SONY

CXA1994AM/BM

M-ary FSK Demodulating Comparator

Description

The CXA1994AM/BM is a comparator which allows the M-ary (4-level) FSK data to be demodulated in combination with an FM IF amplifier for pagers.

Features

- Low power consumption
  70µA (at V_{CC} = 1.4V, including the current on battery saving control pin)
- Low voltage operation
  V_{CC} = 1.0 to 4.0V

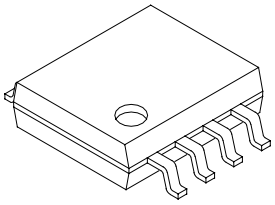
Applications

M-ary FSK pagers

Function

- Window comparator for MSB detection
- Battery saving control pin
- Threshold level adjustment pin

8 pin SOP (Plastic)



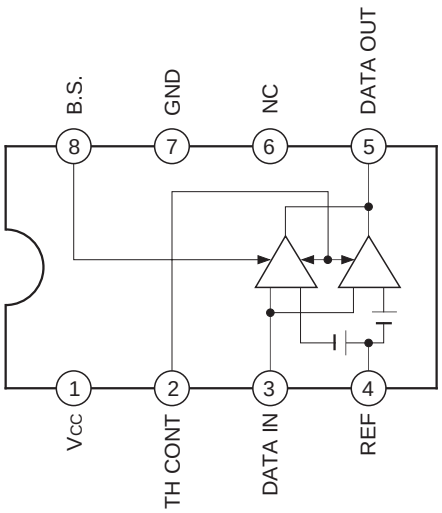
Absolute Maximum Ratings (Ta = 25°C)

• Supply voltage	V_{CC}	7.0	V
• Operating temperature	Topr	–20 to +75	°C
• Storage temperature	Tstg	–65 to +150	°C

Operating Conditions

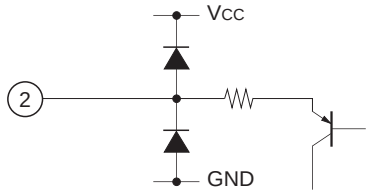
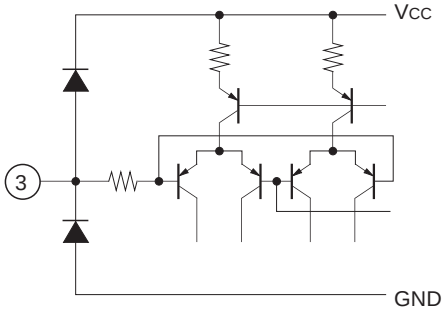
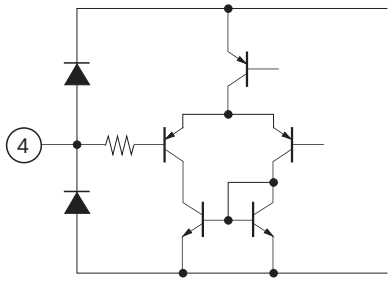
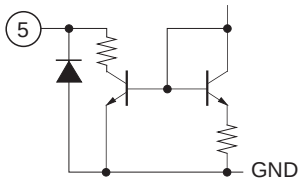
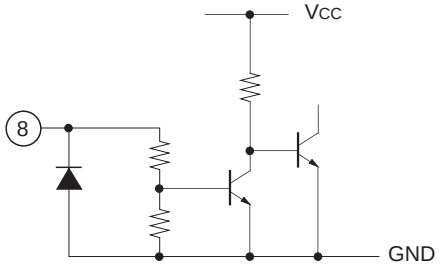
• Supply voltage	V_{CC}	1.0 to 4.0	V

Block Diagram



E96428A8Y

Pin Description

Pin No.	Symbol	Pin voltage	Equivalent circuit	Description
1	Vcc	1.5V		Vcc.
2	TH CONT	—		Adjusts the threshold level for comparator.
3	DATA IN	0.2V		Signal input. Connected to the COMP IN pin of the CXA1484A.
4	REF	0.2V		Reference input. Connected to the SENSE pin of the CXA1484A.
5	DATA OUT	—		Comparator output.
6	NC	—		
7	GND	0		Ground.
8	B.S.	—		Battery saving control.

