

REMOTE CONTROL TRANSMITTER

- ULTRASONIC OR INFRA-RED TRANSMISSION
- DIRECT DRIVE FOR ULTRASONIC TRANSDUCER
- DIRECT DRIVE OF VISIBLE LED WHEN USING INFRA-RED
- VERY LOW POWER REQUIREMENTS
- PULSE POSITION MODULATION GIVES EXCELLENT IMMUNITY FROM NOISE AND MULTIPATH REFLECTIONS
- SINGLE POLE KEY MATRIX
- SWITCH RESISTANCE UP TO 1k Ω TOLERATED
- FEW EXTERNAL COMPONENTS
- ANTI-BOUNCE CIRCUITRY ON CHIP

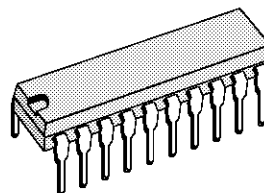
- DATA RATE : SELECTABLE 1 BIT/SEC TO 10 K BIT/SEC
- CARRIER FREQUENCY : SELECTABLE 0Hz (no carrier) TO 200kHz

DESCRIPTION

The UAA4000 is an easily expandable, 32 command, pulse position modulation transmitter drawing zero standby current.

QUICK REFERENCE DATA

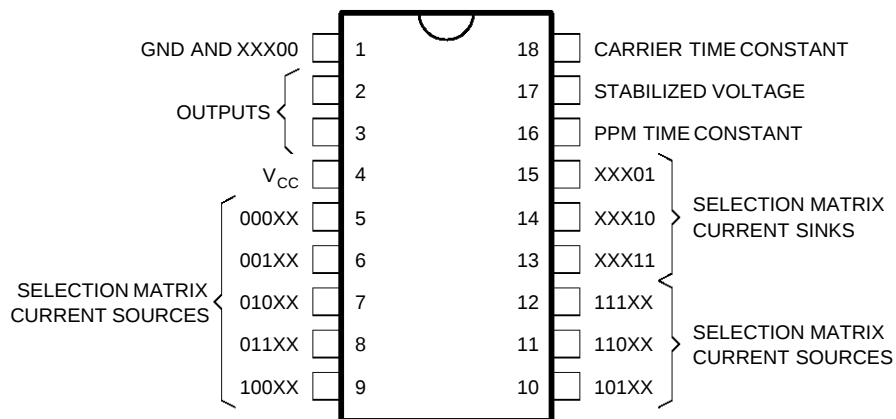
- POWER SUPPLY : 9 V, STANDBY 6 μ A, OPERATING 8 mA
- MODULATION : PULSE POSITION WITH OR WITHOUT CARRIER
- CODING : 5 BITS WORD GIVING A PRIMARY COMMAND SET OF 32 COMMANDS
- KEY ENTRY : 8 x 4 SINGLE POLE KEY MATRIX



DIP18
(Plastic Package)

