ISTS2001, ISTS2002, ISTS2003

ISO - LOGIC BUFFER SCHMITT TRIGGER INTERRUPTER SWITCH

DESCRIPTION

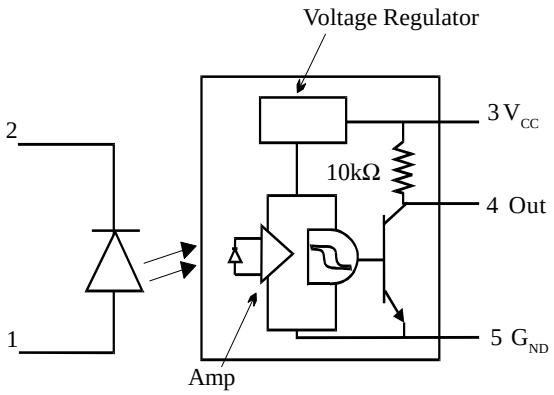
The ISTS200_ series of transmissive photointerrupters are single channel switches consisting of a Gallium Arsenide infrared emitting diode coupled to a high speed integrated circuit detector. The output incorporates a Schmitt trigger which provides hysteresis for noise immunity and pulse shaping. The gap in the plastic housing provides a means of interrupting the signal with an opaque material, switching the output from an 'OFF' into an 'ON' state.

FEATURES

- Output high under incident light
- Built in Schmitt trigger circuit
- Pull up resistor between V_{CC} and output
- High sensitivity
- 3mm gap between LED and detector
- 0.25mm aperture over detector :- ISTS2002, ISTS2003

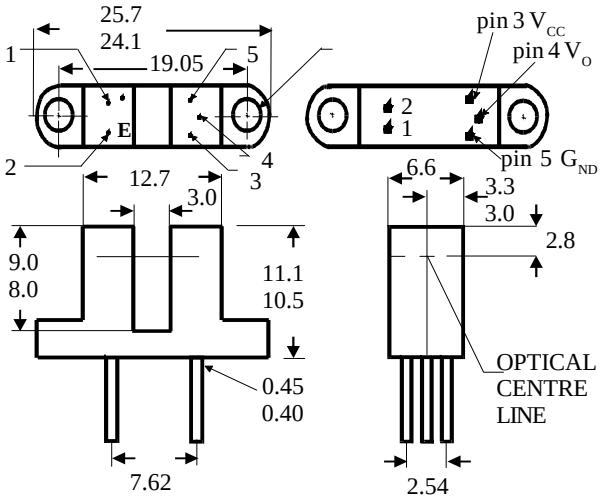
APPLICATIONS

- Floppy disk drives, Copiers, Printers, Facsimilies, VCR's, Cassette tape Recorders, Automatic vending machines

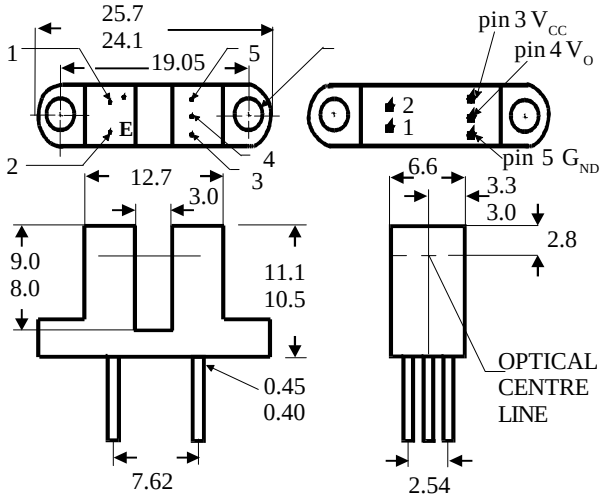


Dimensions in mm

ISTS2001
ISTS2003



ISTS2002



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ABSOLUTE MAXIMUM RATINGS (25°C unless otherwise specified)

Storage Temperature	-40°C to +85°C
Operating Temperature	-25°C to +85°C
Lead Soldering Temperature (5 secs maximum)	260°C

