

Photocoupler

KODENSHI

KPC514 • KPC524 • KPC544

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

The KPC514 has one channel in a 4-pin package.

The KPC524 has two channels in a 8-pin package.

The KPC544 has four channels in a 16-pin package.

FEATURES

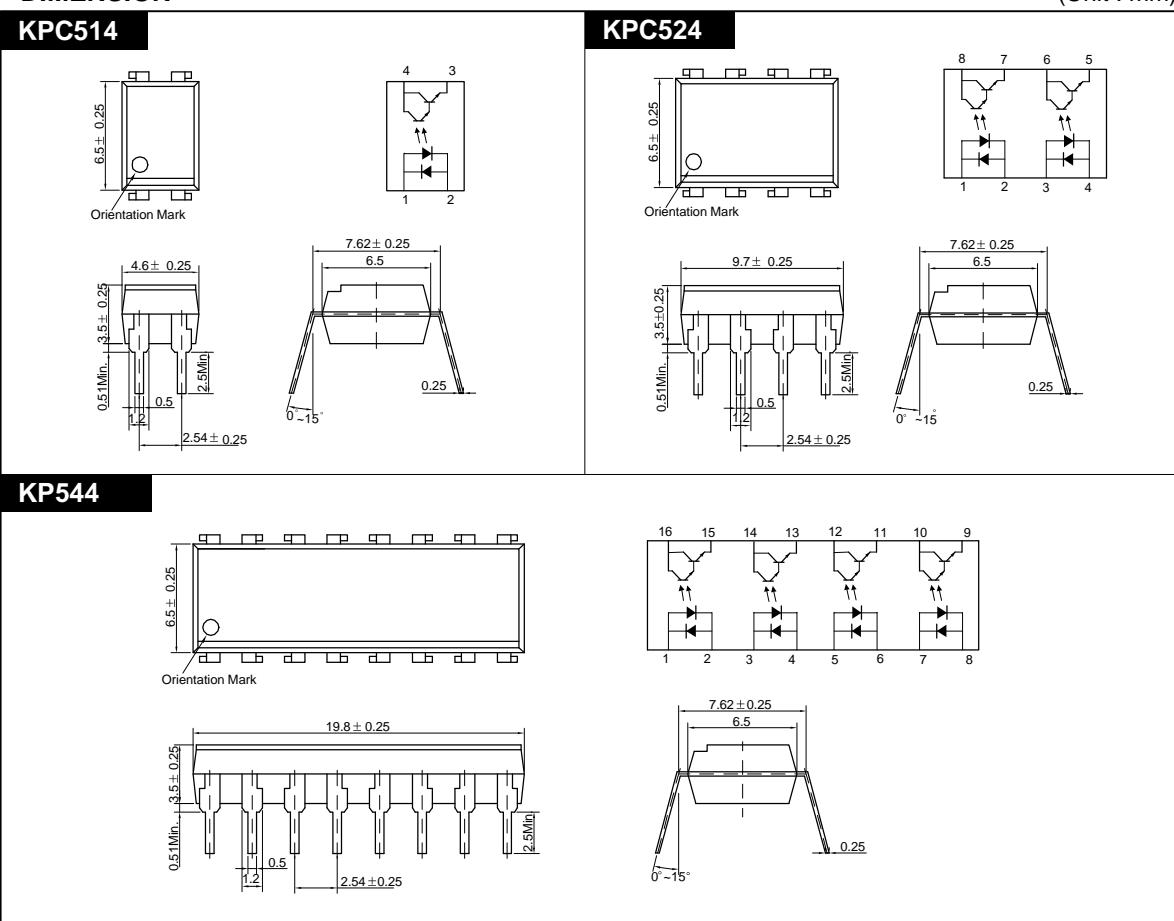
- Small Package Size
- Collector-Emitter Voltage : Min.30V
- Current Transfer Ratio : Type 1000% (at $I_F = \pm 1\text{mA}$, $V_{CE} = 2\text{V}$)
- Electrical Isolation Voltage : AC2500V_{rms}
- UL Recognized File No. E107486

APPLICATIONS

- AC Signal Input
- Interface between two circuits of different potential
- Automatic Vending Machine
- Copiers, Industrial Robots

DIMENSION

(Unit : mm)



Photocoupler



KPC514 • KPC524 • KPC544

MAXIMUM RATINGS

(Ta=25 °C)

Parameter		Symbol	Rating	Unit
Input	Forward Current	I _F	± 60	mA
	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}	AC2500	V _{rms}
Storage Temperature		T _{stg}	-55~+125	
Operating Temperature		T _{opr}	-30~+85	
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

