

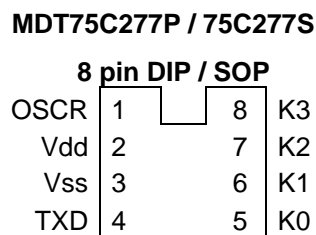
### 1. General Description

The MDT75C277 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.
- 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.
- **Automatically enter sleep mode if press button over 3 ~ 5 sec**

### 3. Pin Assignment



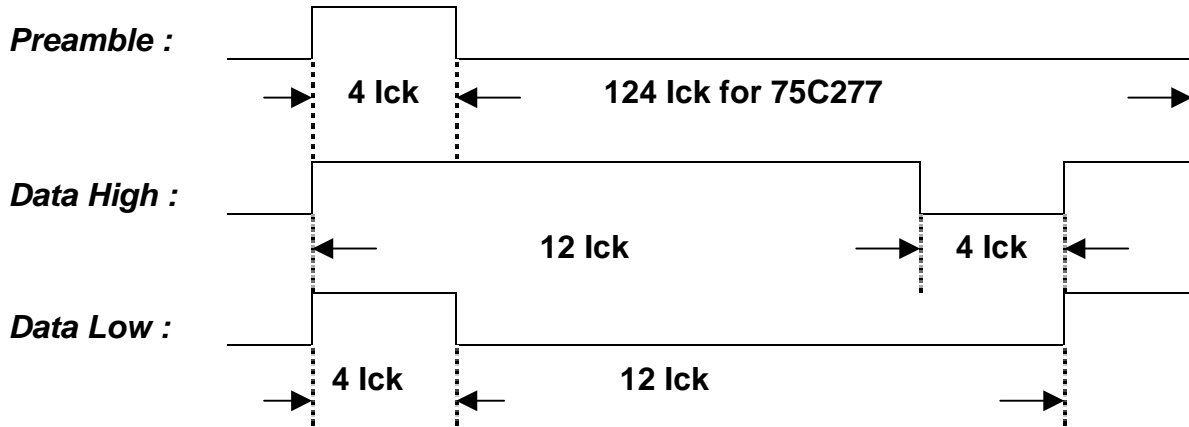
### 4. Pin Function Description

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**

<b>Preamble</b>	<b>C0 ~ C19 ( 1048576 address codes )</b>	<b>D0</b>	<b>D1</b>	<b>D2</b>	<b>D3</b>
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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**

