

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.

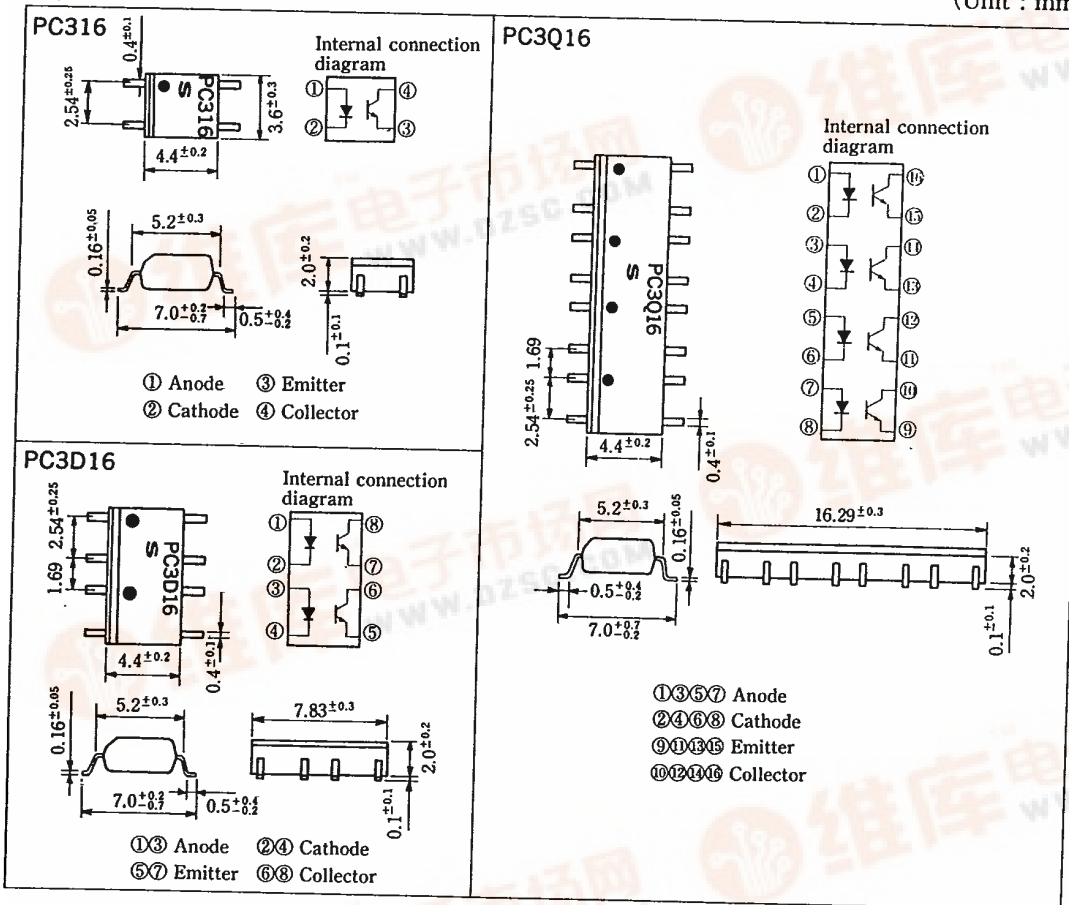
Applications

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_{CEO} | 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_{CEO} | $V_{CE} = 20V, I_F = 0$ | — | — | 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

