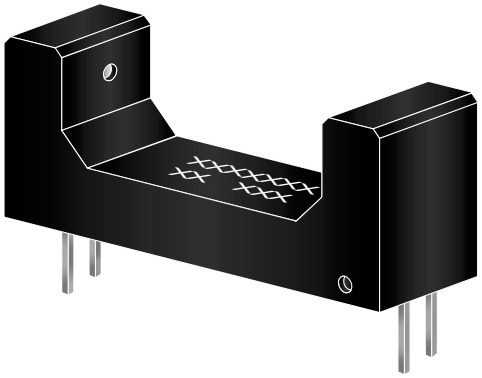
SLOTTED OPTICAL SWITCH

QVL21653

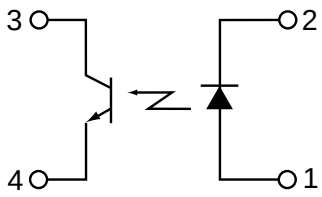
PACKAGE DIMENSIONS



NOTES:
1. Dimensions for all drawings are in inches (mm).
2. Tolerance of ± .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

QVL21653

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Operating Temperature	T_{OPR}	-40 to +85	°C
Storage Temperature	T_{STG}	-40 to +85	°C
Soldering Temperature (Iron)(2,3 and 4)	T_{SOL-I}	240 for 5 sec	°C
Soldering Temperature (Flow)(2 and 3)	T_{SOL-F}	260 for 10 sec	°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/°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°C)

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