

PC316 Series

Opaque*, Mini-Flat Package, High Collector-emitter voltage Type Photocoupler

Features

1. High collector-emitter voltage (V_{CEO} : 120V)
2. Opaque type, mini-flat package
PC316 (1-channel) . PC3D16 (2-channel)
PC3Q16 (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.

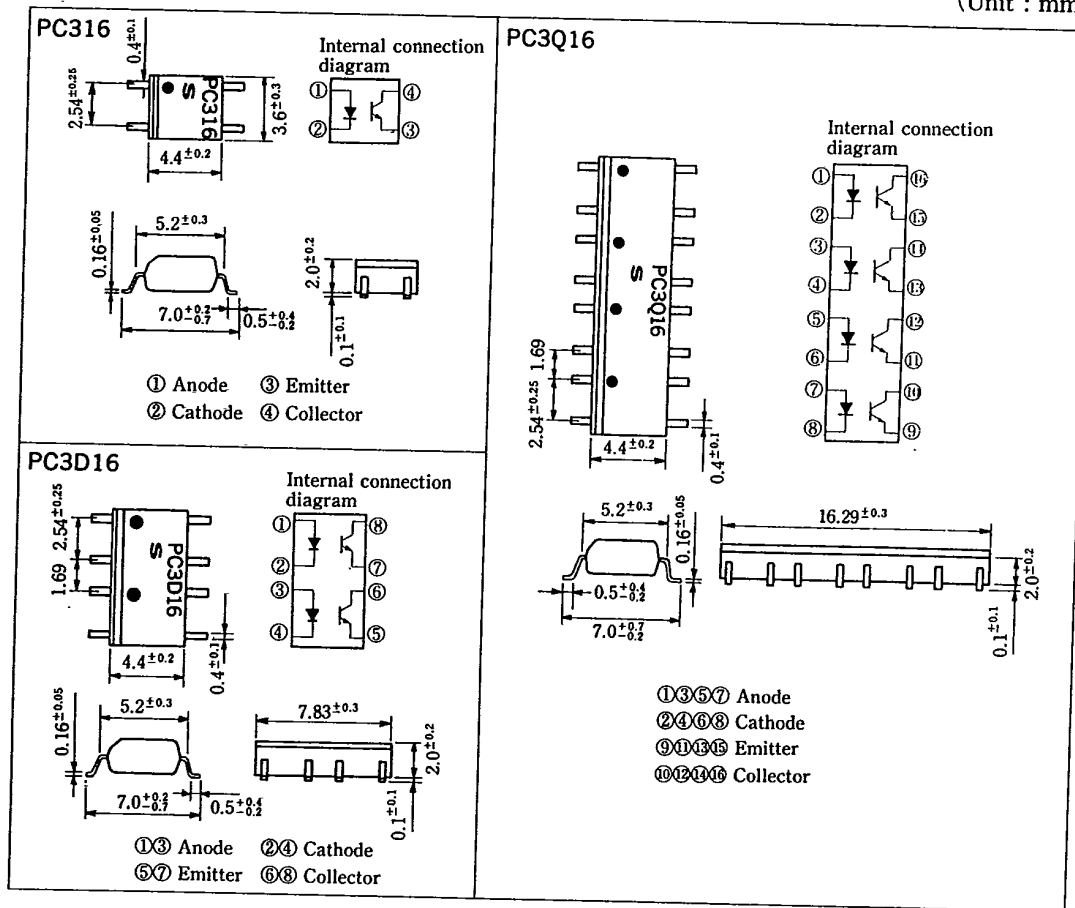
Applications

T-41-83

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

Outline Dimensions

(Unit : mm)



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Input	Forward current	I_F	50 mA
	*1Peak forward current	I_{FM}	1 A
	Reverse voltage	V_R	6 V
	Power dissipation	P	70 mW
Output	Collector-emitter voltage	V_{CE0}	120 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 $\leq 100\mu s$, 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
	Reverse current	I_R $V_R=4V$	—	—	10	μA
	Terminal capacitance	C_t $V=0, f=1kHz$	—	30	250	pF
Output	Collector dark current	I_{CE0} $V_{CE}=20V, I_F=0$	—	—	10^{-7}	A
	Current transfer ratio	CTR $I_F=5mA, V_{CE}=5V$	50	100	600	%
Transfer characteristics	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 $R_L=100\Omega$	—	3	18	μs



