

Photocoupler

KODENSHI

PC-18K1 • PC-18K2 • PC-18K4

These Photocouplers consist of a Gallium Arsenide Infrared Emitting Diode and a Silicon NPN Photo Darlington transistor per channel.

The PC-18K1 has one channel in a 4-pin package.

The PC-18K2 has two channels in a 8-pin package.

The PC-18K4 has four channels in a 16-pin package.

FEATURES

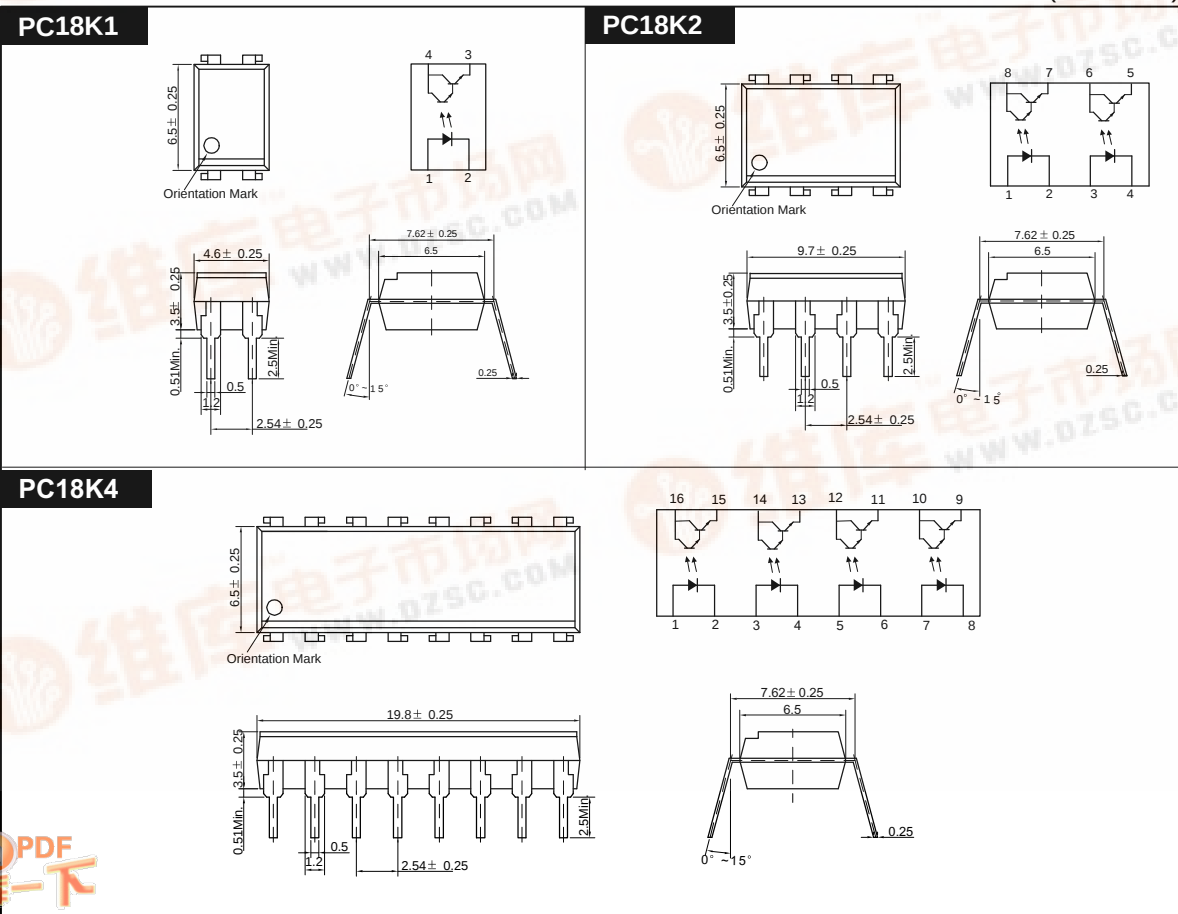
- Small Package Size
- Collector-Emitter Voltage : Min.30V
- Current Transfer Ratio : Type 600% (at $I_F=1\text{mA}$, $V_{CE}=2\text{V}$)
- Electrical Isolation Voltage : AC5000V_{rms}
- UL Recognized File No. E107486

APPLICATIONS

- Interface between two circuits of different potential
- Telephone Line Receiver
- Automatic Vending Machine
- Relay Contact Monitor

DIMENSION

(Unit : mm)



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MAXIMUM RATINGS

(Ta=25)

Parameter		Symbol	Rating	Unit
Input	Forward Current	I _F	60	mA
	Reverse Voltage	V _R	5	V
	Peak Forward Current ^{*1}	I _{FP}	1	A
	Power Dissipation	P _D	150	mW
	Junction Temperature	T _J	125	
Output	Collector-Emitter Breakdown Voltage	BV _{CEO}	30	V
	Emitter-Collector Breakdown Voltage	BV _{ECO}	5	V
	Collector Current	I _C	50	mA
	Collector Power Dissipation	P _C	150	mW
Input to Output Isolation Voltage ^{*2}		V _{iso}	AC5000	V _{rms}
Storage Temperature		T _{stg}	-55~+125	
Operating Temperature		T _{opr}	-30~+100	
Lead Soldering Temperature ^{*3}		T _{sol}	260	
Total Power Dissipation		P _{tot}	250	mW

