PC314 Series

Opaque*, Mini-Flat Package, AC Input Type Photocoupler

■ Features

1. AC or Polarity insensitive inputs
2. Opaque type, mini-flat package
   PC314 (1-channel) PC3D14 (2-channel)
   PC3Q14 (4-channel)
3. Subminiature type
   (The volume is smaller than that of our conventional DIP type by as far as 30%.)
4. Isolation voltage between input and output
   V_{Iso} : 2,500Vrms

* Employs double transfer mold technology.

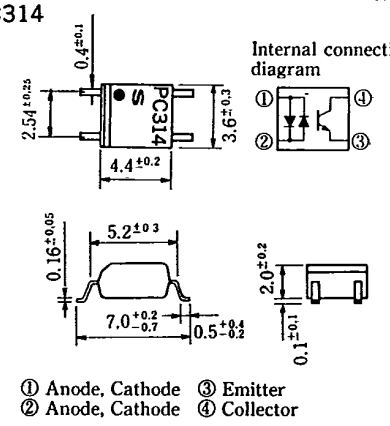
■ Applications

1. Hybrid substrates that require high density mounting
2. Programmable controllers

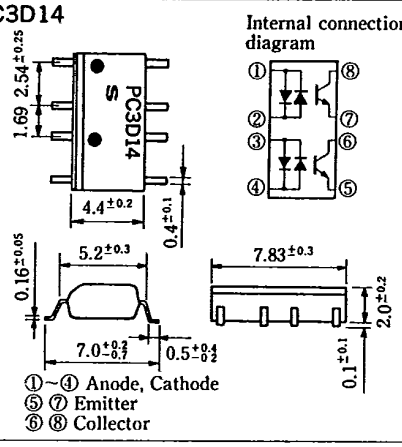
■ Outline Dimensions

(Unit : mm)

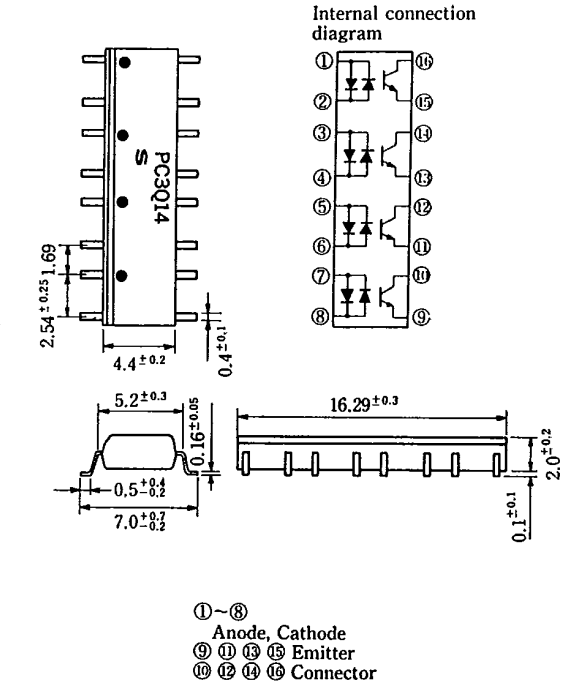
PC314



PC3D14



PC3Q14



■ Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	±50	mA
	*1Peak forward current	I_{FM}	±1	A
	Power dissipation	P	70	mW
Output	Collector-emitter voltage	V_{CEO}	35	V
	Emitter-collector voltage	V_{ECO}	6	V
	Collector current	I_C	50	mA
	Collector power dissipation	P_C	150	mW
Total power dissipation		P_{tot}	170	mW
*2Isolation voltage		V_{iso}	2,500	Vrms
Operating temperature		T_{opr}	−30~+100	°C
Storage temperature		T_{stg}	−40~+125	°C
*3Soldering temperature		T_{sol}	260	°C

*1 Pulse width≦100μs, Duty ratio=0.001
*2 RH=40~60%, AC for 1 minute
*3 For 10 seconds

■ Electro-optical Characteristics (Ta=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V_F	I_F=±20mA	—	1.2	1.4	V
	Terminal capacitance	C_t	V=0, f=1kHz	—	30	250	pF
Output	Collector dark current	I_{CEO}	V_{CE}=20V, I_F=0	—	—	10^{-7}	A
Transfer characteristics	Current transfer ratio	CTR	I_F=±1mA, V_{CE}=5V	20	—	300	%
	Collector-emitter saturation voltage	$V_{CE(sat)}$	I_F=±20mA, I_C=1mA	—	0.1	0.2	V
	Isolation resistance	R_{ISO}	DC500V, RH=40~60%	5×10^{10}	10^{11}	—	Ω
	Floating capacitance	C_f	V=0, f=1MHz	—	0.6	1.0	pF
	Response time (Rise)	t_r	V_{CE}=2V, I_C=2mA	—	4	18	μs
	Response time (Fall)	t_f	R_L=100Ω	—	3	18	μs

