

PRODUCT SPECIFICATION

DATE:07/22/2008

cosmo ELECTRONICS CORPORATION	Photocoupler : KPC452	NO.61P04053	REV.
		SHEET 1 OF 6	2

Compact Surface Mount,High Collector emitter Voltage Type Photocoupler

● Features

1. Mini-flat package.
2. High collector-emitter voltage
($V_{CEO} : 300V$)
3. High current transfer ratio
($CTR : \text{MIN.}1000\%$ at $I_F = 1mA, V_{CE} = 2V$)
4. High isolation voltage between input and output ($V_{iso}:3750V_{rms}$).

●Applications

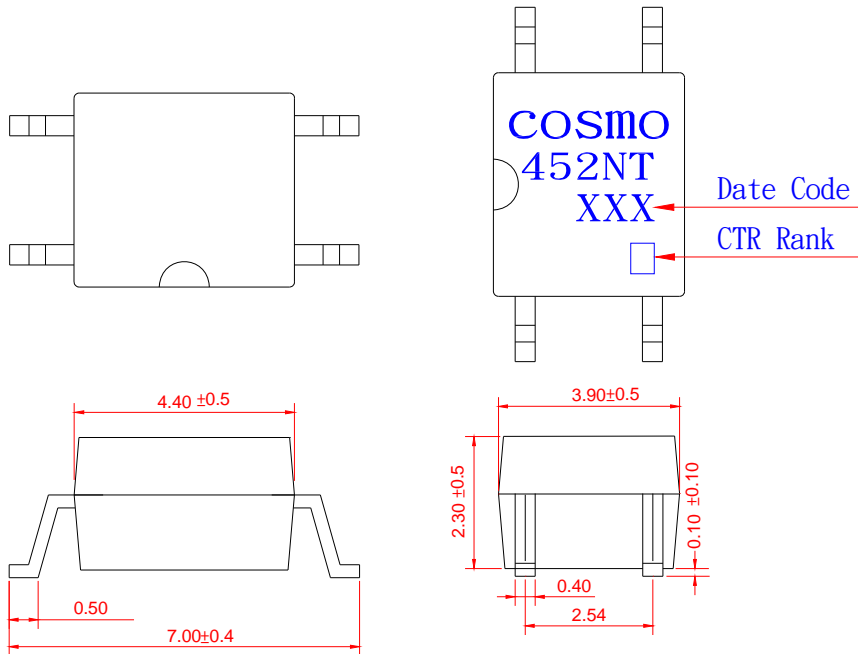
1. Telephone sets.
2. Copiers, facsimiles.
3. Interfaces with various power supply circuits,
power distribution boards.
4. Hybrid substrates which require high density mounting.

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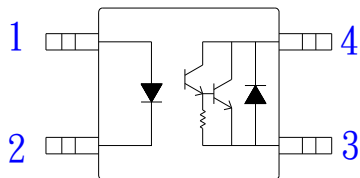
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1. OUTSIDE DIMENSION : UNIT (mm)



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	V_{rms}
	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	Riso	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	

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Fig.1 Forward Current vs. Ambient Temperature

