

# PRODUCT SPECIFICATION

RoHS Compliance

DATE: 08/14/2008

<b>cosmo</b> ELECTRONICS CORPORATION	Photocoupler : <b>KPC457</b>	NO.61P04025	REV
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## High Speed 1Mb/s,High CMR Mini-flat Package Photocoupler

### ●Features

- 1.High speed response( $t_{PLH}$ :typ.0.2us,  $t_{PHL}$ :typ.0.4us).
- 2.High noise immunity due to high instantaneous common mode rejection voltage( $CMH$ :Min. 15KV/us,  $CML$ :Min. -15KV/us).
- 3.High isolation voltage between input and output (Viso:3750Vrms).
- 4.Mini-flat 5 pin package.

### ●Applications

1. Computers, measuring instruments,control equipment.
2. High speed line receivers, high speed logic.
3. Telephone sets.
4. Signal transmission between circuits of different potentials and impedances

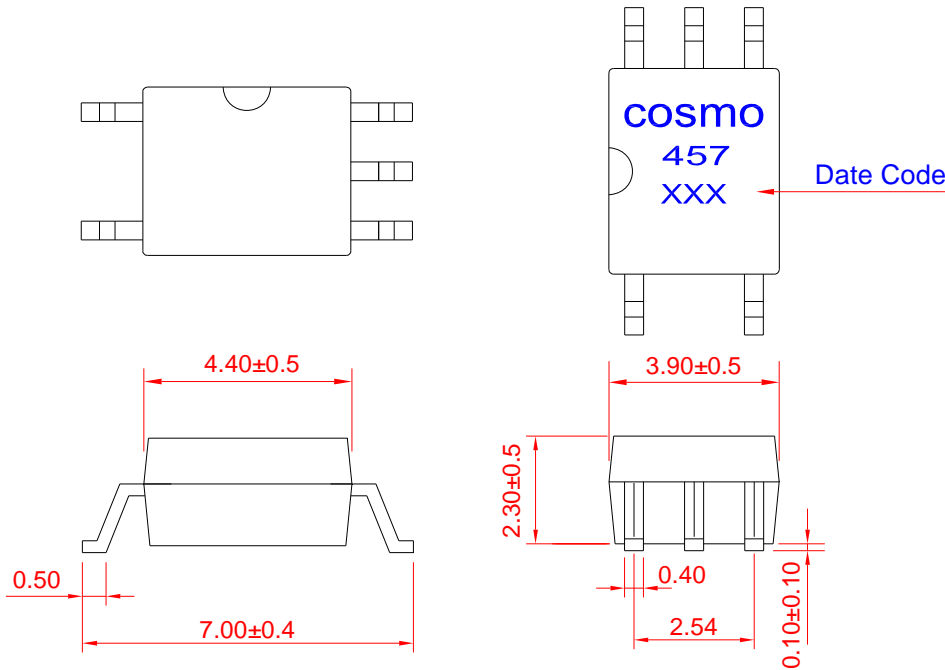
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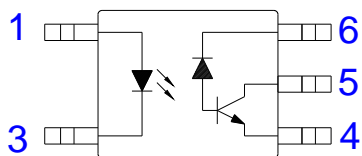
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## 1. OUTSIDE DIMENSION : UNIT (mm)



TOLERANCE :  $\pm 0.2$ mm

## 2. SCHEMATIC : Top View



- 1. Anode
- 3. Cathode
- 4. GND(Emitter)
- 5. Vo (Open collector)
- 6. Vcc

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## ● Absolute Maximum Ratings

(Ta=25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current (*1)	IF	25	mA
	Peak forward current	IFM	200	mA
	Reverse voltage	VR	5	V
	Power dissipation (*2)	PD	45	mW
Output	Supply voltage	VCC	-0.5 to +30	V
	Output voltage	Vo	-0.5 to +20	V
	Output current	Io	8	mA
	Power dissipation (*3)	Po	100	mW
Total power dissipation (*3)		Ptot	100	mW
Isolation voltage 1 minute (*4)		Viso	3750	Vrms
Operating temperature		ToPr	-55 to +85	°C
Storage temperature		Tstg	-55 to +125	°C
Soldering temperature 10 second		Tsol	260	°C

\*1 When ambient temperature goes above 70°C, the power dissipation goes down at 0.8mA/°C.

\*2 When ambient temperature goes above 70°C, the power dissipation goes down at 1.5mW/°C.

\*3 When ambient temperature goes above 70°C, the power dissipation goes down at 1.8mW/°C.

\*4 40 to 80%RH AC for 1 minute, f=60HZ.

## ● Electro-optical Characteristics (\*5)

(Ta=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	VF	IF=16mA	-	1.7	1.95	V
	Reverse current	IR	VR=5V	-	-	10	uA
	Terminal capacitance	Ct	V=0, f=1MHZ	-	60	250	pF
Output	High level output current (1)	IOH (1)	IF=0, VCC=5.5V, VO=5.5V	-	3	500	nA
	High level output current (2)	IOH (2)	IF=0, VCC=15V, VO=15V	-	-	1.0	uA
	High level output current (3) (*6)	IOH (3)		-	-	50	uA
	High level supply current (1)	ICCH (1)	IF=0, VCC=15V, VO=Open	-	0.02	1.0	uA
	High level supply current (2) (*6)	ICCH (2)		-	-	2.0	uA
	Low level supply current	ICCL	IF=16mA, VCC=15V, VO=Open	-	120	-	uA
	Low level supply voltage	VL	IF=16mA, VCC=4.5V, IO=2.4mA	-	-	0.4	V
Transfer characteristics	Current transfer ratio (1)	CTR(1)	IF=16mA, VCC=4.5V, VO=0.4V, RL=1.9K ohm	19	-	50	%
	Current transfer ratio (2) (*6)	CTR(2)	IF=16mA, VCC=4.5V, VO=0.4V, RL=1.9K ohm	15	-	-	%
	Isolation resistance	RISO	DC=500V, 40 to 60%RH	5x10 <sup>10</sup>	1x10 <sup>11</sup>	-	ohm
	Floating capacitance	Cf	V=0, f=1MHZ	-	0.6	1.0	pF
	"High-->Low" propagation delay time	tPHL	IF=16mA, VCC=5V, RL=1.9K ohm	-	0.2	0.8	us
	"High-->Low" propagation delay time	tPLH		-	0.4	0.8	us
	Instantaneous common mode rejection voltage (High level output)	CMH	IF=0, VCC=5V, VCM=1.0KV(p-p), RL=1.9K ohm	15	30	-	KV/us
	Instantaneous common mode rejection voltage (High level output)	CML	IF=16mA, VCC=5V, VCM=1.0KV(p-p), RL=1.9K ohm	-15	-30	-	KV/us

\*5 It shall connect a by-pass capacitor of 0.01uF or more between Vcc (pin 6) and GND(pin 4) near the device, when it measures transfer characteristics and the output side characteristics.

\*6 Ta=0 to 70°C.

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