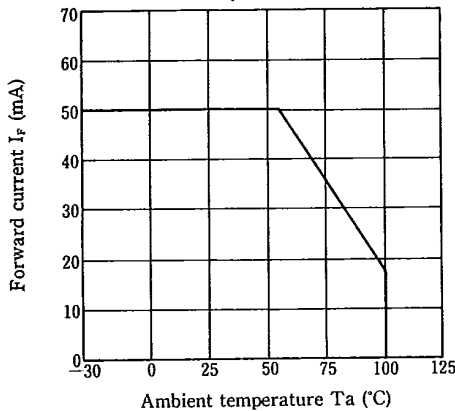


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

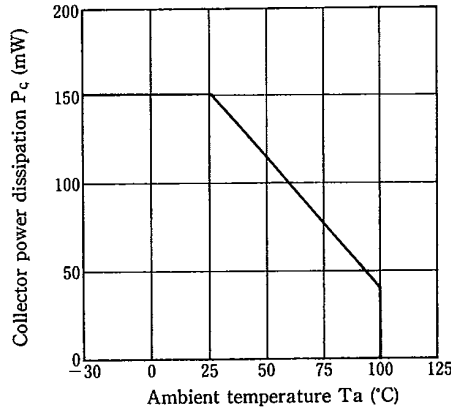


Fig. 3 Peak Forward Current vs. Duty Ratio

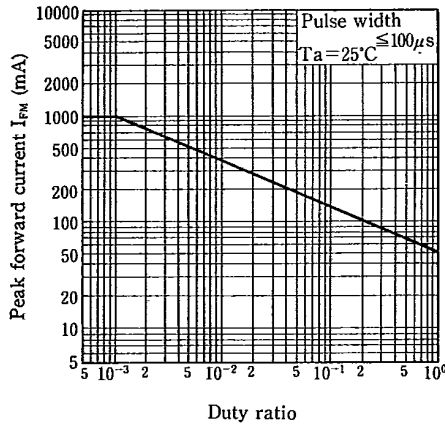


Fig. 4 Forward Current vs. Forward Voltage

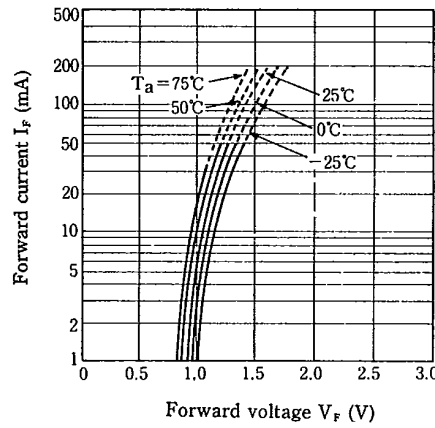


Fig. 5 Current Transfer Ratio vs. Forward Current

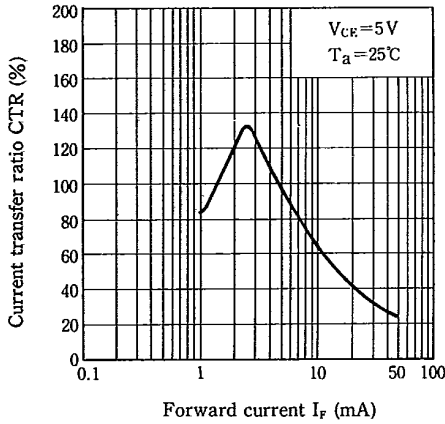


Fig. 6 Collector Current vs. Collector-emitter Voltage

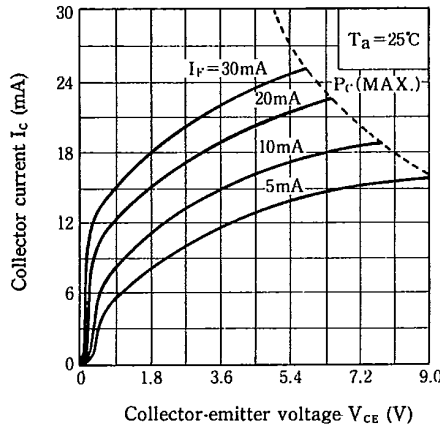


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

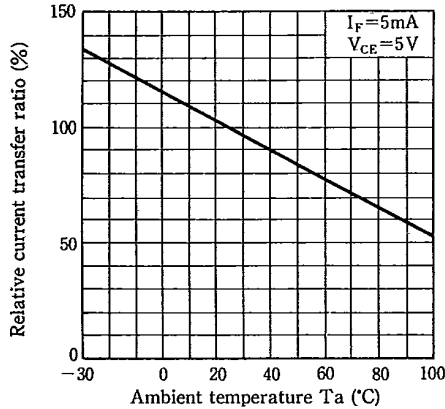


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

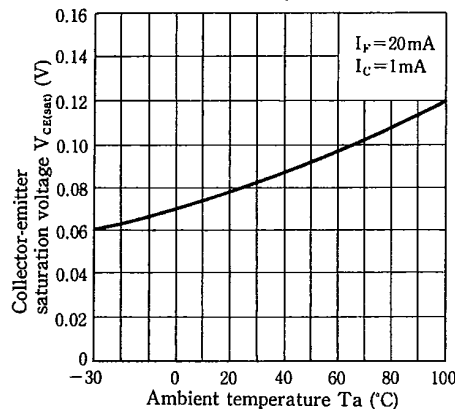


Fig. 9 Collector Dark Current vs. Ambient Temperature

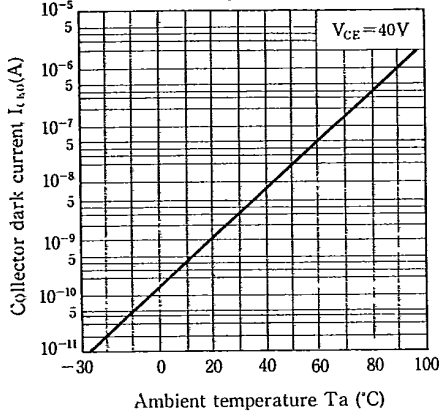
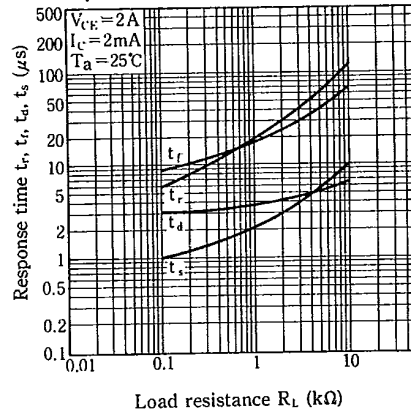


Fig. 10 Response Time vs. Load Resistance



Test Circuit for Response Time

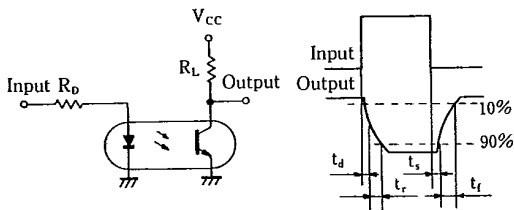
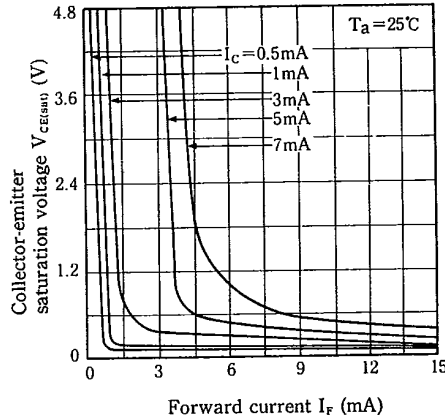


Fig. 11 Collector-emitter Saturation Voltage vs. Forward Current



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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 |