

PRODUCT SPECIFICATION

DATE : 05/05/2011

cosmo ELECTRONICS CORPORATION	Photocoupler : KPC815L	NO.63P20002	REV. 1
		SHEET 1 OF 6	

High Reliability Photocoupler

● Features

1. 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 long creepage distance for surface mount type package.

● Application :

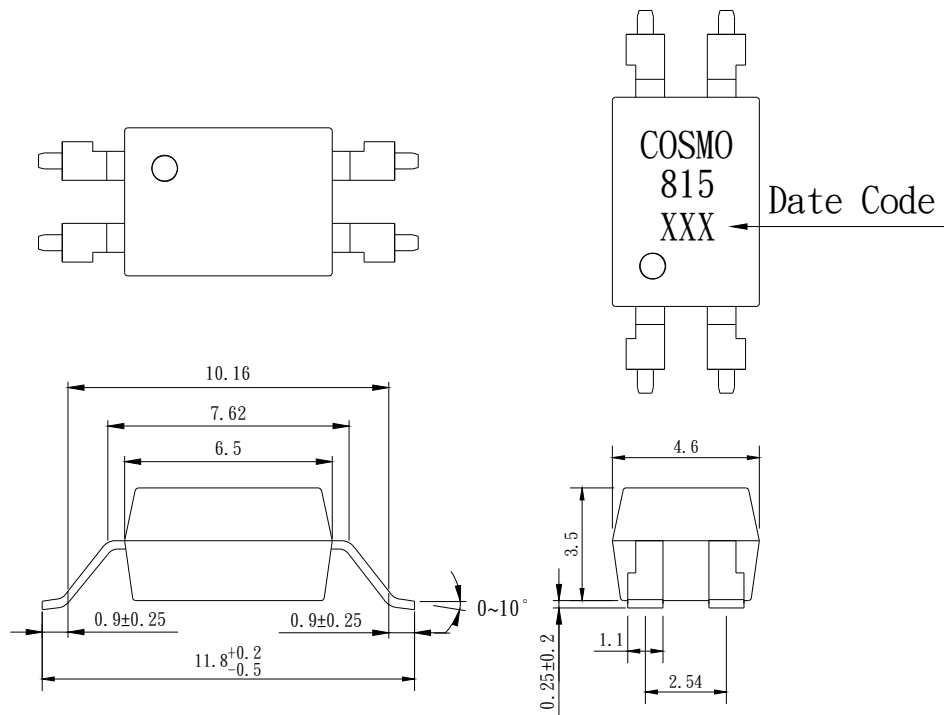
1. System appliances, measuring instruments.
2. Industrial robots.
3. Copiers, automatic vending machines.
4. Signal transmission between circuits of different potentials and impedances.

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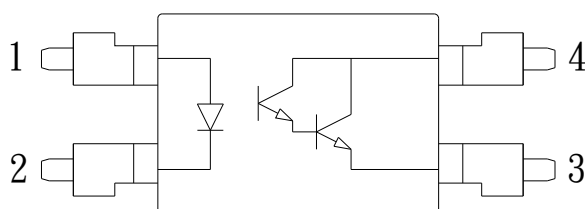
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● Outside Dimension : Unit (mm)



TOLERANCE : ±0.2mm

● 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}	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

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}	$I_{FM}=0.5A$	-	-	3.5	V
	Reverse current	I_R	$V_R=4V$	-	-	10	uA
	Terminal capacitance	C_t	$V=0, f=1KHz$	-	30	-	pF
Output	Collector dark current	I_{CEO}	$V_{CE}=10V, I_F=0$	-	-	1.0	μA
Transfer characteristics	Current transfer ratio	CTR	$I_F=1mA, V_{CE}=2V$	600	-	7500	%
	Collector-emitter saturation	$V_{CE(sat)}$	$I_F=8mA, I_C=2mA$	-	-	1.0	V
	Isolation resistance	R_{iso}	DC500V	5×10^{10}	-	-	Ω
	Floating capacitance	C_f	$V=0, f=1MHz$	-	0.6	1.0	pF
	Cut-off frequency	f_c	$V_{CC}=5V, I_C=2mA, R_L=100\Omega$	-	7	-	KHz
	Response time (Rise)	t_r	$V_{CE}=10V, I_C=50mA, R_L=100\Omega$	-	5	40	μs
	Response time (Fall)	t_f		-	60	100	μs

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Fig.1 Forward Current vs. Ambient Temperature

