



UPC247

Preliminary

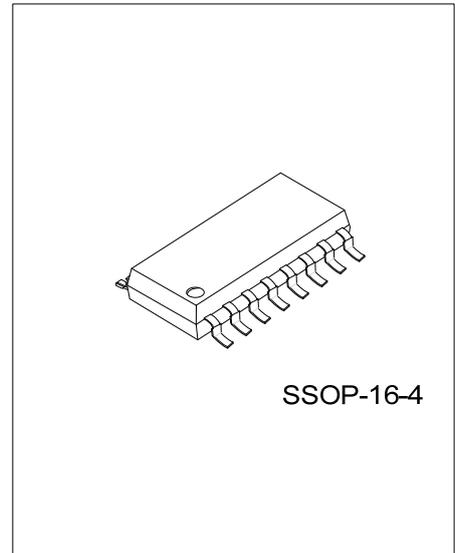
PHOTOCOUPLER

**PHOTOTRANSISTOR
PHOTOCOUPLER**

■ DESCRIPTION

The UTC **UPC247** is a SSOP phototransistor photocoupler, it uses UTC's advanced technology to provide the customers with high isolation voltage between input and output, etc.

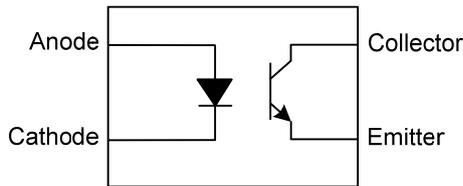
The UTC **UPC247** is suitable for programmable controllers and telecommunication equipments, etc.



■ FEATURES

- * Current transfer ratio (CTR: MIN. 50% at $I_F = \pm 5mA$, $V_{CE} = 5V$)
- * Isolation voltage between input and output ($V_{ISO} = 3,750 V_{rms}$)
- * Employs double transfer mold technology

■ SYMBOL



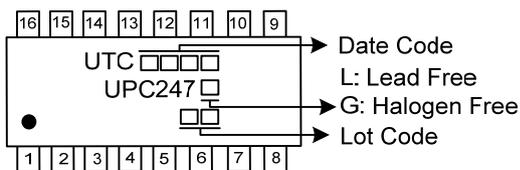
■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
UPC247L-RGN-R	UPC247G-RGN-R	SSOP-16-4	Tape Reel

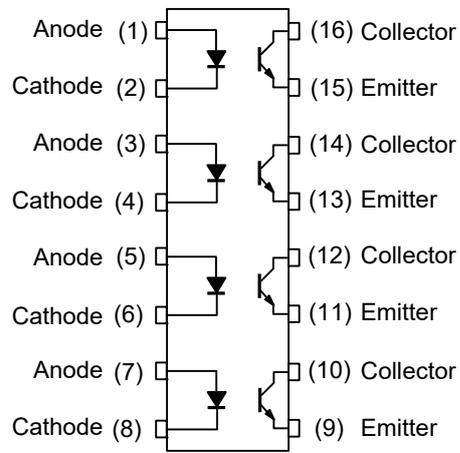
Note: Pin Assignment: A: Anode K: Cathode E: Emitter C: Collector

<p>UPC247G-RGN-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) RGN: SSOP-16-4 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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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	50	mA
	Peak Forward Current (1μs, Pulse)	I _{FP}	1	A
	Reverse Voltage	V _R	6	V
	Power Dissipation	P _D	70	mW
	Derating Factor		1	mW/°C
Output	Power Dissipation	P _C	100	mW
	Derating Factor		1.5	mW/°C
	Collector Current	I _C	50	mA
	Collector-Emitter Voltage	V _{CEO}	80	V
	Emitter-Collector Voltage	V _{ECO}	7	V
Total Power Dissipation		P _{TOT}	170	mW
Isolation Voltage (Note 2)		V _{ISO}	5000	V _{rms}
Operating Temperature		T _{OPR}	-55 ~ +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.= 40~60% R.H. In this test, pins 1, 2 are shorted together, and pins 3, 4 are shorted together.

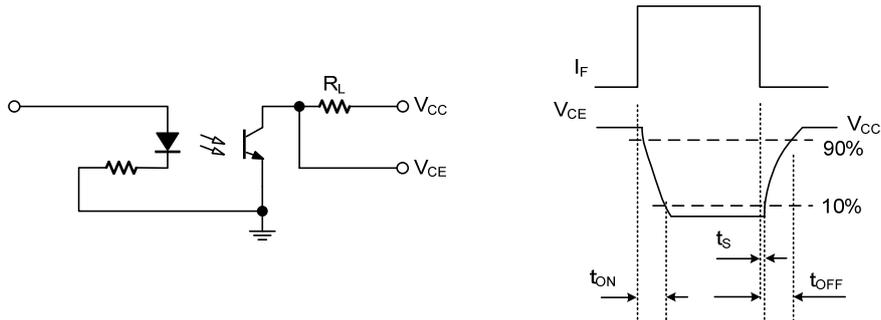
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST 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
Input Capacitance	C _{IN}	V=0, f=1kHz		30	250	pF
OUTPUT						
Collector-Emitter Dark Current	I _{CEO}	V _{CE} =20V, I _F =0mA			100	nA
Collector-Emitter Breakdown Voltage	BV _{CEO}	I _C =0.1mA	80			V
Emitter-Collector Breakdown Voltage	BV _{ECO}	I _E =0.1mA	7			V

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Current Transfer Ratio	CTR	I _F =5mA, V _{CE} =5V	100		600	%
Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _F =8mA, I _C =2.4mA			0.4	V
Isolation Resistance	R _{IO}	V _{IO} =500Vdc, 40~60% R.H.	5×10 ¹⁰	1×10 ¹¹		Ω
Floating Capacitance	C _{IO}	V _{IO} =0, f=1MHz		0.6	1.0	pF
Cut-Off Frequency	f _c	V _{CE} =5V, I _C =2mA, R _L =100Ω, -3dB		80		kHz
Rise Time	t _R	V _{CE} =2V, I _C =2mA, R _L =100Ω		4	18	μs
Fall Time	t _F			3	18	μs

■ SWITCHING TIME TEST CIRCUIT



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