ELECTRONICS, INC.
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NTE1414
Integrated Circuit
Digital AC Clock Timer for VCR

Description:

The NTE1414 is an LSI integrated circuit in a 40–Lead DIP type package designed for AC INPUT clock timers capable of randomly setting “ON hour” and “OFF hour” by a unit of a minute. This device can also work as a stopwatch timing up to 1 hour, 59 minutes and 59 seconds, and as a sleep timer operating for not more than 1 hour and 59 minutes once it is set.

A current hour, “ON hour”, and “OFF hour” can be set easily in one of the following three modes: FAST mode, in which the data of figures of minutes are sent fast at 50Hz or 60Hz; SLOW mode, in which they are sent slow at 2Hz; and REVERSE, mode in which they are sent reversely.

Features:

- Complete Two–Operation/24 Hour Timer
- Alternate Current of 50Hz/60Hz Entered
- AM/PM or 24 Hour Display
- Hours can be Set in FORWARD or REVERSE Mode
- Sleep Timer Operation for not more than 1 Hour, 59 Minutes once it is Set
- Stopwatch Timing up to 1 Hour, 59 Minutes, and 59 Seconds
- Capable of Directly Driving a Fluorescent Lamp Tube
- Power Failure Indicator

Absolute Maximum Ratings: (V_{SS} = 0, T_A = +25°C unless otherwise specified)

Supply Voltage, V_{DD} . . . . . –16 to +0.3V
Input Voltage, V_I . . . . . –17 to +0.3V
Output Voltage, V_O . . . . . –26 to +0.3V
Operating Ambient Temperature Range, T_{opr} . . . . . –20° to +70°C
Storage Temperature Range, T_{stg} . . . . . –40° to +125°C

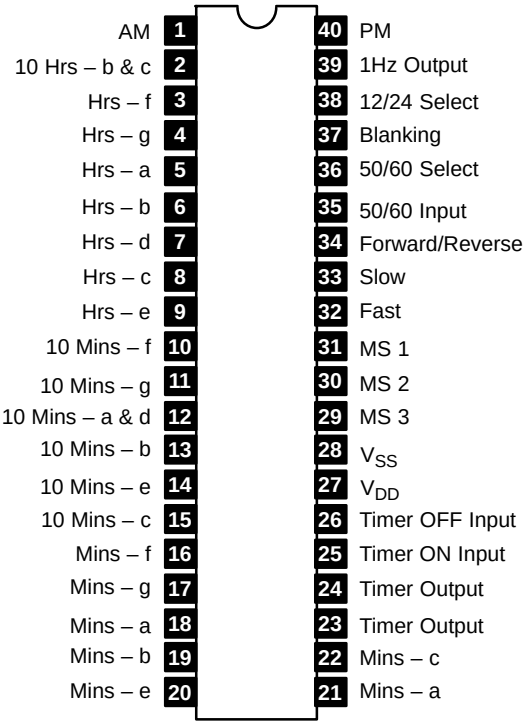
Recommended Operating Conditions: (T_A = +25°C unless otherwise specified)

