



UPC217

Preliminary

PHOTOCOUPLER

**4 PIN PHOTOTRANSISTOR
PHOTOCOUPLER**

■ DESCRIPTION

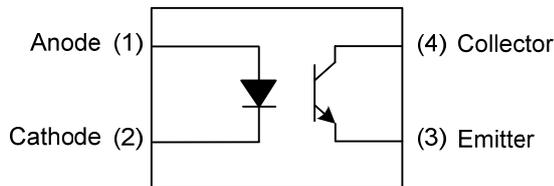
The UTC **UPC217** is a 4 pin SSOP phototransistor photocoupler, it uses UTC's advanced technology to provide the customers with high isolation voltage between input and output, etc.

The UTC **UPC217** 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

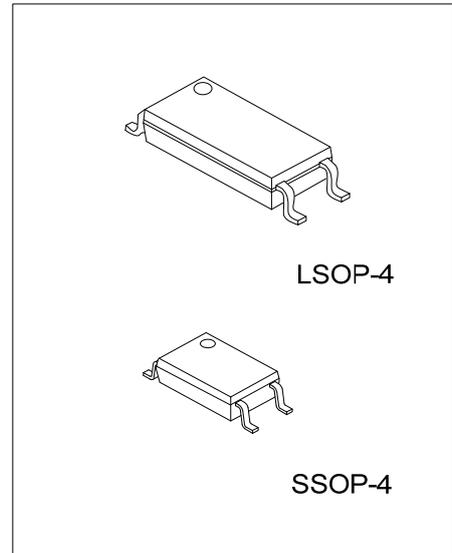


■ ORDERING INFORMATION

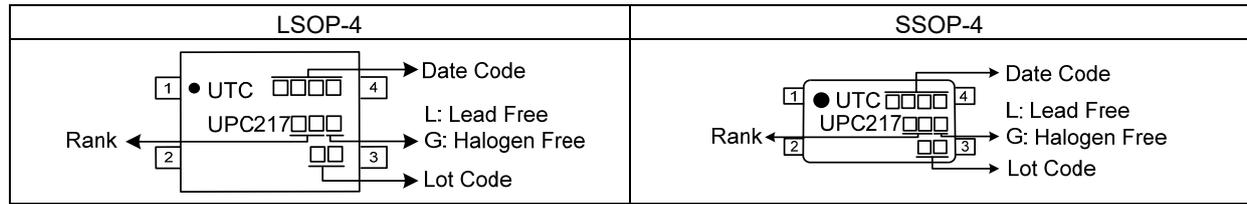
Ordering Number		Package	Pin Assignment				Packing
Lead Free	Halogen Free		1	2	3	4	
UPC217G-LS04-R	UPC217G-LS04-R	LSOP-4	A	K	E	C	Tape Reel
UPC217xxG-LS04-R	UPC217xxG-LS04-R	LSOP-4	A	K	E	C	Tape Reel
UPC217L-R04-R	UPC217G-R04-R	SSOP-4	A	K	E	C	Tape Reel
UPC217xxL-R04-R	UPC217xxG-R04-R	SSOP-4	A	K	E	C	Tape Reel

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

<p>UPC217xxG-LS04-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package (4) Rank 	<ul style="list-style-type: none"> (1) R: Tape Reel (2) LS04: LSOP-4, R04: SSOP-4 (3) G: Halogen Free and Lead Free, L: Lead Free (4) Refer to TRANSFER CHARACTERISTICS
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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 (1 μs , Pulse)	I_{FP}	1	A
	Reverse Voltage	V_R	6	V
	Power Dissipation	P_D	70	mW
	Derating Factor		1	mW/ $^{\circ}\text{C}$
Output	Power Dissipation	P_C	150	mW
	Derating Factor		1.5	mW/ $^{\circ}\text{C}$
	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}	200	mW
Isolation Voltage (Note 2)		V_{ISO}	5000	V _{rms}
Operating Temperature		T_{OPR}	-55 ~ +110	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-55 ~ +125	$^{\circ}\text{C}$

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% R.H. In this test, pins 1, 2 are shorted together, and pins 3, 4 are shorted together.

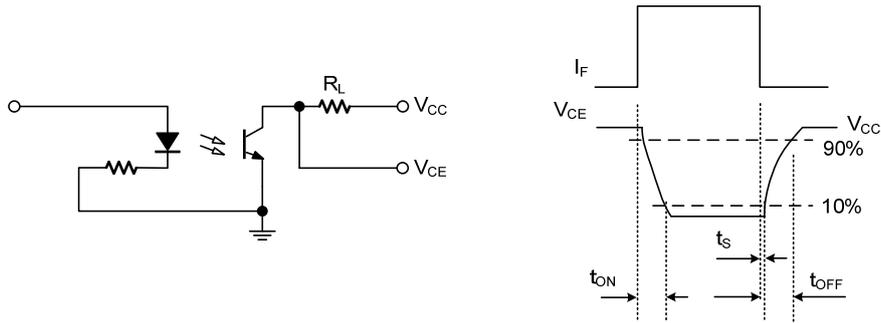
■ ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
INPUT						
Forward Voltage	V_F	$I_F=20\text{mA}$		1.2	1.4	V
Reverse Current	I_R	$V_R=4\text{V}$			10	μA
Input Capacitance	C_{IN}	$V=0, f=1\text{kHz}$		30	250	pF
OUTPUT						
Collector-Emitter Dark Current	I_{CEO}	$V_{CE}=20\text{V}, I_F=0\text{mA}$			100	nA
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C=0.1\text{mA}$	80			V
Emitter-Collector Breakdown Voltage	BV_{ECO}	$I_E=0.1\text{mA}$	7			V

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Current Transfer Ratio	CTR	$I_F=5\text{mA}, V_{CE}=5\text{V}$	UPC217	50		600	%
			UPC217A	80		160	%
			UPC217A1	100		160	%
			UPC217B	130		260	%
			UPC217C	200		400	%
			UPC217D	300		600	%
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_F=8\text{mA}, I_C=2.4\text{mA}$	UPC816X		0.4	V	
Isolation Resistance	R_{IO}	$V_{IO}=500\text{Vdc}, 40\sim 60\% \text{ R.H.}$	UPC816Y	1×10^{11}		Ω	
Floating Capacitance	C_{IO}	$V_{IO}=0, f=1\text{MHz}$		0.6	1.0	pF	
Cut-Off Frequency	f_c	$V_{CE}=5\text{V}, I_C=2\text{mA}, R_L=100\Omega, -3\text{dB}$		80		kHz	
Rise Time	t_R	$V_{CE}=2\text{V}, I_C=2\text{mA}, R_L=100\Omega$		4	18	μs	
Fall Time	t_F			3	18	μs	

■ SWITCHING TIME TEST CIRCUIT



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