

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

MDT75C277P / 75C277S

8 pin DIP / SOP

OSCR	1	8	K3
Vdd	2	7	K2
Vss	3	6	K1
TXD	4	5	K0

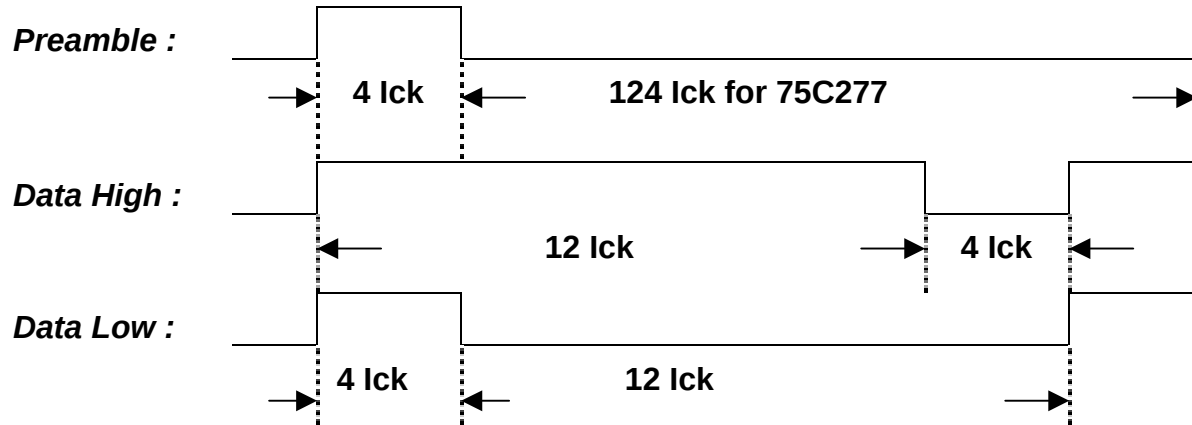
4. Pin Function Description

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

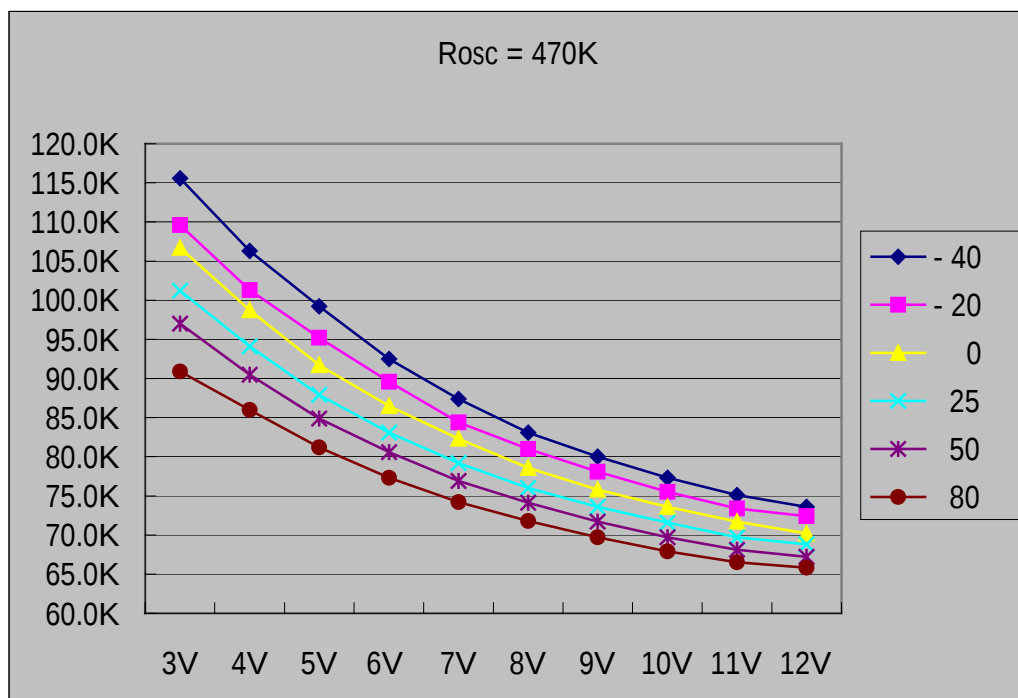
