

## DESCRIPTION

PT2283A/B is a programmable rolling code encoder IC utilizing CMOS Technology specially designed for remote control applications. It supports up to 24-bit of programmable address codes, 4 data bits and 16-bit programmable rolling code. A total of 65,536 rolling code combinations as well as power saving feature is also provided.

PT2283A/B encodes the programmed codes into a coded waveform suitable for RF modulation. Pin assignments and application circuit are optimized for easy PCB Layout and cost saving advantage.

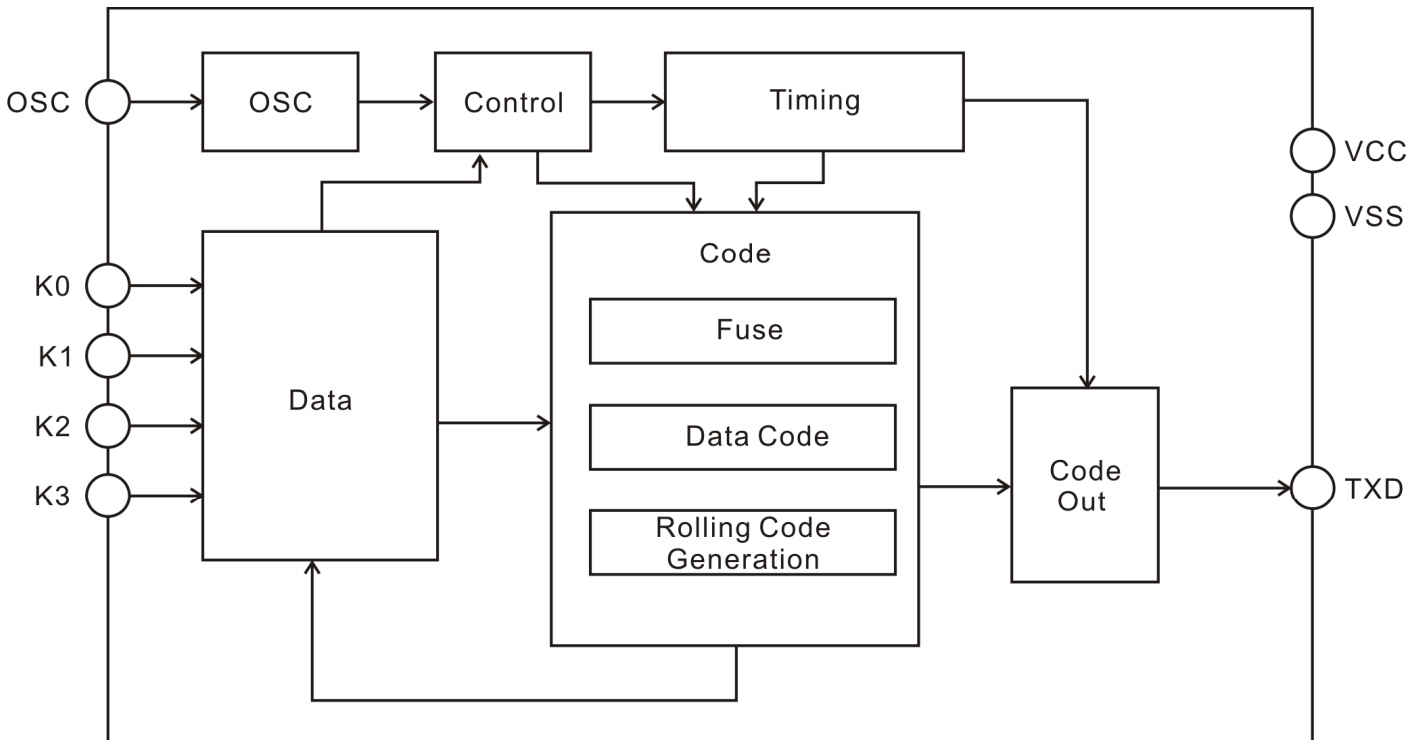
## FEATURES

- CMOS technology
- Low standby current <math><1\mu\text{A}</math>
- Least external components
- High noise immunity
- Wide range of operating voltage: 2.2V ~ 15V
- Wide range of operating temperature: -40 ~ 85°C
- Up to 24 address codes
- Up to 4 data bits
- Up to  $2^{40}$  output code combinations
- Power saving feature
- Available programming by customer
- Available in 8-pin, SOP