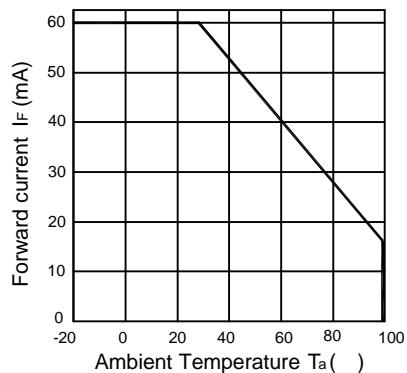
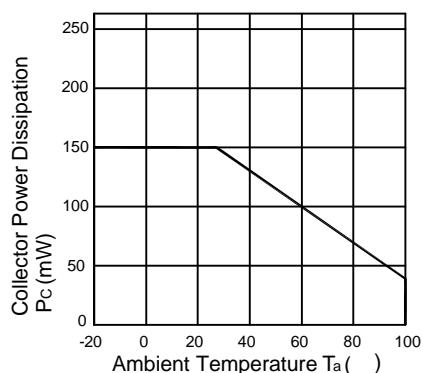
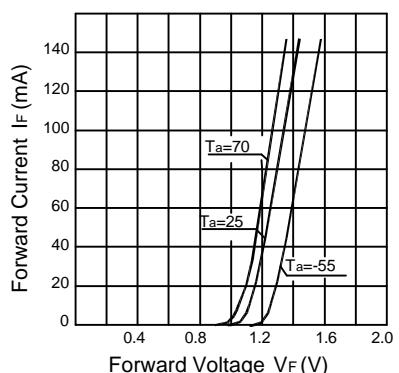
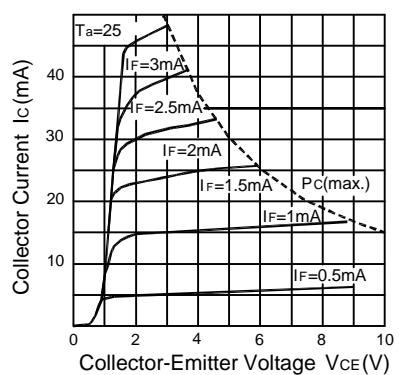
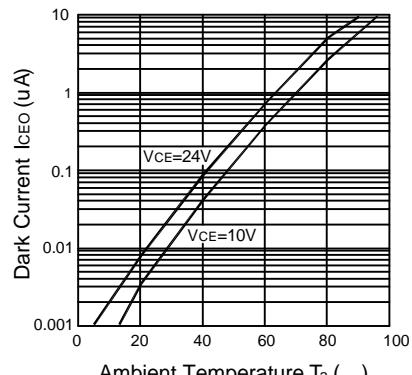
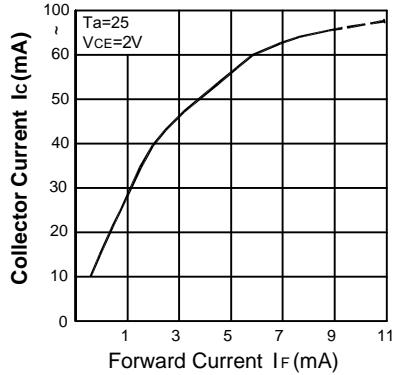
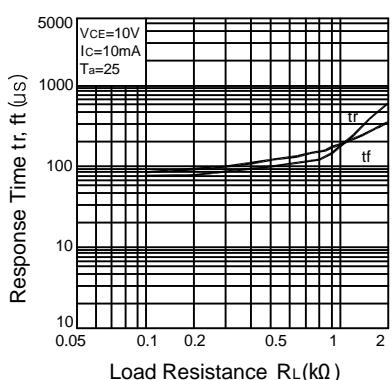
*3. 1/16 inch form case for 10sec

ELECTRO-OPTICAL CHARACTERISTICS

(Ta=25 °C, unless otherwise noted)

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit.
Input	Forward Voltage	V _F	I _F = ±10mA	-	1.15	1.30	V
	Capacitance	C _T	V=0, f=1kHz	-	30	-	pF
Output	Collector-Emitter Breakdown Voltage	BV _{CEO}	I _C =0.5mA	30	-	-	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	-	-	%
	Collector-Emitter Saturation Voltage	V _{CE(SAT)}	I _F = ± 1mA, I _C =2mA	-	0.8	1.2	V
	Input-Output Capacitance	C _{IO}	V=0, f=1kHz	-	5	-	pF
	Input-Output Isolation Resistance	R _{IO}	RH=40~60%, V=500V	-	10 ¹¹	-	
	Rise Time	tr	V _{CE} =10V, R _L =100Ω	-	90	-	μs
	Fall Time	tf		-	120	-	μs

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

KPC514 • KPC524 • KPC544**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**