High Reliability Photocoupler C1010

UL 1577 (File No.E169586) **VDE** 0884 / 0860 / 0805 (File No.101347)

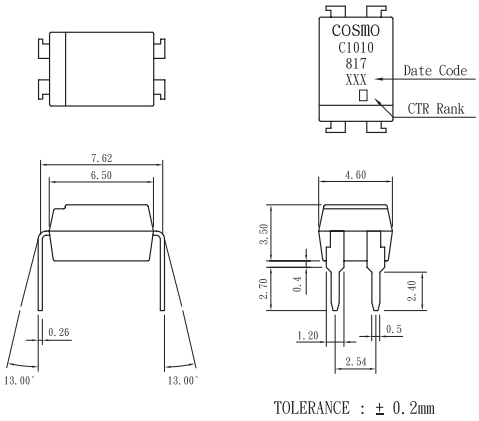
Features

1. Current transfer ratio
   (CTR : MIN.50% at I_F=5mA V_{CE}=5V
2. High isolation voltage between input and output(Viso : 5000Vrms).
3. Compact dual-in-line package.

Applications

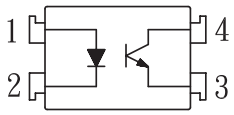
1. Registers, copiers, automatic vending machines.
2. System appliances, measuring instruments.
3. Computer terminals, programmable controllers.
4. Communications, telephone, etc.
5. Electric home appliances, such as oil fan heaters, Microwave oven, Washer, Refrigerator, Air conditioner, etc.
6. Medical instruments, physical and chemical equipment.
7. Signal transmission between circuits of different potentials and impedances.
8. Facsimile equipment, Audio, Video.
9. Switching power supply, Laser beam printer.

Outside Dimension:Unit (mm)



TOLERANCE : ± 0.2mm

Schematic:Top View



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

Absolute Maximum Ratings

(Ta=25℃)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	Peak forward current	I_{FM}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P_D	70	mW
Output	Collector-emitter voltage	V_{CEO}	70	V
	Emitter-collector voltage	V_{ECO}	6	V
	Collector current	I_C	50	mA
	Collector power dissipation	P_C	150	mW
Total power dissipation		Ptot	200	mW
Isolation voltage 1 minute		Viso	5000	Vrms
Operating temperature		Topr	-30 to +115	℃
Storage temperature		Tstg	-55 to +125	℃
Soldering temperature 10 second		Tsol	260	℃

Electro-optical Characteristics

(Ta=25℃)

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	旌		3.0	V
	Reverse current	I_R	V_R=4V			10	uA
	Terminal capacitance	Ct	V=0, f=1kHz	旌	30		pF
Output	Collector dark current	I_{CEO}	V_{CE}=20V			0.1	uA
Transfer charac-teristics	Current transfer ratio	CTR	I_F=5mA, V_{CE}=5V	50		600	%
	Collector-emitter saturation voltage	V_{CE}(sat)	I_F=20mA, I_C=1mA		0.1	0.2	V
	Isolation resistance	Riso	DC500V	$5X10^{10}$	10^{11}		ohm
	Floating capacitance	Cf	V=0, f=1MHZ		0.6	1.0	pF
	Cut-off frequency	fc	V_{CC}=5V, I_C=2mA, R_L=100ohm		80		kHz
	Respone time (Rise)	tr	V_{CE}=2V, I_C=2mA, R_L=100ohm		4	18	us
	Respone time (Fall)	tf			3	18	us

Classification table of current transfor ratio is shown below.

Model NO.	CTR (%)
A Rank	80 TO 160
B Rank	130 TO 260
C Rank	200 TO 400
D Rank	300 TO 600
E Rank	50 TO 600