INFRARED EMITTING DIODE

Power Dissipation	75 mW
Forward Current (Continuous)	50 mA
Forward Current (Peak) (Pulse Width ≤ 100μs, Duty Ratio = 0.01)	1 A
Reverse Voltage	6V

PHOTO DETECTOR

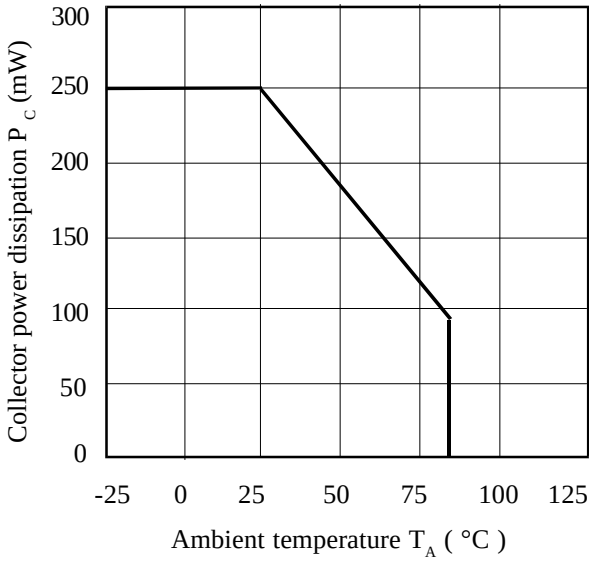
Power Dissipation	250 mW
Output Current	50mA
Allowed Range V_{35}	0 to 17V

ELECTRICAL CHARACTERISTICS (T_A= 25°C Unless otherwise noted)

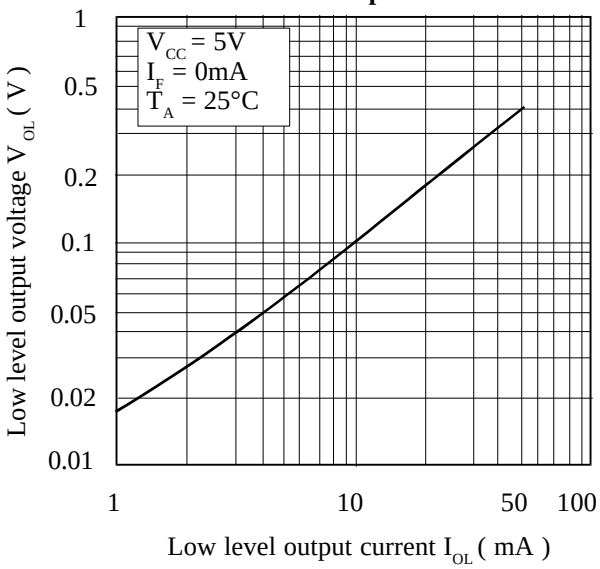
PARAMETER			MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)			1.1	1.6	V	I_F = 20mA
	Reverse Voltage (V_R)		6			V	I_R = 10μA
	Reverse Current (I_R)				10	μA	V_R = 3V
Detector	Operating Voltage Range	V_{CC}	4.5		16	V	
	Low Level Supply Current	I_{CCL}	2		12	mA	V_{CC}= 5V, I_F = 0mA
			2		15	mA	V_{CC}= 16V, I_F = 0mA
	High Level Supply Current	I_{CCH}	0.5		10	mA	V_{CC}= 5V, I_F = I_{FT}
			0.5		12	mA	V_{CC}= 16V, I_F = I_{FT}
	Low Level Output Voltage	V_{OL}			0.4	V	V_{CC}= 5V, I_F = 0mA I_{OL} = 16mA
	High Level Output Voltage	V_{OH}	2.4			V	V_{CC}= 4.75V, I_F = 20mA I_{OH} = -800μA
	Input Forward Threshold Current	I_{FT}					
	ISTS2001				10	mA	V_{CC}= 5V, R_L= 390Ω
	ISTS2002, ISTS2003				20	mA	V_{CC}= 5V, R_L= 390Ω
	Propagation Delay Time to Logic High at Output	t_{PLH}		5		μs	V_{CC}= 5V I_F = I_{FT} R_L= 390Ω
	Propagation Delay Time to Logic Low at Output	t_{PHL}		5		μs	
	Rise Time	tr		0.1		μs	
	Fall Time	tf		0.05		μs	

Note 1 Special Selections are available on request. Please consult the factory.