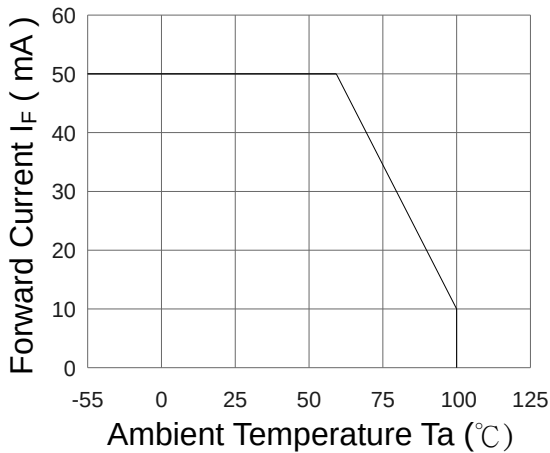


Fig.2 Collector Power Dissipation vs. Ambient Temperature

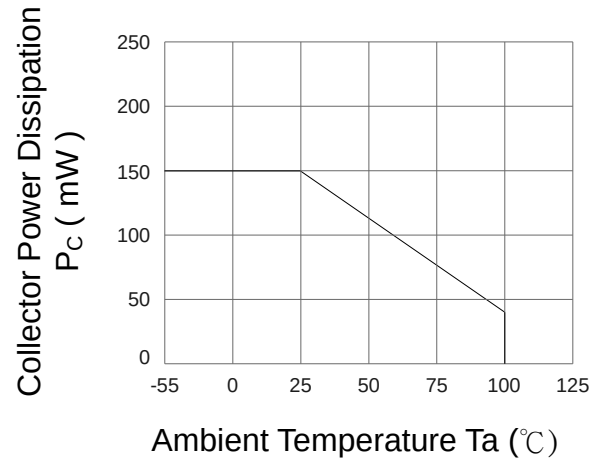


Fig.3 Collector-Emitter Saturation Voltage vs. Forward Current

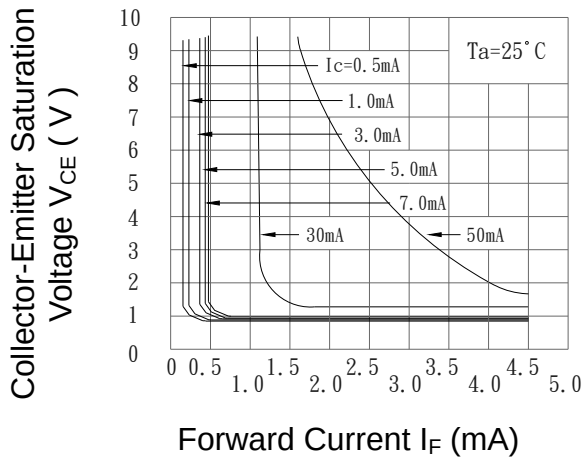


Fig.4 Forward Current vs. Forward Voltage

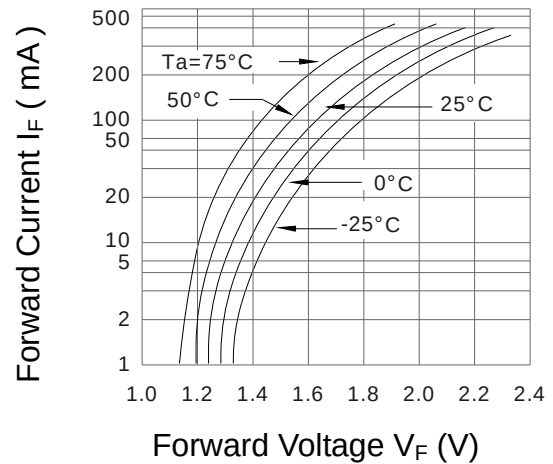


Fig.5 Current Transfer Ratio vs. Forward Current

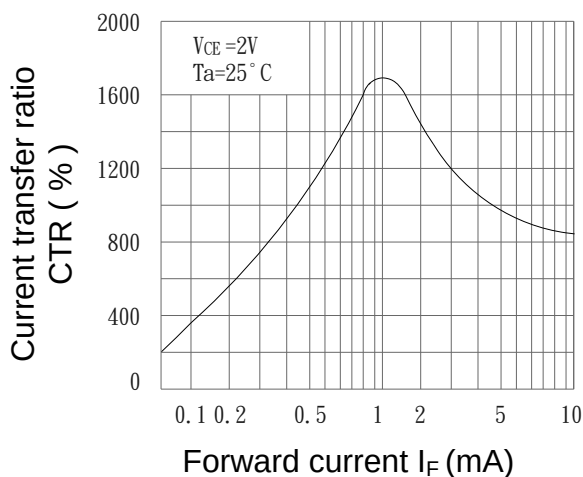
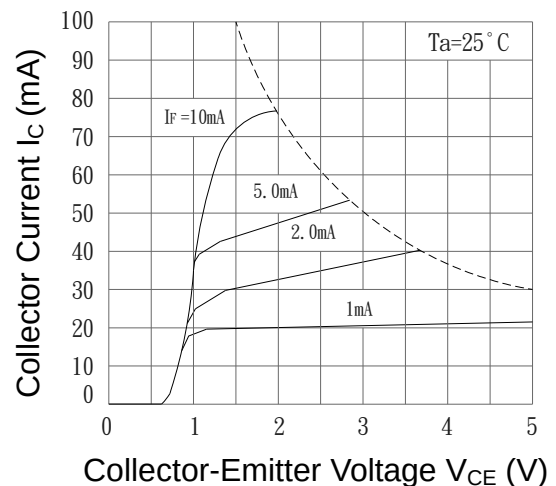


