



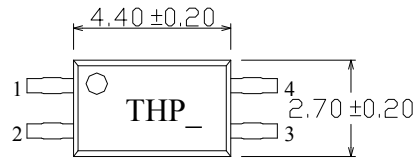
**APPROVALS**

UL Approved File number E91321 THP

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

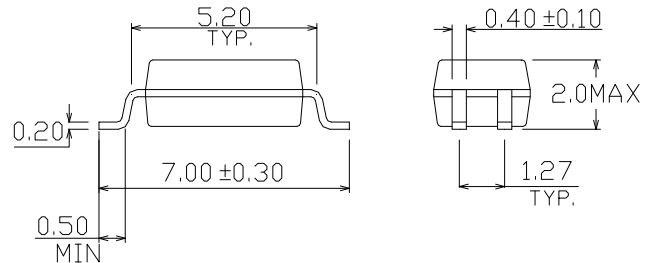
**DESCRIPTION**

The PS2801-1 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<sub>RMS</sub>
- 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

**ABSOLUTE MAXIMUM RATINGS**

**Input Diode**

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

**ORDER INFORMATION**

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

**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

**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.

**Total Package**

Isolation test Voltage	3750V <sub>RMS</sub>
Operating Temperature	-55 to 110 C
Storage Temperature	-55 to 150 C

\* Denotes internal binning identification

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## PS2801-1

### ELECTRICAL CHARACTERISTICS

Ambient Temperature = 25°C unless otherwise specified

#### INPUT

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

#### OUTPUT

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

#### COUPLED

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Current transfer ratio	CTR	$I_F = 5\text{mA}, V_{CE} = 5\text{V}$ Rank A B C D E F GR GB	50 80 130 200 300 100 150 100 100		600 160 260 400 600 200 300 300 600	%
Collector—Emitter saturation Voltage	$V_{CEsat}$	$I_F = 10\text{mA}, I_C = 1\text{mA}$		0.1	0.2	V
Input to output isolation Voltage	$V_{ISO}$	See note 1	3750			$V_{RMS}$
Output rise time	$t_r$	$V_{ce} = 2\text{V}, I_C = 2\text{mA}, R_L = 100\Omega$		5.0	18	$\mu\text{S}$
Output fall time	$t_f$	$V_{ce} = 2\text{V}, I_C = 2\text{mA}, R_L = 100\Omega$		3.0	18	$\mu\text{S}$
Cut off frequency	$f_c$	$I_F = 10\text{mA}, V_{CE} = 5\text{V},$ $R_L = 100\Omega$		100		kHz
Coupling Capacitance	$C_k$	$f = 1 \text{ MHz}$		0.3		pF

