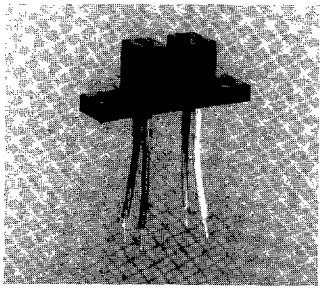
Transmissive Optoswitch
Slotted Switch — .395 High

VTL13D1 - D7



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 VTL11 for devices with P.C.B. mount leads.

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

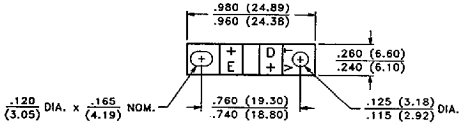
Storage Temperature: . . . . . -40°C to 85°C

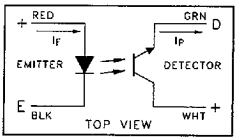
Operating Temperature: . . . . . -40°C to 85°C

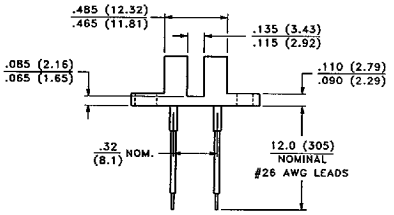
GENERAL CHARACTERISTICS (@ 25°C unless otherwise noted)

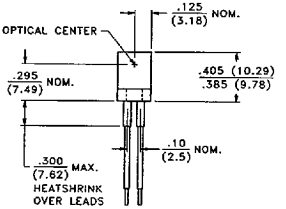
Parameter	Symbol	Test Conditions	Input IRED	Output Detector
Reverse Voltage	V_R	I_R = 100 µA	2.0 V Min.	
Continuous Forward Current	I_F	Derate 0.73 mA / °C above 30°C	40 mA Max.	
Forward Voltage Drop	V_F	I_F = 20 mA	1.8 V Max.	
Collector Breakdown Voltage	$V_{BR(CEO)}$	I_C = 100 µA		30 V Min.
Emitter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

PACKAGE DIMENSIONS inch (mm)









Specifications subject to change without notice.

ELECTRO - OPTICAL CHARACTERISTICS @ 25°C (See also curves, pages 34 & 35)

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		Emitter	Detector
		I_F mA	V_{CE} Volts		I_F mA	V_{CE} Volts		I_F mA	I_C mA		
VTL13D1	0.5	20	5	100	0	10	0.4	20	0.25	NONE	NONE
VTL13D1-20	0.15	20	5	100	0	10	0.4	20	0.25	.020" WIDE	NONE
VTL13D3	2.0	20	5	100	0	10	0.4	20	1.8	NONE	NONE
VTL13D3-20	0.6	20	5	100	0	10	0.4	20	1.8	.020" WIDE	NONE
VTL13D5-20	0.15	20	5	100	0	10	0.4	20	0.25	.020" WIDE	.010" WIDE
VTL13D6-20	0.075	20	5	100	0	10	0.4	20	0.25	.020" WIDE	.005" WIDE
VTL13D7	0.75	20	5	100	0	10	0.4	20	0.25	NONE	.020" WIDE
VTL13D7-20	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 VTL13D 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. VTL13D7-20 accomodates most applications. The other parts in this series are available only for specialized, high volume applications.