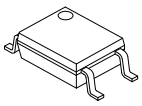
SOP-4 PHOTOTRANSISTOR PHOTOCOUPLER



SOP-4

■ DESCRIPTION

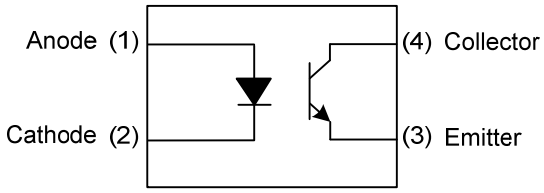
The UTC **UPC2761B** is a phototransistor photocoupler, it uses UTC's advanced technology to provide the customers with high isolation voltage between input and output, etc.

The UTC **UPC2761B** is suitable for programmable controllers and telecommunication equipments, etc.

■ FEATURES

* Current transfer ratio (CTR: MIN. 10% at I_F=1mA, V_{CE}=5V)
* Current transfer ratio (CTR: MIN. 50% at I_F=5mA, V_{CE}=5V)
* Isolation voltage between input and output (V_{ISO}=3750 Vrms)
* High collector-emitter voltage (V_{CEO}=70V)
* Employs double transfer mold technology

■ SYMBOL



■ ORDERING INFORMATION

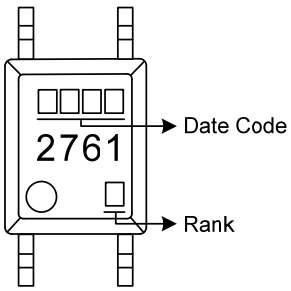
Ordering Number		Package	Pin Assignment				Packing
Lead Free	Halogen Free		1	2	3	4	
UPC2761BL-S04-R	UPC2761BG-S04-R	SOP-4	A	K	E	C	Tape Reel
UPC2761BxL-S04-R	UPC2761BxG-S04-R	SOP-4	A	K	E	C	Tape Reel

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

UPC2761BxG-S04-R
(1)Packing Type
(2)Package Type
(3)Green Package
(4)Rank

(1) R: Tape Reel
(2) S04: SOP-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	I_{FP}	1	A
	Reverse Voltage	V_R	6	V
	Power Dissipation	P_D	80	mW
			0.8	mW/°C
Output	Collector-Emitter Voltage	V_{CEO}	70	V
	Emitter-Collector Voltage	V_{ECO}	5	V
	Collector Current	I_C	50	mA
	Collector Power Dissipation	P_C	150	mW
Isolation Voltage (Note 2)		V_{ISO}	3750	V_{rms}
Operating Temperature		T_{OPR}	-55 ~ +100	°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%.
   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.

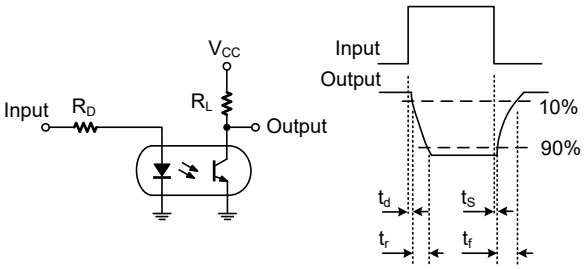
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
INPUT						
Forward Voltage	V_F	I_F=5mA		1.1	1.4	V
Reverse Current	I_R	V_R=5V			5	μA
Terminal Capacitance	C_t	V=0, f=1MHz		15		pF
OUTPUT						
Collector-Emitter Dark Current	I_{CEO}	V_{CE}=24V, I_F=0			100	nA
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=0.1mA, I_F=0	70			V
Emitter-Collector Breakdown Voltage	BV_{ECO}	I_E=10μA, I_F=0	5			V

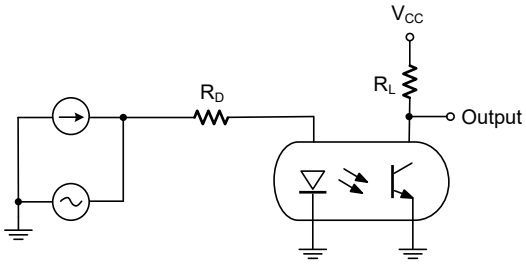
■ TRANSFER CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Current Transfer Ratio	CTR	I_F=5mA, V_{CE}=5V	UPC2761BK	200		400	%
			UPC2761BL	100		300	%
			UPC2761BM	50		150	%
			UPC2761BN	50		400	%
		I_F=1mA, V_{CE}=5V	UPC2761BK	40			%
			UPC2761BL	20			%
			UPC2761BM	10			%
			UPC2761BN	10			%
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	I_F=10mA , I_C=2mA				0.3	V
Isolation Resistance	R_{IO}	V_{IO}=1kVdc		10^{11}			Ω
Floating Capacitance	C_{IO}	V=0, f=1MHz			0.5		pF
Rise Time	t_R	V_{CE}=5V, I_C=2mA, R_L=100Ω			4		μs
Fall Time	t_F				5		μs

■ TEST CIRCUITS AND WAVEFORMS



Test Circuit for Response Time



Test Circuit for Frequency Response