

PRODUCT SPECIFICATION

DATE:05/14/2007

cosmo ELECTRONICS CORPORATION	Photocoupler : KP1210	NO.60P00036	REV. 4
		SHEET 1 OF 6	

High Reliability Photocoupler

●Features

- 1.Current transfer ratio (CTR : 50~600% at $I_F=5\text{mA}$ $V_{ce}=5\text{V}$)
- 2.High isolation voltage between input and output (Viso : 5000Vrms).
- 3.Compact dual-in-line package.

●Applications

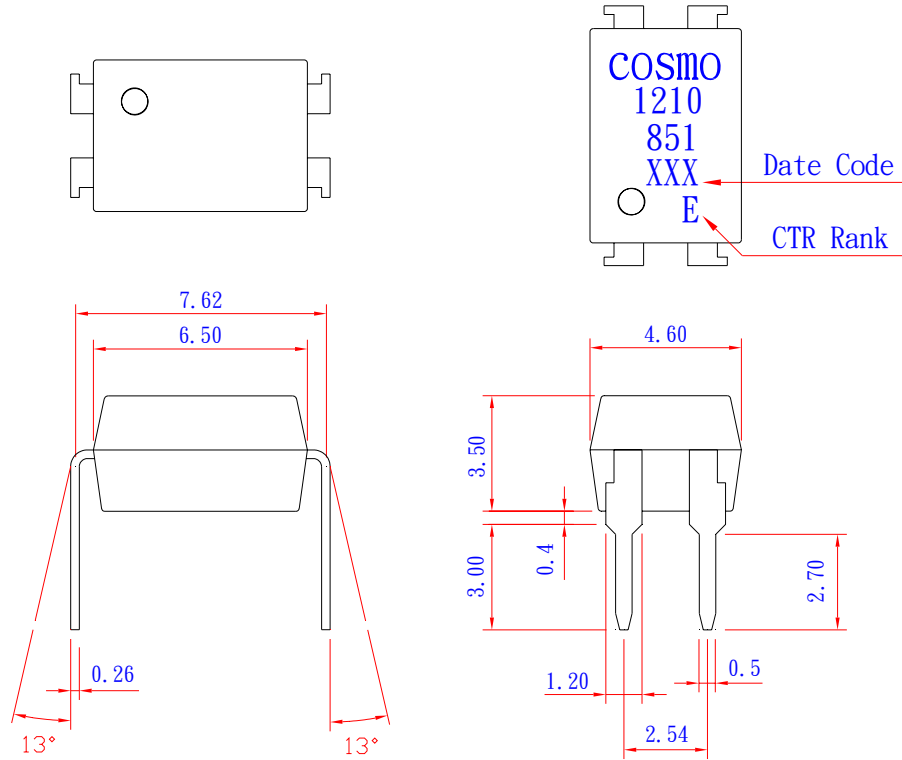
1. Registers, copiers, automatic vending machines.
2. System appliances, measuring instruments.
3. Computer terminals, programmable controllers.
4. Communications, telephone, etc.
5. Electric home appliances, such as oil fan heaters, Microwave oven , Washer, Refrigerator, Air conditioner, etc.
6. Medical 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.

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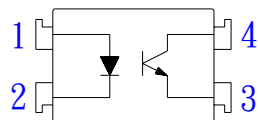
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1. OUTSIDE DIMENSION : UNIT (mm)



TOLERANCE : $\pm 0.2\text{mm}$

2. SCHEMATIC : TOP VIEW



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

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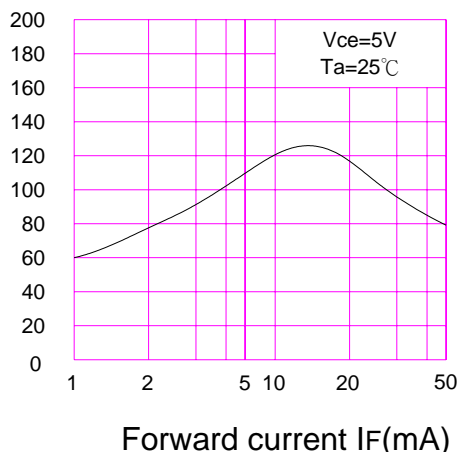
● Absolute Maximum Ratings

	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}	350	V
	Emitter-collector voltage	V_{ECO}	7	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}	-55 to +115	°C
	Storage temperature	T_{sta}	-55 to +125	°C
	Soldering temperature 10 second	T_{sol}	260	°C

● Electro-optical Characteristics

	Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V_F	$I_F=10mA$	1.0	1.2	1.3	V
	Peak forward voltage	V_{FM}	$I_{FM}=0.5A$	-	-	3.0	V
	Reverse current	I_R	$V_R=5V$	-	-	10	uA
	Terminal capacitance	C_t	$V=0, f=1MHz$	-	30	-	pF
Output	Collector dark current	I_{CEO}	$V_{CE}=300V$	-	10	200	nA
Transfer characteristics	Current transfer ratio	CTR	$I_F=5mA, V_{CE}=5V$	50	-	600	%
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F=8mA, I_C=2.4mA$	-	-	0.4	V
	Isolation resistance	R_{iso}	DC500V	5×10^{10}	10^{11}	-	ohm
	Floating capacitance	C_f	$V=0, f=1MHz$	-	0.6	1.0	pF
	Cut-off frequency	f_c	$V_{CC}=5V, I_C=2mA, R_L=100ohm$	-	80	-	kHz
	Response time (Rise)	t_r	$V_{CC}=10V, I_C=2mA, R_L=100ohm$	-	2	-	us
	Response time (Fall)	t_f		-	3	-	us

Fig. 1 Current Transfer Ratio Vs. Forward Current



Classification table of current transfer ratio is shown below.

