

PRODUCT SPECIFICATION

DATE:11/29/2012

cosmo ELECTRONICS CORPORATION	Photocoupler : KPC452	NO.61P04080	REV.
		SHEET 1 OF 6	5

Compact Surface Mount,High Collector emitter Voltage Type Photocoupler

● Features

1. Halogen Free.
2. Pb free and RoHS compliant.
3. Mini-flat package:
compact 4 pin SOP with a 2.0mm profile.
4. High collector-emitter voltage ($V_{CEO} : 300V$)
5. High current transfer ratio
(CTR : MIN.1000% at $I_F = 1mA, V_{CE} = 2V$)
6. High isolation voltage between input and output ($V_{iso}:3750V_{rms}$).
7. Agency Approvals.
 - UL approved : No.E169586
 - VDE approved : No.40014684
 - FIMKO approved : EN 60065 No. FI 23147 A1
EN 60950 No. FI 24583 A1
 - CQC approved : No. CQC04001010530

● Applications

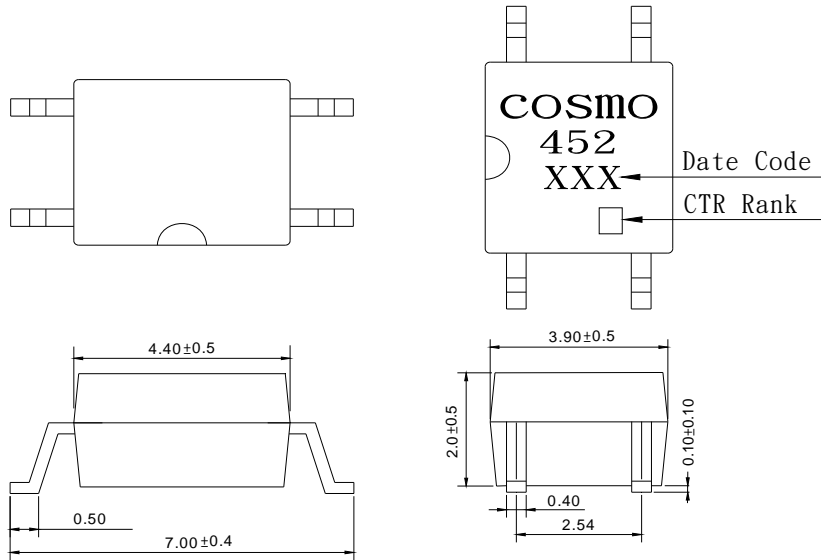
1. Telephone sets.
2. Copiers,facsimiles.
3. Interfaces with various power supply circuits,
power distribution boards.
4. Hybrid substrates which require high density mounting.

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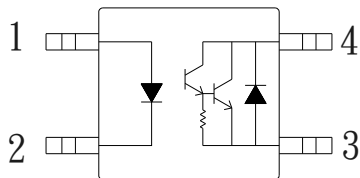
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1. OUTSIDE DIMENSION : UNIT (mm)



TOLERANCE : ± 0.2 mm

2. 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	70	mW
Output	Collector-emitter voltage	V_{CEO}	300	V
	Emitter-collector voltage	V_{ECO}	0.1	V
	Collector current	I_c	150	mA
	Collector power dissipation	P_c	150	mW
Total power dissipation	P_{tot}	170	mW	
Isolation voltage 1 minute	V_{iso}	3750	Vrms	
Operating temperature	T_{opr}	-55 to +115	°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
	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}	$V_{CE}=200V, I_F=0$	-	-	1	uA
	Collector-emitter breakdown voltage	BV_{CEO}	$I_c=0.1mA, I_F=0$	300	-	-	V
Transfer characteristics	Current transfer ratio	CTR	$I_F=1mA, V_{CE}=2V$	1000	-	-	%
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F=20mA, I_c=100mA$	-	-	1.5	V
	Isolation resistance	R_{iso}	DC500V, 40 to 60%RH	5×10^{10}	10^{11}	-	ohm
	Floating capacitance	C_f	$V=0, f=1MHz$	-	0.6	1.0	pF
	Response time (Rise)	t_r	$V_{ce}=2V, I_c=20mA, R_L=100ohm$	-	100	300	us
Response time (Fall)	t_f	-		20	100	us	

●Classification table of current transfer ratio is shown below.