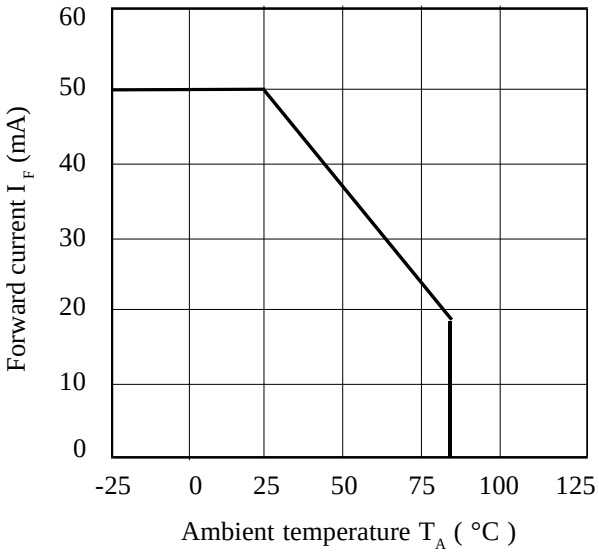
Collector Power Dissipation vs. Ambient Temperature



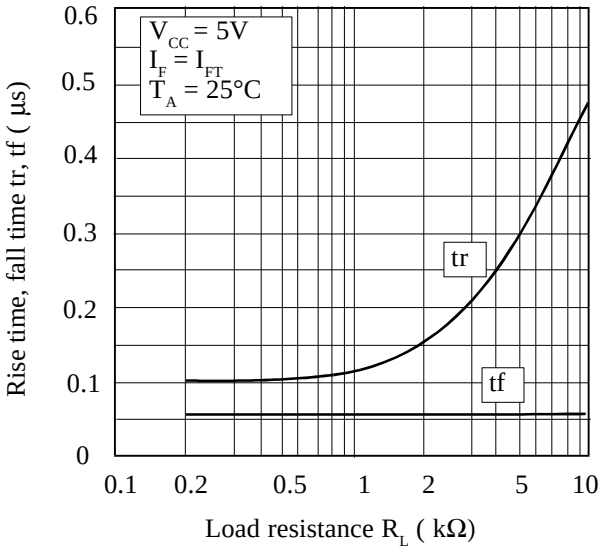
Low Level Output Voltage vs. Low Level Output Current



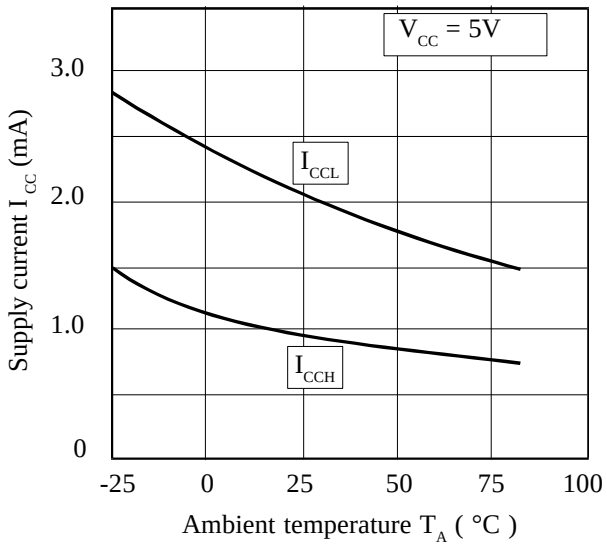
Forward Current vs. Ambient Temperature



Rise Time, Fall Time vs. Load Resistance



Supply Current vs. Ambient Temperature



Low Level Output Voltage vs. Ambient Temperature