

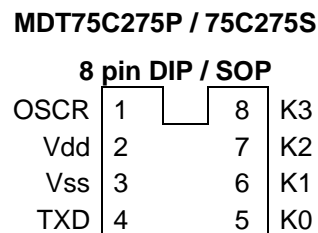
1. General Description

The MDT75C275 is an OTP Encoder using CMOS technology. It has a maximum of 20 bits addressing code providing up to one million codes. It can reduce any code collision and unauthorized code scanning possibilities.

2. Features

- CMOS technology.
- Low standby current : 1.0 uA.
- Wide range of Operating Voltage : Vdd = 3.0V ~ 12V.
- Up to 4 data pins.
- Total 1048576 address codes.
- Built-in RC oscillator with single external resistor.
- Available in DIP and SOP package.
- No Sleep mode

3. Pin Assignment



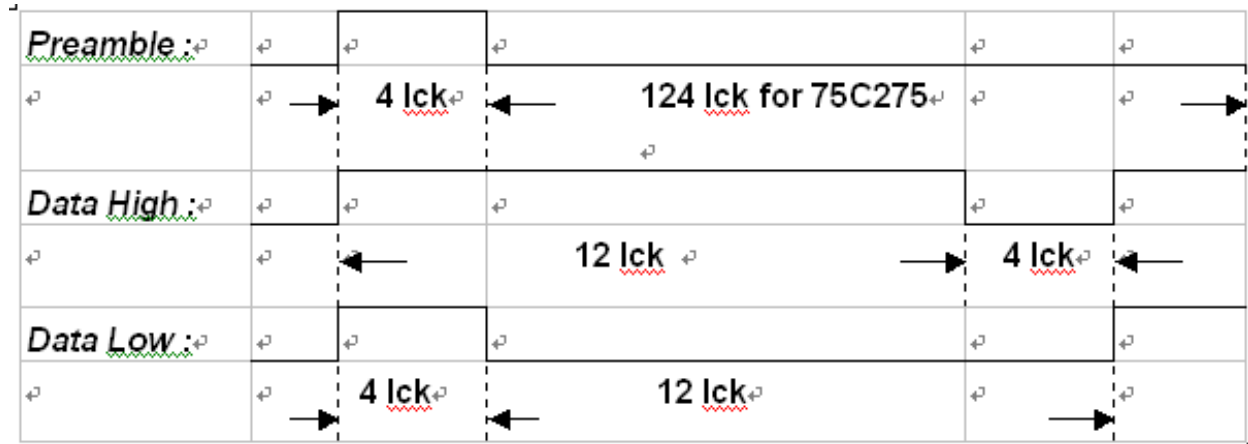
4. Pin Function Description

Symbol	I/O	Function Description
OSCR	I	Connect a resistor to Vdd to adjust internal RC freq.
Vdd		Positive power supply 3.0V ~ 12 V.
Vss		Ground.
TXD	O	Data output pin.
K0	I	Data input with pull low Resistor.
K1	I	Data input with pull low Resistor.
K2	I	Data input with pull low Resistor.
K3	I	Data input with pull low Resistor.

5. Output Data Reporting

Output data frame

Preamble	C0 ~ C19 (1048576 address codes)	D0	D1	D2	D3
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Note : 1 lck = 8 OSC clocks

6. Key 0 ~ 3 combination table

K3	K2	K1	K0	D3	D2	D1	D0
0	0	0	1	0	0	0	1
0	0	1	0	0	0	1	0
0	0	1	1	0	0	1	1
0	1	0	0	0	1	0	0
0	1	0	1	0	1	0	1
0	1	1	0	0	1	1	0
0	1	1	1	0	1	1	1
1	0	0	0	1	0	0	0
1	0	0	1	1	0	0	1
1	0	1	0	1	0	1	0
1	0	1	1	1	0	1	1
1	1	0	0	1	1	0	0
1	1	0	1	1	1	0	1
1	1	1	0	1	1	1	0
1	1	1	1	1	1	1	1

7. Absolute Maximum Rating

Symbol	Parameter	Conditions	Rating	Unit
Vdd	Supply Voltage		-0.3 ~ 13	V
Vi	Input Voltage		-0.3 ~ Vdd+0.3	V
Vo	Output Voltage		-0.3 ~ Vdd+0.3	V
Tst	Storage Temp.		-40 ~ 125	
Top	Operating Temp.		-20 ~ 70	
Pdis	Max. Power dissipation	Vdd = 12V	300	mW