CTR RANK	CTR(%)
KPC4520E	Min.1000

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Fig.1 Forward Current vs. Ambient Temperature

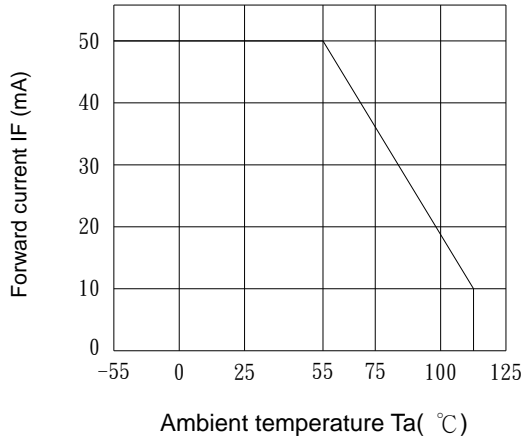


Fig.2 Diode Power Dissipation vs. Ambient Temperature

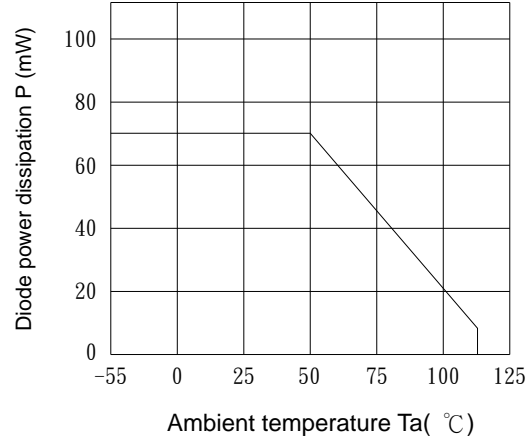


Fig.3 Peak Forward Current vs. Duty Ratio

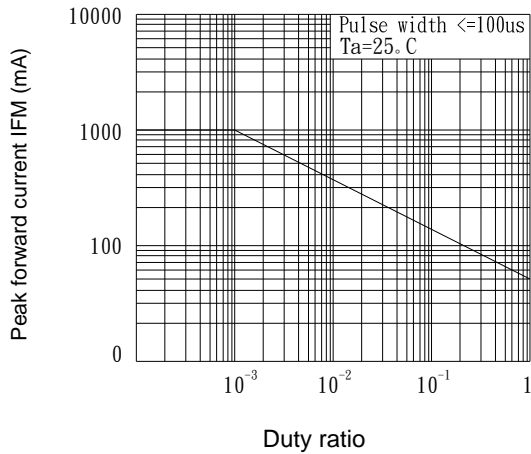


Fig.4 Forward Current vs. Forward Voltage

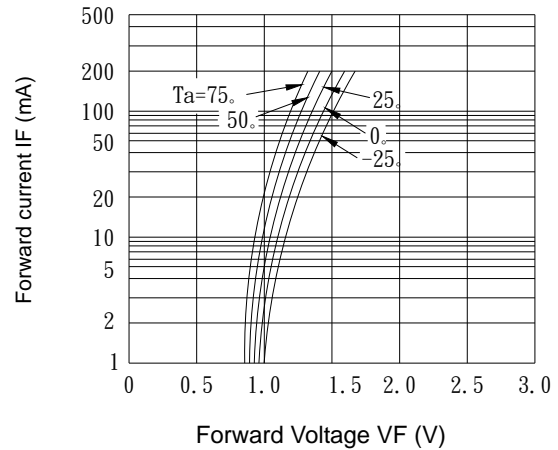


Fig.5 Current Transfer Ratio vs. Forward Current

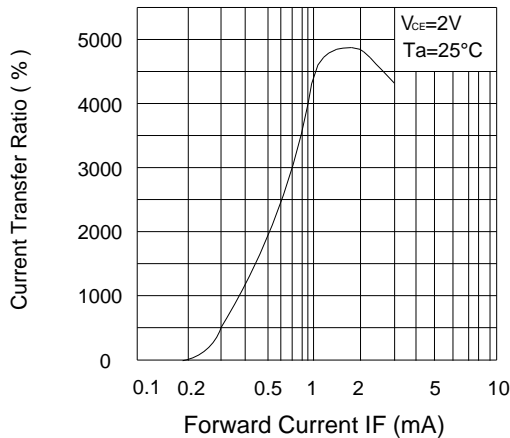
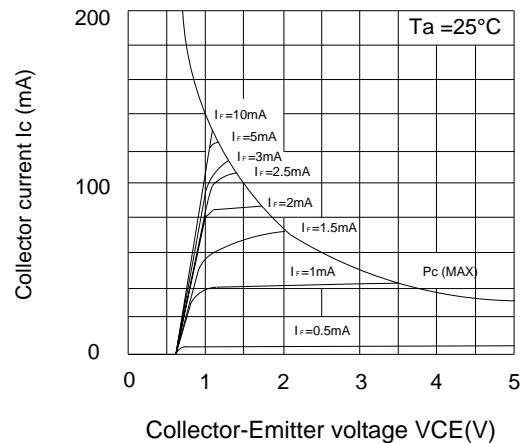


Fig.6 Collector Current vs. Collector-Emitter Voltage



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Fig.7 Collector-emitter Saturation Voltage vs. Forward Current

