IS281 (Compact Range)

ROHS COMPLIANT

APPROVALS

UL 1577 Pending

DESCRIPTION

The IS281 is an optically coupled isolator consisting of an infrared light emitting diode and an NPN silicon photo transistor. It belongs to Isocom's Compact range of opto-couplers

FEATURES

- Low profile package (half pitch)
- AC Isolation test voltage 3750V_{RMS}
- Low coupling capacitance typically 0.3pF
- CTR selections available
- Wide temperature range
- Lead free
- Halogen Free

APPLICATIONS

- Power Supply Feedback Voltage/Current
- Industrial system controllers
- Measuring instruments
- Signal transmission between systems of different potentials and impedance

ORDER INFORMATION

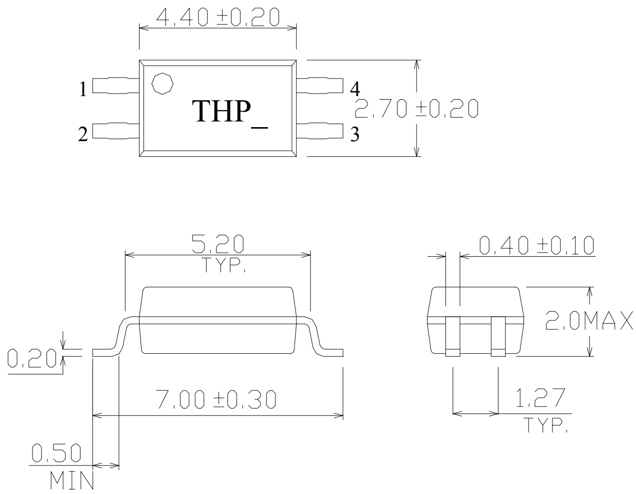
- Available in Tape and Reel with 1000 & 5000 pieces per reel

MARKING INFORMATION

Please note that the device will be marked with the generic part number "THP*" the date code will also be marked on the device.

* Denotes internal binning identification

Pin 1 Anode	Pin 4 Collector
Pin 2 Cathode	Pin 3 Emitter



ABSOLUTE MAXIMUM RATINGS

Input Diode

Forward Current	60mA
Reverse Voltage	6V
Power dissipation	70mW
Derating Factor > 90°C	2mW / °C

Output Transistor

Collector to Emitter Voltage	80V
Emitter to Collector Voltage	7V
Collector Current	50mA
Power Dissipation	150mW
Derating Factor > 70°C	3.1mW / °C

Total Package

Isolation test Voltage	3750V_{RMS}
Operating Temperature	-55 to 110 C
Storage Temperature	-55 to 150 C

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ELECTRICAL CHARACTERISTICS

Ambient Temperature = 25°C unless otherwise specified

INPUT

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward Voltage	V_F	I_F = 20mA		1.20	1.40	V
Reverse Leakage	I_R	V_R = 4V			10	μA
Input Capacitance	C_{in}	V = 0V, f = 1 KHz		30	250	pF

OUTPUT

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector—Emitter breakdown Voltage	BV_{CEO}	I_C = 100μA	80			V
Emitter—Collector breakdown Voltage	BV_{ECO}	I_E = 100μA	7			V
Collector dark Current	I_{CEO}	V_{CE} = 20V, I_F = 0mA			100	nA

COUPLED

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Current transfer ratio	CTR	I_F = 10mA, V_{CE} = 5V	50		600	%
Collector—Emitter saturation Voltage	V_{CEsat}	I_F = 10mA, I_C = 1mA		0.1	0.2	V
Input to output isolation Voltage	V_{ISO}	See note 1	3750			V_{RMS}
Output rise time	t_r	V_{ce} =2V,Ic = 2mA, Rl = 100Ω		5.0	18	μS
Output fall time	t_f	V_{ce} =2V,Ic = 2mA, Rl = 100Ω		3.0	18	μS
Cut off frequency	f_c	I_F = 10mA, V_{CE} = 5V, R_L = 100Ω		100		kHz
Coupling Capacitance	C_k	f = 1 MHz		0.3		pF

Note 1 Measured with input leads shorted together and output leads shorted together

ISOCOM
COMPONENTS

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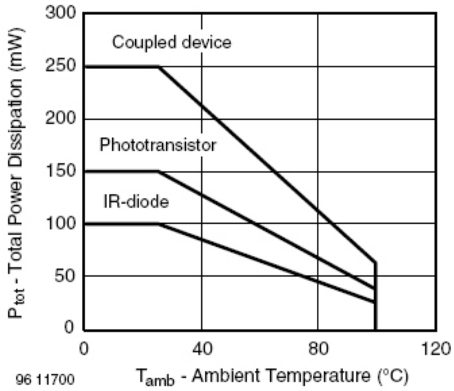

