

SMD Opto-Coupler with Photo-Transistor Output

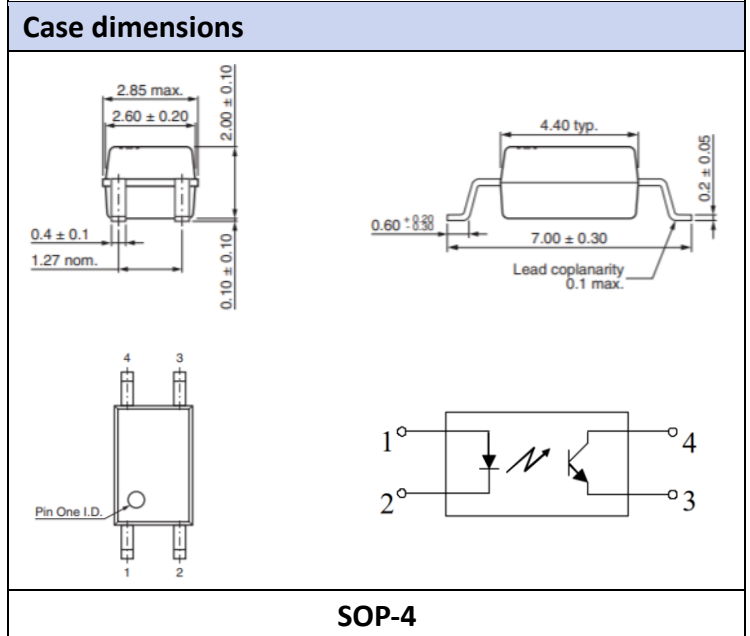
Primary characteristics		
Parameter	Value	Unit
Isolation voltage (V_{iso})	5000	V_{RMS}
Total power consumption (P_{tot})	200	mW

Features

- Pb-Free and RoHS Compliant
- Phototransistor output
- Isolation voltage between input and output
 $V_{iso}=5000V_{RMS}$

Applications

- Measuring equipment
- Home devices like ventilation, water heaters, etc.



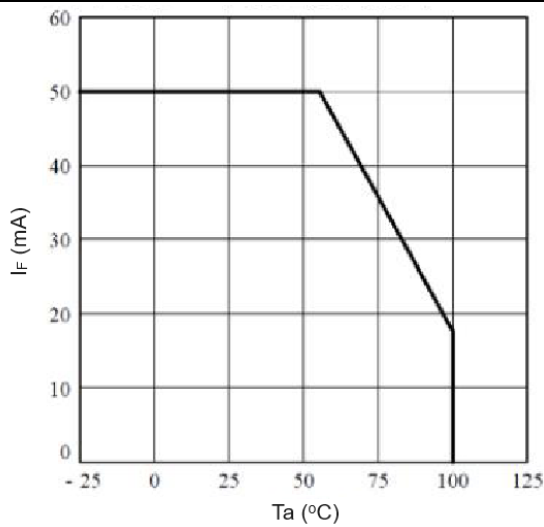
Absolute maximum ratings ($T_a=25 \pm 5 \text{ }^\circ\text{C}$, RH: 30 ~ 75%)

Characteristic	Symbol	Rating	Unit
Input	Forward current	I_F	50 mA
	Reverse voltage	V_R	6.0 V
	Power dissipation	P	70 mW
Output	Collector-emitter voltage	V_{CEO}	35 V
	Emitter-collector voltage	V_{ECO}	6.0 V
	Collector current	I_C	50 mA
	Collector power dissipation	P_C	150 mW
Operating temperature range	T_{OPR}	-40 ~ 100	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 ~ 125	$^\circ\text{C}$
Reflow soldering	T_h	260	$^\circ\text{C}$
Total power dissipation	P_{tot}	200	mW
Isolation voltage between input and output	V_{iso}	5000	V_{rms}