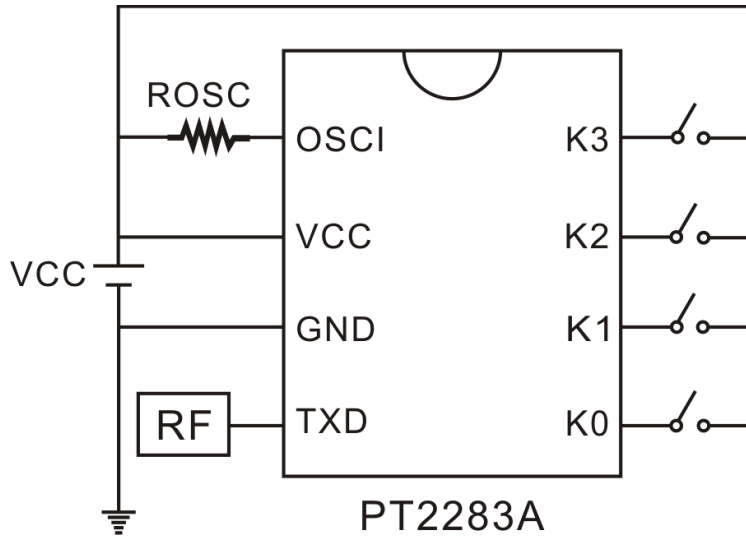
## APPLICATIONS

- Burglar alarm system
- Car security system
- Car/Garage door controller
- Home/Office security system
- Personal alarm system

