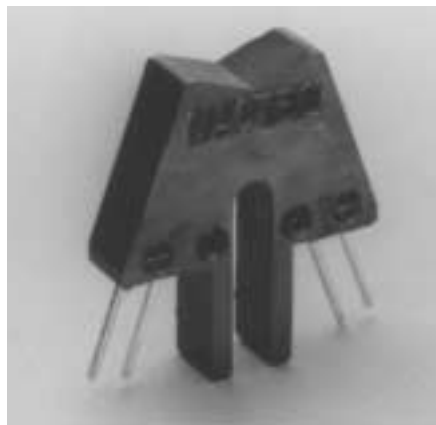


# Reflective Optoswitch

Arrow Retro with PCB Mount Leads

# VTR16D1H



## PRODUCT DESCRIPTION

This series of reflective optical switches combines an infrared emitting diode (IRED) with an NPN phototransistor (VTR16D1H) in a one piece, sealed, IR transmitting plastic case. The sealed construction improves resistance to moisture and debris. Units have PC board mount leads. Refer to VTR17xxH for devices with flying leads.

**RoHS Compliant**



## ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage and Operating:

-40°C to 85°C

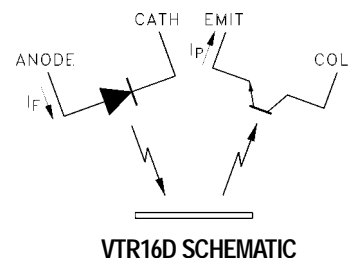
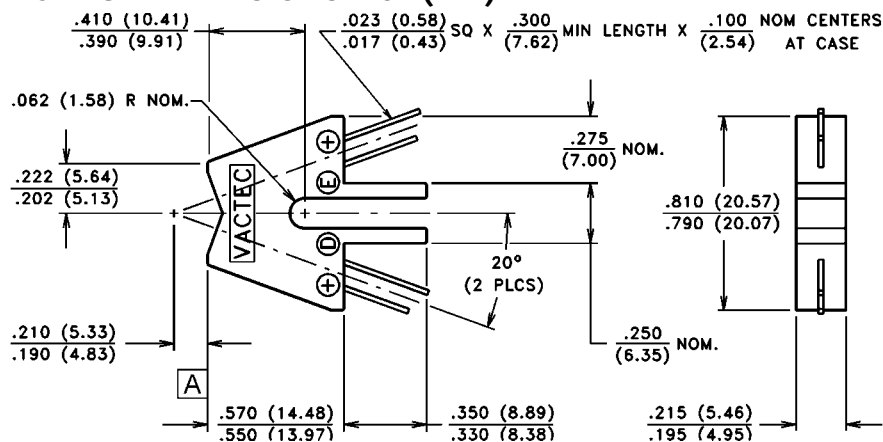
Lead Soldering Temperature:

260°C (1.6 mm from case, 5 seconds max.)

## GENERAL CHARACTERISTICS (@ 25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Input IRED	Output Detector
Reverse Voltage	$V_R$	$I_R = 100 \mu A$	2.0V Min.	
Continuous Forward Current	$I_F$	Derate 0.73 mA/°C above 30°C	40 mA Max.	
Forward Voltage Drop	$V_F$	$I_F = 20 mA$	1.8V Max.	
Collector Breakdown Voltage	$V_{BR(CEO)}$	$I_C = 100 \mu A$		30V Min.
Emitter Breakdown Voltage	$V_{BR(ECO)}$	$I_E = 100 \mu A$		5.0V Min.
Power Dissipation	$P_D$	Derate 0.91 mW/°C above 30°C		50 mW Max.

## PACKAGE DIMENSIONS inch (mm)



PART NO. (1) (5)	LIGHT CURRENT, $I_p$ <sup>(2)</sup>				DARK CURRENT <sup>(3) (4)</sup>			OUTPUT ELEMENT DETECTOR DEVICE
	mA Min.	Test Conditions			$\mu$ A Max.	Test Conditions		
		$I_f$ mA	$V_{CE}$ Volts	d inches (mm)		$I_f$ mA	$V_{CE}$ Volts	
VTR16D1H	0.3	20	5	0.10 (2.5)	0.1	0	5	Phototransistor

Notes:

1. The case material is polysulfone and should be cleaned with alcohol or freon TF only. Avoid chlorinated hydrocarbons and solvents such as acetone or toluene, as damage may result.
2. The light current is measured using a 90% reflective surface at the specified distance from Ref. A (refer to Package Dimension Outline on previous page).
3. The dark current is measured with the part totally shielded from ambient light. With 2150 lux (200 fc) from a cool white fluorescent lamp perpendicular to the sensing axis, the detector current will be typically 3  $\mu$ A for VTR16D1H. The same illumination concentric to the sensing axis will result in a detector current of 50  $\mu$ A for VTR16D1H. Equivalent light from an incandescent lamp will result in significantly greater currents.
4. With the specified IRED forward current and no reflecting surface, the crosstalk is typically less than 3  $\mu$ A for VTR16D1H.
5. VTR16D1H accommodates most applications.