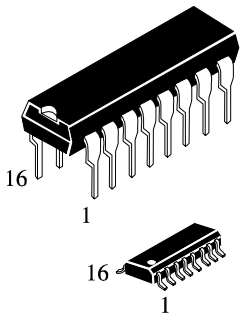
Melody Generator with Accompaniment

KK8040

FEATURES

- Two Sound Sources with Envelope (CR Envelope)
- Melody is inserted up to four.
- According to customer's request, the inserted melody is flexible.
- 3.0V to 5.0V Operating Voltage
- DC or AC Triggered Performance Start Mode (Mask Selected)
- Can Drive an 8 Ohm Dynamic Loudspeaker if Provided Externally with a Transistor
- Bare chip or 16-pin DIP (Plastic) Package available



N SUFFIX
PLASTIC

D SUFFIX
SOIC

ORDERING INFORMATION

KK8040N Plastic
KK8040D SOIC
T_A = -40° to 85° C for all packages

DESCRIPTION

The KK8040 is a CMOS LSI chip, which plays a prearranged melodies.

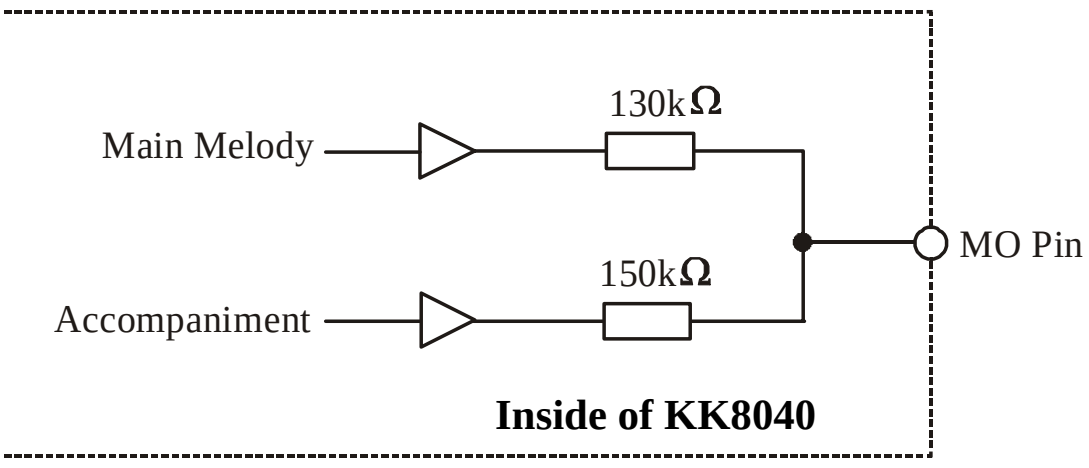
ABSOLUTE MAXIMUM RATINGS (T_a = 25°C)

Characteristic	Symbol	Value	Unit
Power Supply Voltage	V_{DD}	- 0.3 to + 7.0	V
Input Terminal Voltage	V_{10}	- 0.2 to V_{DD} + 0.2	V
Operating Temperature	T_a	-40 to + 85 (V_{SS} = 1.5V)	°C
Storage Temperature	T_{stg}	- 65 to + 150	°C
Soldering Temperature and Time	T_{sol}	260°C, 10s (at lead)	

