

# PRODUCT SPECIFICATION

DATE : 01/28/2010

<b>cosmo</b> ELECTRONICS CORPORATION	Photocoupler : <b>KPC815S</b>	NO.61P20009	REV.
		SHEET 1 OF 6	1

## High Reliability Photocoupler

### ● Features

1. High current transfer ratio  
( CTR : Min. 600% at  $I_F=1\text{mA}$   $V_{CE}=2\text{V}$  )
2. High isolation voltage between input and output(Viso : 5000Vrms)
3. Compact surface mount type package.

### ● Application :

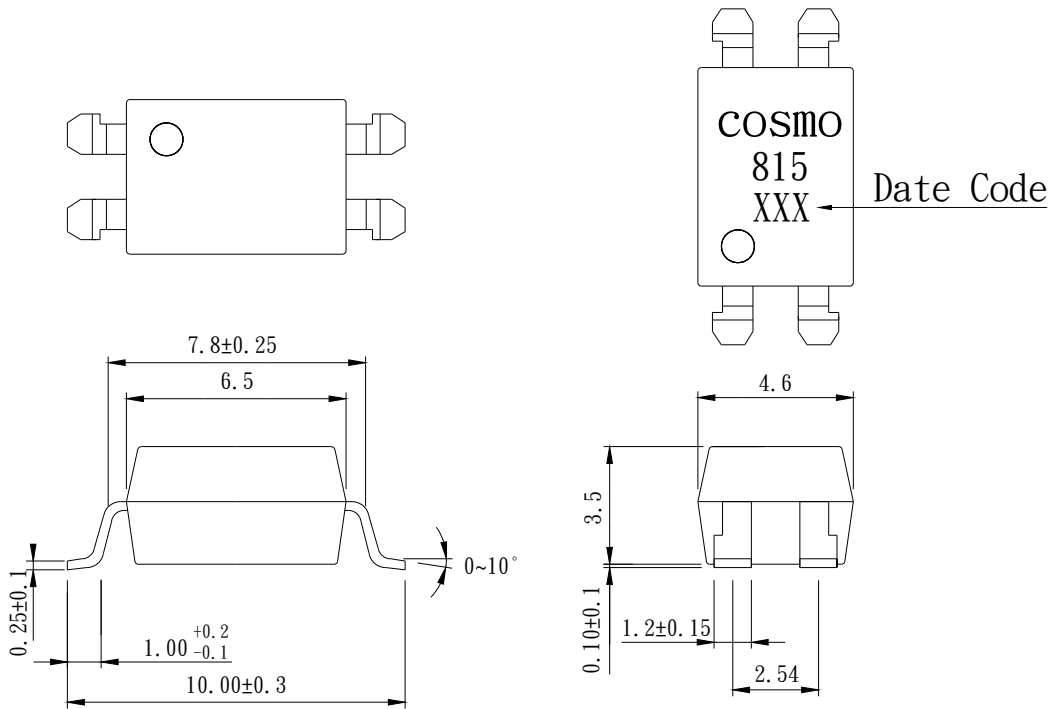
1. System appliances, measuring instruments.
2. Industrial robots.
3. Copiers, automatic vending machines.
4. Signal transmission between circuits of different potentials and impedances.

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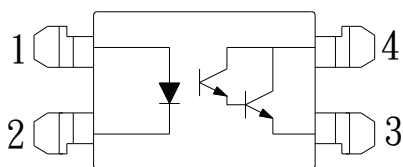
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## ● Outside Dimension : Unit ( mm )



TOLERANCE :  $\pm 0.2$ mm

## ● Schematic : Top View



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

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## ● Absolute Maximum Ratings

(Ta=25°C)

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	$V_{CEO}$	35	V
	Emitter-collector voltage	$V_{ECO}$	6	V
	Collector current	$I_C$	80	mA
	Collector power dissipation	$P_C$	150	mW
Total power dissipation		$P_{tot}$	200	mW
Isolation voltage 1 minute		$V_{iso}$	5000	Vrms
Operating temperature		$T_{opr}$	-55 to +100	°C
Storage temperature		$T_{stg}$	-55 to +125	°C
Soldering temperature 10 second		$T_{sol}$	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	$V_{FM}$	$I_{FM}=0.5A$	-	-	3.0	V
	Reverse current	$I_R$	$V_R=4V$	-	-	10	$\mu A$
	Terminal capacitance	$C_t$	$V=0, f=1KHz$	-	30	250	pF
Output	Collector dark current	$I_{CEO}$	$V_{CE}=10V, I_F=0$	-	-	1.0	$\mu A$
Transfer characteristics	Current transfer ratio	CTR	$I_F=1mA, V_{CE}=2V$	600	-	7500	%
	Collector-emitter saturation	$V_{CE(sat)}$	$I_F=20mA, I_C=5mA$	-	0.8	1.0	V
	Isolation resistance	$R_{iso}$	DC500V, 40 to 60% RH	$5 \times 10^{10}$	-	-	$\Omega$
	Floating capacitance	$C_f$	$V=0, f=1MHz$	-	0.6	1.0	pF
	Cut-off frequency	$f_c$	$V_{CC}=2V, I_C=20mA, R_L=100\Omega$	1	6	-	KHz
	Response time ( Rise )	$t_r$	$V_{CE}=2V, I_C=20mA, R_L=100\Omega$	-	80	300	$\mu s$
	Response time ( Fall )	$t_f$		-	72	250	$\mu s$