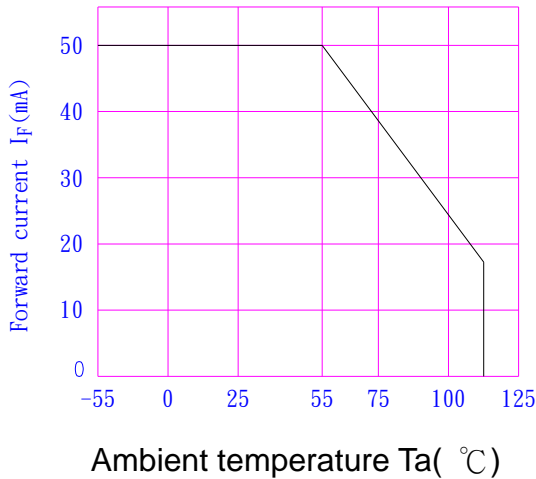


Fig.2 Collector Power Dissipation vs. Ambient Temperature

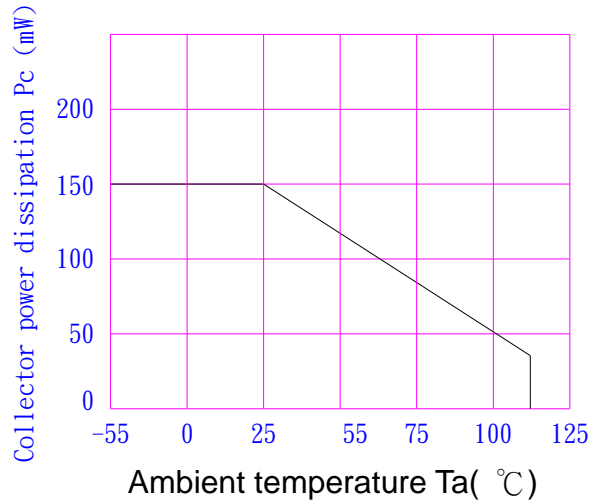


Fig.3 Peak Forward Current vs. Duty Ratio

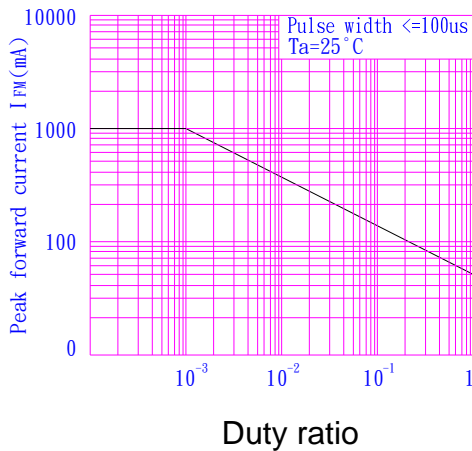


Fig.4 Forward Current vs. Forward Voltage

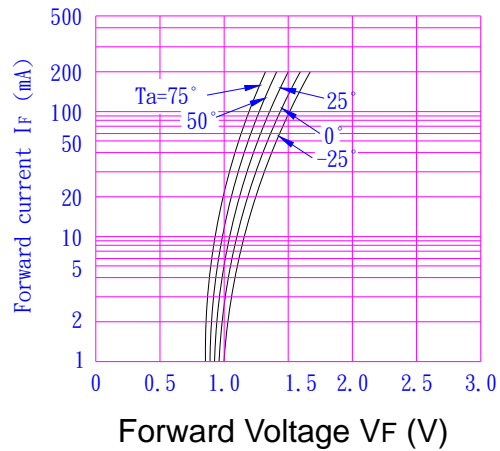


Fig.5 Current Transfer Ratio vs. Forward Current

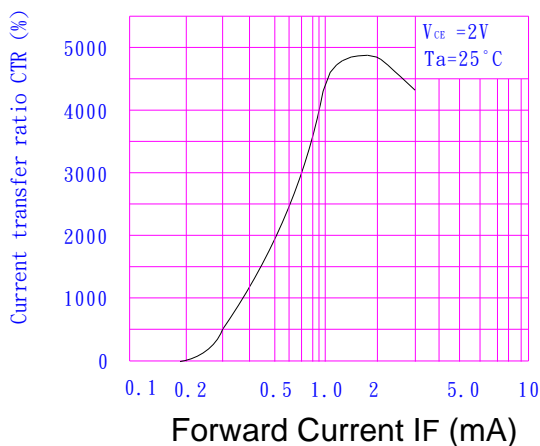
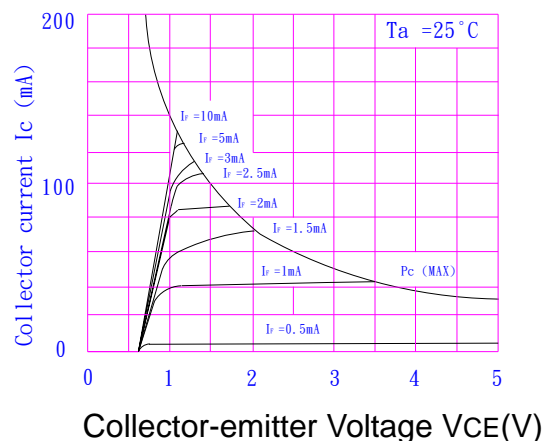