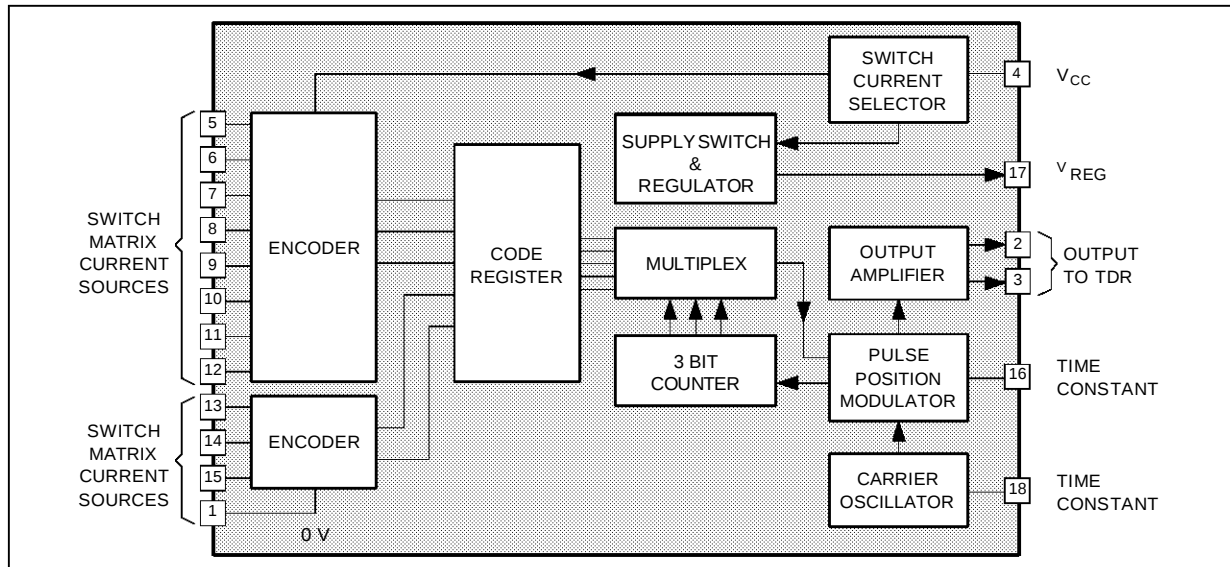
ORDER CODE : UAA4000

PIN CONNECTIONS



4000-01 EPS

BLOCK DIAGRAM



4000-02.EPS

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage (Pin 4)	11	V
P_{tot}	Maximum Power Dissipation	600	mW
I_C	Maximum Output Current (Pin 3)	5	mA
T_{oper}	Operating Temperature Range	- 10, + 65	°C
T_{stg}	Storage Temperature Range	- 55, + 125	°C

4000-01.TBL

THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction-ambient Thermal Resistance	70	°C/W

4000-02.TBL

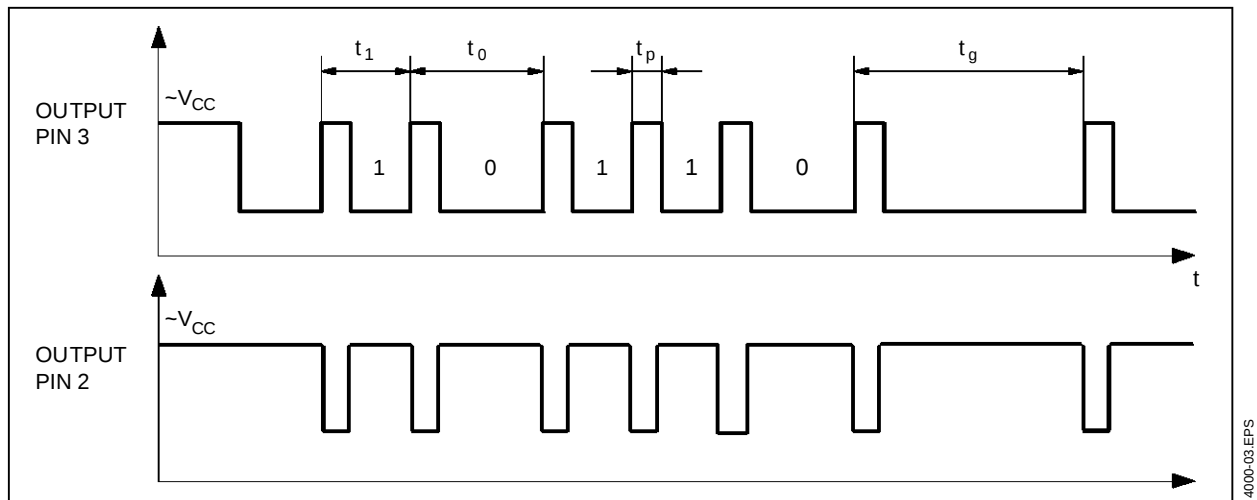
ELECTRICAL CHARACTERISTICS $T_{amb} = 25^{\circ}\text{C}$, $V_{CC} = 9\text{V}$, $f_0 = 40\text{kHz}$, $t_1 = 18\text{ms}$

4.7 μF Capacitor on Pin 17 (unless otherwise specified) (see test circuit next page)