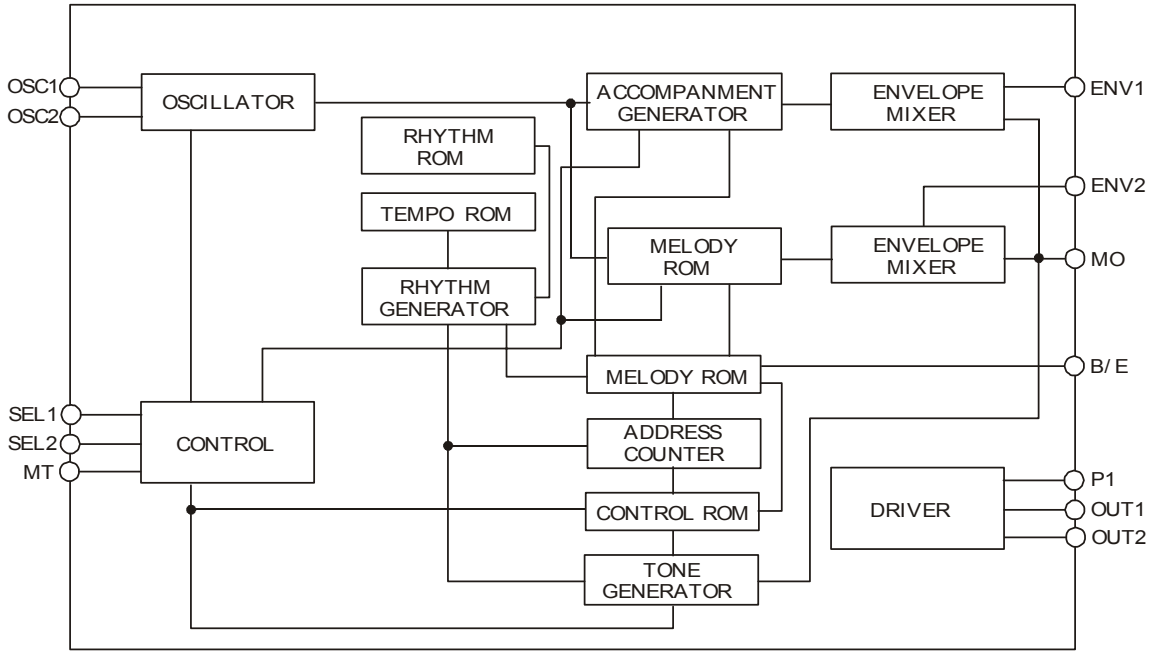
ELECTRICAL CHARACTERISTICS (V_{DD} = 5V, T_a = 25°C; unless otherwise specified)

Characteristic		Symbol	Test Condition	Min	Typ	Max	Unit
Operating Voltage		V_{DD}		3.0	5.0	5.5	V
Input Voltage	"1"	V_{IH}		V_{DD} - 0.3	-	V_{DD}	V
	"0"	V_{IL}		V_{SS}	-	V_{SS} + 0.3	
MT Power Supply Time				150			ms
Response Time						600	ms