Fig.1 Current Transfer Ratio vs. Forward Current

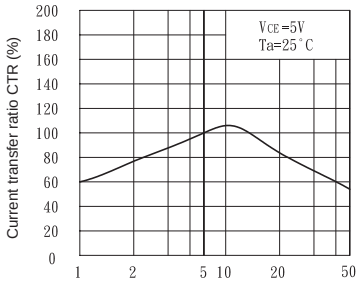


Fig.2 Collector Power Dissipation vs. Ambient Temperature

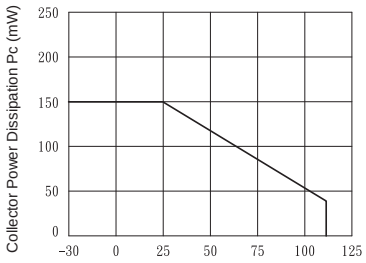


Fig.3 Collector Dark Current vs. Ambient Temperature

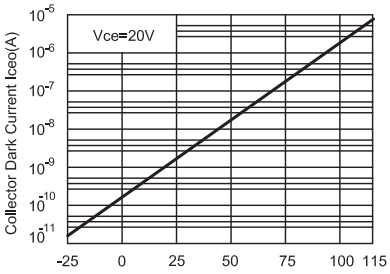


Fig.4 Forward Current vs. Ambient Temperature

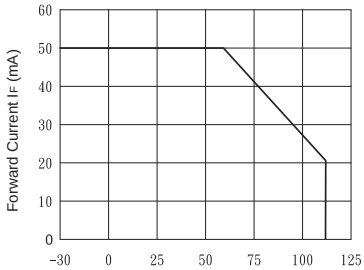


Fig.5 Forward Current vs. Forward Voltage

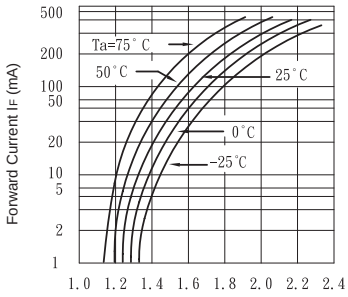


Fig.6 Collector Current vs. Collector-emitter Voltage

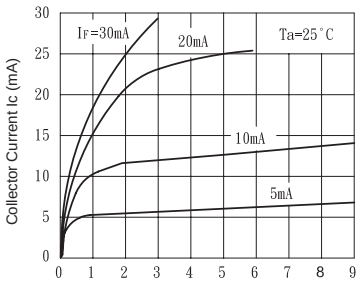


Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

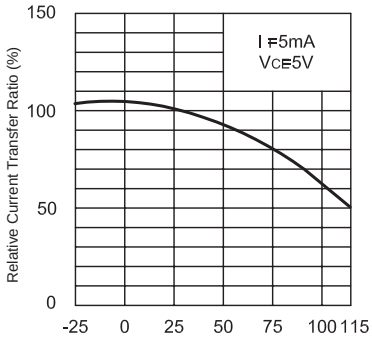


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

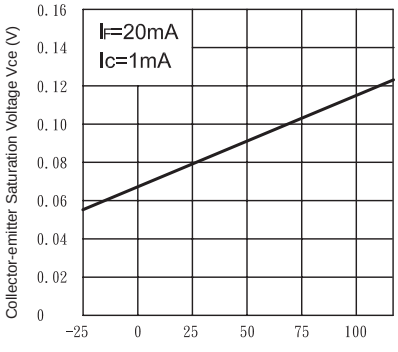


Fig.9 Collector-emitter Saturation Voltage vs. Forward Current

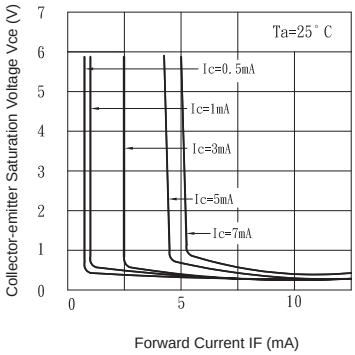


Fig.10 Collector Current vs Ambient Temperature

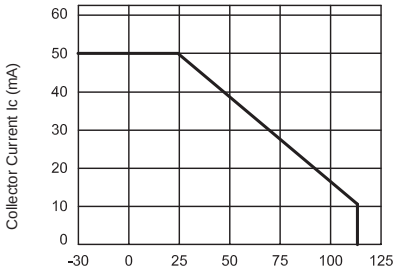


Fig.11 Input Power Dissipation vs Ambient Temperature

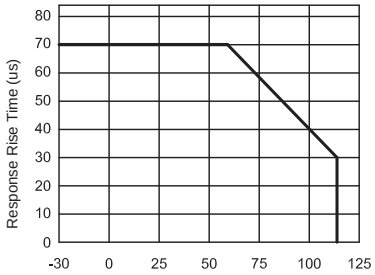


Fig.12 Response Time vs. Load Resistance

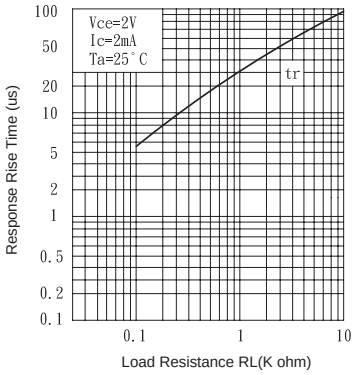


Fig.13 Response Time vs. Load Resistance