Infra-Red CAR-KEY Rolling Code Transmitter

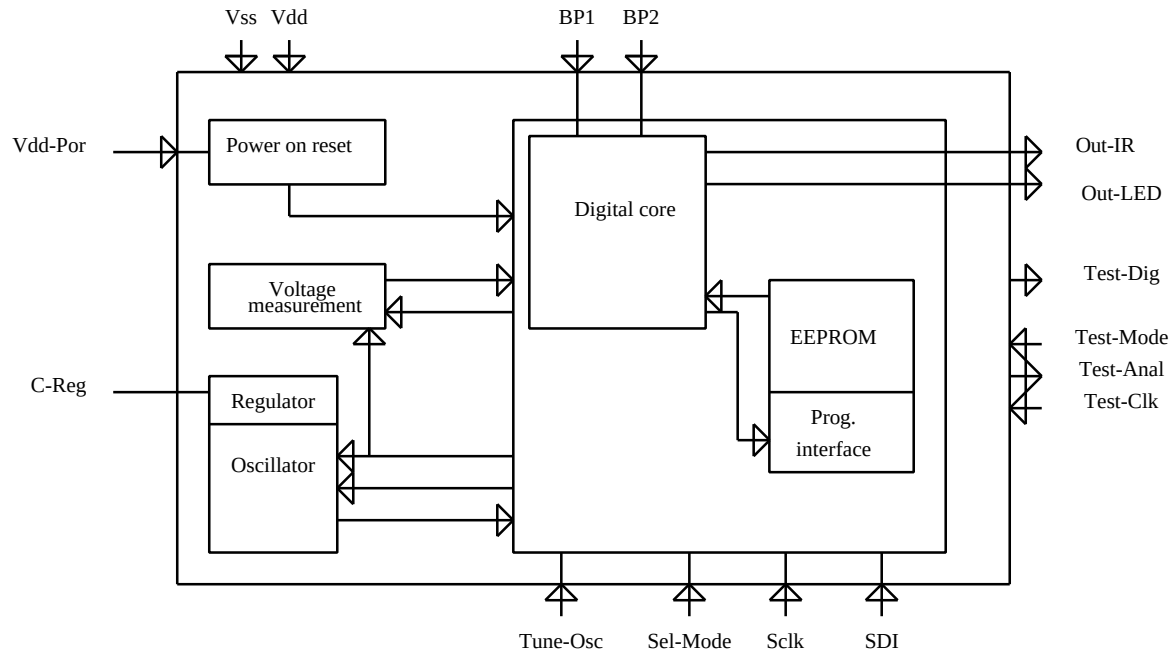
OM4048 in case SO-16L

1. DESCRIPTION AND APPLICATION

This device is intended to be used in an infra-red remote-control car-key to transmit, when a button is pushzed, an individual code to a receiver in the car to alternately open and lock the doors. An initial code is stored in a EEPROM which is programmed by the transmitter manufacturer. The actual codes transmitted are calculated each time the button is pressed, no two such codes are identical. The last code transmitted is to be stored in the EEPROM. An interrupt-free power supply and consequently a low quiescent current is nevertheless required.

This device is identical to an OM4048.

FIGURE 1 : "Block Diagramm"



2. ELECTRICAL REQUIREMENTS

2.1 MAXIMUM RATINGS

TABLE 1 : "Maximum ratings"

PARAMETERS	SYMBOL	VALUE	UNIT
DC Supply Voltage	V_{DD}	-0.3 to 7	V
Voltage range on any input	V_I	-0.8 to V_{DD} +0.8	V
Power dissipation	Ptot	500 max	mW
Storage temperature (unprogrammed)	T_{stgu}	-50 to +150	°C
Storage temperature range (programmed)	T_{stgp}	-50 to +85	°C
Operating ambient temperature range	T_{amb}	-40 to +85	°C

2.2 ELECTRICAL CHARACTERISTICS

TABLE 2 : "Electrical Parameters"

T_A = -40°C to +85°C, and V_{DD} = 2.5V to 6.0V unless otherwise noted

CHARACTERISTIC	Conditions	SYMBOL	MIN	TYP	MAX	Units
SUPPLY VOLTAGE (pins 1,3)	Note 1	V_{DD}	2.5		6.6	V
EEPROM reading	Note 2		2.5		6.0	V
EEPROM programming			2.5		6.0	V
QUIESCENT CURRENT	Tamb=25°C	IDD0		0.2	1.0	µA
	Tamb=55°C	IDD1		0.3	4.0	µA
	Tamb=55°C (note3)	IDD2		0.5	30	µA
INPUT VOLTAGE		V_{IH} V_{IL}	0.8		 0.2	V V
OUT-IR sink current	Vdd=3V,Vol=2V	IIR	50	80		mA
OUT -LED sink current	Vdd=3V,Vol=0.4 V	ILED	8			mA
TEST-DIG sink current	Vdd=5V,Vol=0,4 V	ITDL	1			mA
TEST-DIG source current	VDD=5V,VOH= 4.6V	ITDH			-1	mA