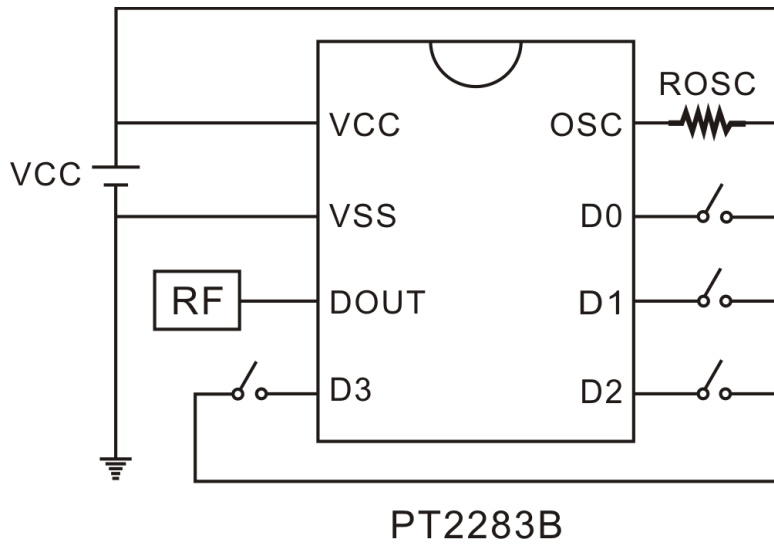
## BLOCK DIAGRAM



## APPLICATION CIRCUIT 1



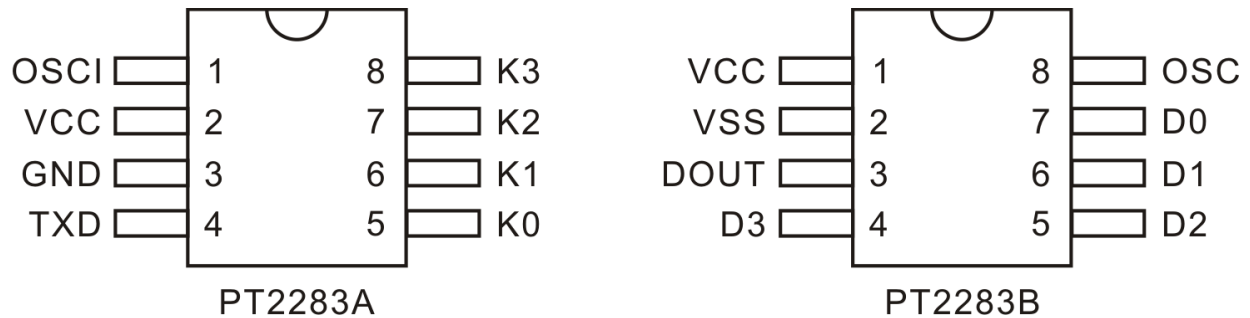
## APPLICATION CIRCUIT 2



## ORDER INFORMATION

Part Number	Package Type	Top Code	Address Code
PT2283AP-S	8-Pin, SOP, 150mil	PT2283AP-S	Programmed
PT2283BP-S	8-Pin, SOP, 150mil	PT2283BP-S	Programmed

## PIN CONFIGURATION



## PIN DESCRIPTION

### PT2283A

Pin Name	I/O	Description	Pin No.
OSCI	I	Oscillation input pin	1
VCC	I	Power supply	2
GND	-	Negative Power supply	3
TXD	-	Data output pin	4
K0~K3	I	Data input pins	5~8

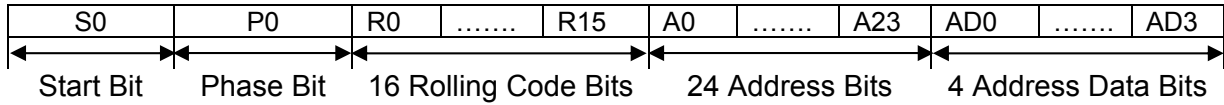
### PT2283B

Pin Name	I/O	Description	Pin No.
VCC	I	Power supply	1
VSS	-	Negative Power supply	2
DOUT	-	Data output pin	3
D3~D0	I	Data input pins	4~7
OSC	I	Oscillation input pin	8

# FUNCTION DESCRIPTION

## CODE WORD

The DOUT Code Word consist of a Start Bit, Phase Bit, Rolling Code Bits, Address Bits and Address/Data Bits. Please refer to the diagrams below.



### START BIT

The Start Bit is designated as S0 and is always set to "1".

### PHASE CODE BITS

The Phase Code Bit is designated as P0. P0 is always set to "0".

### ROLLING CODE BITS

The Rolling Code Bits, namely: R0 to R15 are programmable.

### ADDRESS BITS

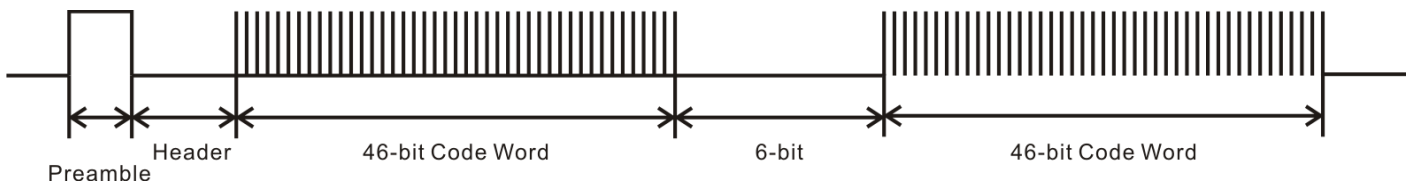
The Address Bits, namely: A0 to A 23 may be programmed to either "0" or "1".

### DATA BITS

The Data Bits, namely AD0 to AD3 may be set by the date input pins D0~D3(K3~K0). Date Bits can reflect which date input pins are pressed.