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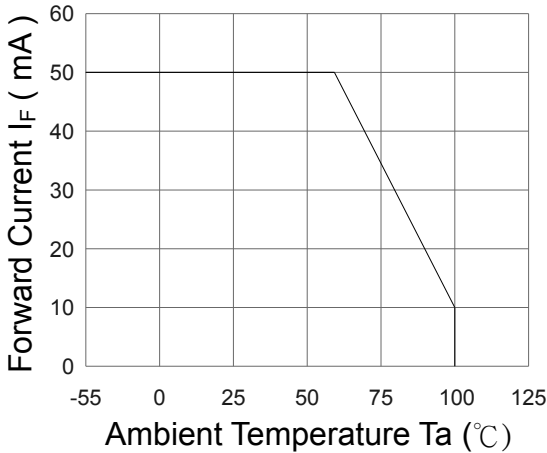
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Photocoupler :  
**KPC815S**

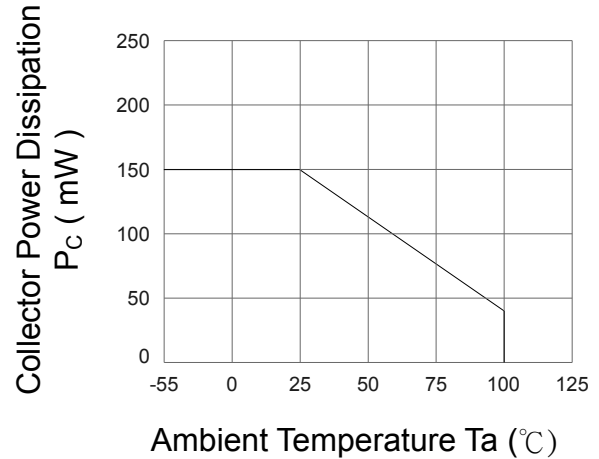
**NO.61P20009**  
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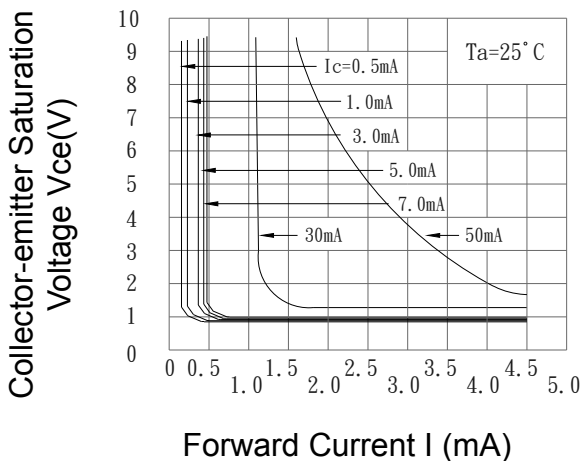
**Fig.1 Forward Current vs. Ambient Temperature**



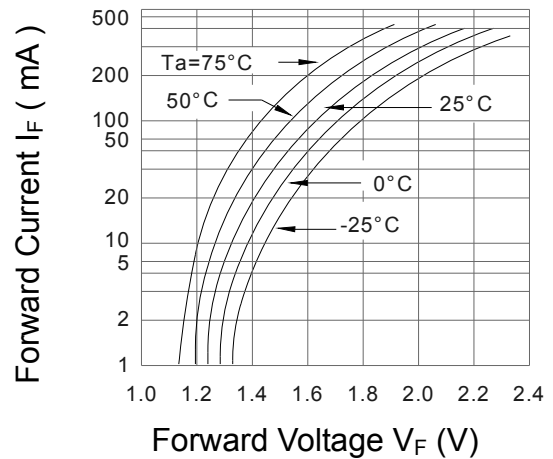
**Fig.2 Collector Power Dissipation vs. Ambient Temperature**



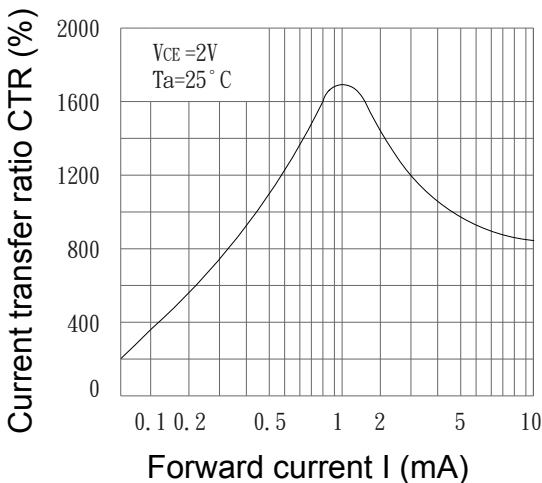
**Fig.3 Collector-emitter Saturation Voltage vs. Forward Current**



