High Reliability Photo Coupler KPC4N33

UL 1577 (File No.E169586)

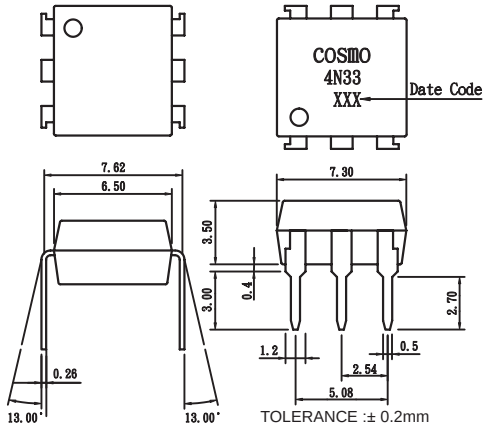
Features

1. High current transfer ratio
   (CTR:MIN.500% at IF=1mA, Vce=2V)
2. High isolation voltage between input and output
   (Viso:5000Vrms).
3. Compact dual-in-line package.
4. Available package : DIP/ SMD/ H. (For Package Dimension please refer to page 82)

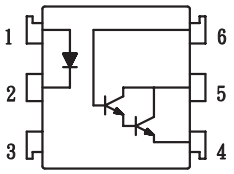
Applications

1. System appliances, measuring instruments.
2. Industrial robots.
3. Copiers, automatic vending machines, facsimiles.
4. Signal transmission between circuits of different potentials and impedances.
5. Telephone sets.
6. Copiers, tacsimiles.
7. Interface with various power supply circuits, power distribution boards.
8. Numerical control machines.

Outside Dimension : Unit (mm)



Schematic : Top View



1. Anode
2. Cathode
3. NC
4. Emitter
5. Collector
6. Base

Absolute Maximum Ratings

(Ta=25°C)

	Parameter	Symbol	Rating	Unit
Input	Forward current	IF	50	mA
	Peak forward current	IFM	1	A
	Reverse voltage	VR	6	V
	Power dissipation	PD	70	mW
Output	Collector-emitter voltage	VCEO	30	V
	Collector-base voltage	VCBO	30	V
	Emitter-base voltage	VEBO	6	V
	Collector current	Ic	150	mA
	Collector power dissipation	PC	200	mW
	Total power dissipation	Ptot	200	mW
	Isolation voltage 1 minute	Viso	5000	Vrms
	Operating temperature	Topr	-30 to +100	°C
	Storage temperature	Tstg	-55 to +125	°C
	Soldering temperature 10 second	Tsol	260	°C

Electro-optical Characteristics

(Ta=25°C)

	Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	VF	IF=10mA	—	1.2	1.4	V
	Peak forward voltage	VFM	IFM=0.5A	—	—	3.5	V
	Reverse current	IR	VR=4V	—	—	10	uA
	Terminal capacitance	Ct	V=0, f=1kHz	—	30	—	pF
Output	Collector dark current	ICEO	VCE=10V, IF=0	—	—	0.1	uA
Transfer charac-teristics	Current transfer ratio	CTR	IF=1mA, VCE=2V	500	—	—	%
	Collector-emitter saturation voltage	VCE (sat)	IF=8mA, IC=2mA	—	—	1.0	V
	Isolation resistance	Riso	DC500V	$5X10^{10}$	—	—	ohm
	Floating capacitance	Cf	V=0, f=1MHz	—	0.6	1.0	pF
	Cut-off frequency	fc	VCC=5V, IC=2mA, RL=100ohm	—	7	—	kHz
	Respone time (Rise)	tr	VCE=10V, IC=50mA, RL=100ohm	—	5	40	us
	Respone time (Fall)	tf		—	60	100	us