Fig. 1 Forward Current vs. Ambient Temperature

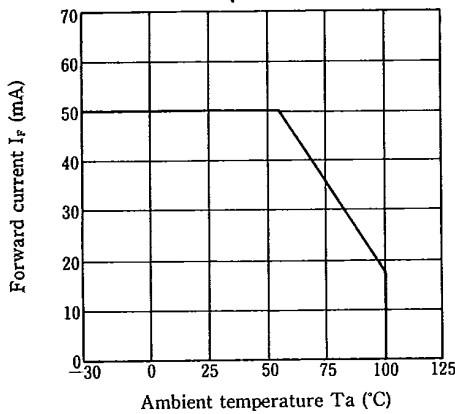


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

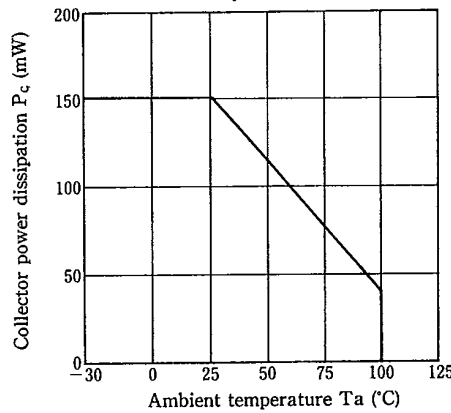


Fig. 3 Peak Forward Current vs. Duty Ratio

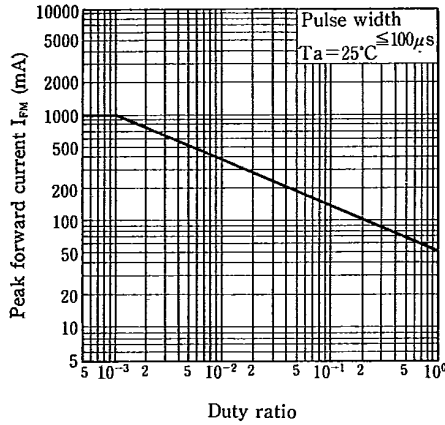


Fig. 4 Forward Current vs. Forward Voltage

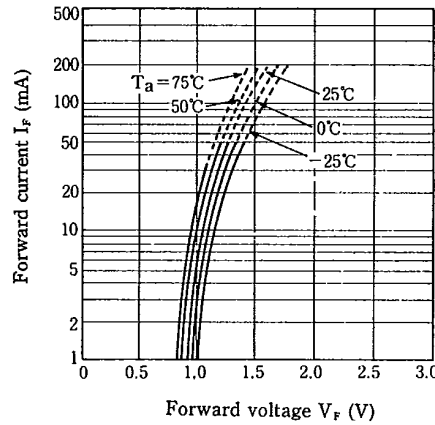


Fig. 5 Current Transfer Ratio vs. Forward Current

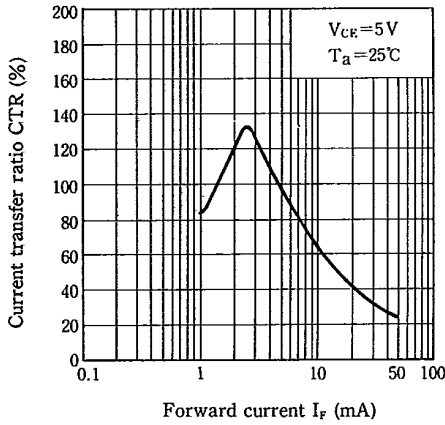


Fig. 6 Collector Current vs. Collector-emitter Voltage

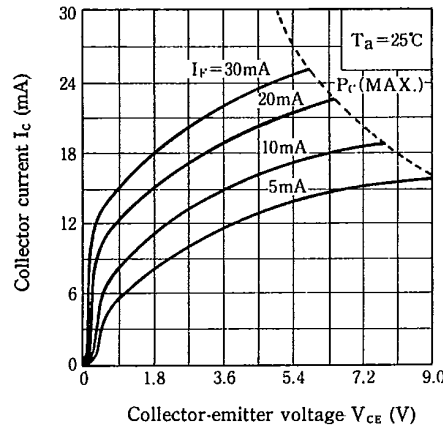


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