Symbol	Parameter	Pins	Min.	Typ.	Max.	Unit
V_{CC}	Operating Supply Voltage	4	7	9	11	V
	Operating Supply Current	4		8	16	mA
	Standby Supply Current	4			30	μA
	Stabilized Voltage	17	3.9	4.2	4.5	V
	Output Current Available	17			1	mA
	Output Voltage Swing (unloaded)	2, 3		8	V_{CC}	V
	Output Current (peak value)	2,3			5	mA
	External Switch Resistance				1	k Ω
	External Switch Closing Time		6			ms
	External Carrier Oscillator (R2 required, $C_2 = 680\text{pF}$)	18	20	40	80	k Ω
	External PPM Resistor (R1 required, $C_1 = 0.68\mu\text{F}$)	16	15	30	60	k Ω
	Ratio t_0/t_1	2, 3	1.4	1.5	1.6	
t_p	Pulse Width	2, 3	2	3	4	ms
t_g	Inter-word Gap	2, 3	50	54	58	ms

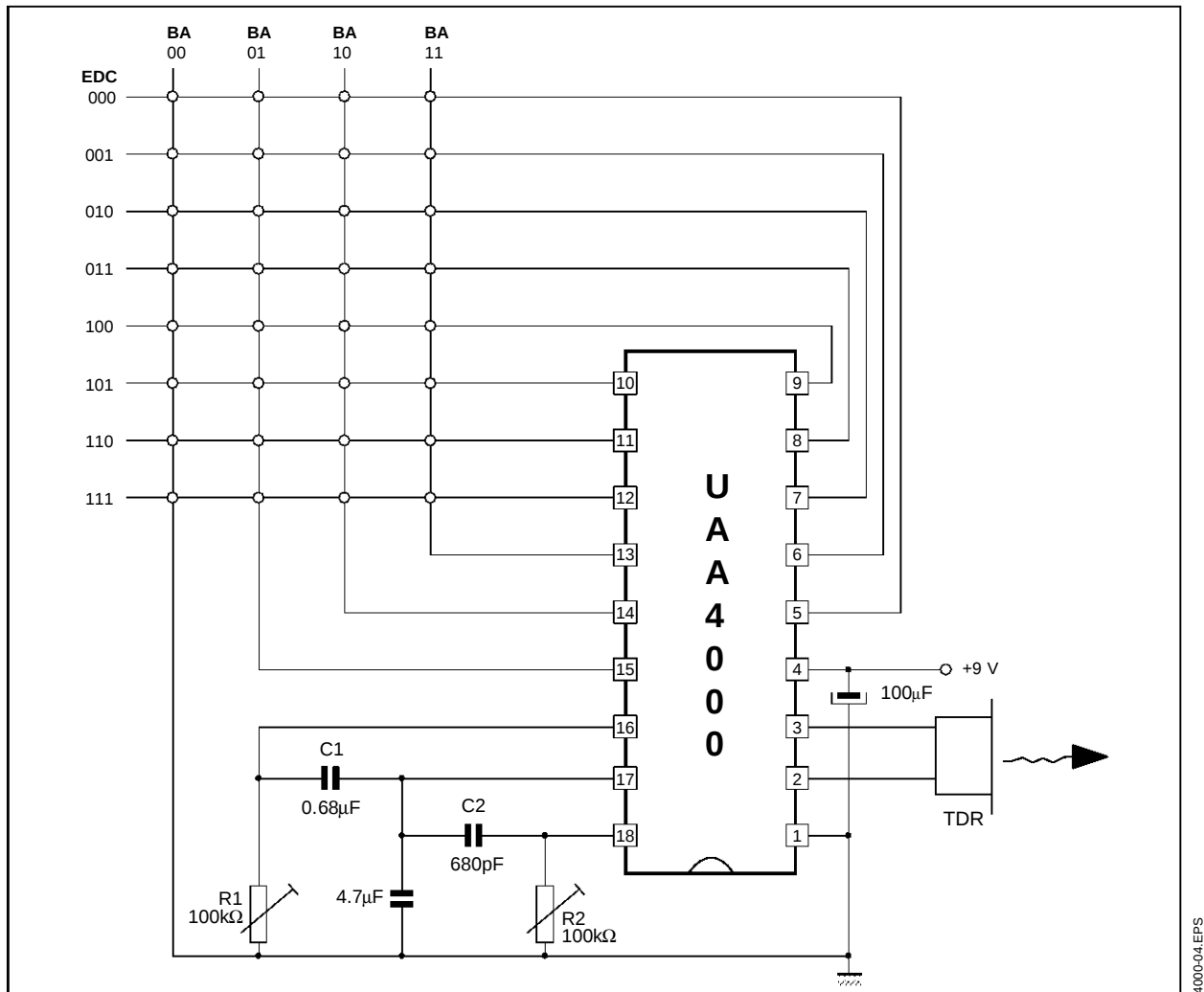
4000-03.TBL

OUTPUT WAVEFORMS (PPM word notation)