6

Fig. 1 Forward Current vs. Ambient Temperature

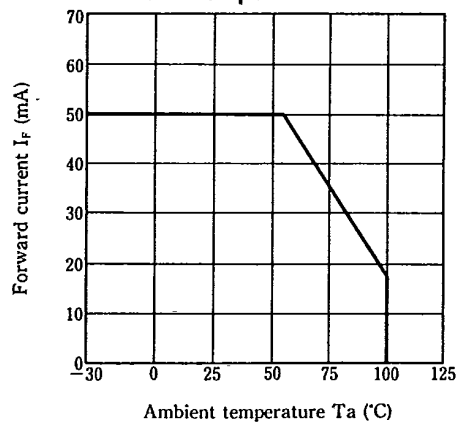


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

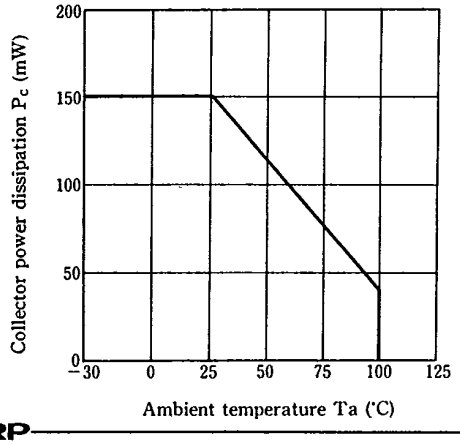


Fig. 3 Peak Forward Current vs. Duty Ratio

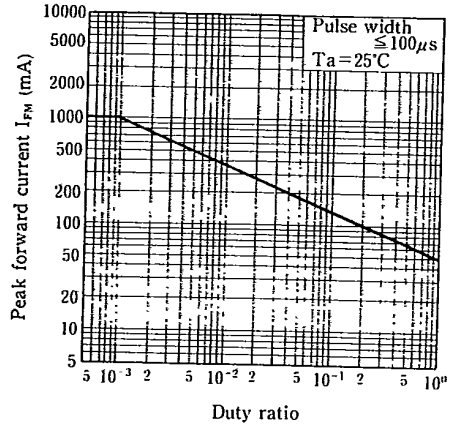


Fig. 4 Forward Current vs. Forward Voltage

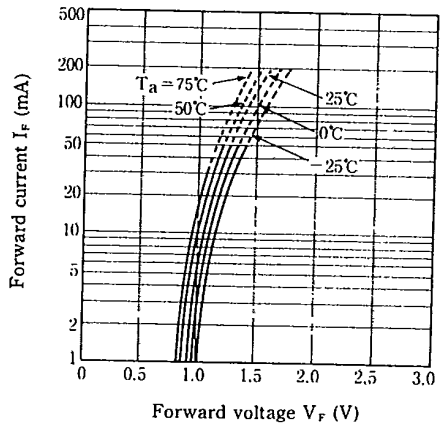


Fig. 5 Current Transfer Ratio vs. Forward Current

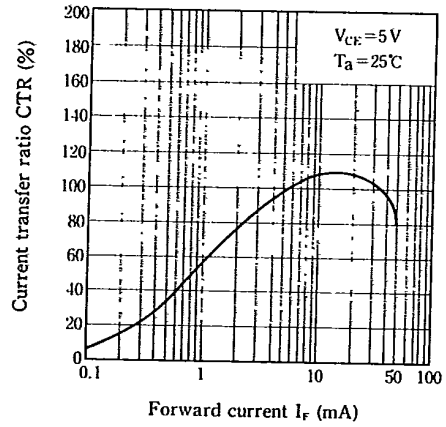


Fig. 6 Collector Current vs. Collector-emitter Voltage

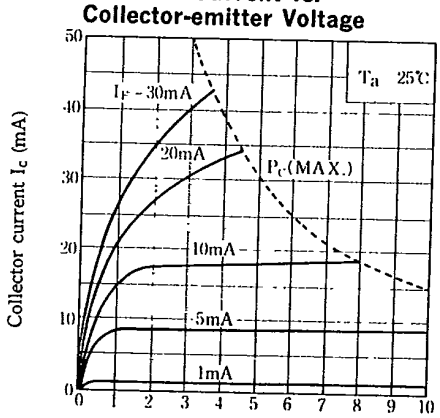


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

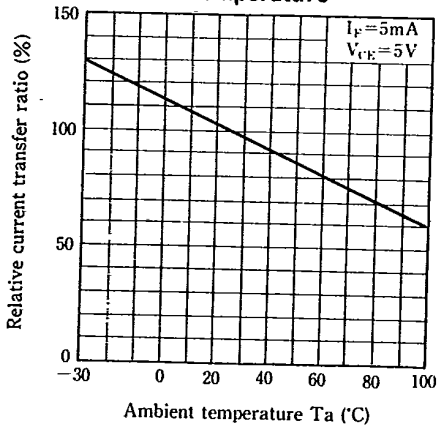


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

