

**CALCULATOR CHIP CT5002 MOS-IC
276-1754**

Your Radio Shack 276-1754 is a single MOS chip with all the logic necessary for a 12 digit four function calculator with display type readout. Multiplexed seven segment outputs enable operation with LED's, incandescent, and fluorescent or gas discharge displays with a minimum of external components.

The chip is optimized for use in a pocket calculator. It operates from a single low voltage power supply 5.5V to 7.5V; it has low current drain at 6V and has an internal display inhibit feature to conserve power. Features include. add, subtract, divide multiply; 12 digit display and calculate; chain calculations; automatic overflow indication and true credit balance.



TECHNICAL DATA

AN EXCLUSIVE RADIO SHACK SERVICE TO THE EXPERIMENTER

ABSOLUTE MAXIMUM RATINGS

Voltage on any Pin Relative to V_{SS}	+0.3 to -12V
Operating Temperature (Ambient)	0°C to 70°C
Storage Temperature (Ambient)	-55°C to 150°C

RECOMMENDED OPERATING CONDITIONS

PARAMETER	LIMITS			UNIT	NOTES
	MIN	TYP*	MAX		
V_{DD} Supply Voltage	-7.5	-6.0	-5.5	V	1
V_{IL} Input Voltage, Logic 1, any input			$V_{DD}+1.5$	V	
V_{IH} Input Voltage, Logic 0, any input	$V_{SS}-0.5$		V_{SS}	V	
f_c Clock Frequency	20	40	50	kHz	

CAUTION: Damage to the IC will result if handled by the pins.