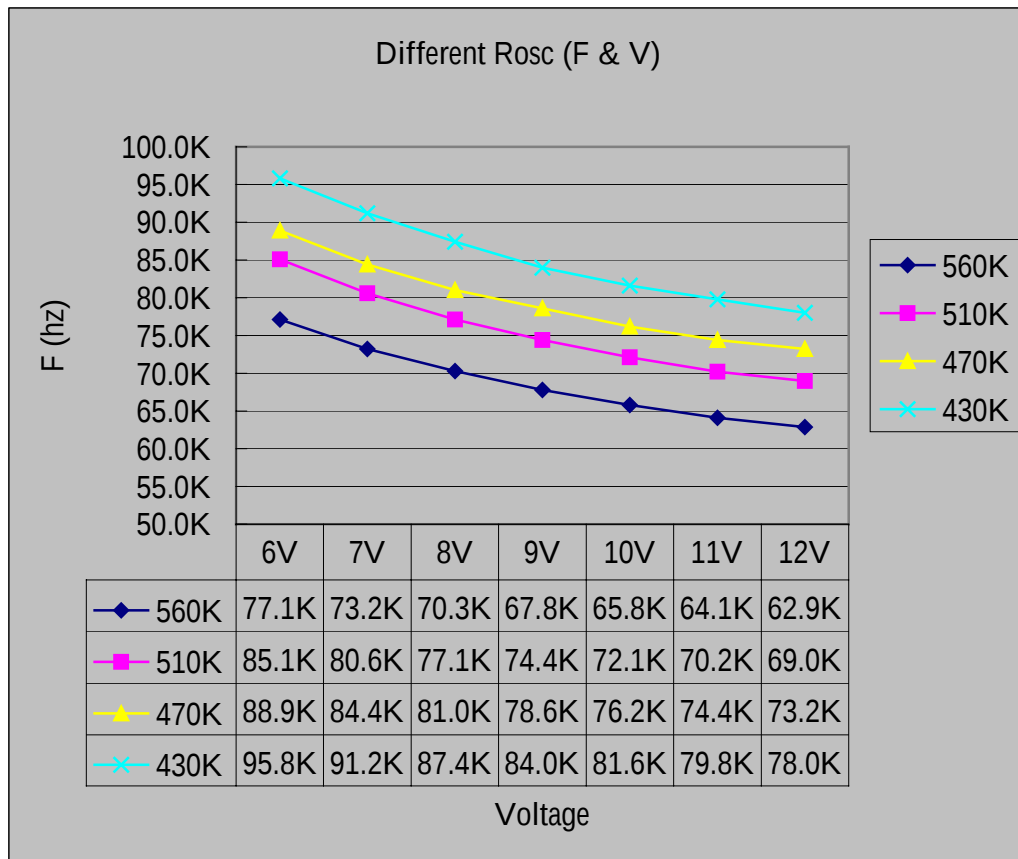
Symbol	Parameter	Conditions	Rating	Unit
Vdd	Supply Voltage		-0.3 ~ 13	V
Vi	Input Voltage		-0.3 ~ Vdd+0.3	V
Vo	Output Voltage		-0.3 ~ Vdd+0.3	V
Tst	Storage Temp.		-40 ~ 125	
Top	Operating Temp.		-20 ~ 70	
Pdis	Max. Power dissipation	Vdd = 12V	300	mW

