EPSON

7920 Series

Melody IC

Low Voltage Operation Products

- **Clear Electronic Sound**
- **Usable for Wide-ranged Application**
- **Low Power Dissipation & Supply Voltage**

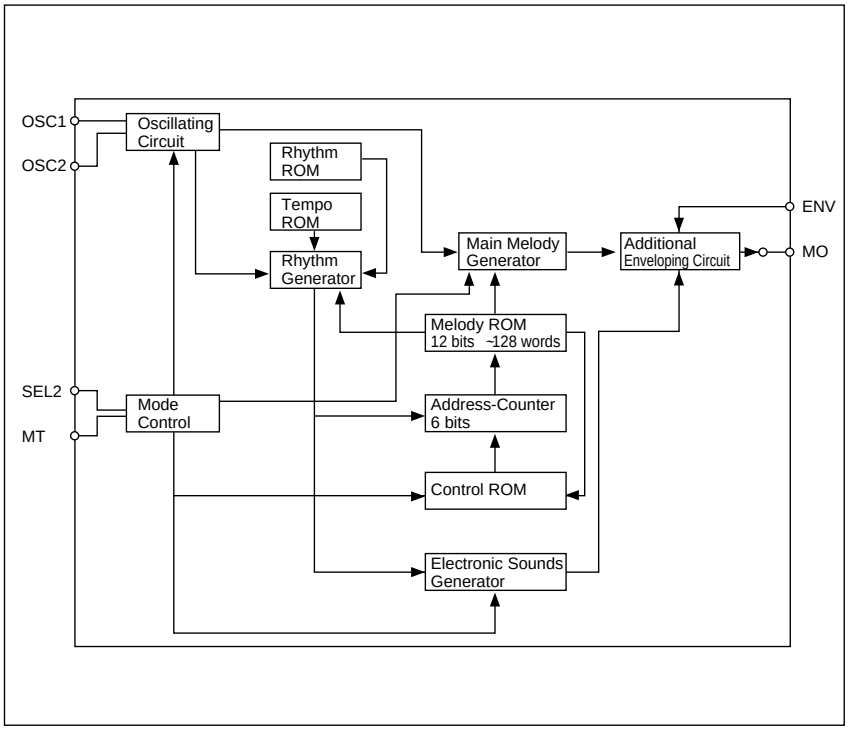
■ DESCRIPTION

The series 7920 is a CMOS IC which plays prearranged melodies and alarm sounds electronically. Built-in oscillation circuit generates acoustic pulses, then melodies and alarm sounds are formed with only a few external diserete parts including resistor, capacitor, speaker etc. Thus the 7920 can enjoy various applications such as replacement for conventional music box and alarm sound generator.

■ FEATURES

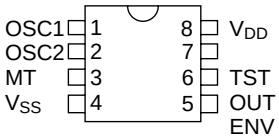
- ●Melody 1
- ●Musical interval ..... Temperament or pure temperament
- ●Sound ..... 1 series, 2.5 octave
  Compound interval or accompaniment are possible.(One octave interval)
- ●Tempo ..... 16 kinds(Prest to Largo). Two tempos in one piece.
- ●Note ..... Basic note ♪ ♩ ♩ ♪ ♪ ♪ , and also possible for 𝅝 𝅗𝅥. 𝅗𝅥 ♩. ♪
- ●Rest ..... According to note
- ●Repeat ..... Continuous performance of pieces, and repeats(8 times at most)of a piece.
- ●Beginning ..... Always starts at the beginning of piece.
- ●Input signal ..... 1 start signal
- ●Envelope ..... External CR(2 series)
- ●Volume control ..... From external circuit(volume etc.)
- ●Oscillation ..... C, R oscillator (C, R external connection)
- ●Voltage 1.5V/3.0V
- ●Package ..... DIP-8pin(plastic)/SOP4-8pin(plastic)

■ BLOCK DIAGRAM



■ PIN CONFIGURATION

DIP-8pin/SOP4-8pin



■ PIN DESCRIPTION

Pin Name	Pin No.	Function	Pin Name	Pin No.	Function
OSC1, OSC2	1 2	Connected with resistor Rv regulates the oscillation frequency.	ENV	5	Connected with C, R_1, regulates the time-constant of envelope.
			OUT	6	Connect to pre-amp.
MT	3	Performance starts on setting this terminal Hi.	TST	7	IC test input (Pull-down resistor provided)
V_{SS}	4	V_{SS} (0V)	V_{DD}	8	V_{DD} (+)

■ ABSOLUTE MAXIMUM RATINGS

(V_{SS}=0V)

Rating	Symbol	Value	Unit
Supply voltage	V_{DD}	-0.3 to 5.0	V
Input /Output voltage	$V_{I/O}$	-2.0 to V_{DD}+0.2	V
Operating temperature	Topr	-20 to 65 (V_{DD}=1.5V)	˚C
Storage temperature	Tstg	-65 to 150	˚C
Soldering temperature and time	Tsol	260˚C, 10s (at lead)	–

■ ELECTRICAL CHARACTERISTICS

(V_{SS}=0V, Ta=25˚C)