Figure 4.Total Power Dissipation vs. Ambient Temperature

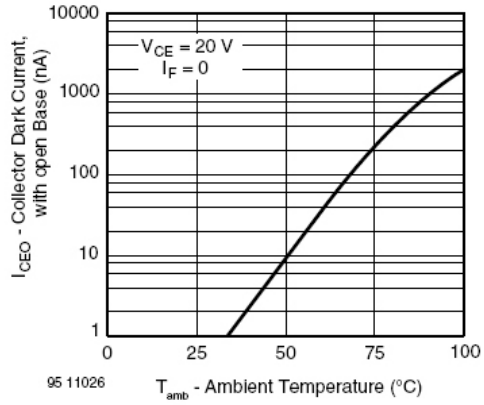

Figure 7. Collector Dark Current vs. Ambient Temperature

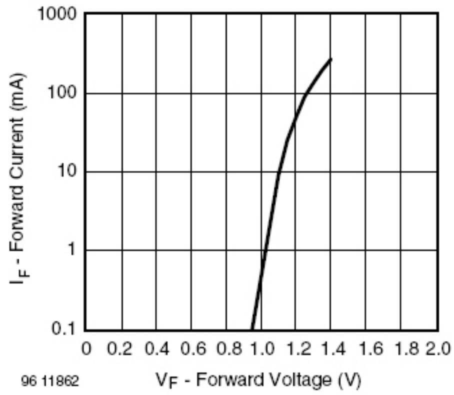

Figure 5. Forward Current vs. Forward Voltage

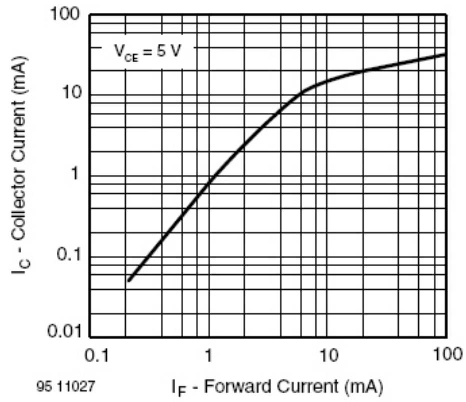

Figure 8. Collector Current vs. Forward Current

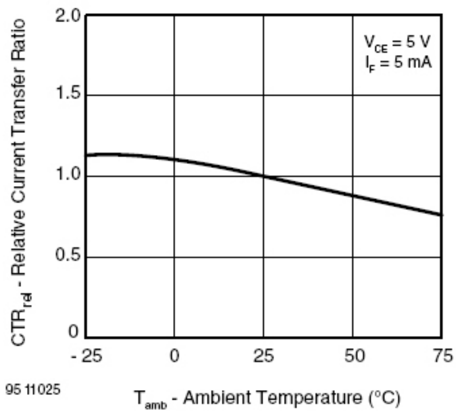

Figure 6. Relative Current Transfer Ratio vs.
Ambient Temperature

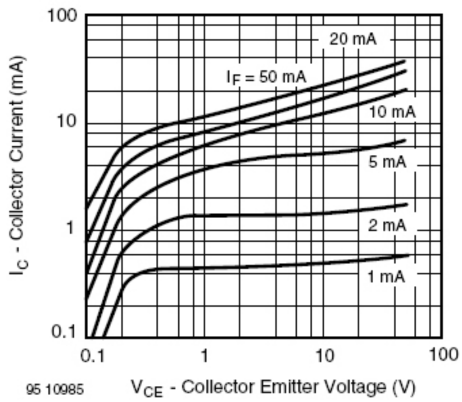

Figure 9. Collector Current vs. Collector Emitter Voltage

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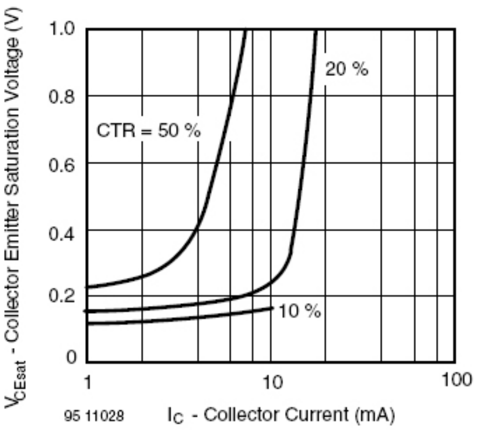

Figure 10. Collector Emitter Saturation Voltage vs. Collector Current

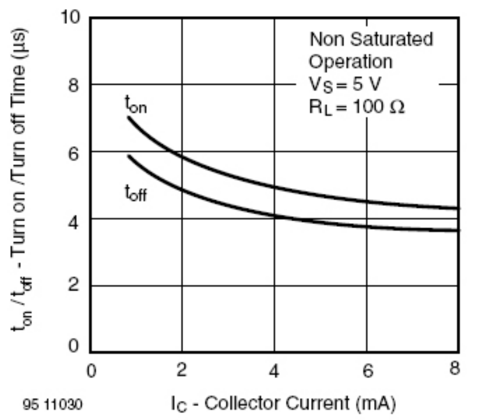

Figure 13. Turn on/off Time vs. Collector Current

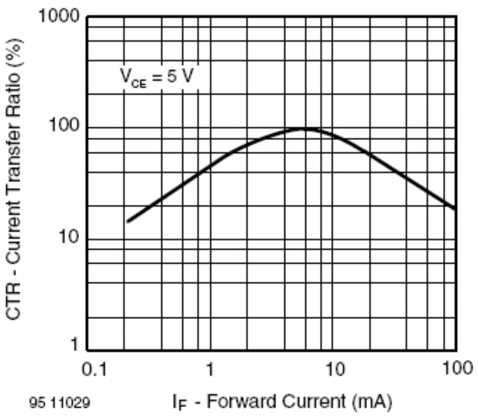

Figure 11. Current Transfer Ratio vs. Forward Current

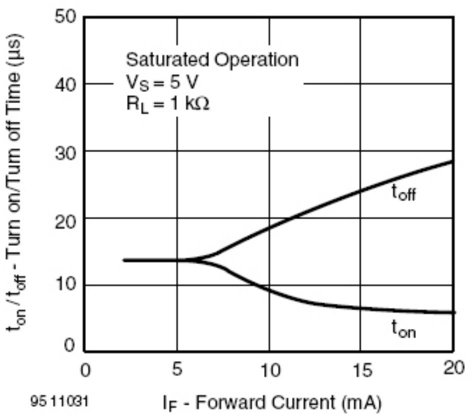

Figure 12. Turn on/off Time vs. Forward Current