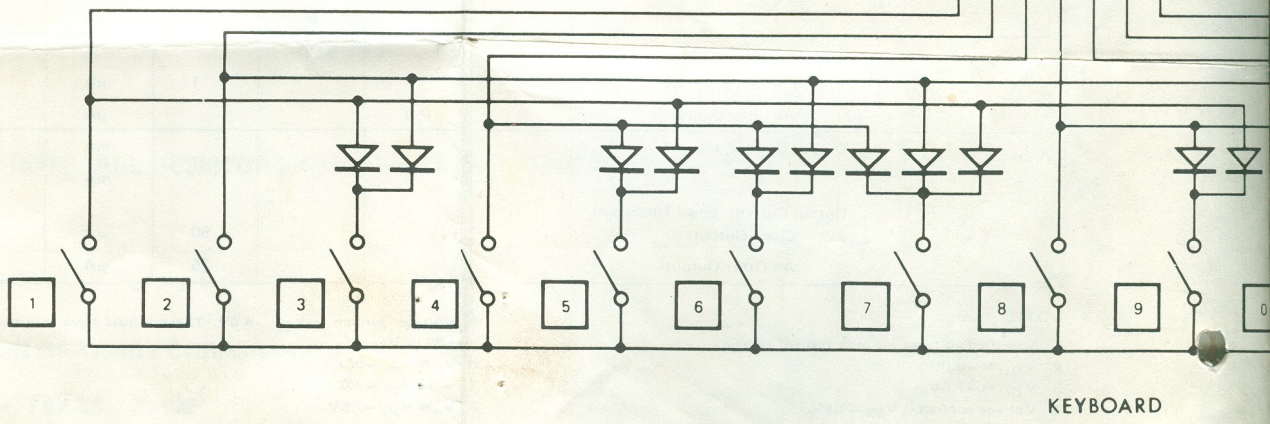
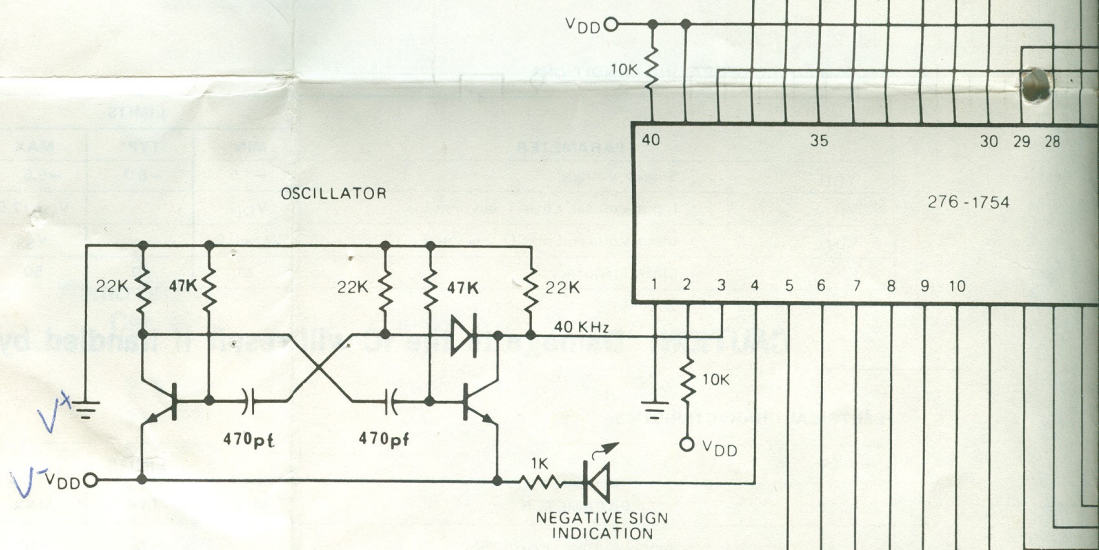
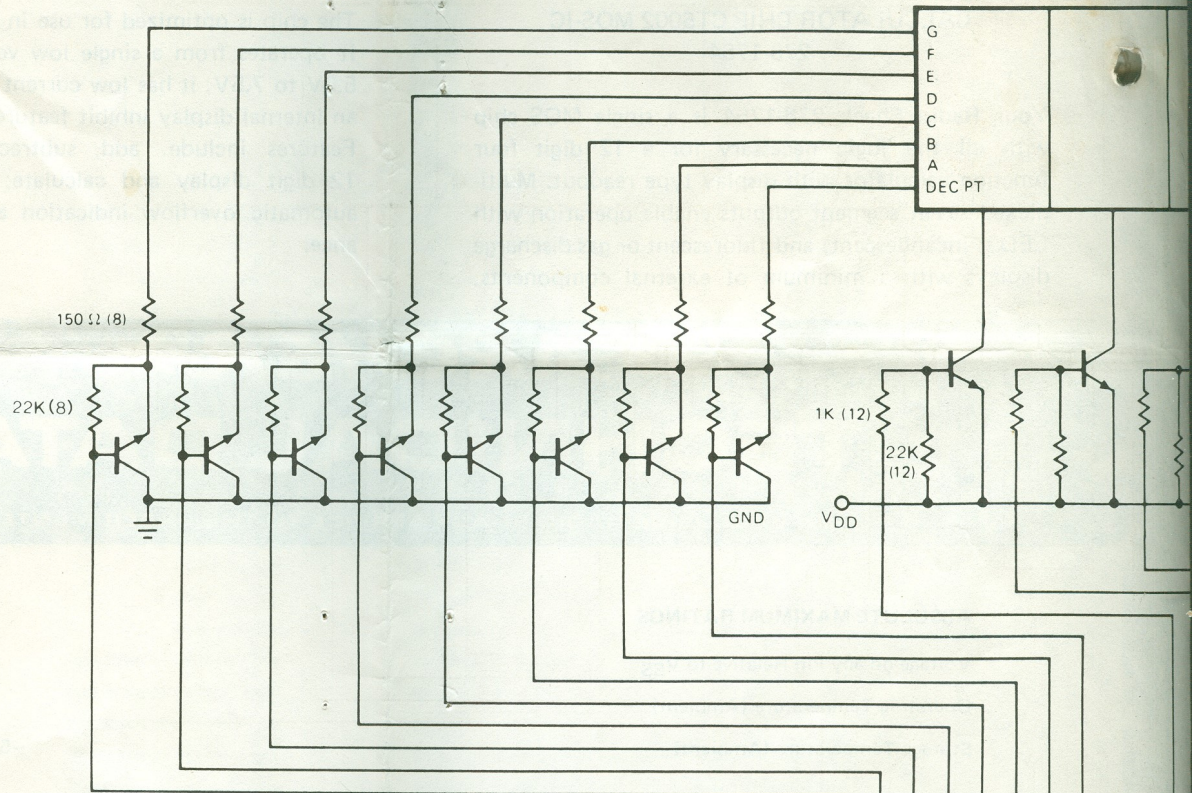
ELECTRICAL CHARACTERISTICS