Characteristic	Symbol	Condition	Min.	Typ.	Max.	Unit
Supply voltage	V_{DD}	-	1.2	1.5	2	V
High level input voltage	V_{IH}	-	V_{DD}-0.1	-	V_{DD}	V
Low level input voltage	V_{IL}	-	V_{SS}	-	V_{SS}+0.1	V
High level input current	I_{IH2}	V_{DD}=1.5V V_{IH}=V_{DD}	1.5	-	15	µA
High level output voltage	V_{OH}	V_{DD}=1.2V R_L=150kΩ ENV=V_{SS}	V_{DD}-0.1	-	V_{DD}	V
Low level output voltage	V_{OL}	V_{DD}=1.2V R_L=150kΩ ENV=V_{SS}	V_{SS}	-	V_{SS}+0.1	V
Fall time of enveloping circuit (10% to 90%)	t_f	V_{DD}=1.5V C_1=4.7µF f_{OSC}=47.52kHz	2.8	-	10	ms
Standby current (Oscillation halting)	I_{DDS}	V_{DD}=1.5V OUT1, OUT2 open (OUT open)	-	0.1	0.3	µA
Average operating current	I_{DDO}	V_{DD}=1.5V, MT=V_{DD} OUT1, OUT2 open (OUT open)	-	30	60	µA

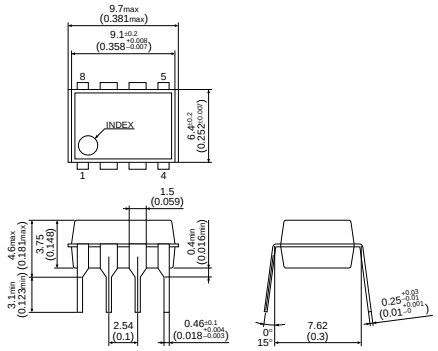
■ OSCILLATION CHARACTERISTICS

(V_{SS}=0V, Ta=25˚C)

Characteristic	Symbol	Condition	Min.	Typ.	Max.	Unit
Oscillation frequency	f_{osc}	V_{DD}=1.5V	-	47.52	-	kHz
Oscillation self-start voltage	V_{STA}	R_1=120kΩ	1.2	-	-	V
Oscillation stop voltage	V_{STP}	R_1=120kΩ	-	-	1.2	V

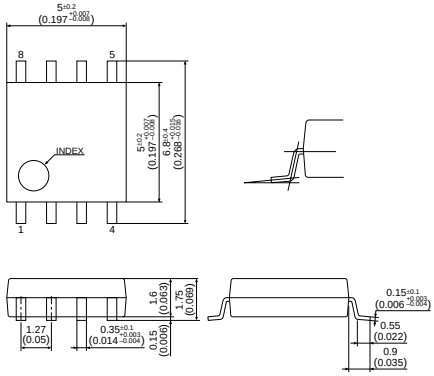
■ PACKAGE DIMENSIONS

Plastic DIP-8pin



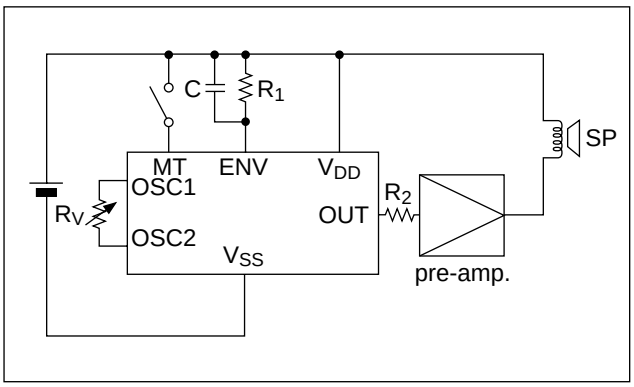
Unit: mm
(inch)

Plastic SOP4-8pin



Unit: mm
(inch)

■ BASIC EXTERNAL CONNECTION



<Recommendable conditions of discrete parts>

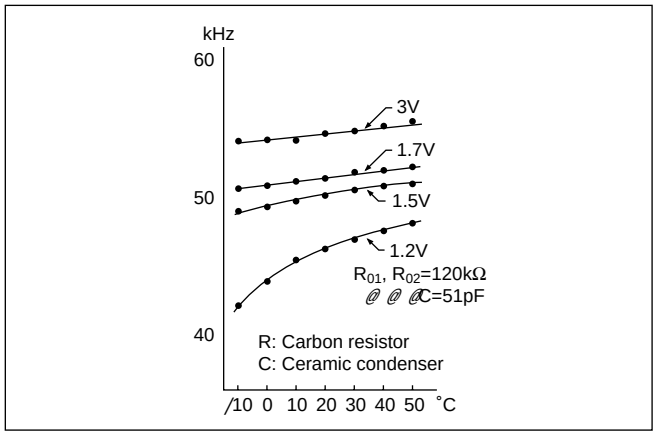
Symbol	Recommendable value	Unit
R_V	1,160 Typ.	kΩ
R_1	120	kΩ
R_2	100 to 300	kΩ
C	4.7	µF

Attention

1. Oscillation frequency(f_{OSC})changes according to variation of R_V but stability of frequency will be worse.
2. We feel melody differently variation of C, R_1.
3. It is possible that fluctuation of oscillation frequency become larger with increase of battery impedance. In that case, connecting condenser between V_{DD} and V_{SS} is desirable.

■ CHARACTERISTICS CURVE

● Oscillation characteristics



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