



## UPC2761B

Preliminary

PHOTOCOUPLER

### SOP-4 PHOTOTRANSISTOR PHOTOCOUPLER

#### DESCRIPTION

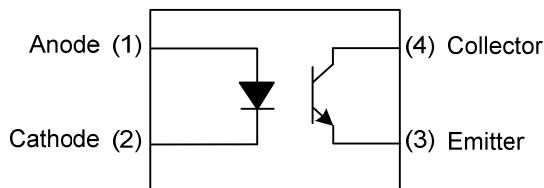
The UTC **UPC2761B** is a phototransistor photocoupler, it uses UTC's advanced technology to provide the customers with high isolation voltage between input and output, etc.

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

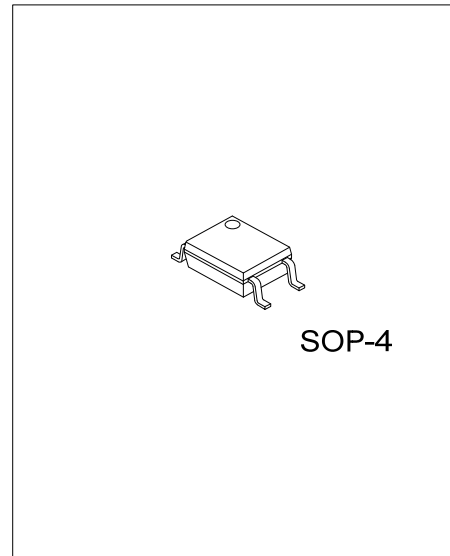


#### ORDERING INFORMATION

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

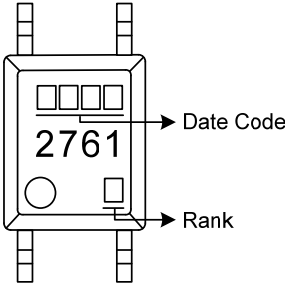
Note: Pin Assignment: A: Anode K: Cathode E: Emitter C: Collector

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
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SOP-4

■ MARKING



■ ABSOLUTE MAXIMUM RATING ( $T_A=25^{\circ}\text{C}$ , 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/ $^{\circ}\text{C}$	
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	$^{\circ}\text{C}$
Storage Temperature		$T_{STG}$	-55 ~ +150	$^{\circ}\text{C}$

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.

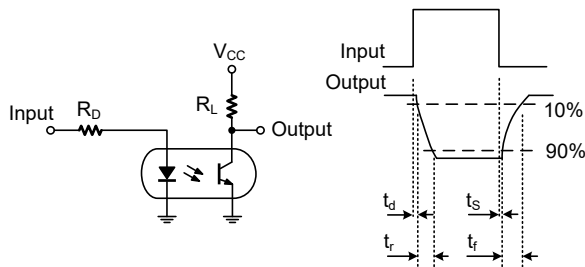
■ ELECTRICAL CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

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

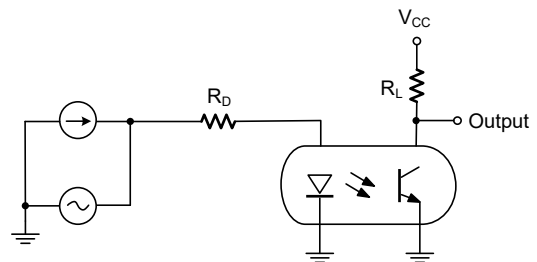
■ TRANSFER CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

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

■ TEST CIRCUITS AND WAVEFORMS



Test Circuit for Response Time



Test Circuit for Frequency Response

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