MO OUTPUT PIN EQUIVALENT CIRCUIT



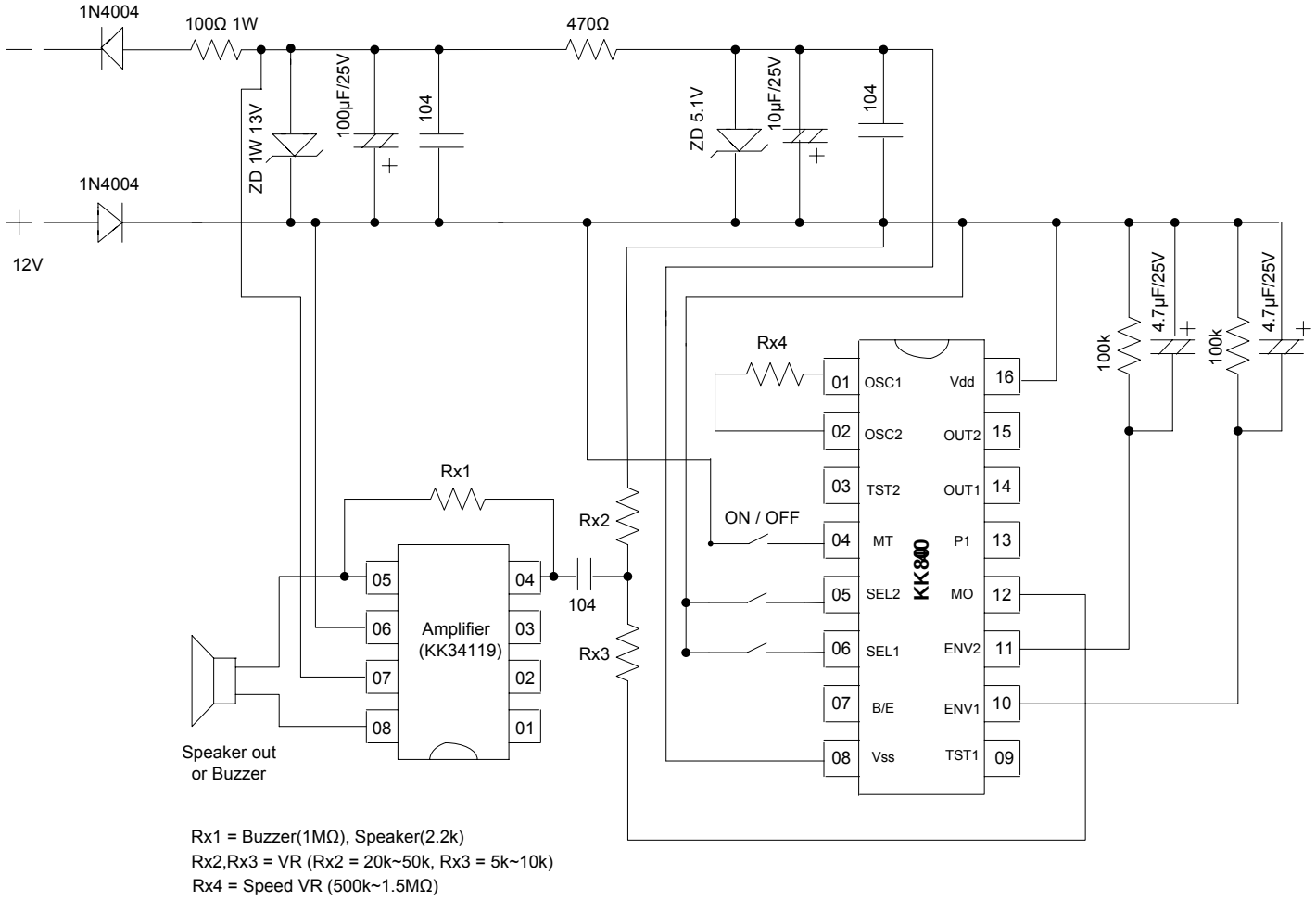
BLOCK DIAGRAM



PIN DESCRIPTION

Pin. No.	Pin Name	Pull-Down Resistor	Functions
1	OSC1	-	A resistor is connected between both terminals to from a ring oscillator, or external reference signals are applied to OSC1.
2	OSC2	-	
3	TST2	Provided	LSI Test Input/Output.
4	MT	Provided	For binary selection: Controls Start and Stop of Performance. For direct selection: Selects Melody 1 and Controls Start and Stop of it's Performance.
5	SEL2	Provided	For binary selection: this Terminal in Conjunction with SEL1, selects a Melody. For direct selection: Selects Melody 3 and Controls Start and Stop of it's Performance.
6	SEL1	Provided	For binary selection: this Terminal in Conjunction with SEL1, selects a Melody. For direct selection: Selects Melody 2 and Controls Start and Stop of it's Performance.
7	B/E	-	BUSY or END Signal Output Terminal.
8	V_{SS}	-	Power Supply Terminal (0V).
9	TST1	Provided	LSI Test Input.
10	ENV1	-	Connects Resistor and Capacitor to add Envelope to Main Melody.
11	ENV2	-	Connects Resistor and Capacitor to add Envelope to Accompaniment.
12	MO	-	Output Terminal or Acoustic Signals that have not been Amplified.
13	P1	Provided	Connects PNP/NPN Transistors, resistors and Capacitors to form a Low-Frequency Linear Amplifier Circuit.
14	OUT1		
15	OUT2		
16	V_{DD}	-	3.0V to 5.0V Operating Voltage

APPLICATION CIRCUIT (basic external connection)



Rx1 = Buzzer(1MΩ), Speaker(2.2k)
Rx2,Rx3 = VR (Rx2 = 20k~50k, Rx3 = 5k~10k)
Rx4 = Speed VR (500k~1.5MΩ)

RECOMMENDED CONDITIONS FOR EXTERNAL DEVICES

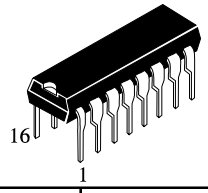
Symbol	Ratings	Unit	Symbol	Ratings	Unit
VR1	1 - 2	MΩ	C1	4.7	μF
VR2	50	kΩ	C2	4.7	μF
R1	100	kΩ	C3	0.1	μF
R2	100	kΩ	-	-	-