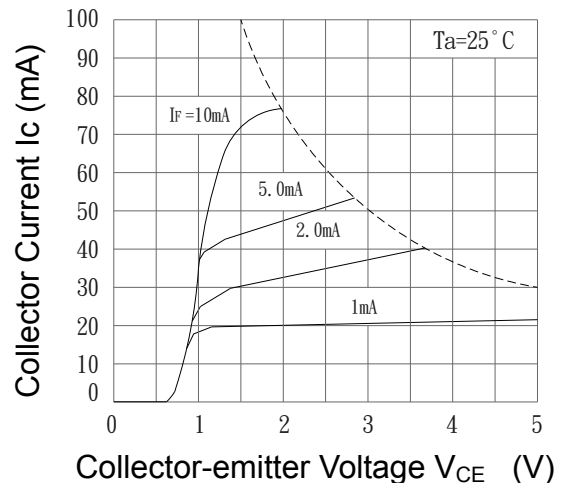
**Fig.4 Forward Current vs. Forward Voltage**



**Fig.5 Current Transfer Ratio vs. Forward Current**



**Fig.6 Collector Current vs. Collector-emitter Voltage**

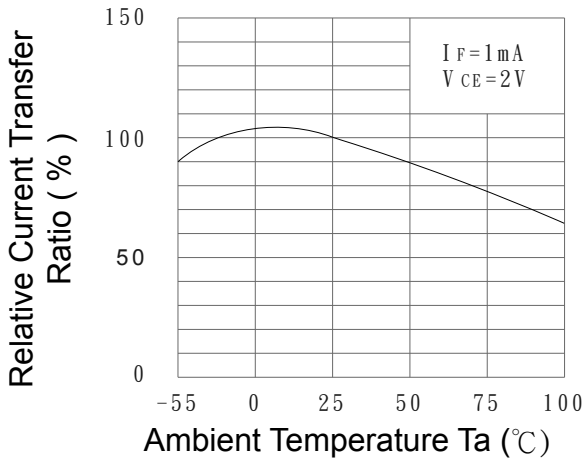


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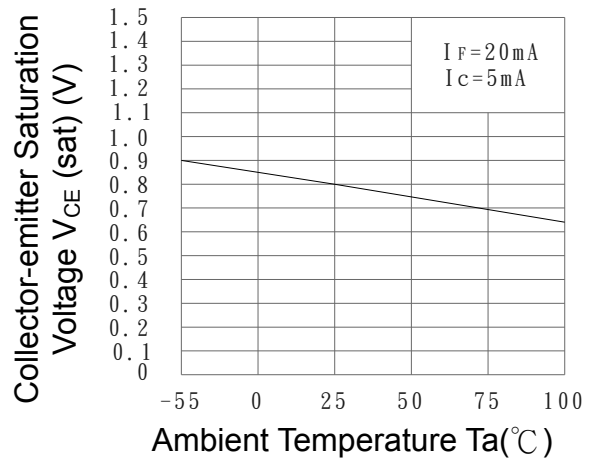
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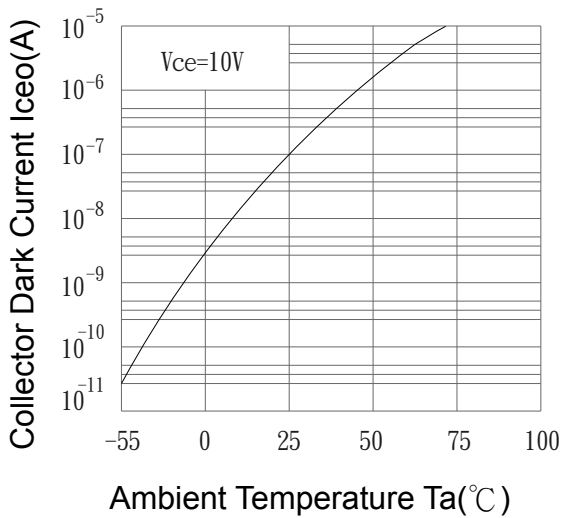
**Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature**



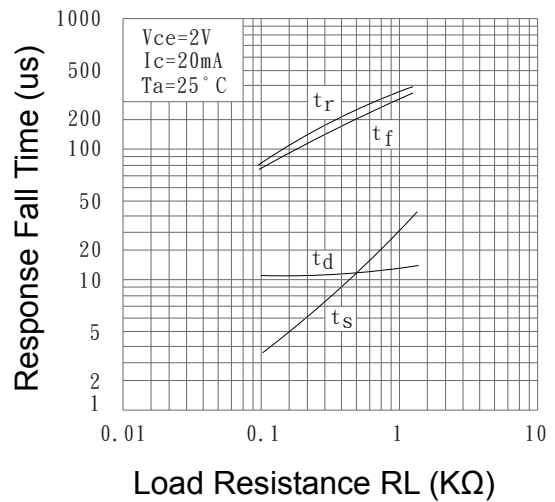
**Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature**



**Fig.9 Collector Dark Current vs. Ambient Temperature**



**Fig.10 Response Time vs. Load Resistance**



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