

CONSUMER ICs

NEC

T-77-05-05

Digital Tuning Systems:  $\mu$ PD1700 Series

Type No.	$\mu$ PD1701*	$\mu$ PD1703*	$\mu$ PD1704*	$\mu$ PD1705*	$\mu$ PD1706*	$\mu$ PD1707	$\mu$ PD1708
Main use	Radio, tuner	Radio, tuner	Radio, tuner	TV, CATV	Portable radio, radio cassette	Hi-Fi tuner, TV, CATV	Car radio tuner
Package	28-pin DIP (400 mil)	28-pin DIP (400 mil)	42-pin DIP (600 mil)	42-pin DIP (600 mil)	64-pin flatpack	52-pin flatpack	52-pin flatpack
Supply voltage	5 V $\pm$ 10%	5 V $\pm$ 10%	5 V $\pm$ 10%	5 V $\pm$ 10%	3 V $\pm$ 10%	5 V $\pm$ 10%	5 V $\pm$ 10%
Supply current (CPU)	500 $\mu$ A typ	500 $\mu$ A typ	600 $\mu$ A typ	600 $\mu$ A typ	85 $\mu$ A typ	500 $\mu$ A typ	400 $\mu$ A typ
ROM	760 steps x 16 bits	760 steps x 16 bits	1016 steps x 16 bits	1016 steps x 16 bits	1148 steps x 16 bits	2040 steps x 16 bits	1528 steps x 16 bits
RAM	64 words x 4 bits	64 words x 4 bits	128 words x 4 bits	64 words x 4 bits	80 words x 4 bits	128 words x 4 bits	96 words x 4 bits
No. of commands	55	55	78	77	71	85	77
Display	LED (FIP)	FIP (LED)	FIP (LED)	FIP (LED)	LCD (1/3 duty)	FIP (LED)	LCD (1/2 duty)
Segment	7 (CMOS)	7 (P-ch open drain)	7 (P-ch open drain)	7 (P-ch open drain)	LCD driver incorporated	7 (P-ch open drain)	LCD driver incorporated
Digit	6	6	7	6	Segment: 20 Common: 3	6	Segment: 23 Common: 2
Input port	5 (SD, K <sub>0</sub> to K <sub>3</sub> )	5 (SD, K <sub>0</sub> to K <sub>3</sub> )	5 (SD, K <sub>0</sub> to K <sub>3</sub> )	4 (K <sub>0</sub> to K <sub>3</sub> )	5 (SD, K <sub>0</sub> to K <sub>3</sub> )	4 (K <sub>0</sub> to K <sub>3</sub> )	4 (K <sub>0</sub> to K <sub>3</sub> )
Output port	0	0	0	0	16	11	8
I/O port	0	0	11	12	4	4 (Serial I/O incorporated)	4
VDP (D/A converter)	0	0	1	3	0	1	0
A/D converter	0	0	0	0	0	3	0
Crystal oscillator	4.5 MHz	4.5 MHz	4.5 MHz	4.5 MHz	150 MHz	4.5 MHz	4.5 MHz
PLL reference frequency	1, 5, 9, 10, 25 kHz	1, 5, 9, 10, 25 kHz	1, 5, 9, 10, 12.5, 25 kHz	1, 5, 6.25, 9, 10, 25 kHz	1, 3, 5, 6.25, 25 kHz	1, 5, 6.25, 9, 10, 12.5, 25 kHz	1, 5, 6.25, 9, 10, 12.5, 25 kHz
Application prescaler	$\mu$ PB553AC (130 MHz), $\mu$ PB562AC (1 GHz)	$\mu$ PB553AC (130 MHz), $\mu$ PB562AC (1 GHz)	$\mu$ PB533AC (130 MHz), $\mu$ PB562AC (1 GHz)	$\mu$ PB553AC (130 MHz), $\mu$ PB562AC (1 GHz)	$\mu$ PB566A (130 MHz)	$\mu$ PB553AC (130 MHz), $\mu$ PB562AC (1 GHz)	Incorporated (50 MHz)
Support tool	EVA-KIT 1700	EVA-KIT 1700	EVA-KIT 1700	EVA-KIT 1700	EVA-KIT 1700	EVA-KIT 1700	EVA-KIT 1700
SE board	SE-1701	SE-1701	SE-1704	SE-1705	SE-1706	SE-1700	SE-1700
Option board	—	—	—	—	—	EV-1707	EV1708
Assembler	Cross-assembler CP/M-80™, MP/M-86™						

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\*Not recommended for new designs.



