SGS-THOMSON MICROELECTRONICS

UAA4000

REMOTE CONTROL TRANSMITTER

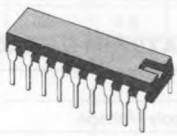
- ULTRASONIC OR INFRA-RED TRANSMISSION
- DIRECT DRIVE FOR ULTRASONIC TRANSDUCER
- DIRECT DRIVE OF VISIBLE LED WHEN USING INFRA-RED
- VERY LOW POWER REQUIREMENTS
- PULSE POSITION MODULATION GIVES EXCELLENT IMMUNITY FROM NOISE AND MULTIPATH REFLECTIONS
- SINGLE POLE KEY MATRIX
- SWITCH RESISTANCE UP TO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

QUICK REFERENCE DATA

- POWER SUPPLY : 9 V, STANDBY 6 µA, 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
- DATE RATE : SELECTABLE 1 BIT/SEC TO 10 K BIT/SEC
- CARRIER FREQUENCY : SELECTABLE 0 HZ (no carrier) TO 200 KHz

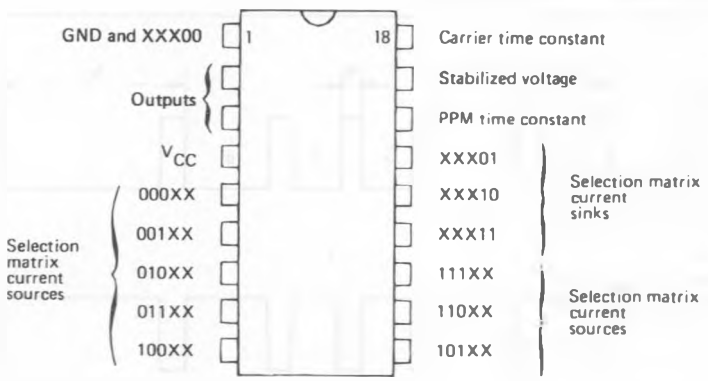
DESCRIPTION

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

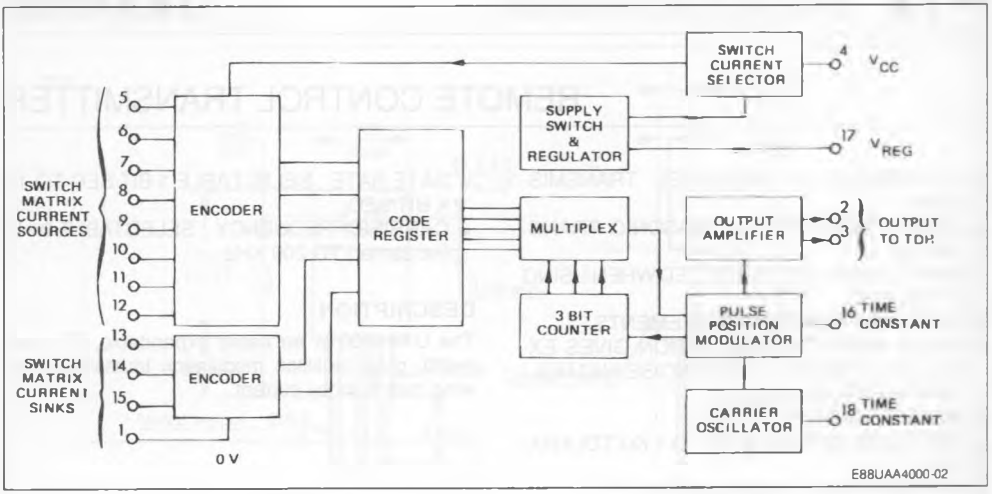


UAA4000
DIP18
(Plastic Package)

PIN CONNECTIONS



BLOCK DIAGRAM



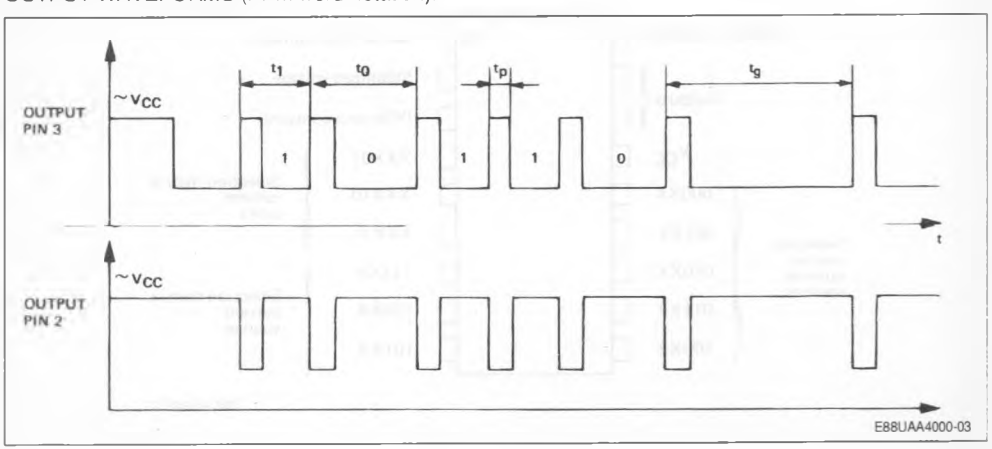
ABSOLUTE MAXIMUM RATINGS

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 to 65	°C
T_{stg}	Storage Temperature Range		– 55 to 125	°C

THERMAL DATA

$R_{th}(j-a)$	Junction–ambient Thermal Resistance	70	°C/W

OUTPUT WAVEFORMS (PPM word notation).