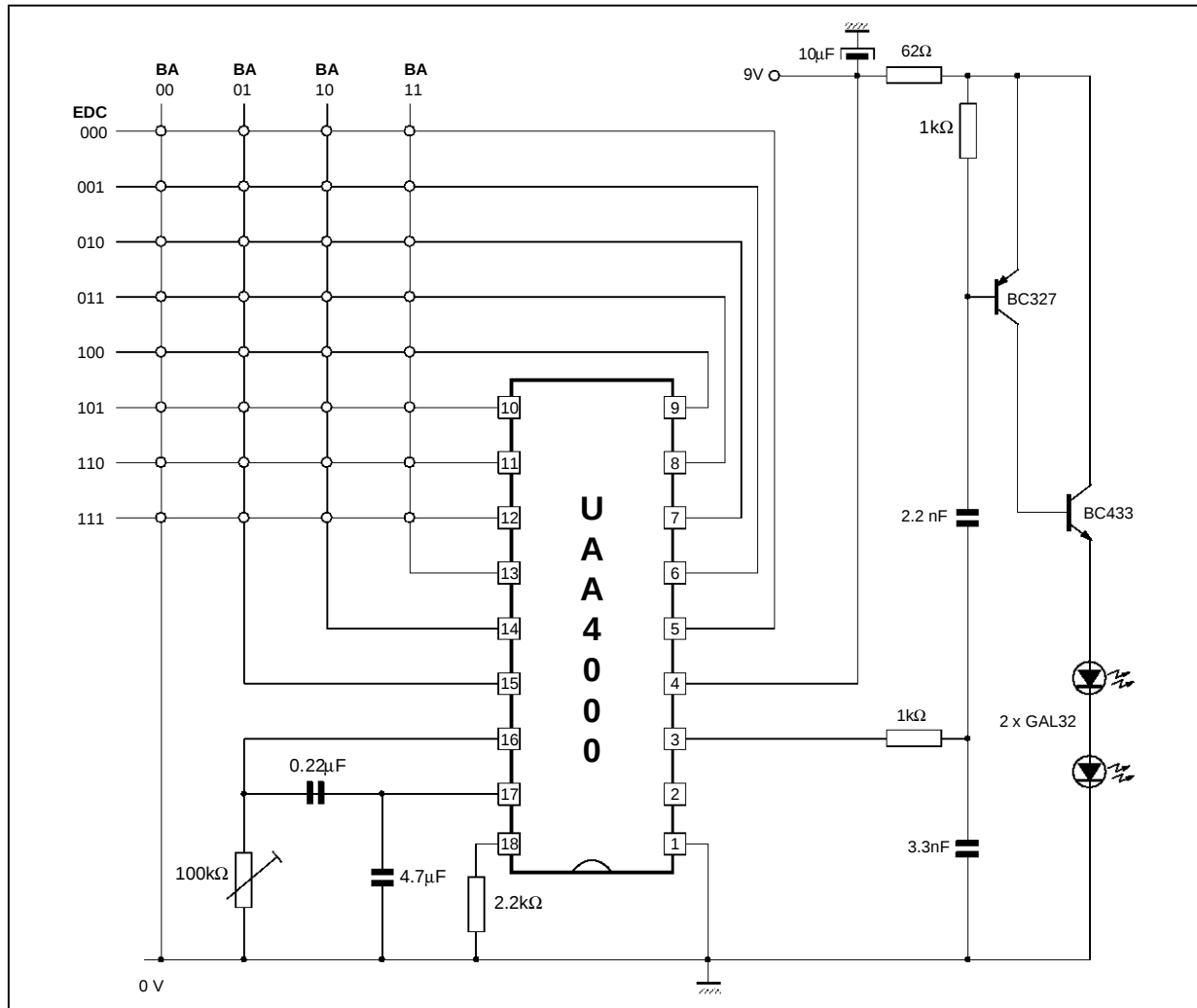


APPLICATION CIRCUITS

TEST AND ULTRASONIC APPLICATION CIRCUIT



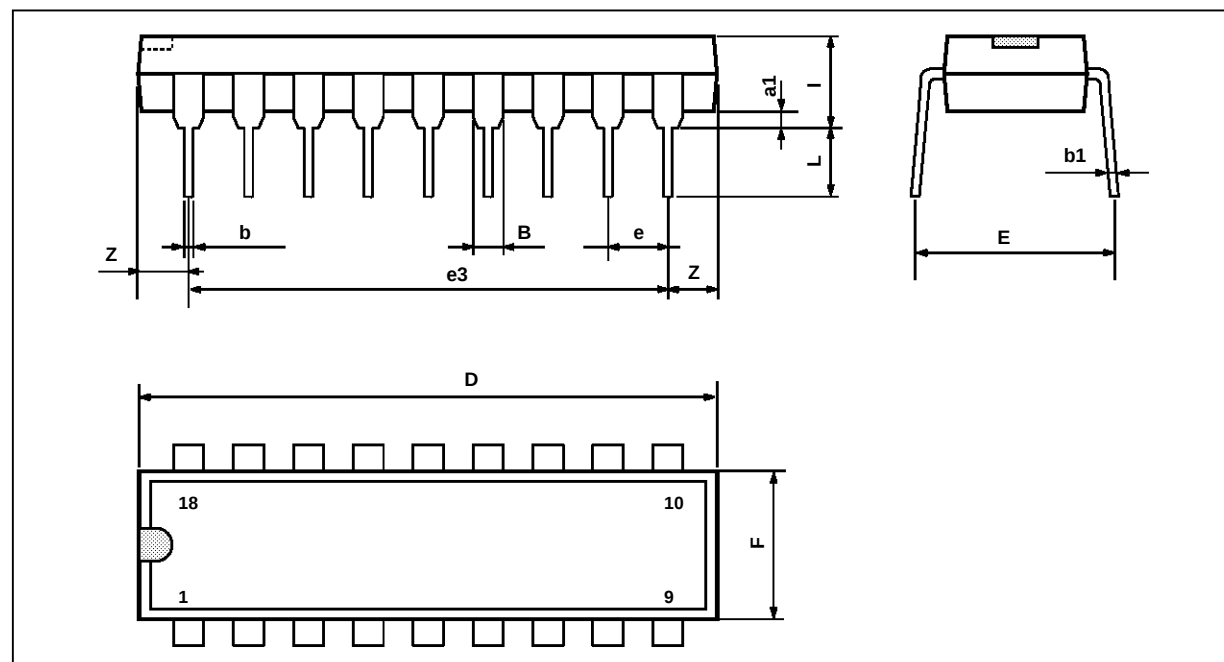
APPLICATION CIRCUITS (continued) INFRARED APPLICATION CIRCUIT



4000-05 EPS

PACKAGE MECHANICAL DATA

18 PINS - PLASTIC DIP



PM-DIP18.EPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
a1	0.254			0.010		
B	1.39		1.65	0.055		0.064
b		0.46			0.018	
b1		0.25			0.010	
D			23.24			0.914
E		8.5			0.335	
e		2.54			0.100	
e3		20.32			0.800	
F			7.1			0.280
i			3.93			0.155
L		3.3			0.130	
Z		1.27	1.59		0.050	0.062

DIP18.TBL

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No licence is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1994 SGS-THOMSON Microelectronics - All Rights Reserved

Purchase of I²C Components of SGS-THOMSON Microelectronics, conveys a license under the Philips I²C Patent. Rights to use these components in a I²C system, is granted provided that the system conforms to the I²C Standard Specifications as defined by Philips.

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - China - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco
The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.