CHARACTERISTIC	Conditions	SYMBOL	MIN	TYP	MAX	Units
Power-on reset level		V-POR		0.8	1.7	V
IR transmission enable	Tamb=-20..55°C	V-TX	4.1	4.3	4.5	V
Oscillator frequency	Tamb=-20 ..55°C after iterative tuning	f	80	100	120	KHz
Oscillator stability	Note 4	DELTA F / F			1	%
Oscillator start-up time		T-START			2	ms
Regulator external capacitor		C-REG	80	100	120	nF
Input capacitance		Cin		5		pF
Pull down resistor	all inputs	Rdown	10		90	kOhm
EEPROM prog clock	SEL-MODE =1	T-SCLK	990	1000	1010	µs
EEPROM write time	SEL-MODE =1	T-Prog	12990	13000	13010	µs
EEPROM check time	SEL-MODE =1	T-Check	10			µs
Oscillator tuning period	TUNE-OSCI=1	P-CLK2.5		402		µs
Oscillator tuning high time	TUNE-OSCI=1	T-CLK2.5		201		µs

Note 1: Total operating time (clock running) at VDD>6.2V must be below 1 minute over the entire product lifetime

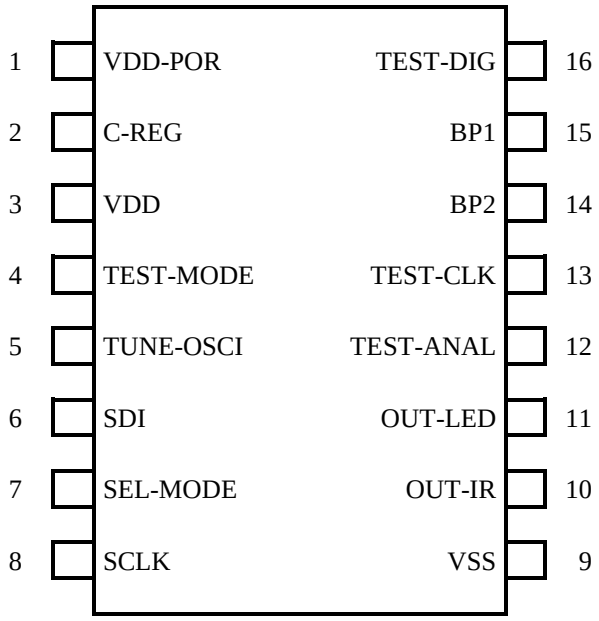
Note 2: For EEPROM reading, the application guarantees VDD<6.0V

Note 3: IDD is measured after EN-CLOCK is disabled. All inputs must either be left open or forced to VSS

Note 4: Only guaranteed for short periods (single code transmission), VDD variations < 1.2V and a fixed temperature within -20 to 55°C. VDD > 2.5V at all times.

3. DRAWINGS, TEST CIRCUITS AND TABLES

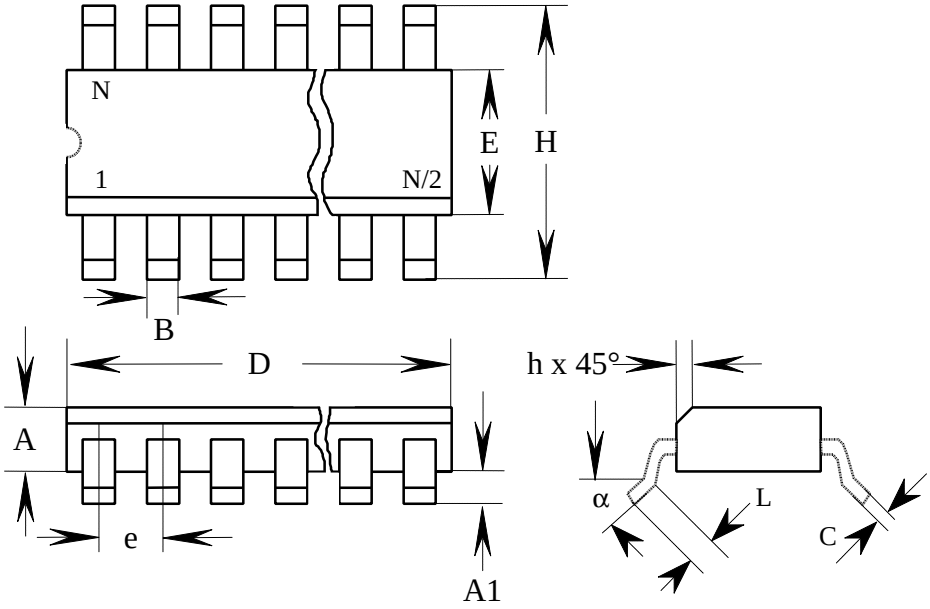
FIGURE 2 : "Pinning Diagramm"



PINNING : OM4048

Pin number	Name	Function
1	VDD-POR	positive supply for power-on reset
2	C-REG	external capacitor for voltage regulation
3	VDD	positive supply
4	TEST-MODE	Industrial test mode
5	TUNE-OSCI	Tune Oscillator
6	SDI	serial data input
7	SEL-MODE	select mode (EEPROM programming)
8	SCLK	serial clock input
9	VSS	negative supply
10	OUT-IR	high current output for IR diode
11	OUT-LED	high current for visible LED
12	TEST-ANAL	Industrial Test Mode
13	TEST-CLK	Industrial test mode
14	BP2	switch 2
15	BP1	switch 1
16	TEST-DIG	Oscillator frequency / 100

FIGURE 3 : "Outline Dimensions"



SYMBOL	VARIATIONS	
	MIN	MAX
A	2,25	2,45
A1	0,1	0,2
B	0,36	0,49
C	0,23	0,32
D	10,1	10,5
E	7,4	7,6
N	16	
e	1,27	
H	10,0	10,65
h		
L	0,3	
a	2°	8°

Ind.	Date	Issue	Author
A	9 june 1995	Original release	M.L.