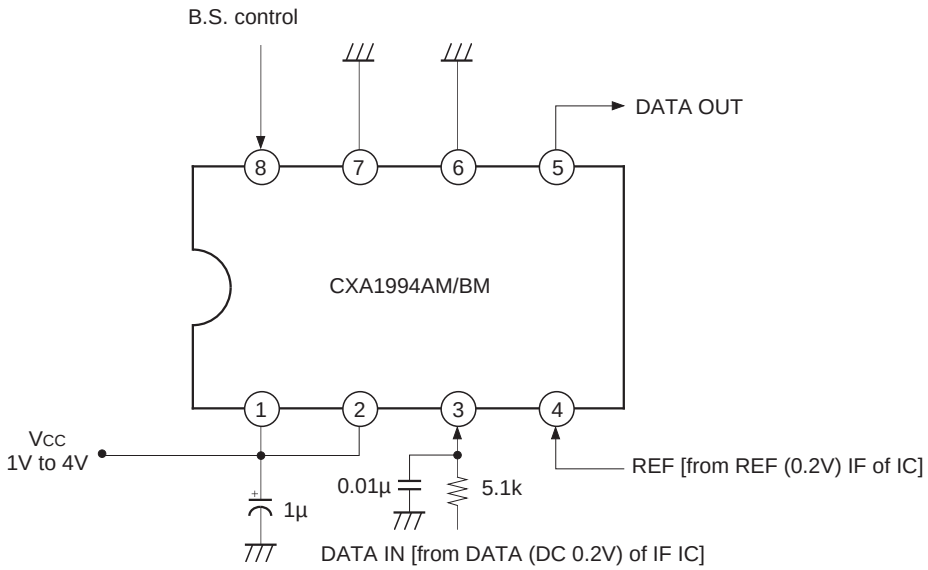
Electrical Characteristics (V_{CC} = 1.4V, Ta = 25°C)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Current consumption	I_{CC}			70	100	µA
Current consumption	I_{CCS}				6	µA
Comparator input voltage high level	V_{COMPH}	V_{REF} as a reference		50		mV
Comparator input voltage low level	V_{COMPL}	V_{REF} as a reference		–50		mV
Comparator output saturation voltage	Vsat				0.4	V
Logic input voltage high level	V_{THH}		0.9			V
Logic input voltage low level	V_{THL}				0.35	V

