

PRODUCT SPECIFICATION

DATE:11/11/2004

cosmo ELECTRONICS CORPORATION	Photocoupler : KP2110	NO.60P01019	REV.
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High Reliability Photocoupler

Features

- 1.Current transfer ratio
(CTR : MIN.100% at $I_F=10\text{mA}$ $V_{ce}=10\text{V}$)
- 2.High isolation voltage between input and output (Viso : 5000Vrms).
- 3.Compact dual-in-line package.

Applications

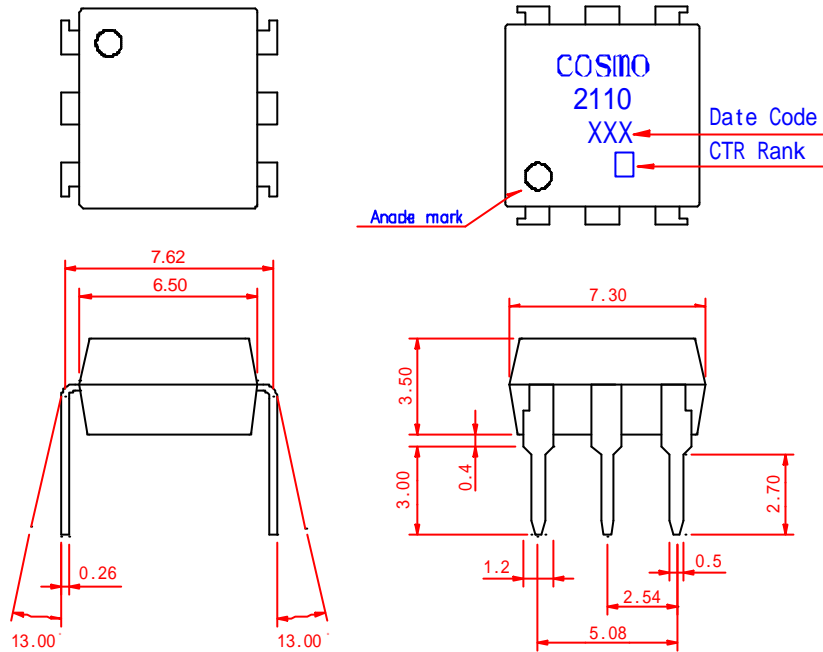
1. Registers, copiers, automatic vending machines.
2. System appliances, measuring instruments.
3. Computer terminals, programmable controllers.
4. Communications, telephone, etc.
5. Electric home appliances, such as oil fan heaters, Microwave oven,Washer, Refrigerator, Air conditioner, etc.
6. Medical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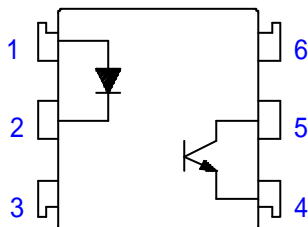
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1. OUTSIDE DIMENSION : UNIT (mm)



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

2. SCHEMATIC : TOP VIEW



1. Anode
2. Cathode
3. NC
4. Emitter
5. Collector
6. NC

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Absolute Maximum Ratings

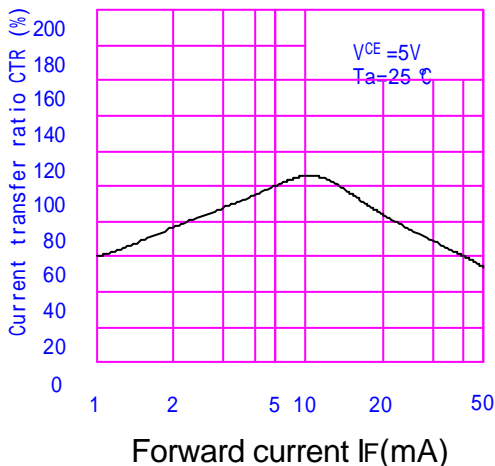
Parameter	Symbol	Rating	Unit	
Input	Forward current	IF	50	mA
	Peak forward current	IFM	1	A
	Reverse voltage	VR	6	V
	Power dissipation	PD	70	mW
Output	Collector-emitter voltage	VCEO	60	V
	Emitter-collector voltage	VECO	6	V
	Collector current	IC	50	mA
	Collector power dissipation	PC	150	mW
Total power dissipation	Ptot	200	mW	
Isolation voltage 1 minute	Viso	5000	Vrms	
Operating temperature	ToPr	-30 to +100		
Storage temperature	Tsta	-55 to +125		
Soldering temperature 10 second	Tsol	260		

