

High Reliability Photocoupler

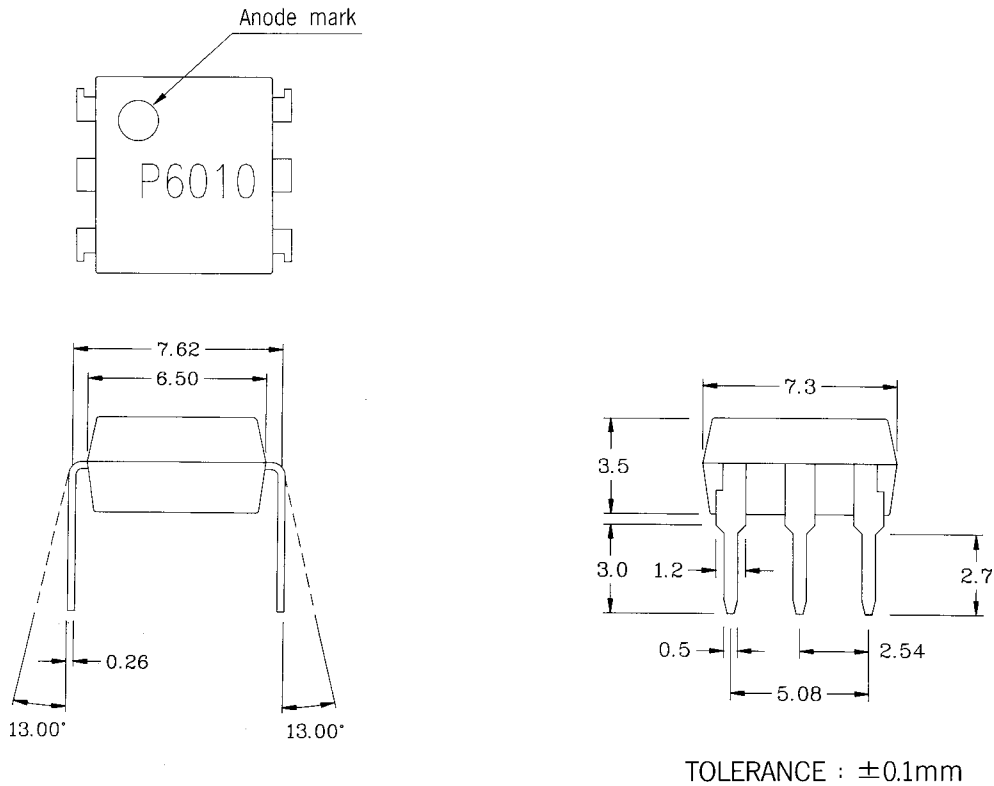
● Features

1. Current transfer ratio
CTR: MIN.60 at $I_f = \pm 1\text{mA}$ $V_{ce} = 5\text{V}$
2. High isolation voltage between input and output (Viso: 5000Vrms).
3. Compact dual-in-line package.
4. AC input.

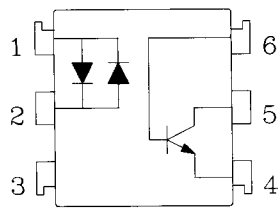
● Applications

1. Programmable Controller Applications for Low Input Photocouplers and High Vceo Photocouplers.
2. Telephone sets, telephone exchangers.
3. System appliances. ● Limit Switches ● Sensors ● Thermostats ● Transducers etc.
4. Signal transmission between circuits of different potentials and Impedances.

1. OUTSIDE DIMENSION : UNIT (mm)



2. SCHEMATIC : TOP VIEW



1. Anode, Cathode
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3. NC
4. Emitter
5. Collector
6. Base

● Absolute Maximum Ratings

(Ta=25°C)