PARAMETER	LIMITS			UNIT	NOTES
	MIN	TYP	MAX		
I_{DD} Supply Current, V_{DD}		5	10	mA	2
		8	16	mA	3
I_i Input Current	Pins 3, 28, 29, 38		1	μA	4
	All other Inputs	150		μA	5
I_o Output Current, Logic 0		1		mA	6
		5		mA	7
	Output Current, Logic 1 (leakage)		50	μA	8
All Other Outputs			25	μA	8

$V_{DD} = -6.0V$
 $V_{DD} = -7.5V$
 $-1.5V$
 $-2V$
 $V_o = -7.5$

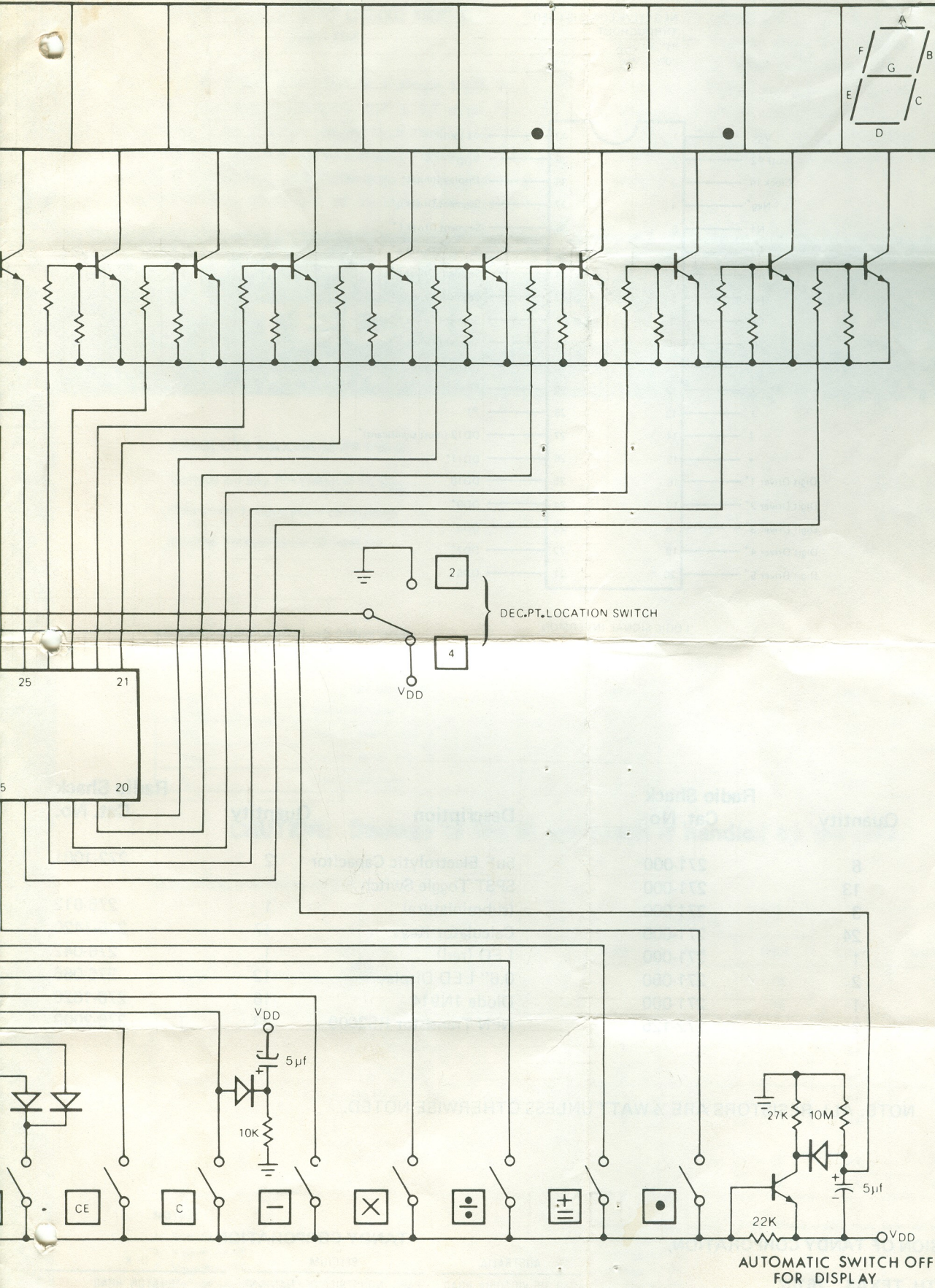
NOTES:

- Specified voltages are with respect to V_{SS} .
- $V_{DD} = -6.0V$.
- $V_{DD} = -7.5V$.
- Voltage applied is $V_{SS} = -7.5V$.
- Voltage applied is $V_{SS} = 4.0V$. These inputs have internal resistors tied to V_{SS} .
- $V_o = V_{SS} - 0.5V$.
- $V_o = V_{SS} - 2.0V$.
- $V_o = V_{SS} - 7.5V$.



KEYBOARD

LED Display 276-066

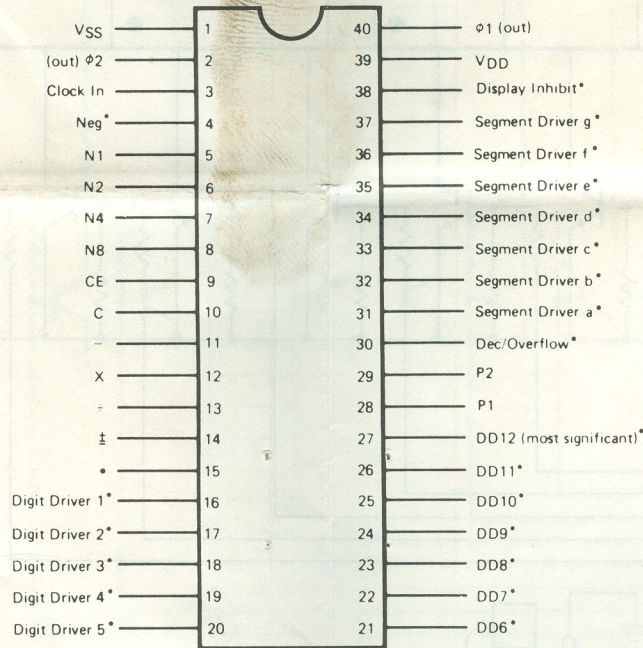


DEC.PT.LOCATION SWITCH

AUTOMATIC SWITCH OFF FOR DISPLAY

PIN CONFIGURATION


NEGATIVE LOGIC IS USED
THROUGHOUT
"1" = V_{DD}
"0" = V_{SS}



*LOGIC SIGNAL INVERSION

Description	Quantity	Radio Shack Cat. No.	Description	Quantity	Radio Shack Cat. No.
150 ohm Resistor	8	271-000	5uF Electrolytic Capacitor	2	272-1001
1K Resistor	13	271-000	SPST Toggle Switch		
10K Resistor	3	271-000	(subminiature)	1	275-612
22K Resistor	24	271-000	Calculator Keys	17	275-1420
27K Resistor	1	271-000	LED (red)	1	276-042
47K Resistor	2	271-000	0.6" LED Display	12	276-066
10 Meg Resistor	1	271-000	Diode 1N914	16	276-1620
470pF Disc Capacitor	2	272-125	NPN Transistor RS2009	23	276-2009

NOTE. ALL RESISTORS ARE 1/2 WATT UNLESS OTHERWISE NOTED.

RADIO SHACK  A DIVISION OF TANDY CORPORATION,

U.S.A.: FORT WORTH, TEXAS 76102
CANADA: BARRIE, ONTARIO, CANADA L4M 4W5

TANDY CORPORATION

AUSTRALIA
280 316 VICTORIA ROAD
RYDALMERE N.S.W. 2116

BELGIUM
PARC INDUSTRIEL DE NANINNE
5140 NANINNE

U.K.
BILSTON ROAD
WEDNESBURY STAFFS WF10 7JN

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