Fig.6 Collector Current vs. Collector-emitter Voltage

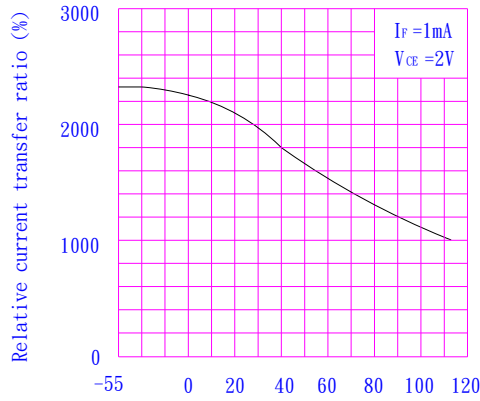


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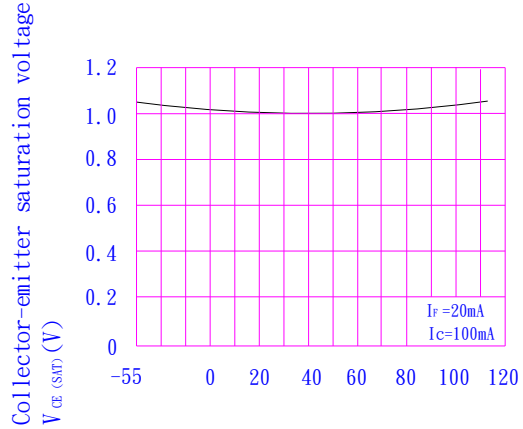
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Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature



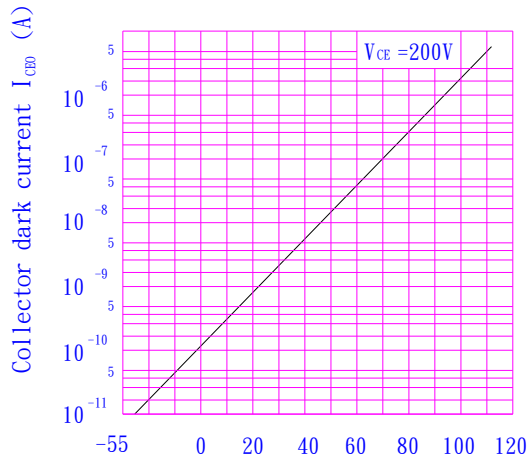
Ambient temperature Ta(°C)

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



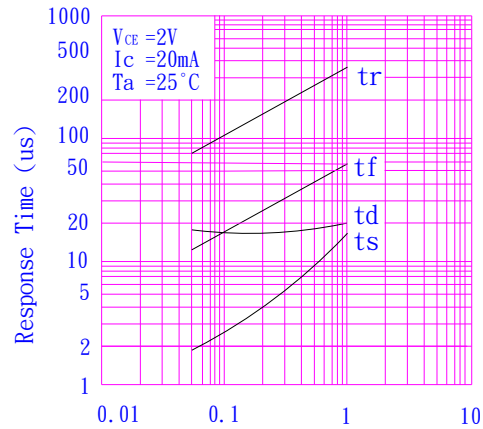
Ambient temperature Ta(°C)

Fig.9 Collector Dark Current vs. Ambient Temperature



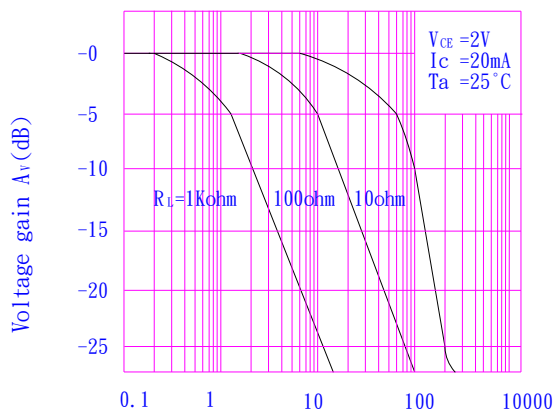
Ambient temperature Ta(°C)

Fig.10 Response Time vs. Load Resistance



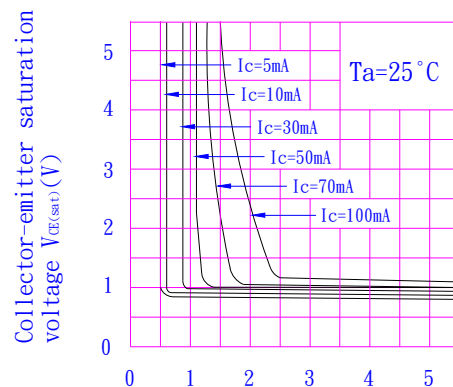
Load resistance RL (K ohm)

Fig.11 Frequency Response.



Frequency f(KHz)

Fig.12 Collector-emitter Saturation Voltage vs. Forward current



Ambient temperature Ta(°C)

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