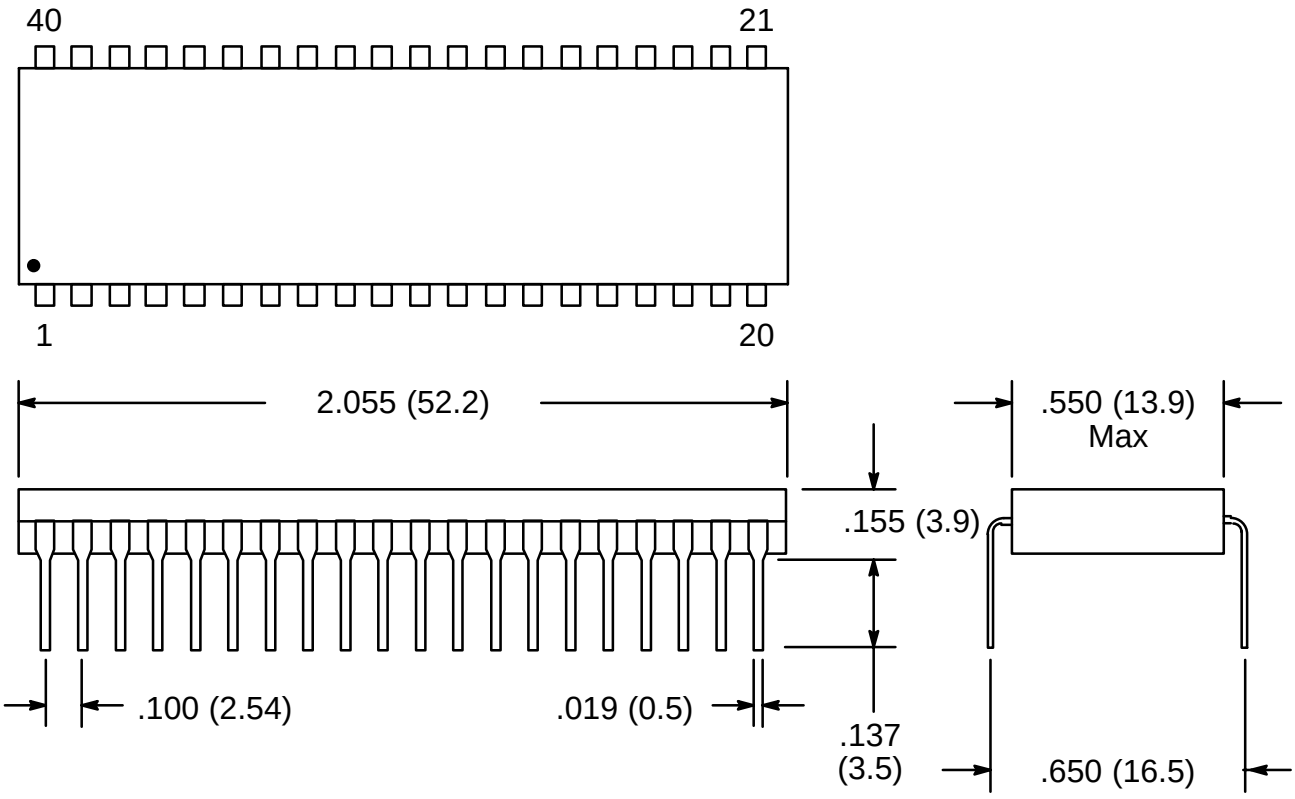
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	V_{DD}	V_{SS} = 0	–10	–	–15	V
Supply Voltage Fall Detect Voltage	V_{PF}	V_{SS} = 0	–	–	–10	V

Electrical Characteristics: (V_{DD} = –12V, V_{SS} = 0, T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Current	I_{DD}	No Load	–	1.3	5.0	mA
50Hz/60Hz Input Terminal						
Input Frequency	f_i		DC	50/60	10k	Hz
High Level Input Voltage	$V_{IH\ (1)}$	V_{SS} = 0	0	–	–1	V
Low Level Input Voltage	$V_{IL\ (1)}$	V_{SS} = 0	V_{DD}+1	–	–16	V
All Other Input Terminals						
High Level Input Voltage	$V_{IH\ (2)}$	V_{SS} = 0	0	–	–1	V
Low Level Input Voltage	$V_{IL\ (2)}$	V_{SS} = 0	V_{DD}+1	–	V_{DD}	V
PM Output Terminal (In 24 Hour Display Mode)						
High Level Output Current	$I_{OH\ (1)}$	V_O = –3V	–	12	–	mA
Output Voltage Breakdown	$BV_{O\ (1)}$	I_O = –10µA	–	–	–22	V
10's of Hour and 10's of Minute – Figure Display Output Terminal (b & c) (a & d)						
High Level Output Current	$I_{OH\ (2)}$	V_O = 3V	–	6	–	mA
Output Voltage Breakdown	$BV_{O\ (2)}$	I_O = –10µA	–	–	–22	V
Other Display Output Terminals						
High Level Output Current	$I_{OH\ (3)}$	V_O = –3V	–	3	–	mA
Output Voltage Breakdown	$BV_{O\ (3)}$	I_O = –10µA	–	–	–22	V
Other Output Terminals						
High Level Output Current	$I_{OH\ (4)}$	V_O = –2V	500	–	–	µA
Output Voltage Breakdown	$BV_{O\ (4)}$	I_O = –10µA	–	–	–22	V

Pin Connection Diagram




40
21
1
20
2.055 (52.2)
.550 (13.9)
Max
.155 (3.9)
.100 (2.54)
.019 (0.5)
.137
(3.5)
.650 (16.5)