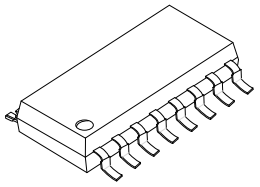
# PHOTOCOUPLER IRED & PHOTO-TRANSISTOR



SSOP-16-4

## ■ DESCRIPTION

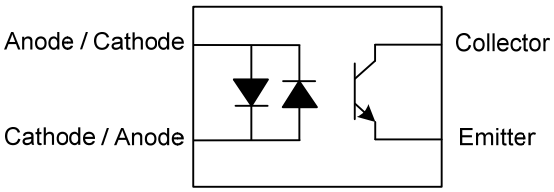
The UTC **UPC290-4** consists of phototransistors optically coupled to an infrared LED.

Since UTC **UPC290-4** is guaranteed over a wide operating temperature range ($T_A$ = -55 to 110°C), it is suitable for high-density surface mount applications such as programmable controllers.

## ■ FEATURES

* Collector-Emitter Voltage : 80 V (min)
* Current Transfer Ratio : 50% (min)
  Rank GB: 100 %(min)
* Isolation Voltage: 2500 Vrms (min)
* Operation temperature range: -55 to 110 ˚C

## ■ SYMBOL



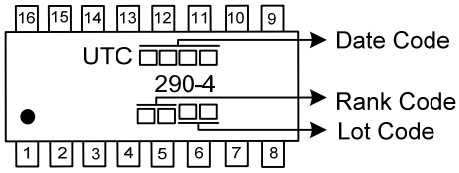

## ■ ORDERING INFORMATION

| Ordering Number | | Package | Packing |
|---|---|---|---|
| Lead Free | Halogen Free | | |
| UPC290-4L-xx-RGN-R | UPC290-4G-xx-RGN-R | SSOP-16-4 | Tape Reel |

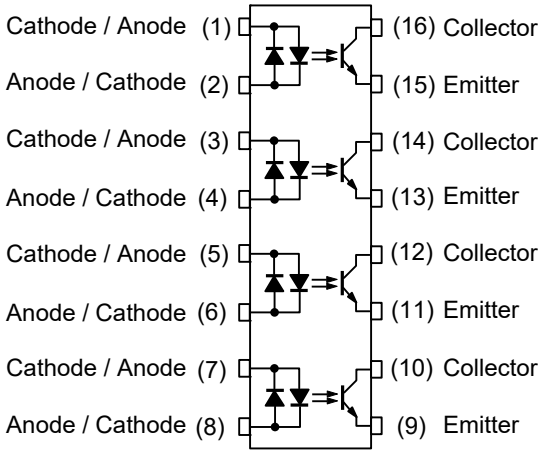
| | |
|---|---|
| UPC290-4G-xx-RGN-R<br>(1)Packing Type<br>(2)Package Type<br>(3)Rank<br>(4)Green Package | (1) R: Tape Reel<br>(2) RGN: SSOP-16-4<br>(3) Refer to TRANSFER CHARACTERISTICS<br>(4) G: Halogen Free and Lead Free, L: Lead Free |


**Copyright © 2026 Unisonic Technologies Co., Ltd**

## ■ MARKING




## ■ PIN CONFIGURATION



## ■ ABSOLUTE MAXIMUM RATING ($T_A$=25°C, unless otherwise specified)

| PARAMETER | | SYMBOL | RATINGS | UNIT |
|---|---|---|---|---|
| Input | Forward Current | $I_F$ | ±60 | mA |
| | Power Dissipation | $P_D$ | 70 | mW |
| Output | Collector-Emitter Voltage | $V_{CEO}$ | 80 | V |
| | Emitter-Collector Voltage | $V_{ECO}$ | 7 | V |
| | Collector Current | $I_C$ | 50 | mA |
| | Collector Power Dissipation | $P_C$ | 100 | mW |
| Total Power Dissipation | | $P_{tot}$ | 170 | mW |
| Isolation Voltage (Note 2) | (AC, 60 s, R.H.≤ 60 %) | $V_{ISO}$ | 2500 | Vrms |
| Operating Temperature | | $T_{OPR}$ | -30 ~ +110 | °C |
| Storage Temperature | | $T_{STG}$ | -55 ~ +125 | °C |

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. AC for 1 minute, R.H.<60%.
   Isolation voltage shall be measured using the following method.
   (1) Short between anode and cathode on the primary side and between collector and emitter on the secondary side.
   (2) The isolation voltage tester with zero-cross circuit shall be used.
   (3) The waveform of applied voltage shall be a sine wave.