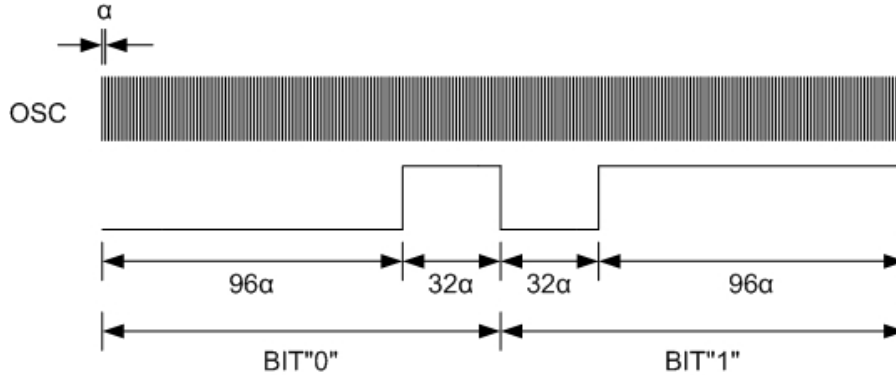
## DOUT TRANSFER SIGNAL

The PT2283A/B DOUT Waveform is given below. It must be noted however that a Preamble and Header are transmitted before the Code Word in the following manner depending on the bonding option.



## ADDRESS/DATA BIT WAVEFORM

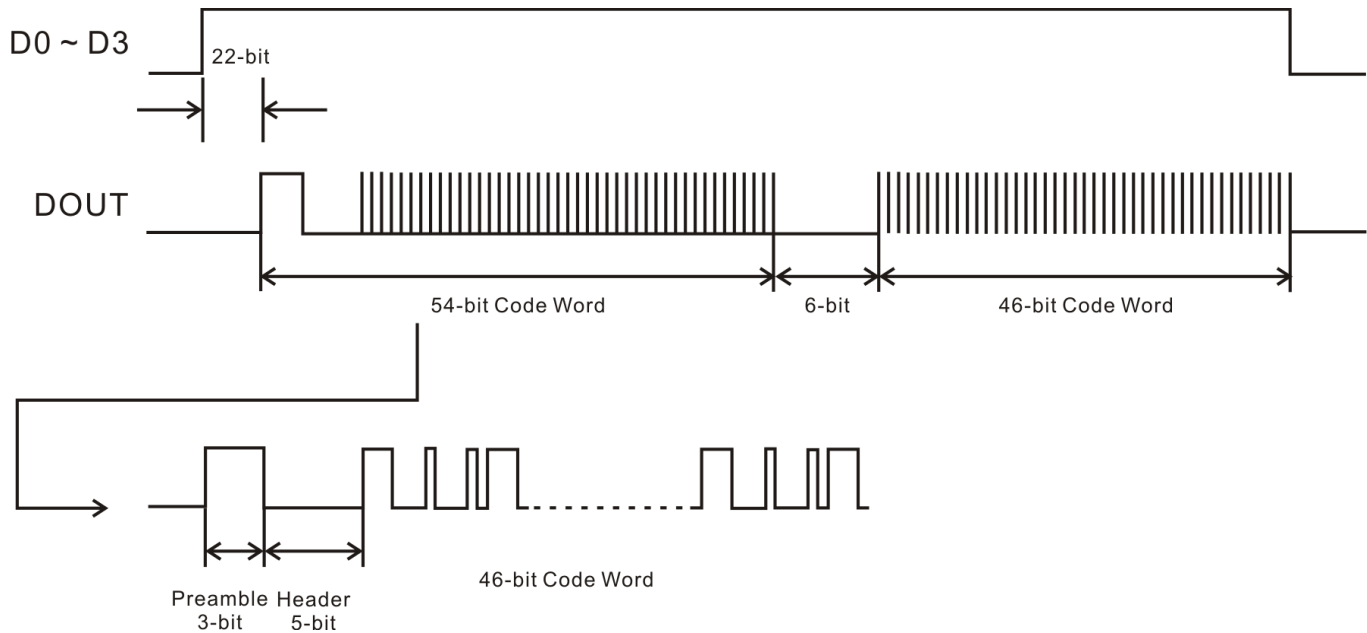
An Address/Data Bit can be designated as either Bit "0" or "1" if it is in High or Low State respectively. One bit waveform consists of one pulse cycle and each pulse cycle has 128 oscillating time periods. For further details, please refer to the diagram below:



where the oscillating time period,  $\alpha = 1/f$  and ( $f$  is the oscillation frequency)

As you can see in the diagram above, Bit "0" consist of a "LOW" Pulse for  $96\alpha$ (where  $\alpha$ =oscillating time period) then changes to a "High" Pulse for  $32\alpha$ . Likewise, for Bit "1", the "Low" Pulse for  $32\alpha$  is followed by "High" Pulse for  $96\alpha$ .