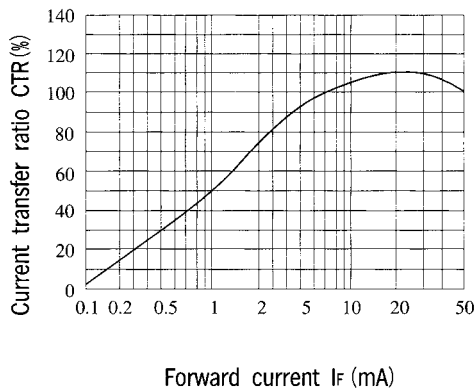
Parameter		Symbol	Rating	Unit
Input	Forward current	I _F	±50	mA
	Peak forward current	I _{FM}	±1	A
	Power dissipation	P _D	70	mW
Output	Collector-emitter voltage	V _{CEO}	60	V
	Emitter-collector voltage	V _{ECO}	6	V
	Collector-base voltage	V _{CBO}	60	V
	Emitter-base voltage	V _{EBO}	6	V
	Collector current	I _c	50	mA
	Collector power dissipation	P _c	150	mW
Total power dissipation		P _{tot}	200	mW
Isolation voltage 1 minute		V _{iso}	5000	V _{rms}
Operating temperature		T _{opr}	-30 to +100	°C
Storage temperature		T _{stg}	-55 to +125	°C
Soldering temperature 10 seconds		T _{sol}	260	°C

● Electro-optical Characteristics

(Ta=25°C)

Parameter		Symbol	Conditions	MIN	TYP	MAX	Unit
Input	Forward voltage	V _F	I _F = ±20mA	-	1.2	1.4	V
	Peak forward voltage	V _{FM}	I _{FM} = ±0.5A	-	-	3.5	V
	Terminal capacitance	C _t	V=0, f=1kHz	-	30	-	pF
Output	Collector dark current	I _{CEO}	V _{CE} = 20V I _F = 0	-	-	10 ⁻⁷	A
Transfer characteristics	Current transfer ratio	CTR	I _F = ±1mA, V _{CE} = 5V	60	-	600	%
	Collector-emitter saturation voltage	V _{CE(sat)}	I _F = ±20mA, I _c = 1mA	-	0.1	0.3	V
	Isolation resistance	R _{iso}	DC500V	5x10 ¹⁰	10 ¹¹	-	ohm
	Floating capacitance	C _f	V=0, f=1MHz	-	0.6	1.0	pF
	Cut-off frequency	f _c	V _{CE} = 5V, I _c = 2mA, R _L = 100ohm	-	80	-	kHz
	Response time (Rise)	t _r	V _{CE} = 2V, I _c = 2mA, R _L = 100ohm	-	5	20	μs
Response time (Fall)	t _f	-		4	20	μs	

Fig 1 Current Transfer Ratio vs. Forward Current



Classification table of current transfer ratio is shown below.