8. DC Electrical Characteristics ($T_A=0^{\circ}\text{C}$ to 70°C)

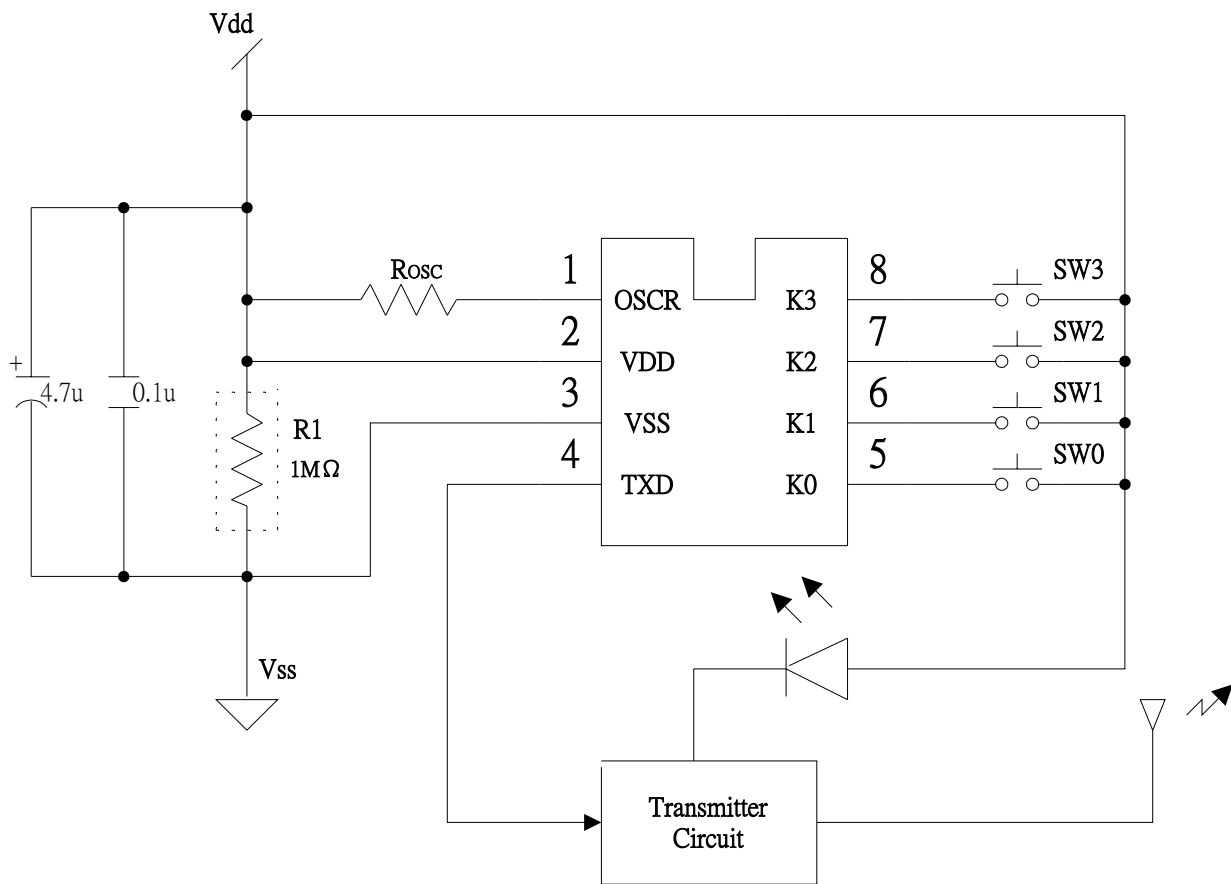
Symbol	Parameters	Conditions	Min.	Typ.	Max.	Unit
Vdd	Operating Voltage		3.0	8	12	V
I _{sb}	Stand by current	Vdd = 12V, OSC stop K0 ~ K3 = Low Output Unloaded		1.0	3.0	uA
I _{op}	Operating current	Vdd =12V		0.5	1.0	mA
I _{oh}	Source current	Vdd =12V, Voh = 6V	4.5			mA
I _{ol}	Sink Current	Vdd =12V, Vol = 6V	4.5			mA
F _{op}	Operating Freq	Vdd=11V, Rext=360K ~ 430K ohm		80K		HZ

9. External oscillator resistor selection table (Reference)

Voltage\Rosc	390 K ohm		430 K ohm		470 K ohm	
	HZ	current	HZ	current	HZ	current
13 V	80.8 K	338μA	72.7 K	323μA	67.8 K	315μA
12 V	82.5 K	260μA	73.8 K	252μA	69.0 K	248μA
11 V	83.8 K	203μA	75.0 K	195μA	69.9 K	195μA
10 V	85.6 K	162μA	77.4 K	150μA	71.7 K	150μA
9 V	88.4 K	117μA	78.7 K	113μA	73.7 K	113μA
8 V	90.9 K	80μA	81.4 K	77μA	76.5 K	77μA
7 V	88.9 K	50μA	80.7 K	48μA	75.5 K	48μA
6.5 V	85.1 K	38μA	77.4 K	36μA	72.7 K	35μA

Voltage\Rosc	390 K ohm		430 K ohm		470 K ohm	
	HZ	current	HZ	current	HZ	current
6 V	56.7 K	26μA	52.5 K	25μA	49.4 K	24μA
5 V	50.3 K	14μA	45.1 K	14μA	42.1 K	14μA
4.5 V	46.4 K	11μA	41.0 K	11μA	39.0 K	11μA
4 V	41.2 K	8μA	37.6 K	8μA	35.2 K	8μA
3.3 V	27.4 K	6μA	25.0 K	6μA	23.9 K	6μA
3 V	22.2 K	5μA	19.8 K	5μA	19.0 K	5μA
2.7 V	16.6 K	5μA	14.8 K	5μA	14.2 K	5μA
2.5 V	12.7 K	3μA	11.6 K	3μA	11.0 K	3μA

10. Application circuit (Reference)



- (a). If encoder circuit has one switch only to control ON/OFF power & key data together, then circuit must add R1 resistor $1M\Omega$.
- (b). To increase the stability of RC oscillator can add 100 pF capacitor at Rosc in parallel .
- (c). To increase the stability of K3 ~ K0 key data can increase pull low resistor 100K connect key and Vss , K3 ~ K0 internal pull low resistor is 300K (Vdd=9V),