## ■ ELECTRICAL CHARACTERISTICS ($T_A$=25°C, nless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| **INPUT(LED)** | | | | | | |
| Input Forward Voltage | $V_F$ | $I_F$=±10mA | 1.0 | | 1.4 | V |
| Input Capacitance | $C_t$ | V=0V, f=1kHz | | 30 | 250 | pF |
| **OUTPUT** | | | | | | |
| Collector-Emitter Breakdown Voltage | $BV_{CEO}$ | $I_C$=0.5mA | 80 | | | V |
| Emitter-Collector Breakdown Voltage | $BV_{ECO}$ | $I_E$=0.1mA | 7 | | | V |
| Collector-Emitter Dark Current | $I_{CEO}$ | $V_{CE}$=48V | | | 0.1 | μA |
| | | $V_{CE}$=48V, $T_A$ = 85°C | | | 50 | μA |

## ■ COUPLED ELECTRICAL CHARACTERISTICS ($T_A$=25°C, unless otherwise specified)

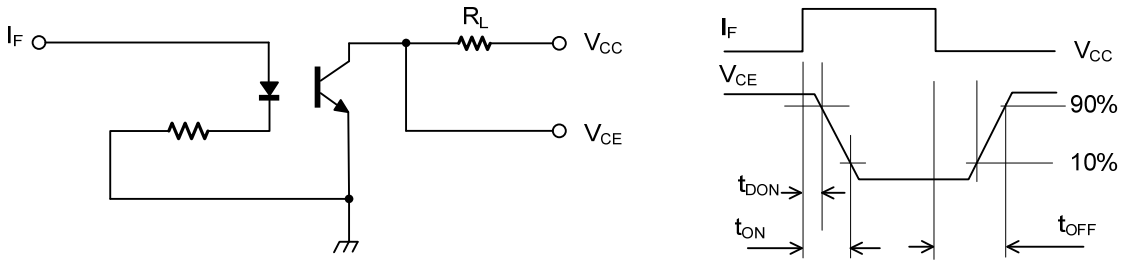
| PARAMETER | SYMBOL | TEST CONDITIONS | | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| Collector Current | $I_C$ | $I_F$=±5mA, $V_{CE}$=5V | | 2.5 | | 20 | mA |
| Current Transfer Ratio | CTR | $I_F$=±5mA, $V_{CE}$=5V | UPC290-4 | 50 | | 400 | % |
| | | | UPC290-4-GB | 100 | | 400 | % |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_F$=±8mA , $I_C$=2.4mA | | | | 0.4 | V |
| | | $I_F$=±1mA , $I_C$=0.2mA | | | 0.2 | | V |
| | | $I_F$=±1mA , $I_C$=0.2mA | UPC290-4-GB | | | 0.4 | V |

Note: This device is considered as a two-terminal device: All pins on the LED side are shorted together, and all pin on the photodetector side are shorted together.

## ■ SWITCHING CHARACTERISTICS ($T_A$=25°C, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Rise Time | $t_r$ | $V_{CE}$=10V, $I_C$=2mA | | 5 | | μs |
| Fall Time | $t_f$ | | | 5 | | μs |
| Turn-On Time | $td_{ON}$ | | | 3 | | μs |
| Turn-Off Time | $t_{OFF}$ | | | 5 | | μs |
| Turn-On Time | $t_{ON}$ | | | 8 | | μs |

## ■ TEST CIRCUITS




**Switchin Time Test Circuit**

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.