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



## PS2801-1

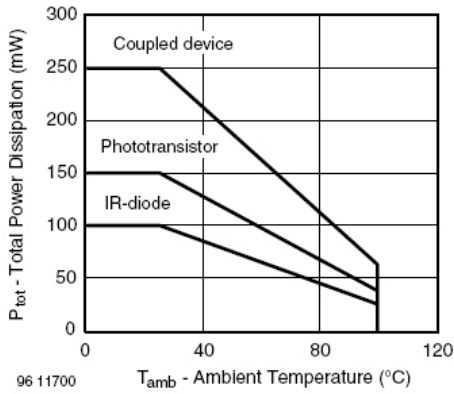


Figure 4. Total Power Dissipation vs. Ambient Temperature

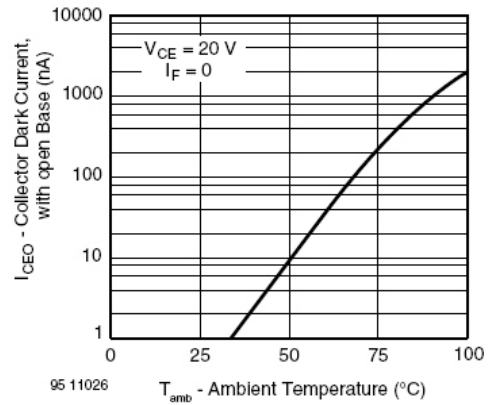


Figure 7. Collector Dark Current vs. Ambient Temperature

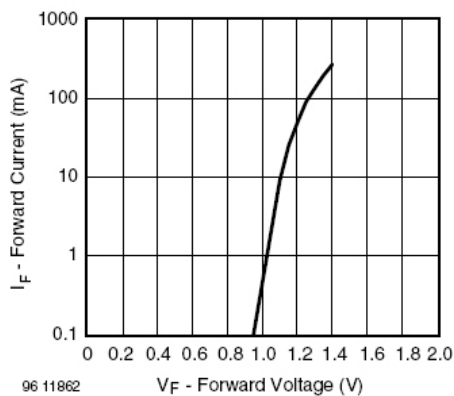


Figure 5. Forward Current vs. Forward Voltage

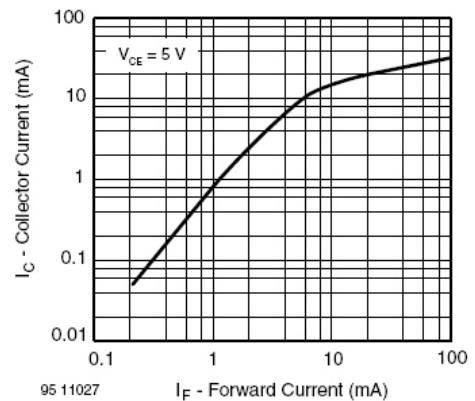


Figure 8. Collector Current vs. Forward Current

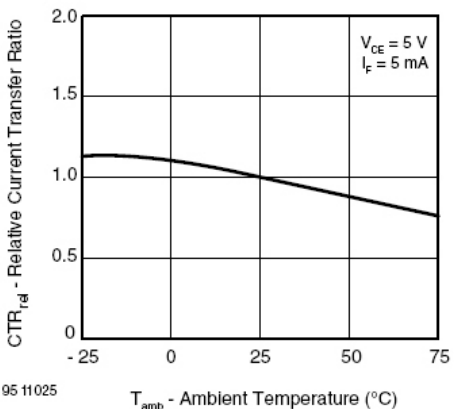


Figure 6. Relative Current Transfer Ratio vs. Ambient Temperature

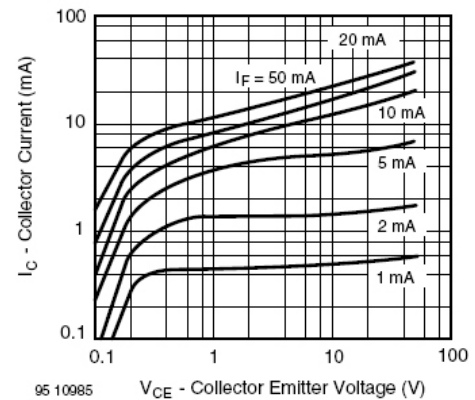


Figure 9. Collector Current vs. Collector Emitter Voltage

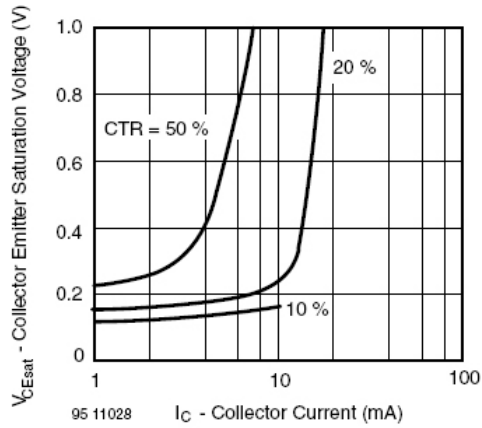


Figure 10. Collector Emitter Saturation Voltage vs. Collector Current

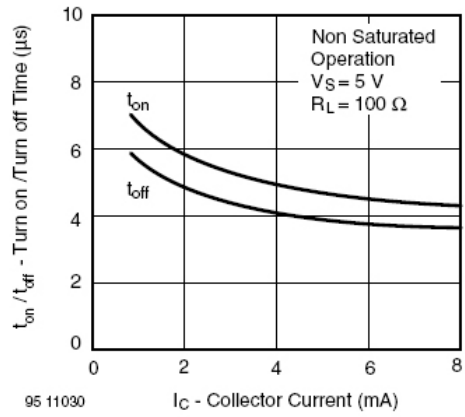


Figure 13. Turn on/off Time vs. Collector Current

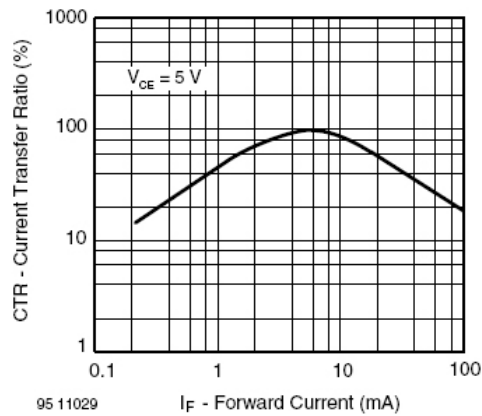


Figure 11. Current Transfer Ratio vs. Forward Current

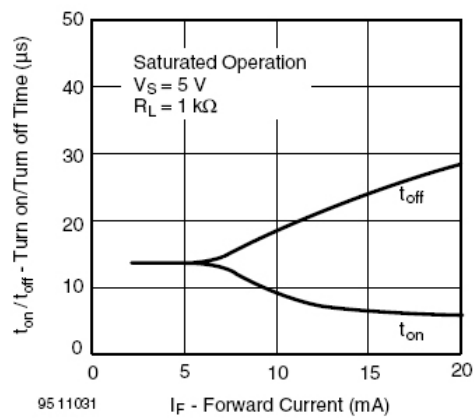


Figure 12. Turn on/off Time vs. Forward Current