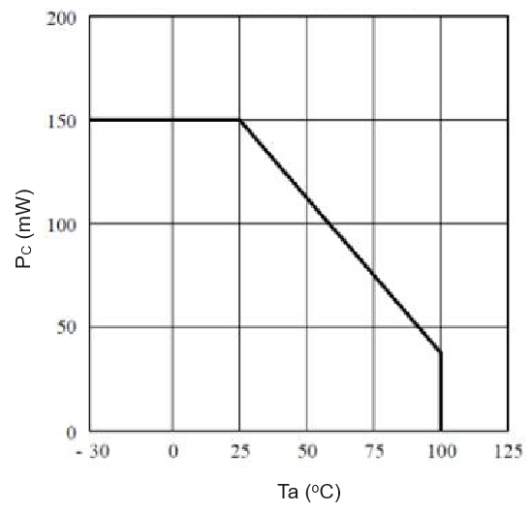
Electrical parameters							
Characteristic		Symbol	Test conditions	Min.	Typ.	Max.	Unit
Input	Forward voltage	V_F	$I_F=20\text{mA}$	-	1.2	1.4	V
	Reverse current	I_R	$V_R=4.0\text{V}$	-	-	10	μA
	Terminal capacitance	C_t	$V=0, f=1.0\text{kHz}$	-	30	250	pF
Output	Collector-emitter reverse breakdown voltage	$V_{(BR)CEO}$	$I_C=100\mu\text{A}, I_F=0$	35	-	-	V
	Emitter-collector reverse breakdown voltage	$V_{(BR)ECO}$	$I_E=10\mu\text{A}, I_F=0$	6.0	-	-	V
	Collector-emitter reverse current	I_{CEO}	$V_{CE}=20\text{V}$	-	-	100	nA
Transfer isolation features	Current transfer ratio (see: Binning table of CTR)	CTR	$I_F=5.0\text{mA}, V_{CE}=5.0\text{V}$	50	-	600	%
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F=20\text{mA}$ $I_C=1.0\text{mA}$	-	0.1	0.2	V
	Isolation resistance between Input and output	R_{ISO}	$V=500\text{VDC}$ $40\sim 60\% \text{ R.H.}$	5×10^{10}	10^{11}	-	Ω
	Floating capacitor	C_f	$V=0, f=1.0\text{MHz}$	-	0.6	1.0	pF
	Cutoff frequency	F_C	$V_{CE}=5.0\text{V},$ $I_C=2.0\text{mA},$ $R_L=100\Omega, -3\text{dB}$	-	80	-	kHz
	Rise time	t_r	$V_{CE}=2.0\text{V}$ $R_L=100\Omega$ $I_C=2.0\text{mA}$		4.0	18	μs
	Fall time	t_f			3.0	18	μs

Binning table of CTR			
Part number	Test condition	Min.	Max.
PC817L	$I_F=5.0\text{mA}, V_{CE}=5.0\text{V}$	50	100
PC817A		80	160
PC817B		130	260
PC817C		200	400
PC817D		300	600

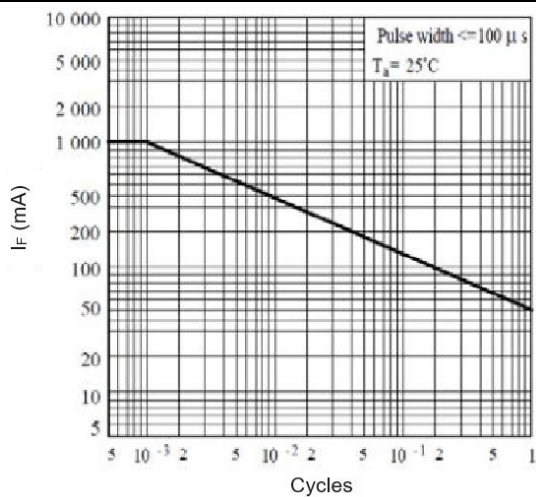
Typical forward current vs. ambient temperature