Model NO.	CTR(%)
KP12101E	50 TO 600

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Fig.2 Collector Power Dissipation vs. Ambient Temperature

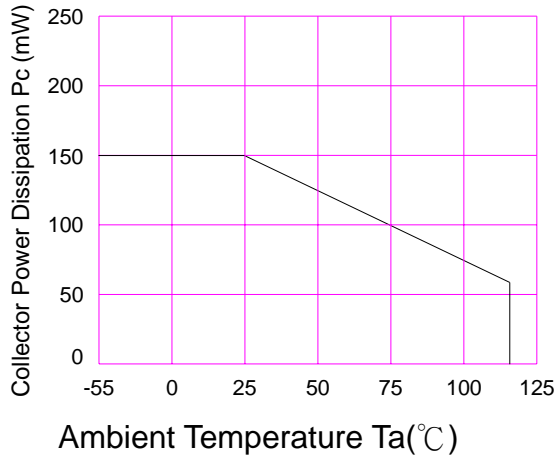


Fig.3 Collector Dark Current vs. Ambient Temperature

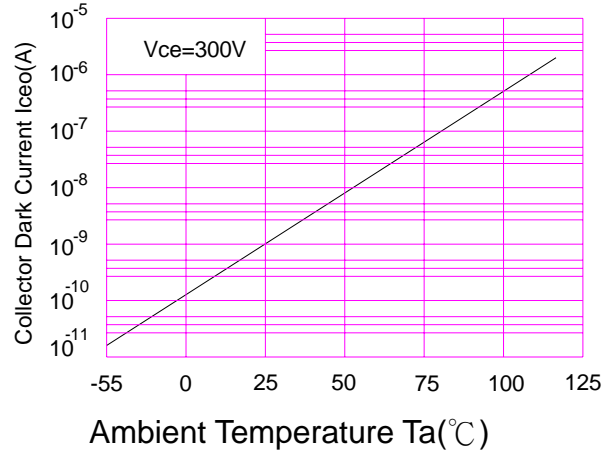


Fig.4 Forward Current vs. Ambient Temperature

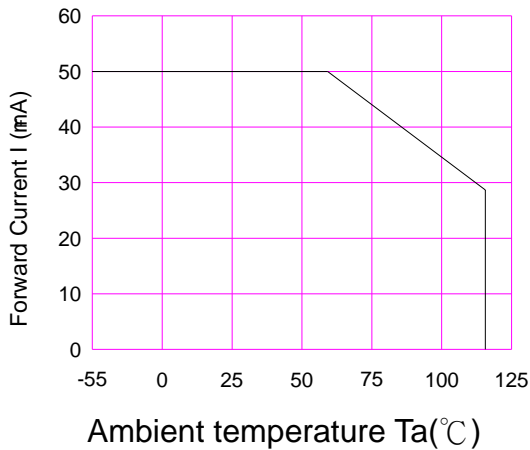


Fig.5 Forward Current vs. Forward Voltage

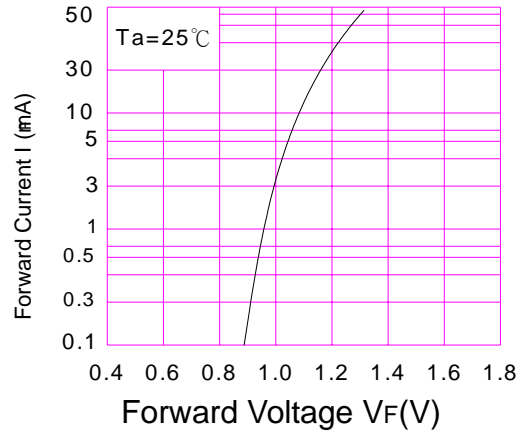


Fig.6 Collector Current vs. Collector-emitter Voltage

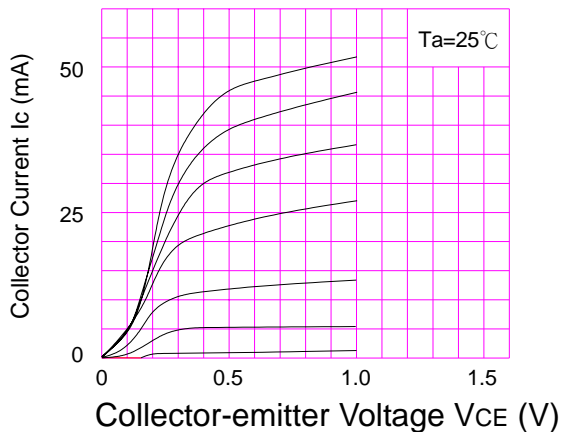
