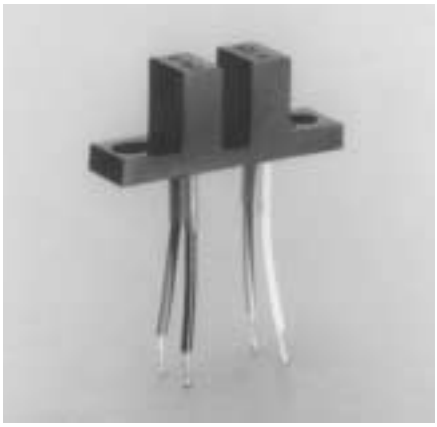
Transmissive Optoswitch

Slotted Switch — 0.395 High

VTL13D1H - D7H



PRODUCT DESCRIPTION

This series of interrupter type transmissive optoswitches combines an infrared emitting diode (IRED) with an NPN phototransistor in a one piece, sealed, IR transmitting plastic case. The sealed construction improves resistance to debris and moisture. Internal apertures over detector and/or emitter are available to increase position sensing resolution. These devices are furnished with 12 inch, #26 AWG leads. Refer to VTL11H for devices with P.C.B. mount leads.

RoHS Compliant

ABSOLUTE MAXIMUM RATINGS

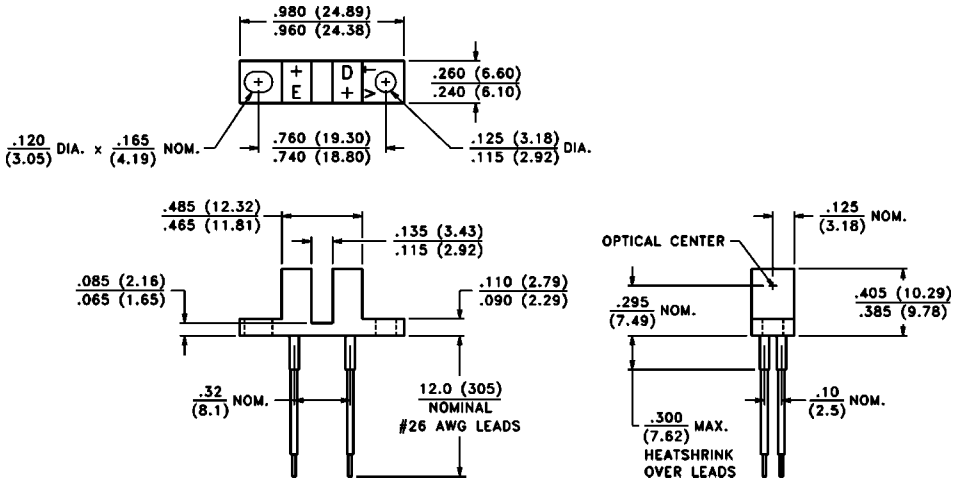
Maximum Temperatures

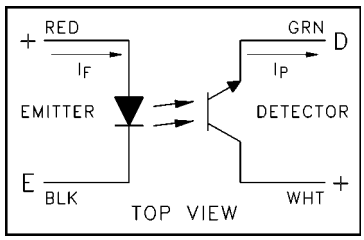
Storage and Operating:	-40°C to 85°C
Operating Temperature:	-40°C to 85°C

GENERAL CHARACTERISTICS (@ 25°C unless otherwise noted)

Parameter	Symbol	Text Conditions	Input IRED	Output Detector
Reverse Voltage	V_R	I_R = 100 µA	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 µA		30V Min.
Emitter Breakdown Voltage	$V_{BR(ECO)}$	I_C = 100 µA		5.0V Min.
Power Dissipation	P_D	Derate 0.91 mW/°C above 30°C		50 mW Max.

PACKAGE DIMENSIONS inch (mm)





ELECTRO-OPTICAL CHARACTERISTICS @ 25°C (See also curves, pages 32 & 33)

PART NO. (4)	LIGHT CURRENT, I_P			DARK CURRENT (1)			SATURATION VOLTAGE			APERTURE COMBINATION (2)	
	mA Min.	Test Conditions		nA Max.	Test Conditions		Volts Max.	Test Conditions			
		I_F mA	V_{CE} Volts		I_F mA	V_{CE} Volts		I_F mA	I_C mA	Emitter	Detector
VTL13D1H	0.5	20	5	100	0	10	0.4	20	0.25	None	None
VTL13D1-20H	0.15	20	5	100	0	10	0.4	20	0.25	.020" Wide	None
VTL13D3H	2.0	20	5	100	0	10	0.4	20	1.8	None	None
VTL13D3-20H	0.6	20	5	100	0	10	0.4	20	1.8	.020" Wide	None
VTL13D5-20H	0.15	20	5	100	0	10	0.4	20	0.25	.020" Wide	.010" Wide
VTL13D6-20H	0.075	20	5	100	0	10	0.4	20	0.25	.020" Wide	.005" Wide
VTL13D7H	0.75	20	5	100	0	10	0.4	20	0.25	None	.020" Wide
VTL13D7-20H	**0.225**	**20**	**5**	**100**	**0**	**10**	**0.4**	**20**	**0.25**	**.020" Wide**	**.020" Wide**

Notes:

1. The dark current is measured with the part totally shielded from ambient light. With 2150 lux (200 fc) from a cool white fluorescent lamp falling on the part, the typical dark current will be 3 µA for VTL13DH devices. Equivalent light from an incandescent lamp will result in significantly greater currents.
2. The apertures used for these slotted switches are .040" (1.02 mm) high.
3. 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.
4. VTL13D7-20H accommodates most applications. The other parts in this series are available only for specialized, high volume applications.