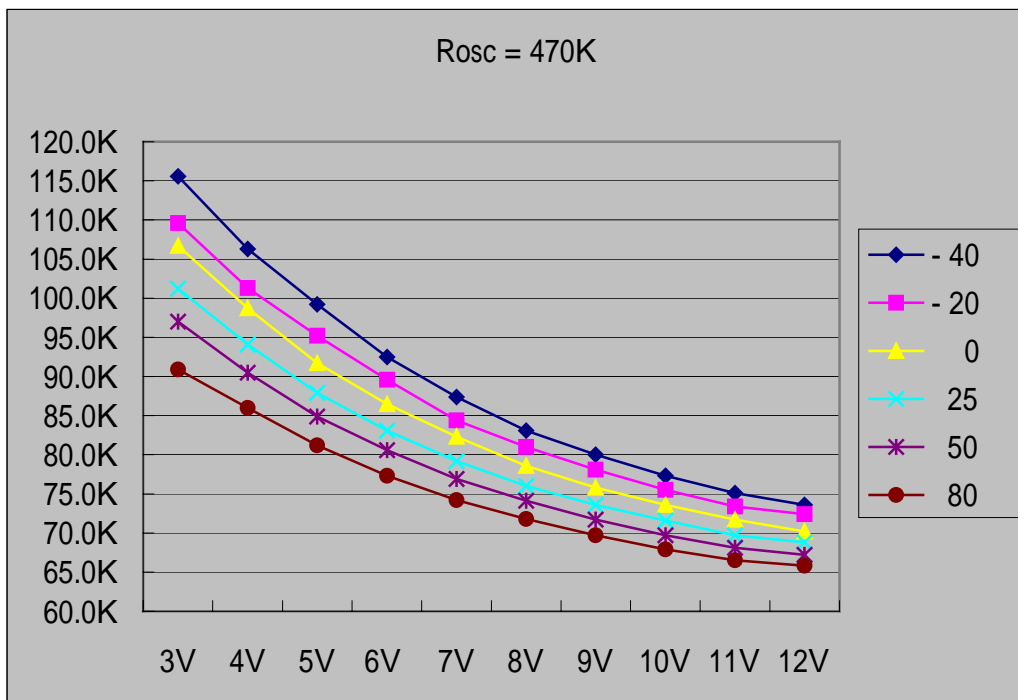
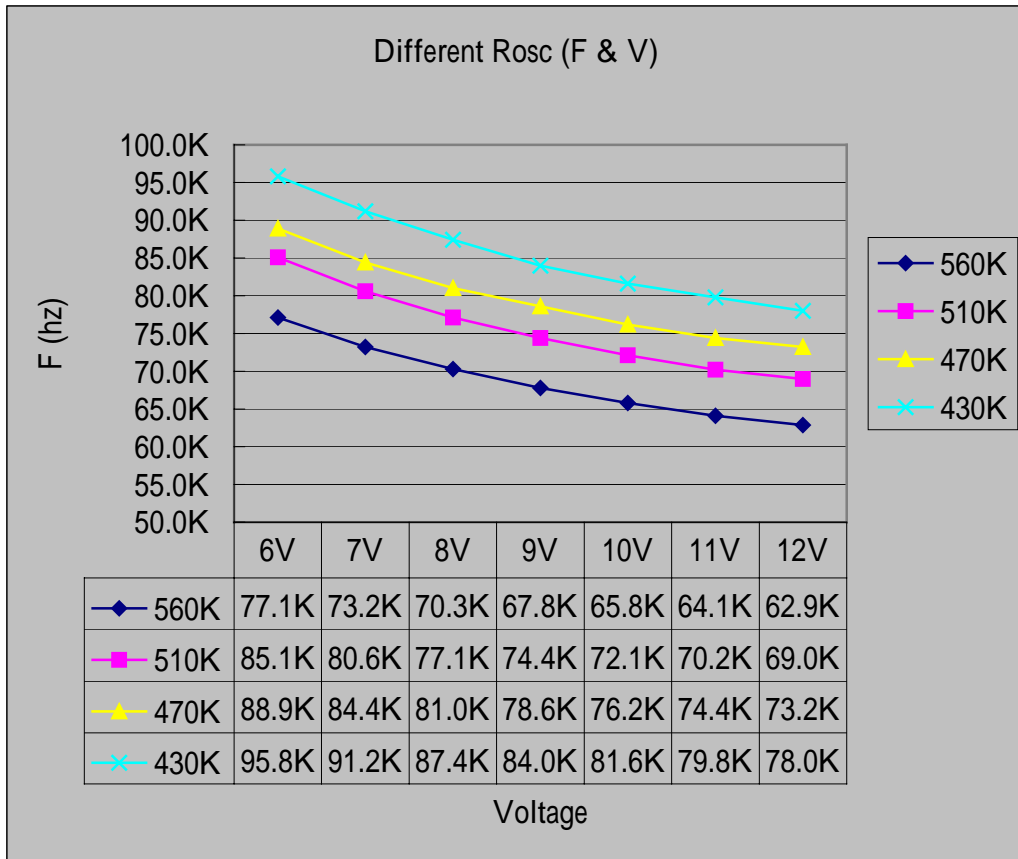
Symbol	Parameter	Conditions	Rating	Unit
Vdd	Supply Voltage		-0.3 ~ 13	V
Vi	Input Voltage		-0.3 ~ Vdd+0.3	V
Vo	Output Voltage		-0.3 ~ Vdd+0.3	V
Tst	Storage Temp.		-40 ~ 125	
Top	Operating Temp.		-20 ~ 70	
Pdis	Max. Power dissipation	Vdd = 12V	300	mW

