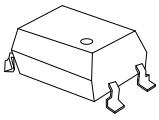
4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER



SMD-4

■ DESCRIPTION

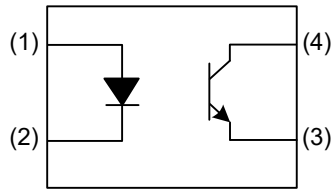
The UTC **UPC357** is a 4 pin DIP phototransistor photocoupler, it uses UTC's advanced technology to provide the customers with high isolation voltage between input and output, etc.

The UTC **UPC357** is suitable for programmable controllers and telecommunication equipments, etc.

■ FEATURES

* Current transfer ratio
* High isolation voltage between input and output

■ SYMBOL



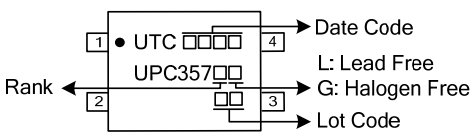
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment				Packing
Lead Free	Halogen Free		1	2	3	4	
UPC357L-C04-R	UPC357G-C04-R	SMD-4	A	K	E	C	Tape Reel
UPC357xL-C04-R	UPC357xG-C04-R	SMD-4	A	K	E	C	Tape Reel

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

UPC357xG-C04-T (1)Packing Type (2)Package Type (3)Green Package (4)Rank	(1) R: Tape Reel (2) C04: SMD-4 (3) G: Halogen Free and Lead Free, L: Lead Free (4) Refer to TRANSFER CHARACTERISTICS

■ MARKING



■ 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 No Derating Required up to T_A=100°C	P_D	70	mW
Output	Power Dissipation	P_C	150	mW
	Collector Current	I_C	50	mA
	Collector-Emitter Voltage	V_{CEO}	80	V
	Emitter-Collector Voltage	V_{ECO}	7	V
Total Power Dissipation		P_D	200	mW
Isolation Voltage (Note 2)		V_{ISO}	3750	Vrms
Operating Temperature		T_{OPR}	-55 ~ +110	°C
Storage Temperature		T_{STG}	-55 ~ +150	°C

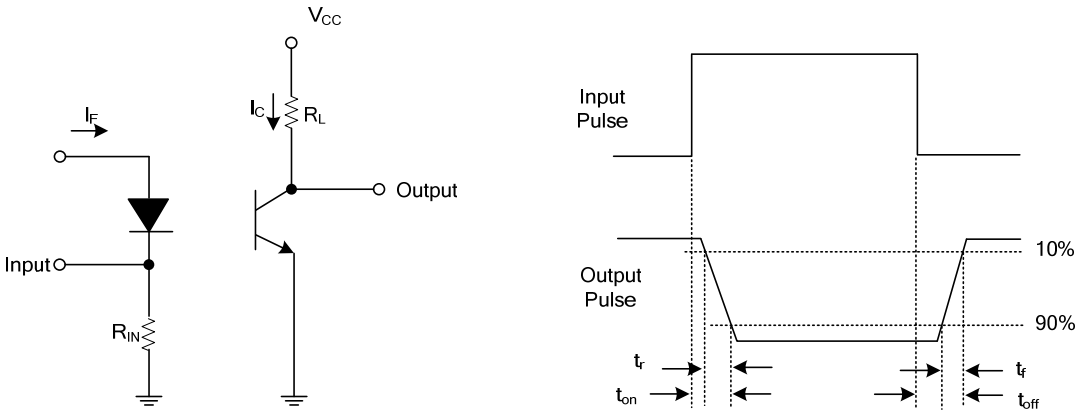
Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

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 specified otherwise)

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				5	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							
Current Transfer Ratio	CTR	I_F=5mA ,V_{CE}=5V	UPC357	50		600	%
			UPC357A	80		160	%
			UPC357B	130		260	%
			UPC357C	200		400	%
			UPC357D	300		600	%
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_F=1mA , I_C=20mA			0.06	0.2	V
Isolation Resistance	R_{ISO}	V_{IO}=500Vdc, 40~60% R.H.		5×10^{8}			Ω
Floating Capacitance	C_{IO}	V_{IO}=0, f=1MHz			0.6	1.0	pF
Rise Time	t_R	V_{CE}=2V, I_C=2mA, R_L=100Ω			6	18	μs
Fall Time	t_F				8	18	μs

■ TEST CIRCUITS AND WAVEFORMS



Switching Time Test Circuit & Waveforms