Electro-optical Characteristics

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	VF	IF=20mA	-	1.2	1.4	V
	Peak forward voltage	VFM	IFM=0.5A	-	-	3.0	V
	Reverse current	IR	VR=4V	-	-	10	uA
	Terminal capacitance	Ct	V=0, f=1kHz	-	30	-	pF
Output	Collector dark current	ICEO	VCE=20V	-	-	0.1	uA
Transfer characteristics	Current transfer ratio	CTR	IF=10mA, VCE=10V	100	-	-	%
	Collector-emitter saturation	VCE(sat)	IF=20mA, Ic=1mA	-	0.1	0.3	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	Vcc=5V, Ic=2mA, RL=100ohm	-	80	-	kHz
	Response time (Rise)	tr	Vce=2V, Ic=2mA, RL=100ohm	-	4	20	us
	Response time (Fall)	tf		-	3	20	us

Fig. 1 Current Transfer Ratio Vs. Forward Current

Classification table of current transfer ratio is shown below.



Model NO	CTR(%)
KP2110F	160 TO 256
KP2110L	100 TO -

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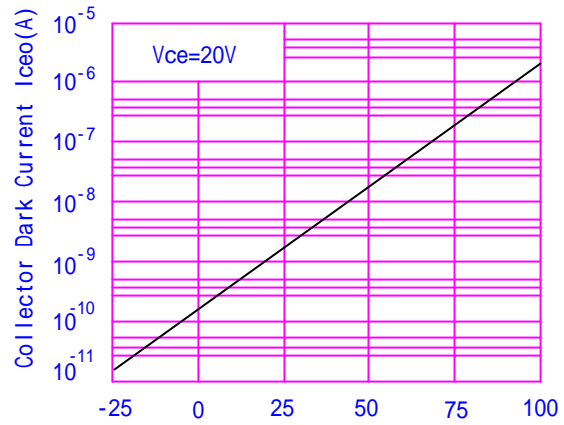
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Fig.2 Collector Power Dissipation vs. Ambient Temperature



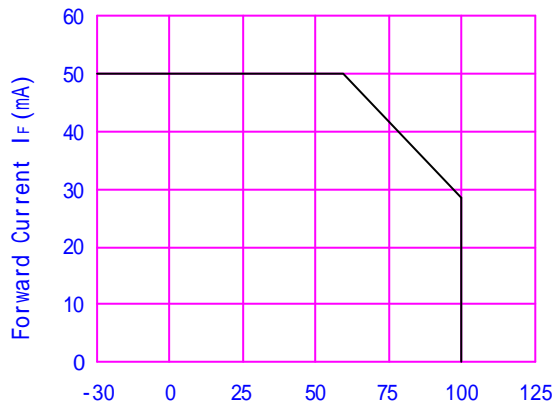
Ambient Temperature T_a ()

Fig.3 Collector Dark Current vs. Ambient Temperature



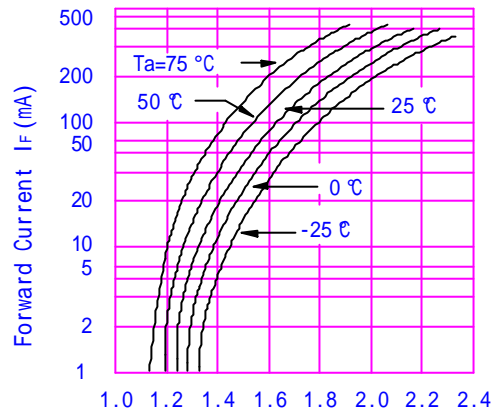
Ambient Temperature T_a ()

Fig.4 Forward Current vs. Ambient Temperature



Ambient temperature T_a ()

Fig.5 Forward Current vs. Forward Voltage



Forward Voltage V_F (V)

Fig.6 Collector Current vs Collector-emitter Voltage

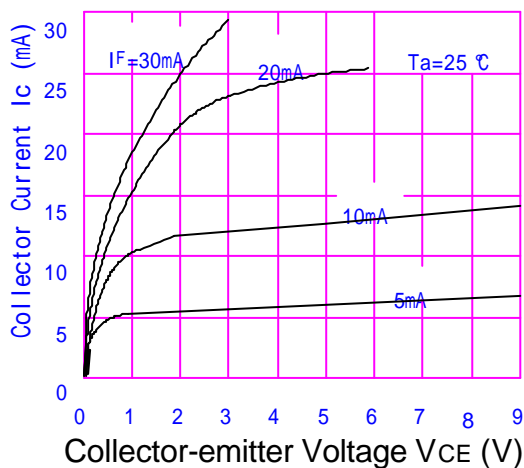
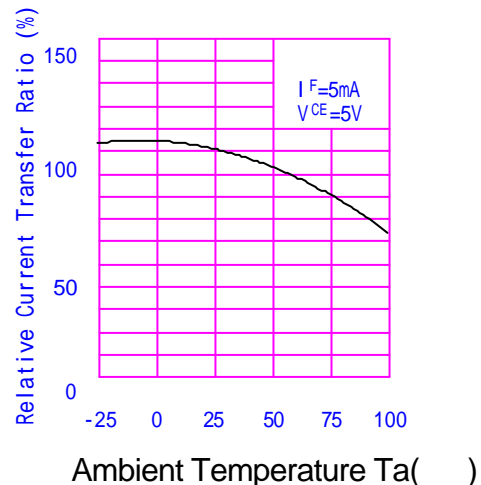


Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature



Ambient Temperature T_a ()

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

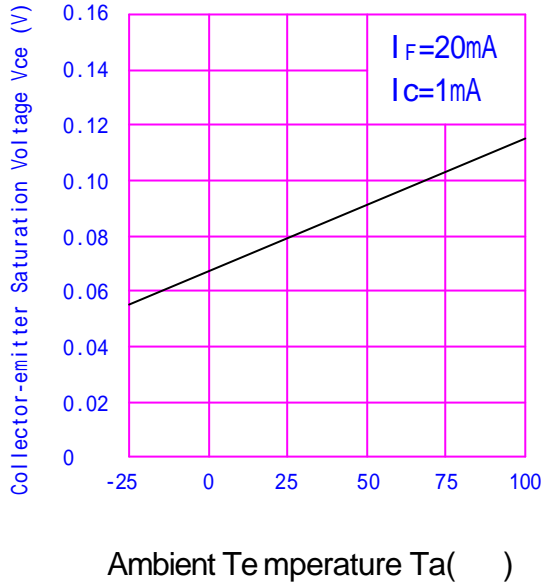


Fig.9 Collector-emitter Saturation Voltage vs. Forward Current

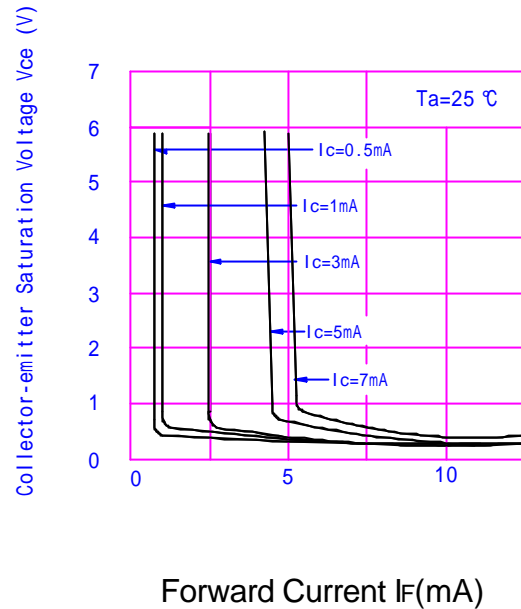


Fig.10 Response Time vs. Load Resistance

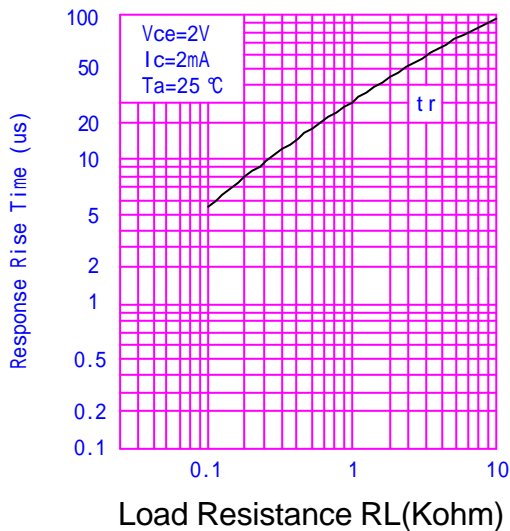
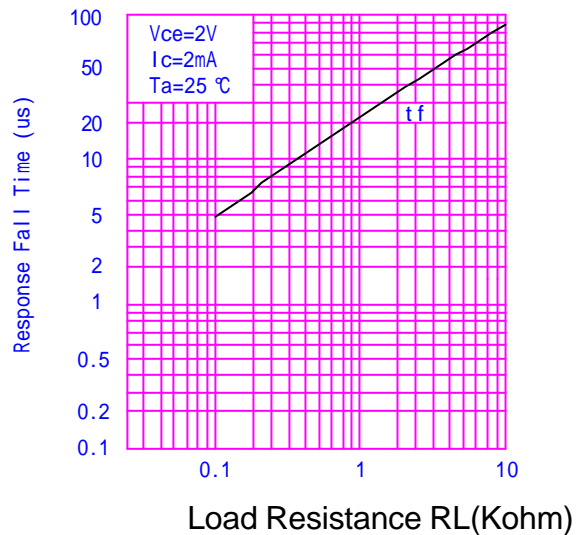


Fig.11 Response Time vs. Load Resistance



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