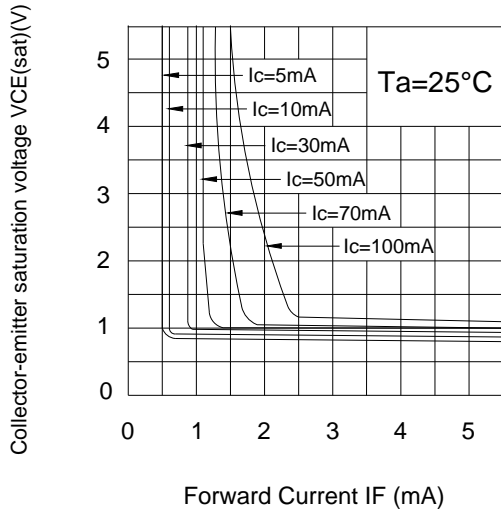


Fig.8 Collector-Emitter Saturation Voltage vs. Ambient Temperature

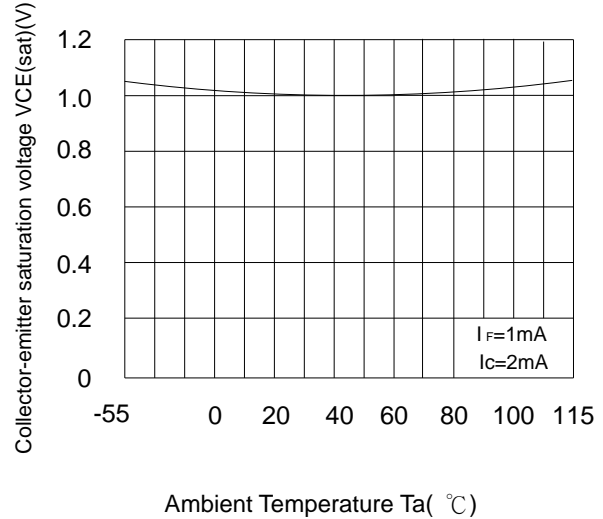


Fig.9 Collector Dark Current vs. Ambient Temperature

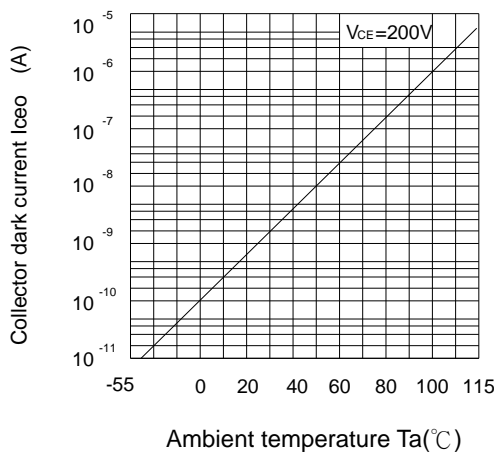


Fig.10 Response Time vs. Load Resistance

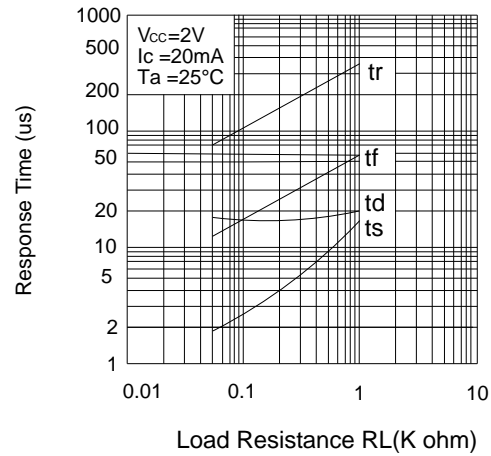


Fig.11 Relative Current Transfer Ratio vs. Ambient Temperature

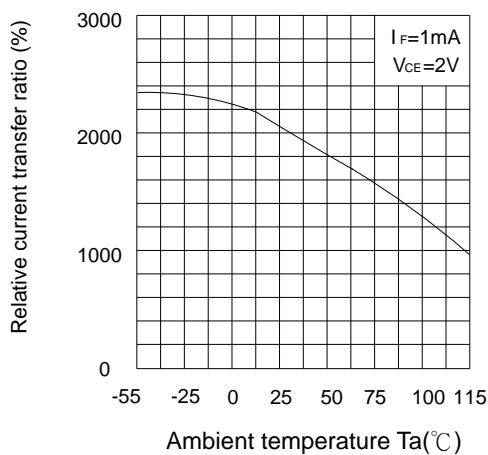
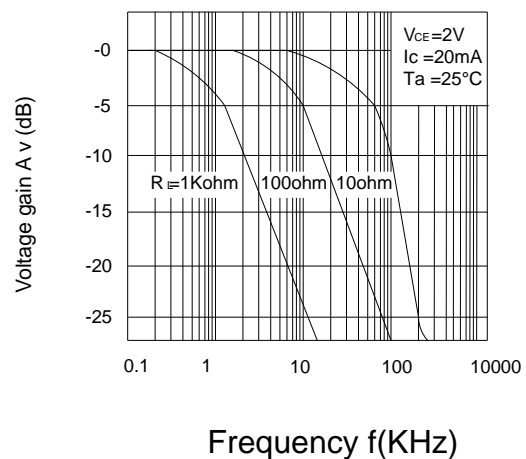


Fig.12 Frequency Response.



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