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

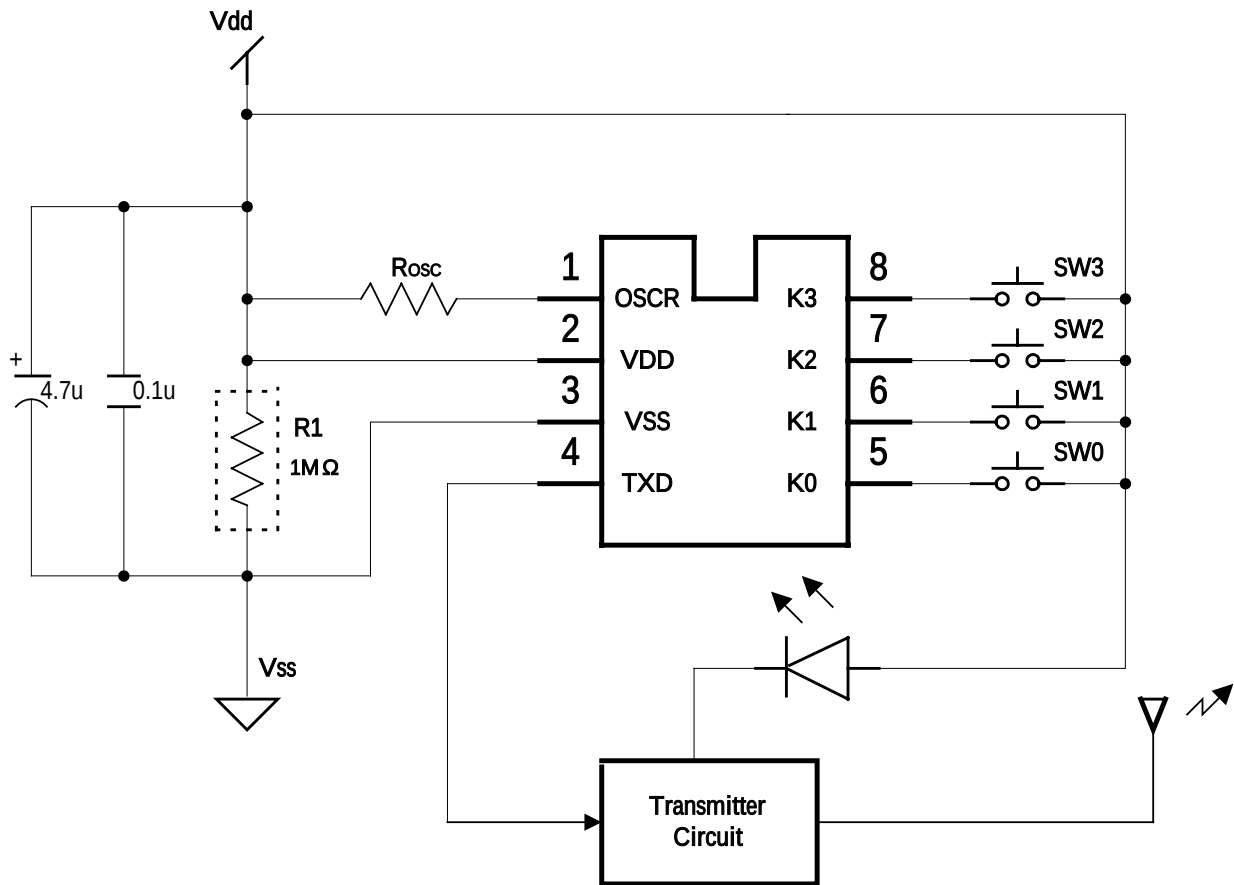
Symbol	Parameters	Conditions	Min.	Typ.	Max.	Unit
Vdd	Operating Voltage		3.0	5	12	V
I _{sb}	Stand by current	Vdd = 12V, OSC stop K0 ~ K3 = Low Output Unloaded		1	20	uA
I _{op}	Operating current	Vdd =12V		0.6	1.0	mA
I _{oh}	Source current	Vdd =12V, Voh = 6V	4.5			mA
I _{ol}	Sink Current	Vdd =12V, Vol =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

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

Rext (ohm)	Freq. (Hz)	Operating Current
1.2 M (Max)	33.9 K	476 μ A
1 M	36.9 K	482 μ A
680 K	51.4 K	517 μ A
620 K	55.0 K	520 μ A
560 K	59.6 K	523 μ A
510 K	64.7 K	525 μ A
470 K	69.2 K	528 μ A
430 K	73.2 K	532 μ A
390 K	78.2 K	535 μ A
360 K	82.3 K	539 μ A
330 K	88.5 K	545 μ A
300 K (Min)	96.2 K	553 μ 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 $1M\Omega$.
- (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 450K (Vdd=9V),