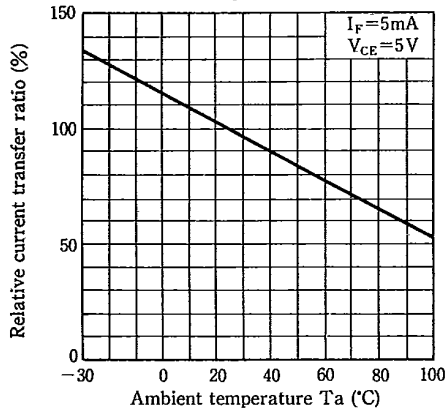


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

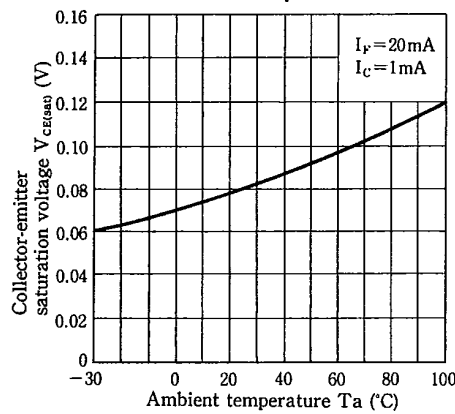


Fig. 9 Collector Dark Current vs. Ambient Temperature

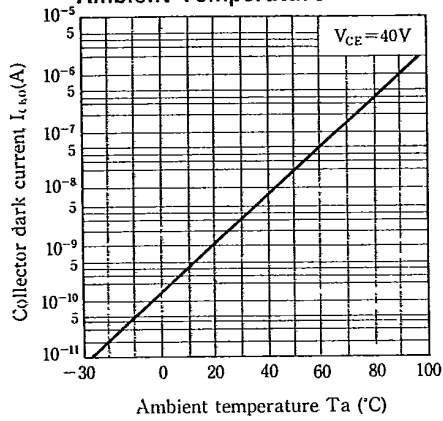
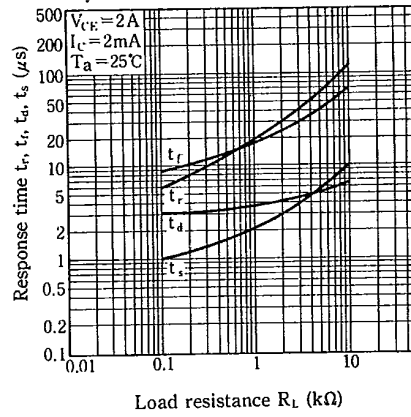


Fig. 10 Response Time vs. Load Resistance



Test Circuit for Response Time

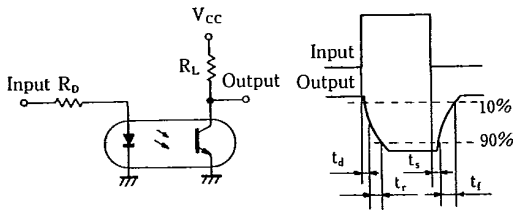
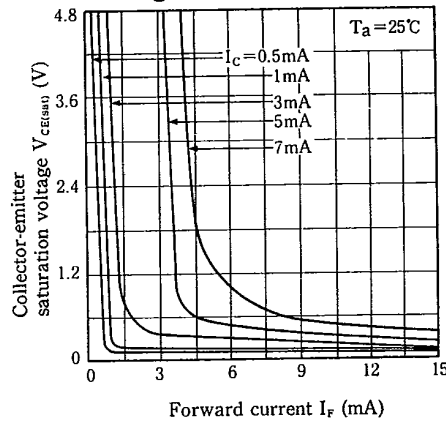


Fig. 11 Collector-emitter Saturation Voltage vs. Forward Current



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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