*1. Input current with 100μs pulse width, 1% duty cycle

*2. Measured at RH=40~60% for 1min

*3. 1/16 inch form case for 10sec

ELECTRO-OPTICAL CHARACTERISTICS

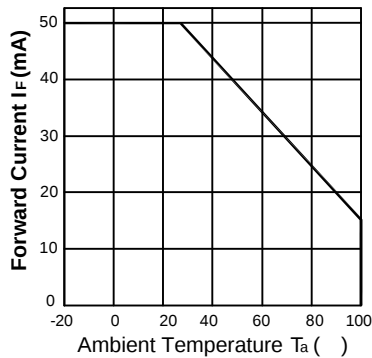
(Ta=25 , unless otherwise noted)

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit.
Input	Forward Voltage	V _F	I _F =10mA	-	1.15	1.30	V
	Reverse Current	I _R	V _R =5V	-	-	10	μA
	Capacitance	C _T	V=0, f=1kHz	-	30	-	pF
Output	Collector-Emitter Breakdown Voltage	BV _{CEO}	I _C =0.5mA	35	-	-	V
	Emitter-Collector Breakdown Voltage	BV _{ECO}	I _E =0.1mA	5	-	-	V
	Collector Dark Current	I _{CEO}	I _F =0, V _{CE} =10V	-	-	100	nA
	Capacitance	C _{CE}	V _{CE} =0, f=1KHz	-	10	-	pF
Coupled	Current Transfer Ratio ^{*4}	CTR	I _F =1mA, V _{CE} =2V	300	-	1500	%
	Collector-Emitter Saturation Voltage	V _{CE(SAT)}	I _F =1mA, I _C =2mA	-	0.85	1.0	V
	Input-Output Capacitance	C _{IO}	V=0, f=1kHz	-	1	-	pF
	Input-Output Isolation Resistance	R _{IO}	RH=40~60%, V=500V	-	10 ¹¹	-	Ω
	Rise Time	t _r	V _{CE} =10V, R _L =100Ω	-	100	-	μs
	Fall Time	t _f	I _C =10mA	-	100	-	μs

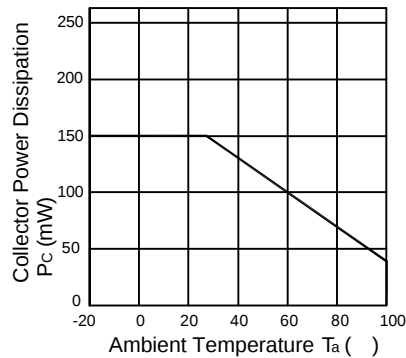
*4. CTR=(I_C/I_F) X 100 (%)

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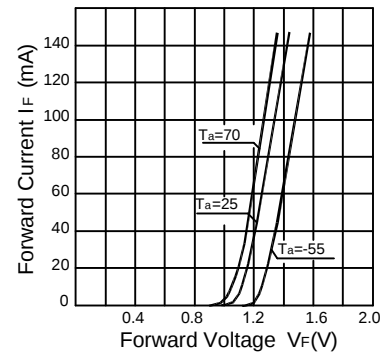
Forward Current vs. Ambient Temperature



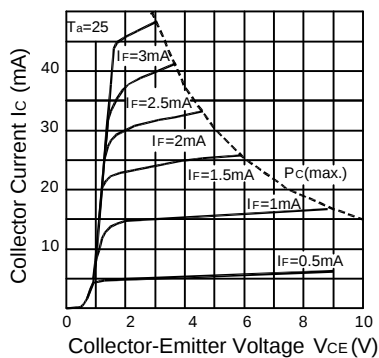
Collector Power Dissipation vs. Ambient Temperature



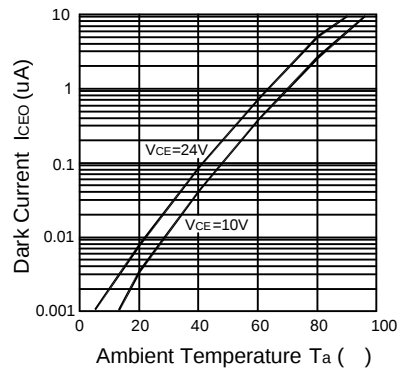
Forward Current vs. Forward Voltage



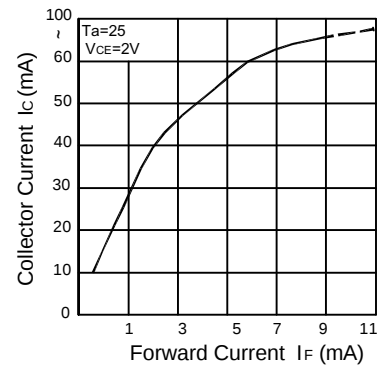
Collector Current vs. Collector-Emitter Voltage



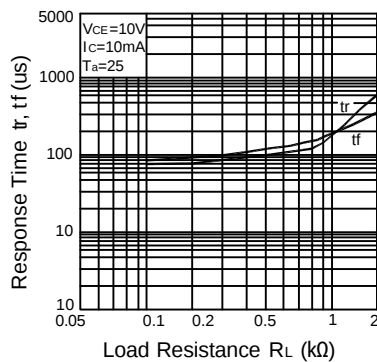
Dark Current vs. Ambient Temperature



Collector Current vs. Forward Current



Response Time vs. Load Resistance



Switching Time Test Circuit

