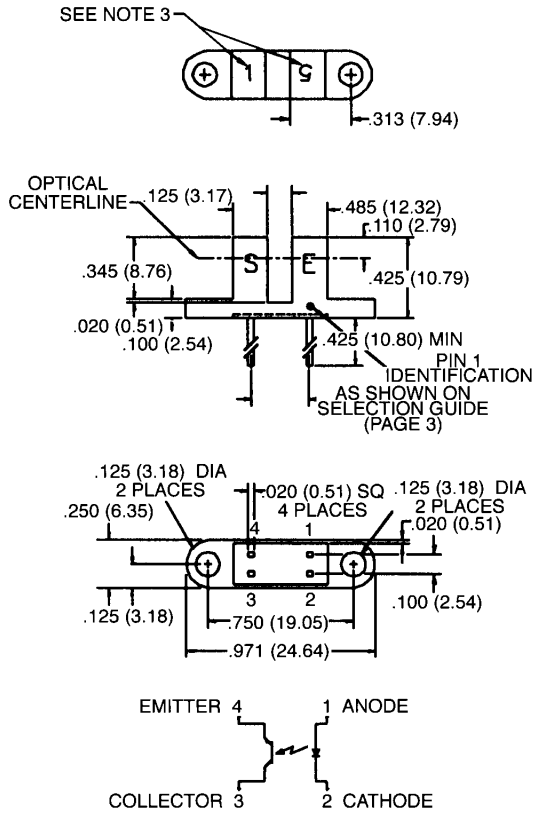
OPTOELECTRONICS

SLOTTED OPTICAL SWITCH

QVB SERIES

PACKAGE DIMENSIONS



ST2175

NOTES:
1. DIMENSIONS ARE IN INCHES (mm).
2. TOLERANCE IS ±.010 (.25) UNLESS OTHERWISE SPECIFIED.
3. NUMBER INDICATES APERTURE SIZE. (5 = .050", 1 = .010")

DESCRIPTION

The QVB series of switches is designed to allow the user maximum flexibility in applications. Each switch consists of an infrared emitting diode facing an NPN photo-transistor across a .125" (3.18 mm) gap. A unique housing design provides a smooth external surface to prevent dust and dirt buildup while molded internal apertures give precise positioning and also provide protection from ambient light interference.

FEATURES

- Ambient light and dust protection.
- Lead spacing available at .220", .300", or .320".
- .050" and .010" aperatures available.

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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 Volts
Emitter-Collector Voltage ..... 5.0 Volts
Collector Current ..... 40 mA
Power Dissipation ..... 100 mW[1]

ELECTRICAL CHARACTERISTICS (T_A = 25°C Unless Otherwise Specified)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
INPUT DIODE						
Forward voltage	V_F	—		1.70	V	I_F = 20 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, Ee = 0
Collector-Emitter Breakdown	BV_{CEO}	30		—	V	I_C = 1.0 mA, Ee = 0
Collector-Emitter Leakage	I_{CEO}	—		100	nA	V_{CE} = 10.0 V, Ee = 0
COUPLED						
On-State Collector Current	$I_{C(ON)}$	See selection guide page 3.			mA	I_F = 20 mA, V_{CE} = 5 V
Saturation Voltage	$V_{CE(SAT)}$	—		0.40	V	I_F = 20 mA, I_C = 0.1 mA

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" (1.6 mm) from housing.*

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QVBXXXX OPTICAL SWITCH SELECTION GUIDE

PART NUMBER	LEAD SPACING	APERTURES		$I_{C(ON)}$	
		LED	SENSOR	MIN	MAX
QVB11123	.220″	0.050″	0.010″	0.20	—
QVB11124	.220″	0.050″	0.010″	0.50	—
QVB11223	.300″	0.050″	0.010″	0.20	—
QVB11224	.300″	0.050″	0.010″	0.50	—
QVB11323	.320″	0.050″	0.010″	0.20	—
QVB11324	.320″	0.050″	0.010″	0.50	—
QVB11133	.220″	0.050″	0.050″	0.50	—
QVB11134	.220″	0.050″	0.050″	1.00	—
QVB11233	.300″	0.050″	0.050″	0.50	—
QVB11234	.300″	0.050″	0.050″	1.00	—
QVB11333	.320″	0.050″	0.050″	0.50	—
QVB11334	.320″	0.050″	0.050″	1.00	—
QVB21113	.220″	0.010″	0.010″	0.10	—
QVB21114	.220″	0.010″	0.010″	0.20	—
QVB21213	.300″	0.010″	0.010″	0.10	—
QVB21214	.300″	0.010″	0.010″	0.20	—
QVB21313	.320″	0.010″	0.010″	0.10	—
QVB21314	.320″	0.010″	0.010″	0.20	—