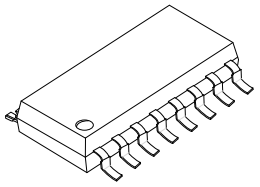
PHOTOCOUPLER IRED & PHOTO-TRANSISTOR



SSOP-16-4

■ DESCRIPTION

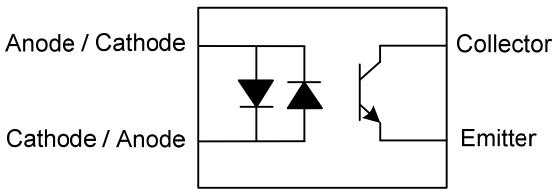
The UTC **UPC292-4** consists of phototransistors optically coupled to two infrared emitting diodes connected inverse parallel, and can operate directly by AC input current.

Since UTC **UPC292-4** is guaranteed wide operating temperature (T_A = -55 to +125°C) and high isolation voltage (3750 Vrms), 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: 3750 Vrms (min)
* Operation temperature range: -55 to 125 ˚C

■ SYMBOL



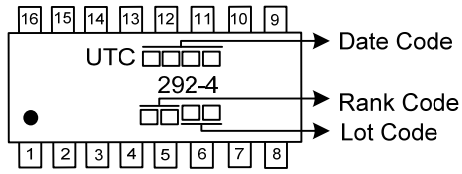
■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
UPC292-4L-xxx-RGN-R	UPC292-4G-xxx-RGN-R	SSOP-16-4	Tape Reel

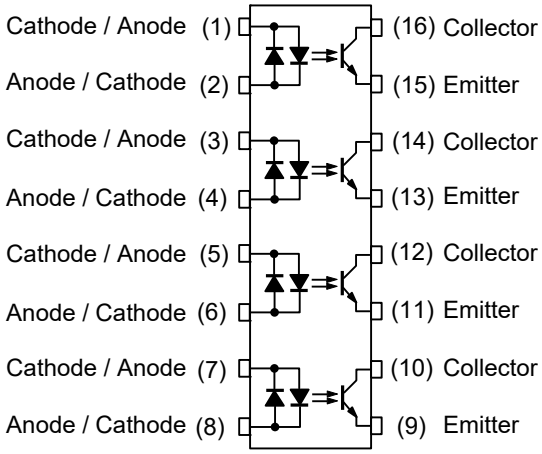
UPC292-4G-xxx-RGN-R (1)Packing Type (2)Package Type (3)Rank (4)Green Package	(1) R: Tape Reel (2) RGN: SSOP-16-4 (3) Refer to TRANSFER CHARACTERISTICS (4) G: Halogen Free and Lead Free, L: Lead Free

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■ 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}	3750	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, unless 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			0.08	μA
		V_{CE}=48V, T_A = 85°C			50	μA

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

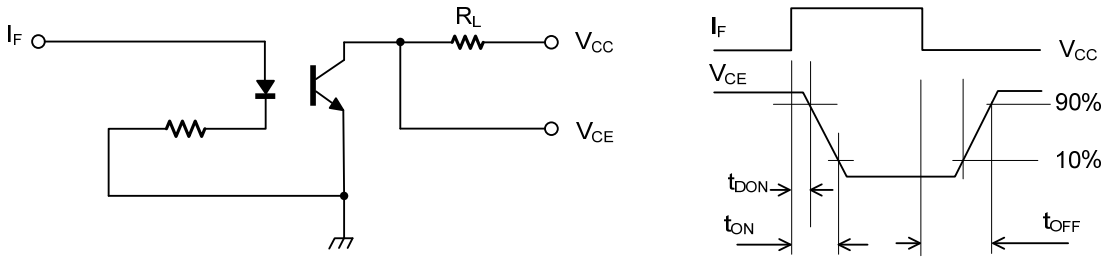
PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Collector Current	I_C	I_F=±1mA, V_{CE}=5V					mA
Current Transfer Ratio (Note 1)	CTR	I_F=±5mA, V_{CE}=5V	UPC292-4	50		600	%
			UPC292-4-GB	100		600	%
		I_F=±0.5mA, V_{CE}=5V	UPC292-4-LA	50		600	%
			UPC292-4-LGB	100		600	%
Saturated Current Transfer Ratio	$I_{C(SAT)}$	I_F=±1mA, V_{CE}=0.4V			60		%
		I_F=±1mA, V_{CE}=0.4V	UPC292-4-GB	30			%
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	I_F=±8mA , I_C=2.4mA				0.3	V
		I_F=±1mA , I_C=0.2mA			0.2		V
		I_F=±1mA , I_C=0.2mA	UPC292-4-GB			0.3	V

Note: The LA and LGB rank are made CTR rank of the low input current condition.

■ 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.