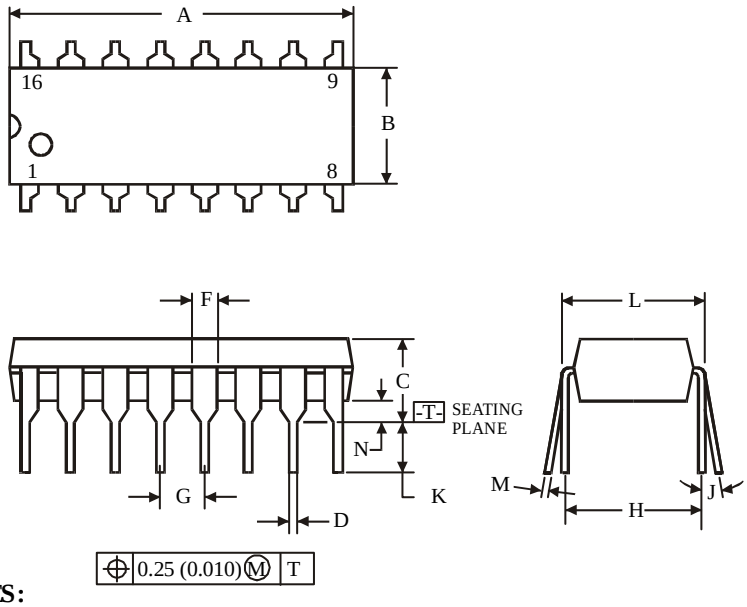
SELECTION CONDITION FOR MELODY

Condition		Melody
#5	#6	
High	High	*Test melody
High	Low	*Ding – Dong
Low	High	*Do – Mi – Sol – Do
Low	Low	*Do- Sol – Mi - Do

* Revision & Injection of Melody is possible according to customer's request.

N SUFFIX PLASTIC DIP
(MS - 001BB)



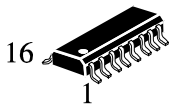


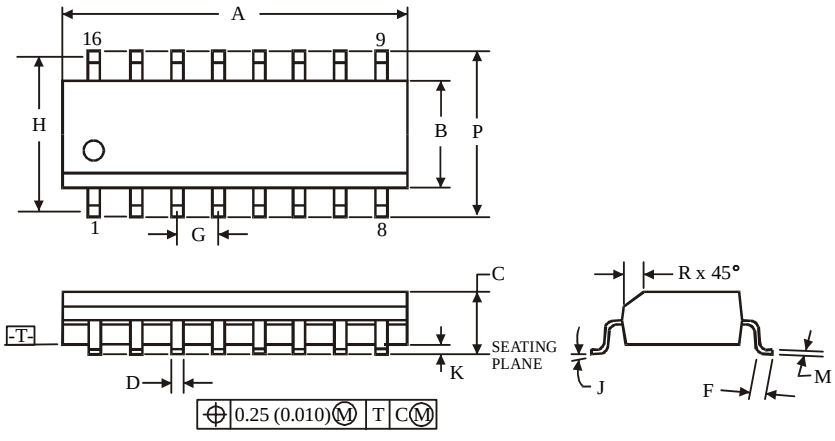
	Dimension, mm	
Symbol	**MIN**	**MAX**
A	18.67	19.69
B	6.10	7.11
C		5.33
D	0.36	0.56
F	1.14	1.78
G	2.54	
H	7.62	
J	0°	10°
K	2.92	3.81
L	7.62	8.26
M	0.20	0.36
N	0.38	

NOTES:

1. Dimensions “A”, “B” do not include mold flash or protrusions.
   Maximum mold flash or protrusions 0.25 mm (0.010) per side.

D SUFFIX SOIC
(MS - 012AC)





	Dimension, mm	
Symbol	**MIN**	**MAX**
A	9.80	10.00
B	3.80	4.00
C	1.35	1.75
D	0.33	0.51
F	0.40	1.27
G	1.27	
H	5.72	
J	0°	8°
K	0.10	0.25
M	0.19	0.25
P	5.80	6.20
R	0.25	0.50

NOTES:

1. Dimensions A and B do not include mold flash or protrusion.
2. Maximum mold flash or protrusion 0.15 mm (0.006) per side
   for A; for B – 0.25 mm (0.010) per side.