

PRODUCT SPECIFICATION

COSMO ELECTRONICS CORP.	Photocoupler : KP5010	SHEET 1 OF 5
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High Reliability Photocoupler

● Features

1. High current transfer ratio ($V_{CE0} : 300V \text{ MIN}$)
(CTR : MIN. 600% at $I_F = 1mA$, $V_{ce} = 2V$)
2. High isolation voltage between input and output (Viso:5000Vrms).
3. Compact dual-in-line package.

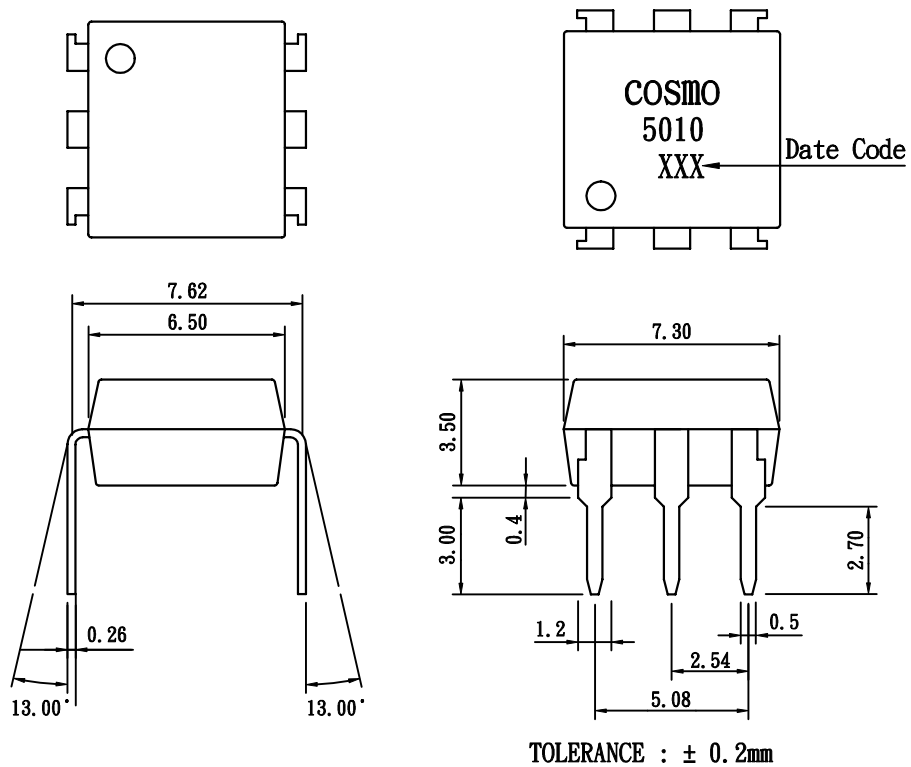
● Applications

1. System appliances, measuring instruments.
2. Industrial robots.
3. Copiers, automatic vending machines.
4. Signal transmission between circuits of different potentials and impedances.
5. Telephone sets.
6. Copiers, facsimiles.
7. Interface with various power supply circuits, power distribution boards.
8. Numerical control machines.

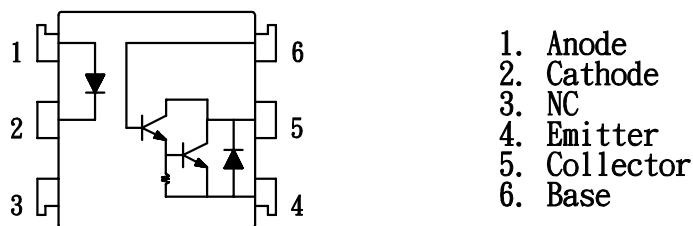
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<p>COSMO ELECTRONICS CORP.</p>	<p>Photocoupler : KP5010</p>	<p>SHEET 2 OF 5</p>
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1. OUTSIDE DIMENSION : UNIT (mm)



2. SCHEMATIC : TOP VIEW



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• Absolute Maximum Ratings

(Ta=25°C)