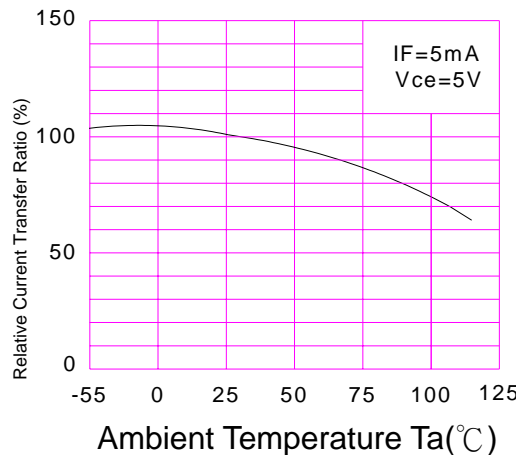


Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature



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

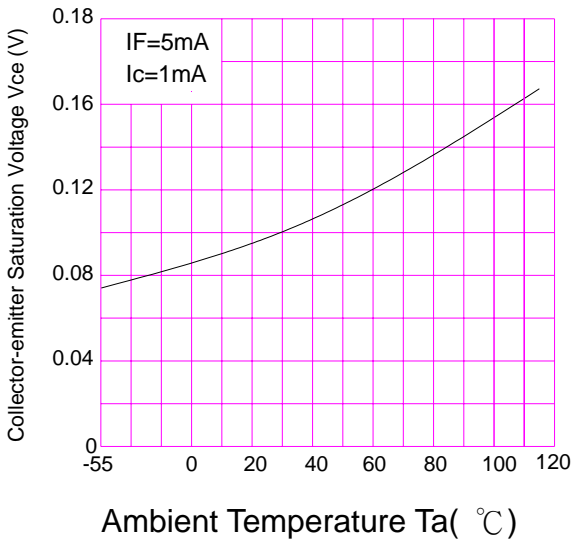


Fig.9 Collector-emitter Saturation Voltage vs. Forward Current

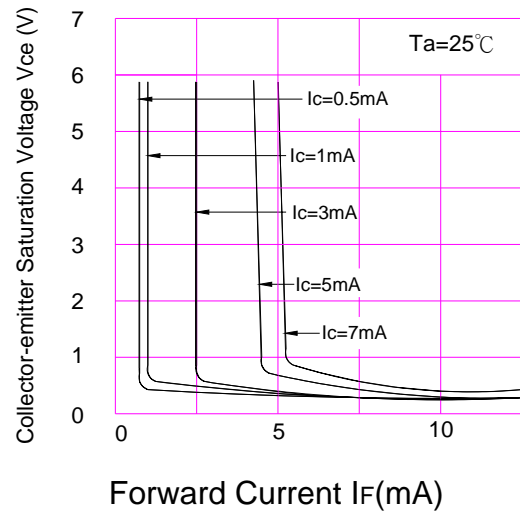


Fig.10 Response Time vs. Load Resistance

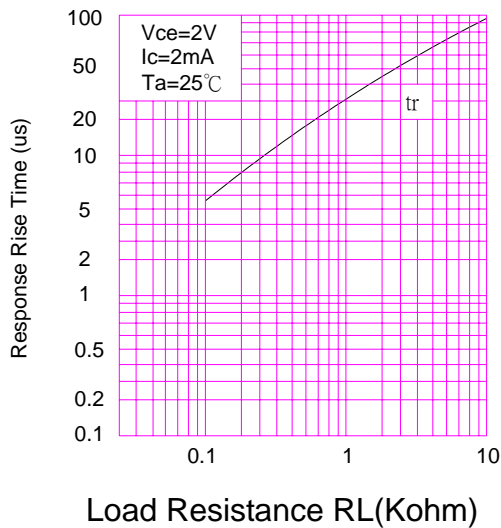
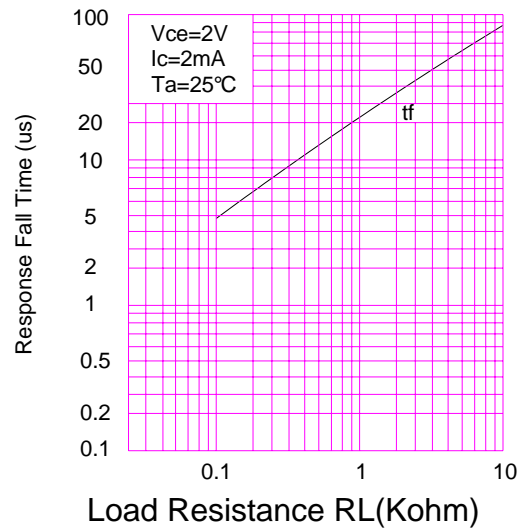


Fig.11 Response Time vs. Load Resistance



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