## PT2283A/B DOUT WAVEFORM



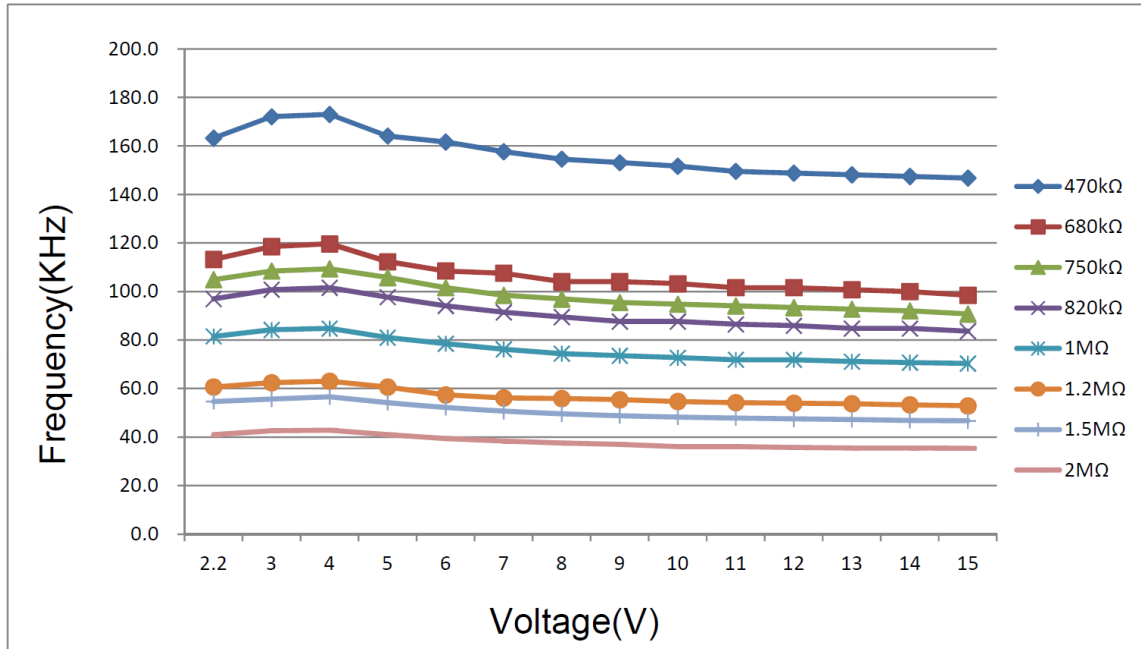
Note: D0~D3 means that at least pressing one or more pins of D0~D3(K3~K0) every time would make IC working.

## POWER SAVING FEATURE

PT2283A/B continuously transmits the code for 64 cycle of 46-bit. After 64 cycle, the code transmission stops. The power consumption is therefore reduced.

## SINGLE RESISTOR OSCILLATOR

The built-in oscillator circuit of PT2283A/B allows precision oscillator to be constructed by connecting an external resistor (Rosc) to the OSC Pin. The typical oscillator frequency with the various resistor values for PT2283A/B is given below.



## ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Operating voltage	VCC	-0.3~ 16	V
Input voltage	VIN	VSS-0.3 ~ VCC+0.3	V
Operating temperature	Topr	-40 ~ +85	°C
Storage temperature	Tstg	-40 ~ +150	°C