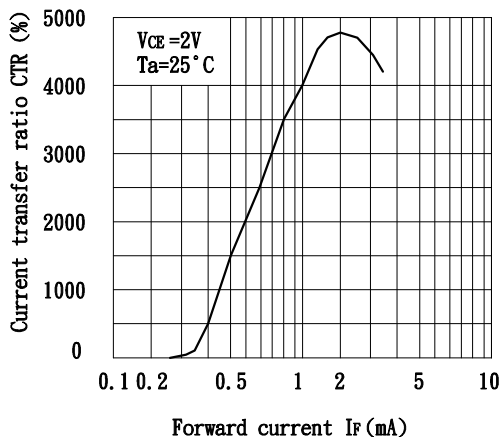
Parameter		Symbol	Rating	Unit
Input	Forward current	IF	50	mA
	Peak forward current	IFM	1	A
	Reverse voltage	VR	6	V
	Power dissipation	PD	70	mW
Output	Collector-emitter voltage	VCEO	300	V
	Collector-base voltage	VCBO	300	V
	Emitter-base voltage	VEBO	6	V
	Collector current	Ic	150	mA
	Collector power dissipation	Pc	200	mW
Total power dissipation		Ptot	200	mW
Isolation voltage 1 minute		Viso	5000	Vrms
Operating temperature		Topr	-30 to +100	° C
Storage temperature		Tstg	-55 to +125	° C
Soldering temperature 10 second		Tsol	260	° C

• Electro-optical Characteristics

(Ta=25°C)

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	-	-	3.5	V
	Reverse current	IR	VR=4V	-	-	10	uA
	Terminal capacitance	Ct	V=0, f=1kHz	-	30	-	pF
Output	Collector dark current	ICBO	VCE=200V, IF=0	-	-	1	uA
Transfer characteristics	Current transfer ratio	CTR	IF=1mA, VCE=2V	600	-	9000	%
	Collector-emitter saturation voltage	VCE(sat)	IF=20mA, Ic=5mA	-	-	1.5	V
	Isolation resistance	Riso	DC500V	5x10 ¹⁰	-	-	ohm
	Floating capacitance	Cf	V=0, f=1MHz	-	0.6	1.0	pF
	Cut-off frequency	fc	Vcc=5V, Ic=2mA, RL=100ohm	-	7	-	kHz
	Response time (Rise)	tr	Vcc=2V, Ic=20mA, RL=100ohm	-	60	300	us
	Response time (Fall)	tf		-	50	250	us

Fig.1 Current Transfer Ratio vs. Forward Current



Classification table of current transfer ratio is shown below.

Model NO.	CTR (%)
*KP5010 A	600 TO 2000
KP5010 B	1500 TO 4000
KP5010 C	3000 TO 6000
*KP5010 D	5000 TO 9000
KP5010 E	600 TO 9000

*:SPECIAL OPTION

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Fig. 2 Collector Power Dissipation vs. Ambient Temperature

