

STC2560C

CMOS PULSE DIALER

- Low Voltage Operation (Min 1.25V)
- 20-digit Memory for Redial
- Pin Compatible to AMI S2560A

DESCRIPTION

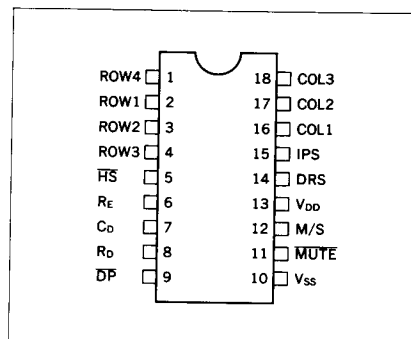
The STC2560C Pulse Dialer is a CMOS IC that converts push-button inputs to a series of pulses suitable for telephone dialing. It requires no independent external power supply but can be driven on the power supplied from telephone lines.

The STC2560C has two output terminals: one for the transmission of dial pulses and the other for providing signals to mute the receiver during the dial pulsing.

FEATURES

- Directly operation from the telephone lines
- Low power CMOS process. (1.25V to 3.5V)
- Inexpensive RC oscillator built-in
- Mark/space ratio selectable
- Dial rate selectable
- 20-digit memory for Redial by "*" key

PIN CONFIGURATION



PIN DESCRIPTION

Pin Name	Pin No.	Functions									
Keyboard ROW1 to ROW4 COL1 to COL3	1 to 4 16 to 18	4×3 matrix input terminals on keyboard. Selected depending on whether ROW and COL reach V _{DD} or connect with each other. Input is detected through chattering killer. The keyboard scan begins when a key is pressed and starts the oscillator.									
HS (Hook Switch)	5	Input terminal which detects that the telephone set has become active when the handset is hooked off. "OFF-HOOK" corresponds to V _{SS} condition.									
RE, CD, RD	6 to 8	Terminals for oscillation.									
DP (Dial Pulse Out)	9	Dial pulse output terminal									
V _{DD} (Power Supply) V _{SS} (Power Supply)	13 10	Power terminals. The device is designed to operate from 1.25V to 3.5V									
MUTE (Mute Out)	11	Output terminal to prevent handset noise from entering the line during dialing.									
M/S (Mark/Space)	12	Terminal for selecting a mark/space ratio. <table><tr><td>Input Logic Level</td><td>Mark</td><td>Space</td></tr><tr><td>V_{DD}</td><td>40</td><td>60</td></tr><tr><td>V_{SS}</td><td>100/3</td><td>200/3</td></tr></table>	Input Logic Level	Mark	Space	V _{DD}	40	60	V _{SS}	100/3	200/3
Input Logic Level	Mark	Space									
V _{DD}	40	60									
V _{SS}	100/3	200/3									
DRS (Dial Rate Select)	14	Terminal for selecting a dial pulse rate. <table><tr><td>V_{DD}</td><td>20pps</td></tr><tr><td>V_{SS}</td><td>10pps</td></tr></table>	V _{DD}	20pps	V _{SS}	10pps					
V _{DD}	20pps										
V _{SS}	10pps										
IPS (Inter-digit Pause Select)	15	Terminal for selecting a dial pulse pause time between digits. <table><tr><td>Input Logic Level</td><td>DR 20pps</td><td>DR 10pps</td></tr><tr><td>V_{DD}</td><td>470ms</td><td>620ms</td></tr><tr><td>V_{SS}</td><td>400ms</td><td>800ms</td></tr></table>	Input Logic Level	DR 20pps	DR 10pps	V _{DD}	470ms	620ms	V _{SS}	400ms	800ms
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V _{DD}	470ms	620ms									
V _{SS}	400ms	800ms									

■ABSOLUTE MAXIMUM RATINGS

($V_{SS}=0V$)

Parameter	Symbol	Min	Max	Unit
Supply voltage	V_{DD}	-0.3	5.0	V
Operating temperature	T_{opr}	-30	70	°C
Storage temperature	T_{stg}	-55	125	°C
Input voltage	V_i	$V_{SS}-0.3$	$V_{DD}+0.3$	V

■ELECTRICAL CHARACTERISTICS

●DC Characteristics

($V_{SS}=0V, T_a=-30$ to $70^{\circ}C$)

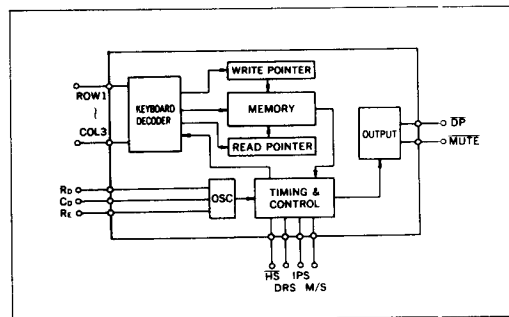
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Supply voltage	V_{DD}		1.25	—	3.5	V
Operating current	I_{OP}	$V_{OP}=3.5V$	—	—	200	μA
Data retention voltage	V_{DR}		1.0	—	—	V
Data retention current	I_{DR}	$V_{DR}=1.0V$	—	—	0.75	μA
DP sink current	I_{PL}	$V_{OP}=3.5V, V_O=0.4V$	1.0	—	—	mA
DP source current	I_{PH}	$V_{OP}=3.5V, V_O=2.5V$	1.0	—	—	mA
Mute sink current	I_{ML}	$V_{OP}=3.5V, V_O=0.4V$	1.0	—	—	mA
Mute source current	I_{MH}	$V_{OP}=3.5V, V_O=2.5V$	1.0	—	—	mA
Logic "1"	V_H		80% of V_{OP}	—	—	V
Logic "0"	V_L		—	—	20% of V_{OP}	V

●AC Characteristics

($f_{osc}=2.4kHz$)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Pre-pause	t_{PP}		4.58	6.25	7.92	ms
Time for valid key entry	t_{ON}		28.34	—	—	ms
Oscillator start up time	t_{OS}		—	—	1.0	ms
Mute delay	t_{MD}		—	9.17	—	ms
Approval noise pulse width	t_N		—	—	13.3	ms

■BLOCK DIAGRAM



●Timing Chart