Fig.6 Collector Current vs. Collector-Emitter Voltage



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Fig.7 Relative Transfer Ratio vs. Ambient Temperature

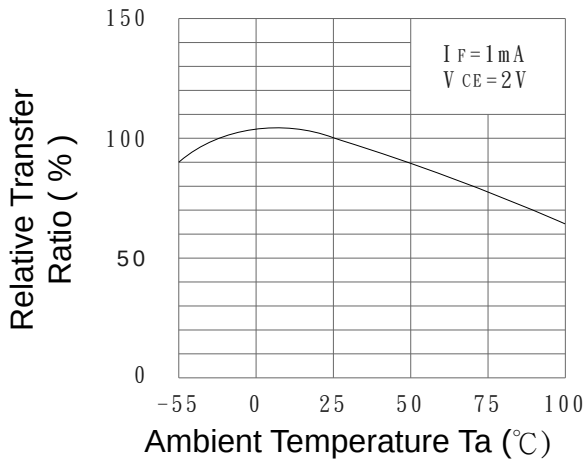


Fig.8 Collector-Emitter Saturation Voltage vs. Ambient Temperature

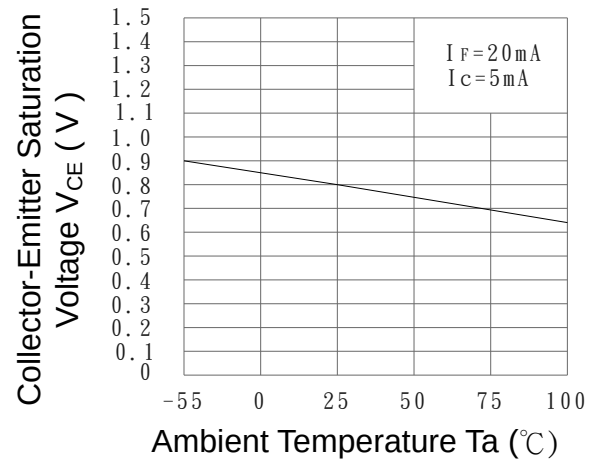


Fig.9 Collector Dark Current vs. Ambient Temperature

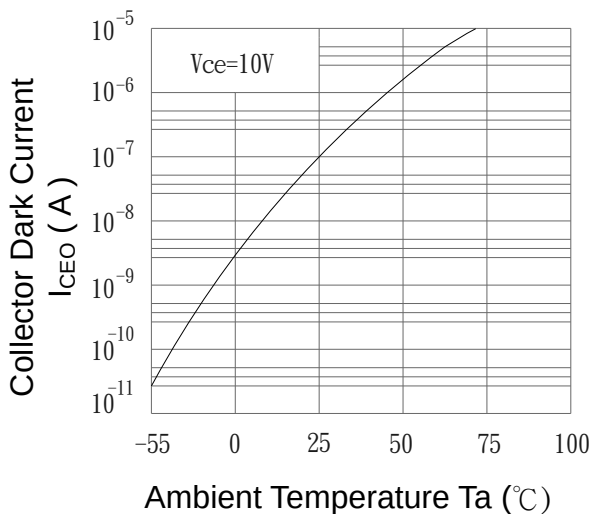
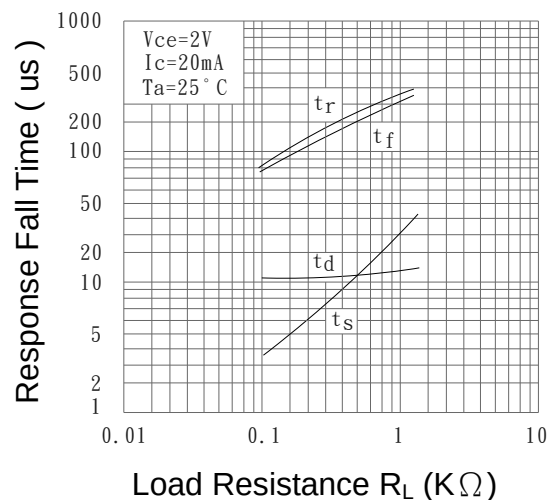


Fig.10 Response Time vs. Load Resistance



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