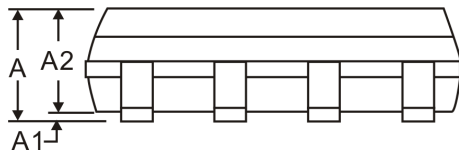
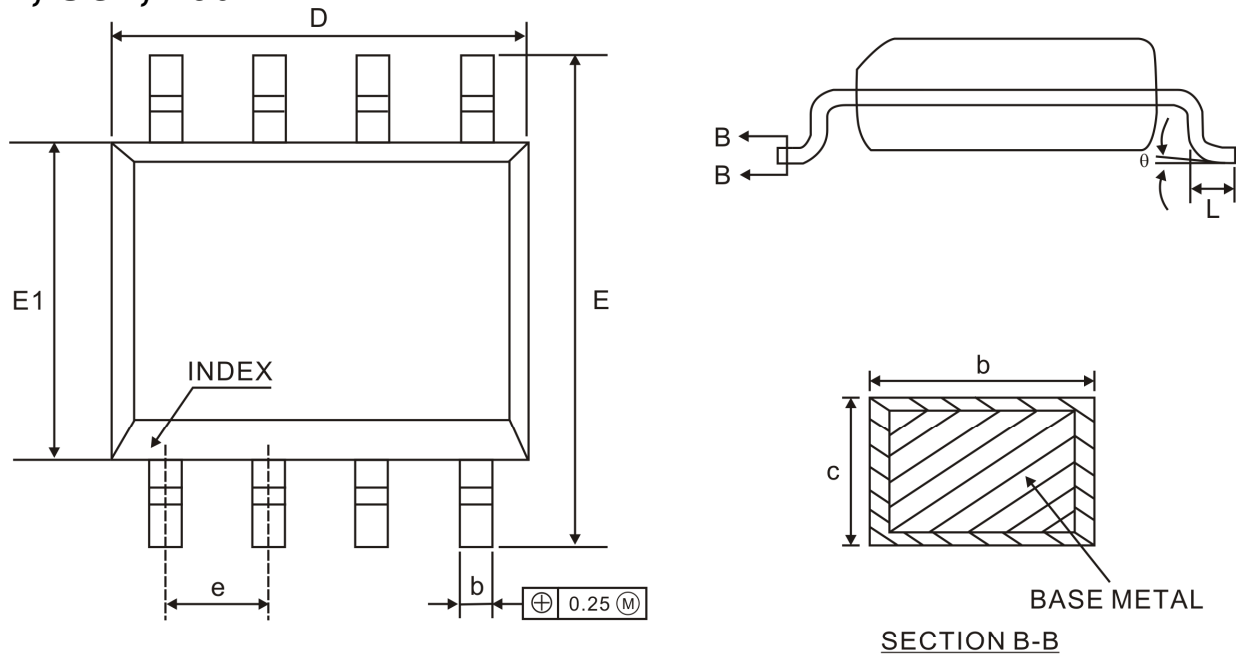
## DC ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, Ta=25°C, VCC=12V)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Operating voltage	VCC	-	2.2	-	15	V
Standby current	ISB	VCC=15V, OSC=0V, Other pin to floating	-	-	1	μA
Operating current	IOP	VCC=15V	-	-	0.8	mA
DOUT output drive current	IOH	VCC=10V VOH=8V	-	-	-7	mA
		VCC=6V VOH=4V	-	-	-4	
		VCC=3V VOH=2.2V	-	-	-0.9	
DOUT output sink current	IOL	VCC=10V VOH=8V	20	-	-	mA
		VCC=6V VOH=4V	10	-	-	
		VCC=3V VOH=2.2V	2.5	-	-	
“High” level input voltage	VIH	VCC=10V	0.7VCC	-	VCC	V
		VCC=6V	0.7VCC	-	VCC	
“Low” level input voltage	VIL	VCC=10V	0	-	0.3VCC	V
		VCC=6V	0	-	0.3VCC	
Pull low resistor	RPL	VCC=10V, VI=5V	-	540	-	KΩ
		VCC=6V, VI=3V	-	540	-	

# PACKAGE INFORMATION

## 8-PIN, SOP, 150MIL



Symbol	Min.	Nom.	Max.
A	1.35	1.60	1.77
A1	0.08	0.15	0.28
A2	1.20	1.40	1.65
b	0.33	-	0.51
c	0.17	-	0.26
e	1.27 BSC		
D	4.70	4.90	5.10
E	5.80	6.00	6.20
E1	3.70	3.90	4.10
L	0.38	0.60	1.27
θ	0°	-	8°

Notes:

1. Refer to JEDEC MS-012 AA
2. All dimensions are in millimeter.



## **IMPORTANT NOTICE**

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