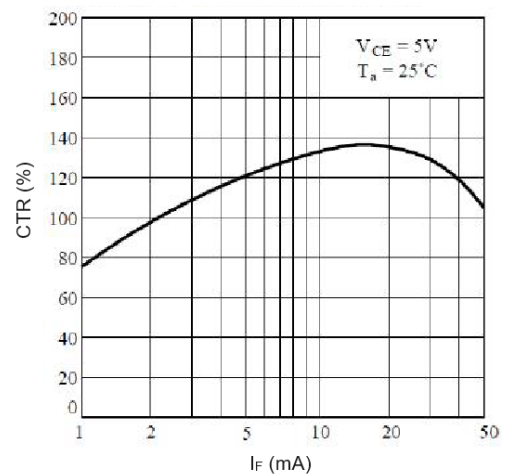
Collector power vs. ambient temperature



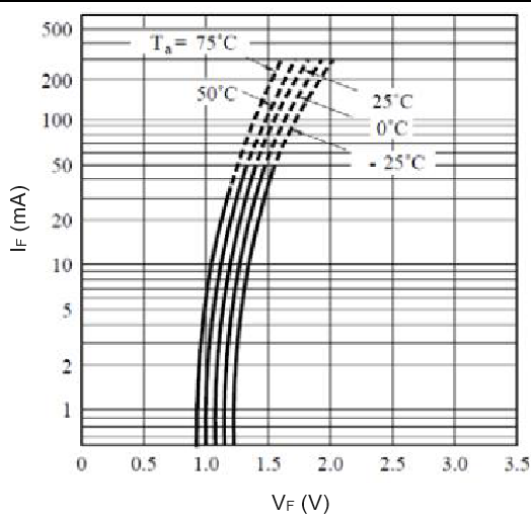
Peak forward current vs. number of cycles