**8. DC Electrical Characteristics ( $T_A=0$  to 70 )**

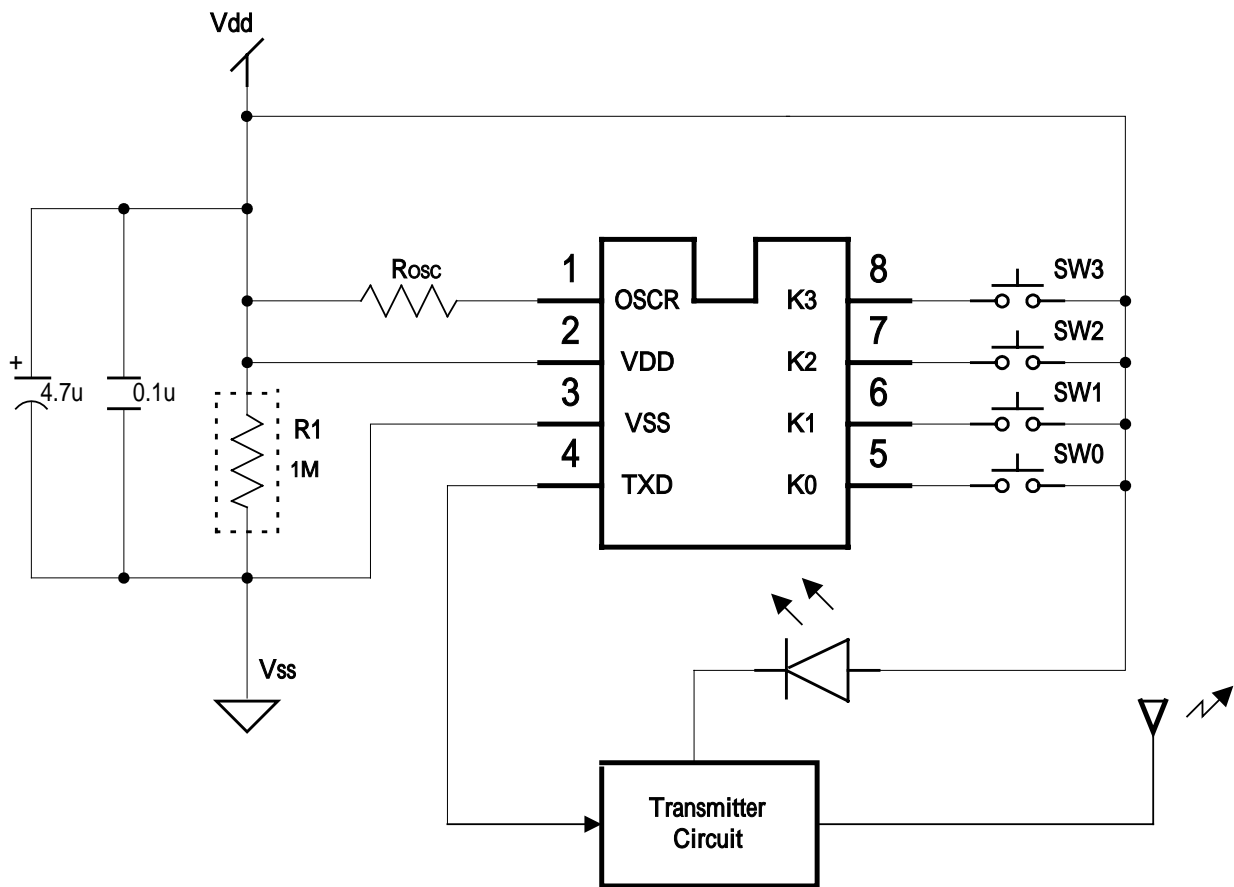
Symbol	Parameters	Conditions	Min.	Typ.	Max.	Unit
Vdd	Operating Voltage		3.0	5	12	V
I <sub>sb</sub>	Stand by current	Vdd = 12V, OSC stop K0 ~ K3 = Low Output Unloaded		1	20	uA
I <sub>op</sub>	Operating current	Vdd =12V		0.6	1.0	mA
I <sub>oh</sub>	Source current	Vdd =12V, Voh = 6V	4.5			mA
I <sub>ol</sub>	Sink Current	Vdd =12V, Vol = 6V	4.5			mA
F <sub>op</sub>	Operating Freq	Vdd=11V, Rext=390K ~ 510K ohm		80K		HZ

**9. External oscillator resistor selection table (Vdd=11V)**

Rext (ohm)	Freq. (Hz)	Operating Current
<b>1.2 M ( Max )</b>	<b>33.9 K</b>	476 $\mu$ A
<b>1 M</b>	<b>36.9 K</b>	482 $\mu$ A
<b>680 K</b>	<b>51.4 K</b>	517 $\mu$ A
<b>620 K</b>	<b>55.0 K</b>	520 $\mu$ A
<b>560 K</b>	<b>59.6 K</b>	523 $\mu$ A
<b>510 K</b>	<b>64.7 K</b>	525 $\mu$ A
<b>470 K</b>	<b>69.2 K</b>	528 $\mu$ A
<b>430 K</b>	<b>73.2 K</b>	532 $\mu$ A
<b>390 K</b>	<b>78.2 K</b>	535 $\mu$ A
<b>360 K</b>	<b>82.3 K</b>	539 $\mu$ A
<b>330 K</b>	<b>88.5 K</b>	545 $\mu$ A
<b>300 K ( Min )</b>	<b>96.2 K</b>	553 $\mu$ A



**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 .
- (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 450K (Vdd=9V),