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Digital Tuning Systems:  $\mu$ PD1700 Series (cont)

Type No.	$\mu$ PD1709	$\mu$ PD1710	$\mu$ PD1711	$\mu$ PD1712	$\mu$ PD1713	$\mu$ PD1714	$\mu$ PD1715
Main use	TV, CATV	Car radio	Radio, TV, CATV	Tuner, TV, CATV	Car radio, tuner	Hi-Fi tuner, car radio	Portable radio, radio cassette
Package	28-pin shrink DIP	52-pin flatpack	42-pin shrink DIP	42-pin shrink DIP	52-pin flatpack	64-pin flatpack	54-pin flatpack
Supply voltage	5 V $\pm$ 10%	5 V $\pm$ 10%	5 V $\pm$ 10%	5 V $\pm$ 10%	5 V $\pm$ 10%	5 V $\pm$ 10%	2.2 to 3.5 V
Supply current (CPU)	600 $\mu$ A typ	600 $\mu$ A typ	500 $\mu$ A typ	500 $\mu$ A typ	400 $\mu$ A typ	500 $\mu$ A typ	30 $\mu$ A typ
ROM	1526 steps x 16 bits	1016 steps x 16 bits	2040 steps x 16 bits	2040 steps x 16 bits	1528 steps x 16 bits	2040 steps x 16 bits	1528 steps x 16 bits
RAM	64 words x 4 bits	128 words x 4 bits	128 words x 4 bits	128 words x 4 bits	96 words x 4 bits	128 words x 4 bits	96 words x 4 bits
No. of commands	82	78	84	84	79	94	76
Display	LED	LED (FIP)	FIP (LED)	FIP (LED)	LCD (1/2 duty)	LCD (1/2 duty)	LCD (1/3 duty)
Segment	7 (LED driver incorporated)	7 (CMOS output)	7 (P-ch open drain)	7 (P-ch open drain)	LCD driver incorporated	LCD driver incorporated	LCD driver incorporated
Digit	2	7	6	6	Segment: 21 Common: 2	Segment: 28 Common: 2	Segment: 16 Common: 3
Input port	0	5 (SD, K <sub>0</sub> to K <sub>3</sub> )	4 (K <sub>0</sub> to K <sub>3</sub> )	4 (K <sub>0</sub> to K <sub>3</sub> )	4 (K <sub>0</sub> to K <sub>3</sub> ) +2	4 (K <sub>0</sub> to K <sub>3</sub> )	4 (K <sub>0</sub> to K <sub>3</sub> )
Output port	2	0	8	8	7	12	9
I/O port	6 (Serial I/O incorporated)	11	4 (Serial I/O incorporated)	4 (Serial I/O incorporated)	4	8 (Serial I/O incorporated)	4
VDP (D/A converter)	1	1	1	1	0	1	1
A/D converter	1	0	1	1	0	1	0
Crystal oscillator	4.5 MHz	4.5 MHz	4.5 MHz	4.5 MHz	4.5 MHz	4.5 MHz	7.5 MHz
PLL reference frequency	1.5, 6.25, 9, 10, 12.5, 25 kHz	1.5, 7, 10, 12.5, 25 kHz	1.5, 6.25, 9, 10, 12.5, 25 kHz	1.5, 6.25, 9, 10, 12.5, 25 kHz	1.5, 6.25, 9, 10, 12.5, 25 kHz	1.5, 6.25, 9, 10, 12.5, 25 kHz	1.5, 6.25, 9, 10, 12.5, 25 kHz
Application prescaler	$\mu$ PB553AC (130 MHz), $\mu$ PB562AC (1 GHz)	$\mu$ PB553AC (130 MHz), $\mu$ PB562AC (1 GHz)	$\mu$ PB553AC (130 MHz), $\mu$ PB562AC (1 GHz)	$\mu$ PB553AC (130 MHz), $\mu$ PB562AC (1 GHz)	$\mu$ PB553AC (130 MHz), $\mu$ PB562AC (1 GHz)	$\mu$ PB553AC (130 MHz), $\mu$ PB562AC (1 GHz)	$\mu$ PB553AC (130 MHz), $\mu$ PB562AC (1 GHz)
Support tool	EVA-KIT 1700	EVA-KIT 1700	EVA-KIT 1700	EVA-KIT 1700	EVA-KIT 1700	EVA-KIT 1700	EVA-KIT 1700
SE board	SE-1700	SE-1704	SE-1700	SE-1700	SE-1700	SE-1700	SE-1700
Option board	EV-1709	—	EV-1707	EV-1707	EV-1713	EV-1714	EV-1715
Assembler	Cross-assembler CP/M-80 MP/M-86						