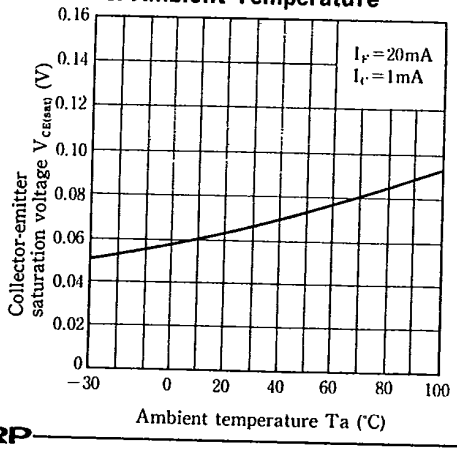


Fig. 9 Collector Dark Current vs. Ambient Temperature

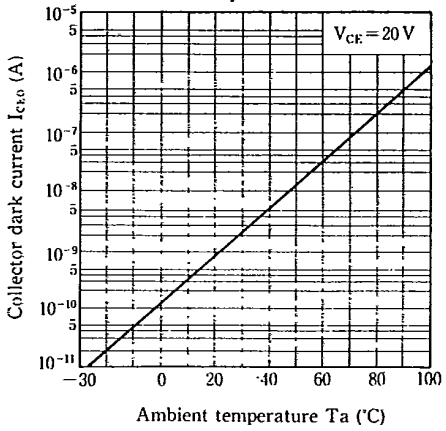
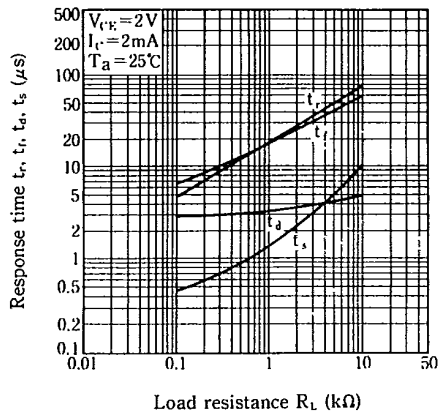


Fig. 10 Response Time vs. Load Resistance



Test Circuit for Response Time

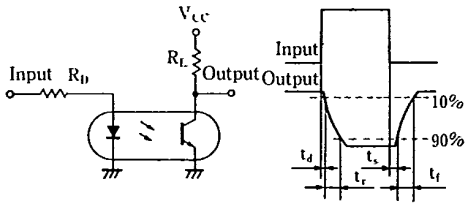
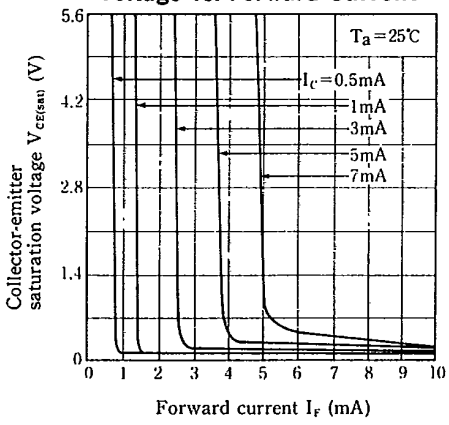


Fig. 11 Collector-emitter Saturation Voltage vs. Forward Current



Package Specification of PC300 Series (1-ch type)

Model No.	Sales Unit	Package Specifications	Diameter of Reel	Tape Width
PC3 * *Z	1 pc.	Sleeve package (Net: 125 pcs.)	—	—
PC3 * *	3,000 pcs.	Taping package (Net: 3,000 pcs.)	φ370mm	12mm
PC3 * *T	750 pcs.	Taping package (Net: 750 pcs.)	φ178mm	12mm

6