Model NO.	Rank mark	CTR (%)
P6010	A	60 TO 600
P6010	B	60 TO 300

Fig 2 Collector Power Dissipation vs. Ambient Temperature

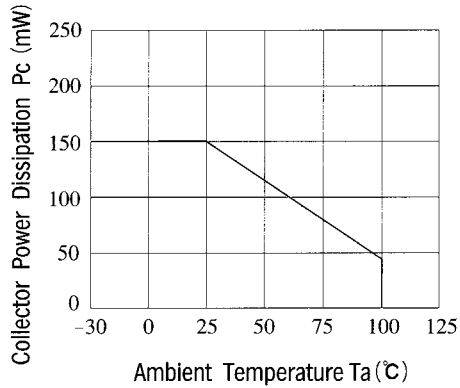


Fig 3 Collector Dark Current vs. Ambient Temperature

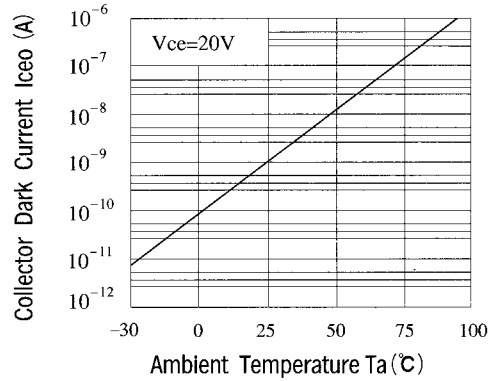


Fig 4 Forward Current vs. Ambient Temperature

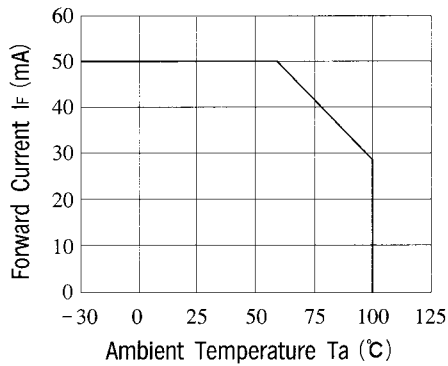


Fig 5 Forward Current vs. Forward Voltage

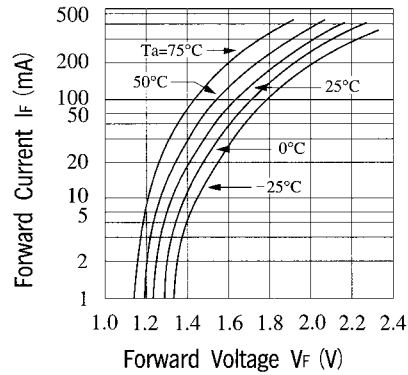


Fig 6 Collector Current vs. Collector-emitter Voltage

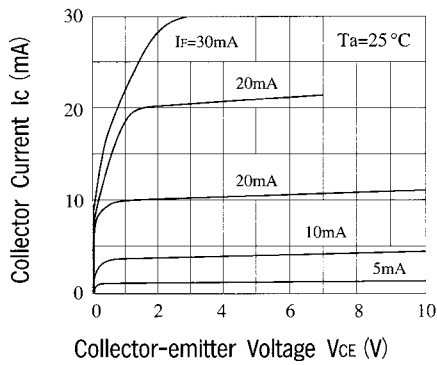


Fig 7 Relative Current Transfer Ratio vs. Ambient Temperature

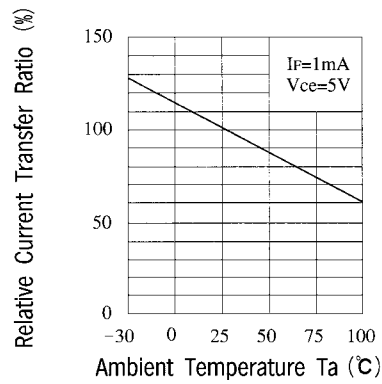


Fig 8 Collector-emitter Saturation Voltage vs Ambient Temperature

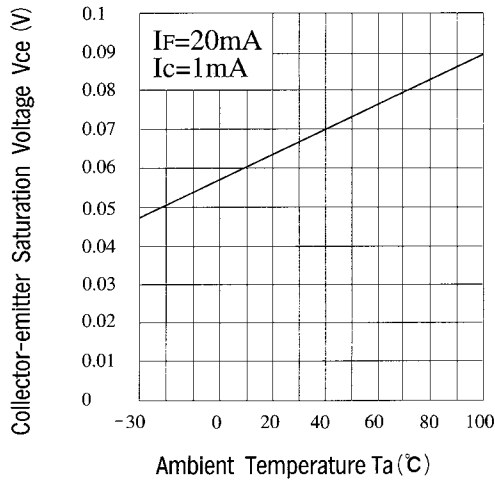


Fig 9 Collector-emitter Saturation Voltage vs Forward Current

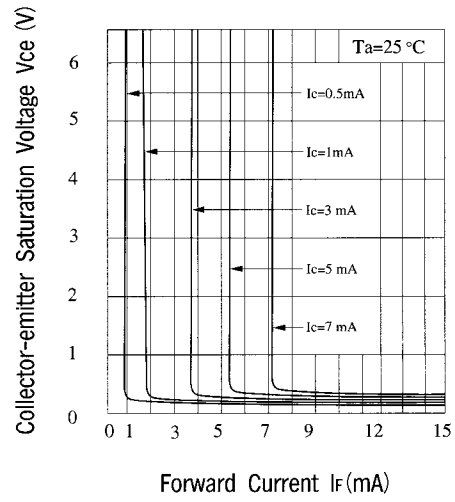


Fig 10 Response vs Load Resistance

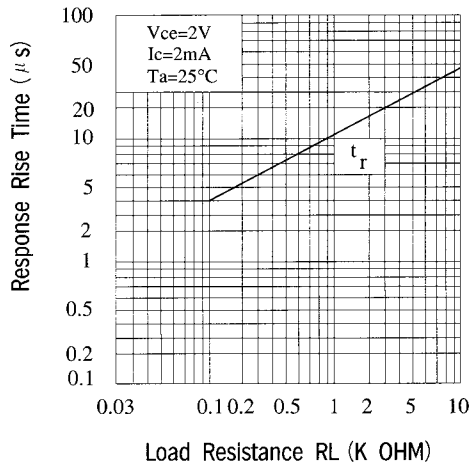


Fig 11 Response Time vs Load Resistance