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**Digital Tuning Systems:  $\mu$ PD1700 Series (cont)**

Type No.	$\mu$ PD1716	$\mu$ PD1717*	$\mu$ PD1719*	$\mu$ PD1720	$\mu$ PD1730
Main use	VTR, TV, car radio, Hi-fi tuner	TV, CATV	Hi-fi tuner, car radio	Car radio (AM only)	TV, VTR
Package	28-pin shrink DIP	40-pin shrink DIP	64-pin flatpack	52-pin flatpack	30-pin shrink DIP
Supply voltage	5 V $\pm$ 10%	5 V $\pm$ 10%	5 V $\pm$ 10%	5 V $\pm$ 10%	5 V $\pm$ 10%
Supply current (CPU)	500 $\mu$ A typ.	500 $\mu$ A typ.	500 $\mu$ A typ.	400 $\mu$ A typ.	500 $\mu$ A typ.
ROM	1016 steps x 16 bits	2040 steps x 16 bits	2040 steps x 16 bits	1016 steps x 16 bits	1008 steps x 16 bits
RAM	64 words x 4 bits	64 words x 4 bits EEP ROM 64 x 8	256 words x 4 bits	64 words x 4 bits	48 words x 4 bits
Number of commands	82	87	94	78	67
Display	—	LED	LCD (1/3 duty)	LCD (1/3 duty)	LED
Segment	—	7	LCD driver incorporated	LCD driver incorporated	7 (LED driver incorporated)
Digit	—	3	Segment: 28 Common: 2	Segment: 21 Common: 2	2
Input port	0	0	4 ( $K_0$ to $K_3$ )	4 ( $K_0$ to $K_3$ )	0
Output port	5	4	12	7	8
I/O port	8	8	8 (Serial I/O incorporated)	4	5
VDP (D/A converter)	0	1	1	0	1
A/D converter	1	1	1	0	1
Crystal oscillator	4.5 MHz	4.5 MHz	4.5 MHz	4.5 MHz	4.5 MHz (Ceramic oscillator)
PLL reference frequency	1, 5, 6.25, 9, 10, 12.5, 25 kHz	1, 5, 6.25, 9, 10, 12.5, 25 kHz	1, 5, 6.25, 9, 10, 12.5, 25 kHz	1, 5, 6.25, 9, 10, 12.5, 25 kHz	Voltage synthesizer (13 bits D/A incorporated)
Application prescaler	Incorporated (150 MHz), $\mu$ PB567HA (1 GHz)	Incorporated (150 MHz), $\mu$ PB567HA (1 GHz)	Incorporated	—	—
Support tool	EVA-KIT	EVA-KIT 1700	EVA-KIT 1700	EVA-KIT 1700	EVA-KIT 1700
SE board	SE-1700	SE-1700	SE-1700	SE-1700	SE-1700
Option board	EV-1709	EV-1717	EV-1714	EV-1713	EV-1730
Assembler	Cross-assembler under CP/M-80 and MP/M-86				

\* Under development