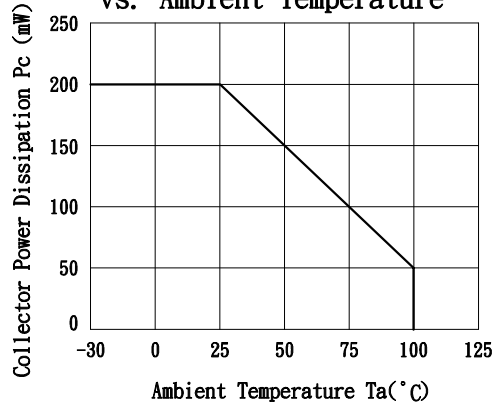


Fig. 3 Collector Dark Current vs. Ambient Temperature

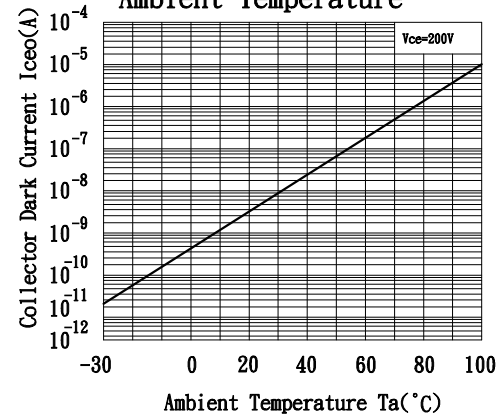


Fig. 4 Forward Current vs. Ambient Temperature

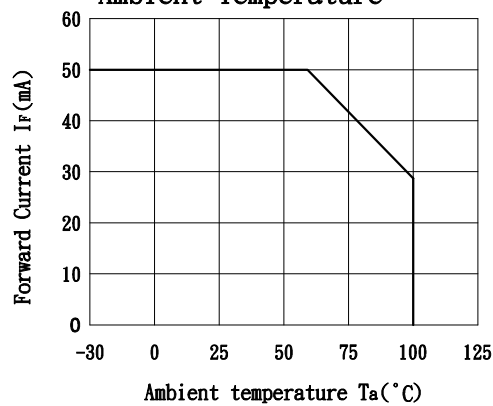


Fig. 5 Forward Current vs. Forward Voltage

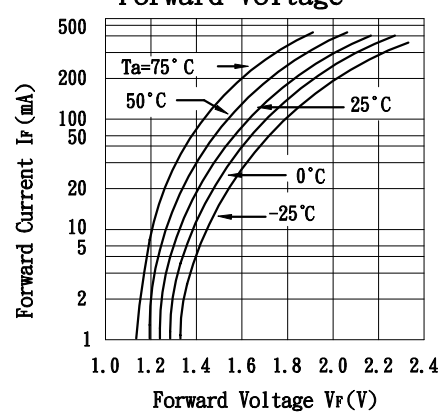


Fig. 6 Collector Current vs. Collector-emitter Voltage

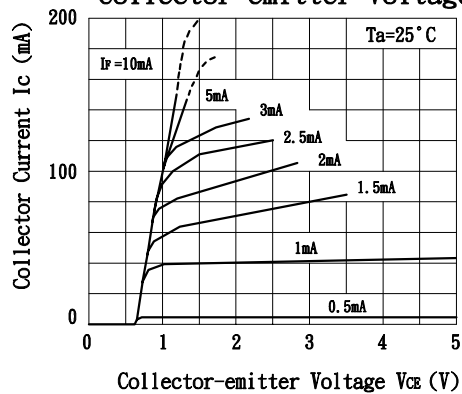
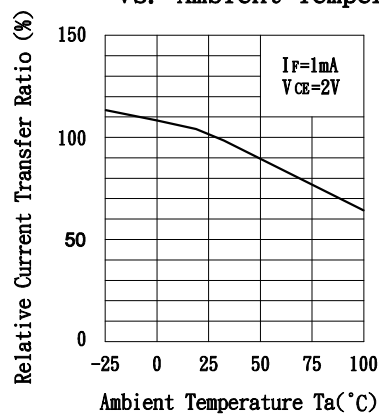


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature



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Fig. 8 Collector-emitter Saturation Voltage vs. Forward Current

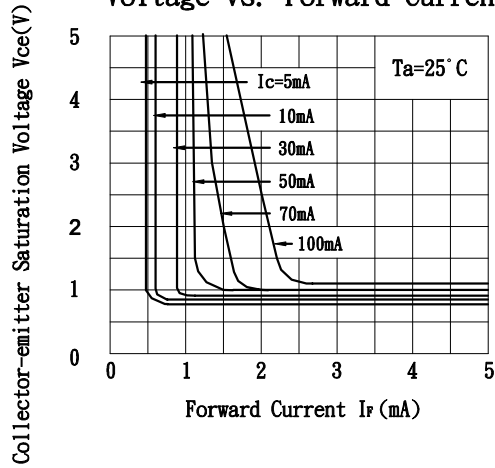


Fig. 9 Response Time vs. Load Resistance