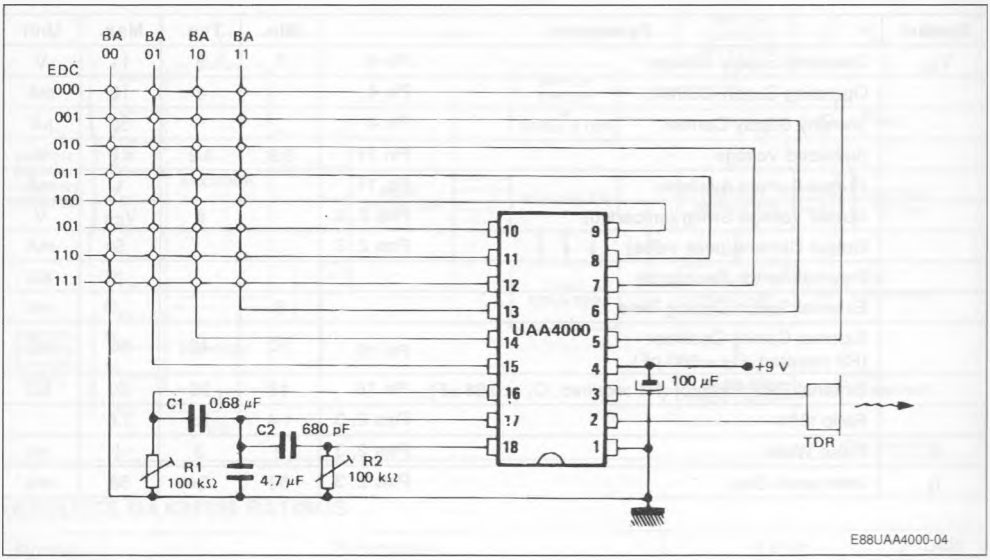


ELECTRICAL CHARACTERISTICS (see test circuit next page)
T_{amb} = 25 °C, V_{CC} = 9 V, f_o = 40 kHz, t_1 = 18 ms
4.7 µF Capacitor on Pin 17 (unless otherwise specified)

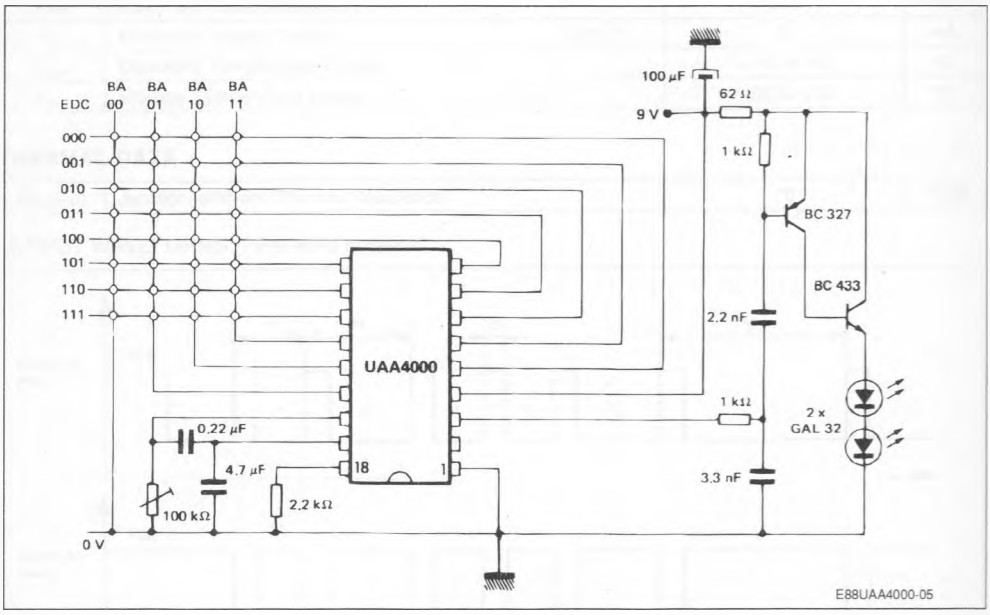
Symbol	Parameter		Min.	Typ.	Max.	Unit
V_{CC}	Operating Supply Voltage	Pin 4	7	9	11	V
	Operating Supply Current	Pin 4		8	16	mA
	Standby Supply Current	Pin 4			30	µA
	Stabilized Voltage	Pin 17	3.9	4.2	4.5	V
	Output Current Available	Pin 17			1	mA
	Output Voltage Swing (unloaded)	Pins 2, 3		8	V_{CC}	V
	Output Current (peak value)	Pins 2, 3			5	mA
	External Switch Resistance				1	kΩ
	External Switch Closing Time		6			ms
	External Carrier Oscillator (R2 required, C_2 = 680 pF)	Pin 18	20	40	80	kΩ
	External PPM Resistor (R1 required, C_1 = 0.68 µF)	Pin 16	15	30	60	kΩ
	Ratio t0/t1	Pins 2, 3	1.4	1.5	1.6	
t_p	Pulse Width	Pins 2, 3	2	3	4	ms
t_g	Inter–word Gap	Pins 2, 3	50	54	58	ms

APPLICATION CIRCUITS

TEST AND ULTRASONIC APPLICATION CIRCUIT



INFRA-RED APPLICATION CIRCUIT



PACKAGE MECHANICAL DATA

18 PINS – PLASTIC DIP