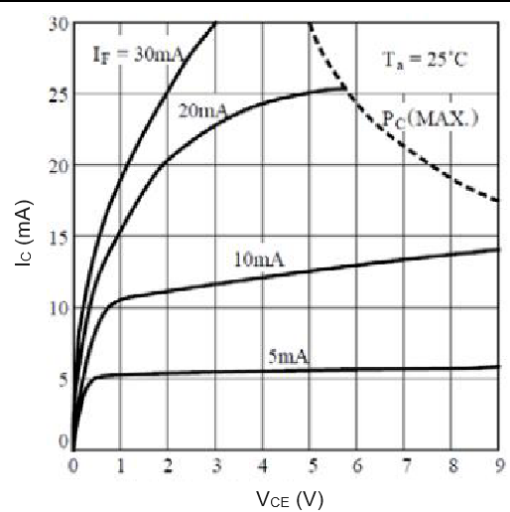
CTR vs. forward current

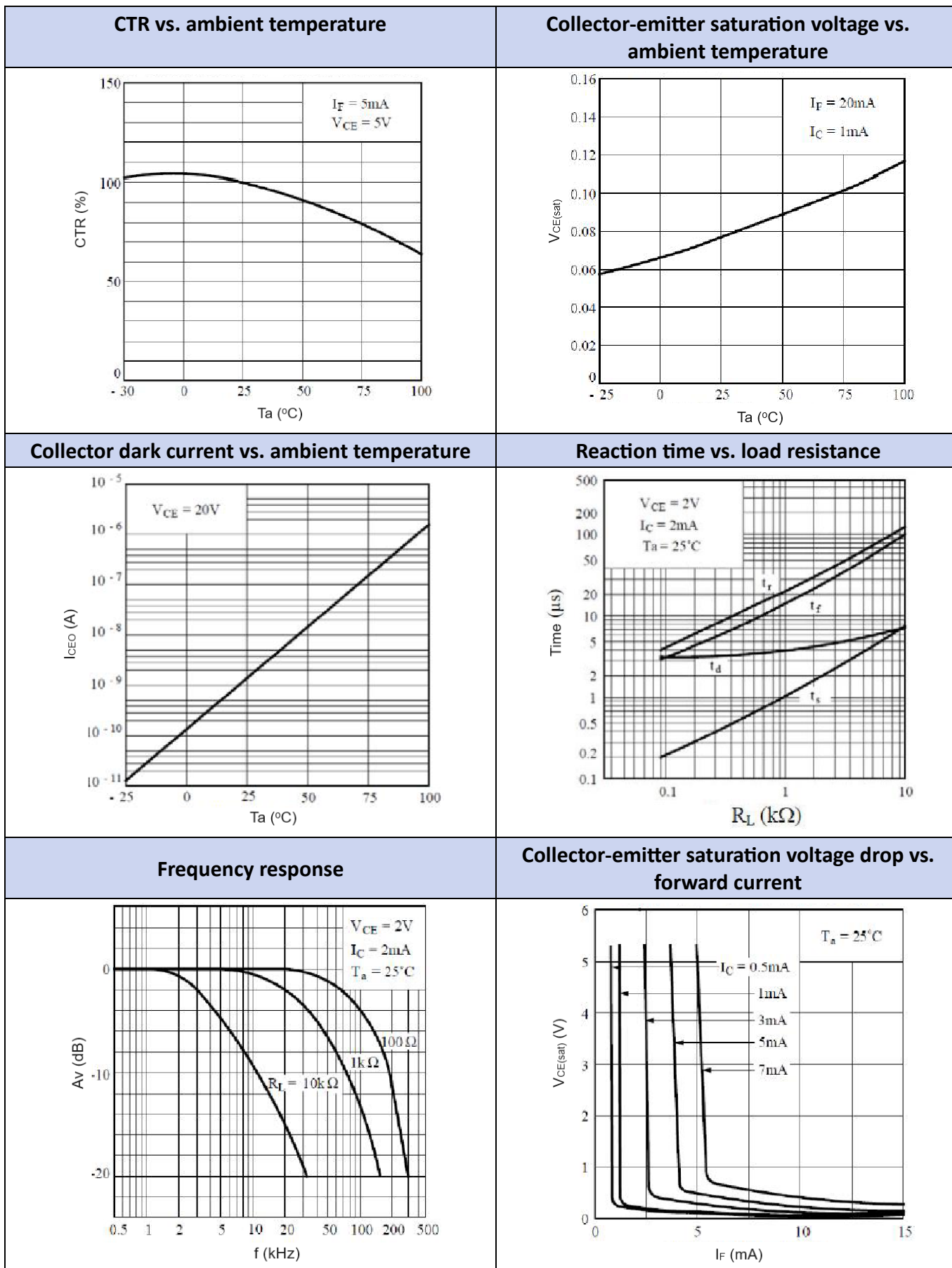


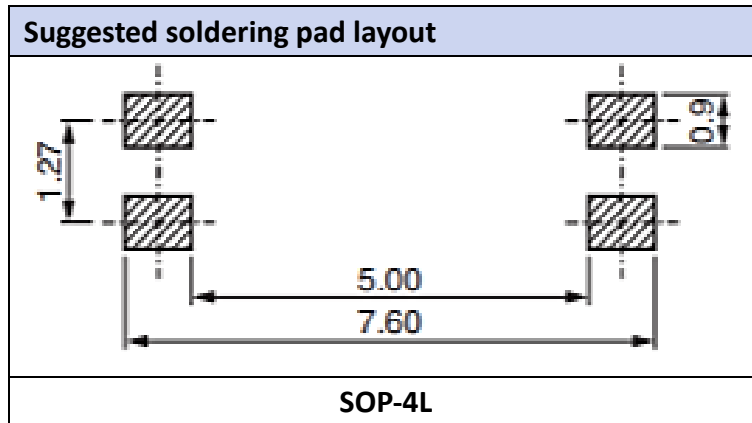
Forward current vs. forward voltage



Collector current vs. collector-emitter voltage







Ordering information			
Part Number	Package	Shipping Quantity	Dimensions
PC817L ~ PC817D	SOP-4	100 pcs / tube	---

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