Fig.1 Forward Current vs. Ambient Temperature

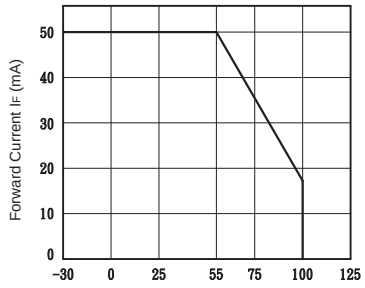


Fig.2 Collector Power Dissipation vs. Ambient Temperature

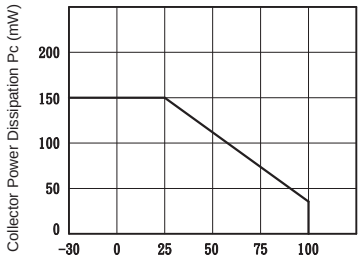


Fig.3 Peak Forward Current vs. Duty Ratio

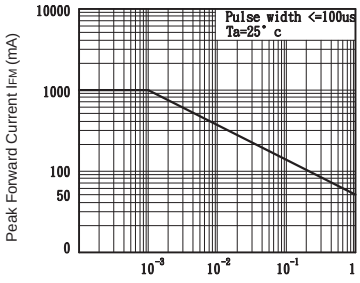


Fig.4 Forward Current vs. Forward Voltage

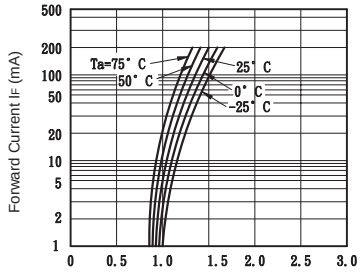


Fig.5 Current Transfer Ratio vs. Forward Current

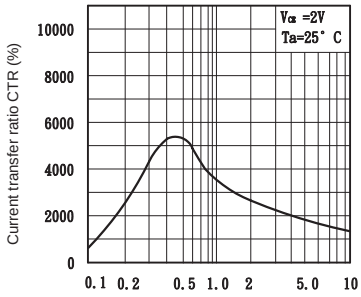


Fig.6 Collector Current vs. Collector-emitter Voltage

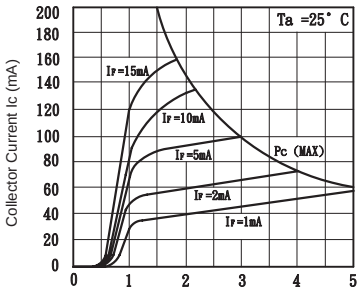


Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

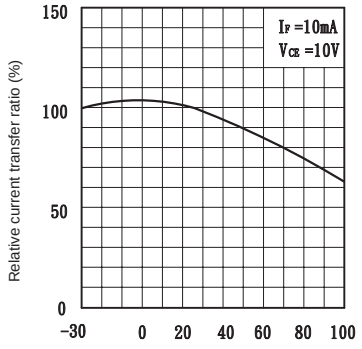


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

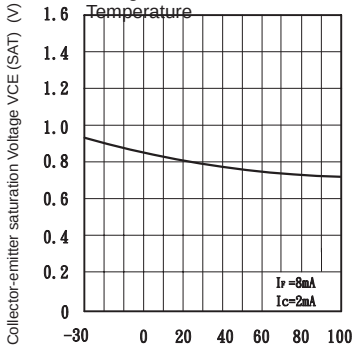


Fig.9 Collector Dark Current vs. Ambient Temperature

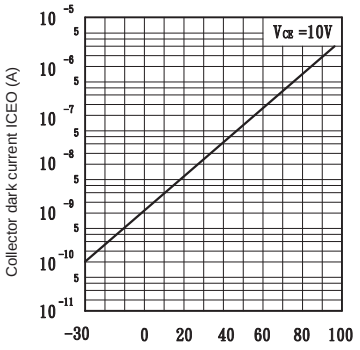


Fig.10 Response Time vs. Load Resistance

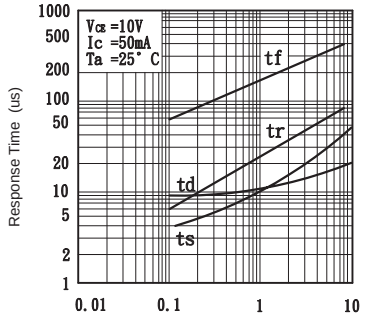


Fig.11 Collector-emitter Saturation Voltage vs. Forward current