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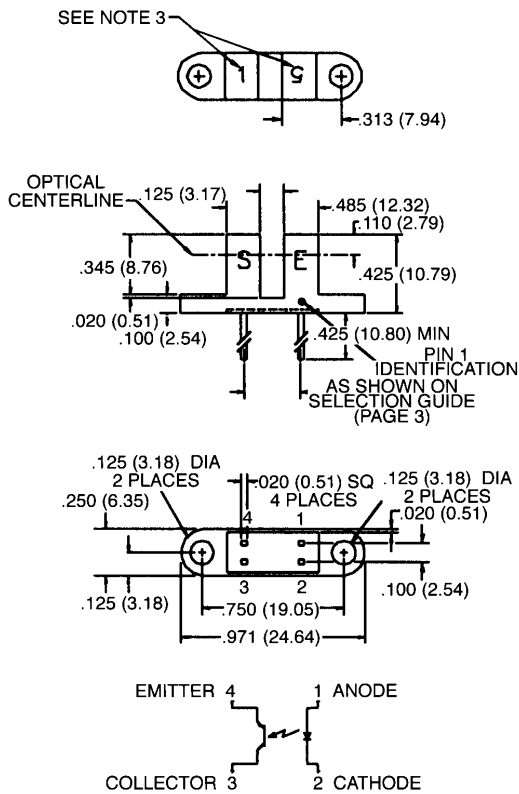
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SLOTTED OPTICAL SWITCH

QVB SERIES

PACKAGE DIMENSIONS



ST2175

NOTES:

1. DIMENSIONS ARE IN INCHES (mm).
2. TOLERANCE IS $\pm .010$ (.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" apertures available.



SLOTTED OPTICAL SWITCH

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, E _e = 0
Collector-Emitter Breakdown	BV _{CEO}	30	—	—	V	I _C = 1.0 mA, E _e = 0
Collector-Emitter Leakage	I _{CEO}	—	—	100	nA	V _{CE} = 10.0 V, E _e = 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

- Derate power dissipation linearly 1.67 mW/°C above 25°C.
- RMA flux is recommended.
- Methanol or Isopropanol alcohols are recommended as cleaning agents.
- Soldering iron tip 1/16" (1.6 mm) from housing.



SLOTTED OPTICAL SWITCH

QVBXXX 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	—	



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