Pin Description

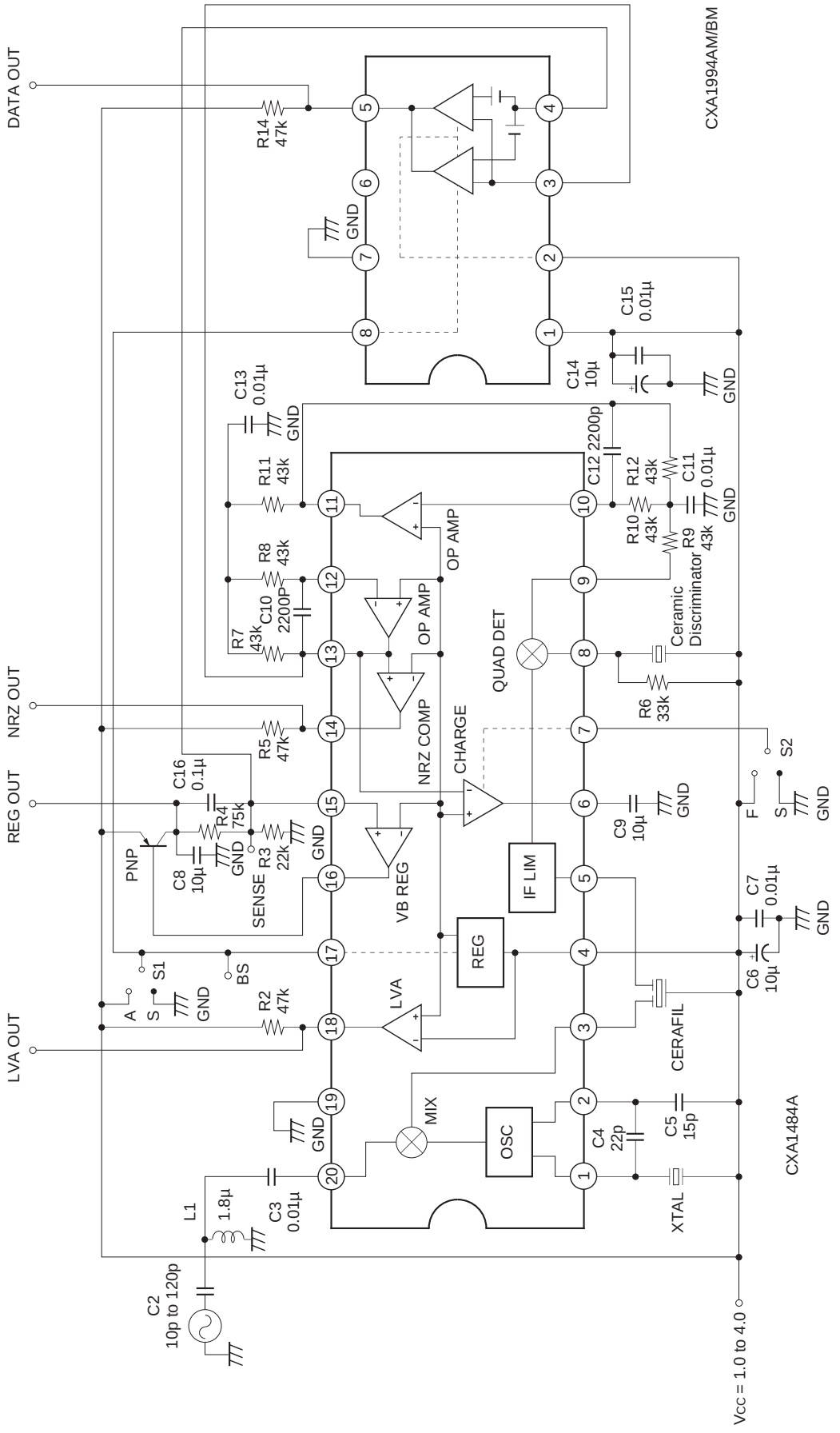
1. V_{CC} Power supply pin of 1V or more
2. TH CONT This pin adjusts the threshold level and the default is approximately ±50mV from the reference voltage. The threshold level can be set lower by inserting a resistor between V_{CC} and this pin. (The level cannot be set higher.)
3. DATA IN The signal after passing through the data filter of the IF IC (CXA1484A) is input.
4. REF Connects to the reference voltage pin of the IF IC. (Pin 15 of the CXA1484A)
5. DATA OUT Comparator output.
6. NC Not connected.
7. GND Ground.
8. B.S. Battery saving control pin. Battery saving state for low; normal operation for high.

Electrical Characteristics Measurement Circuit



* The comparator level can be set lower by inserting a resistor between Pin 1 (V_{CC}) and Pin 2.

Application Circuit



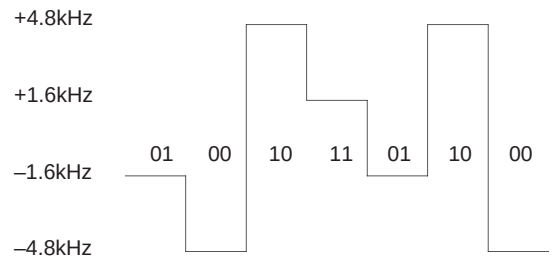
Application circuits shown are typical examples illustrating the operation of the devices. Sony cannot assume responsibility for any problems arising out of the use of these circuits or for any infringement of third party patent and other right due to same.

Description of Operation

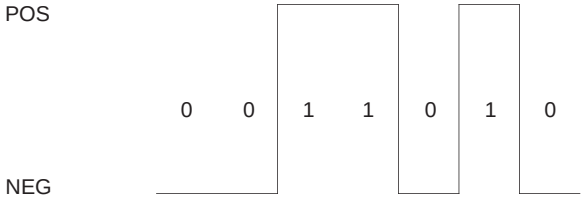
M-ary (M = 2- or 4-level) FSK emodulation system

Polarity discrimination output and MSB comparator output are used to demodulate the 4-level waveform shown below.

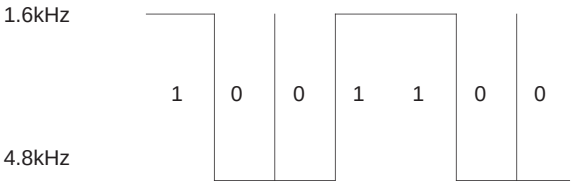
4-level FSK demodulating waveform



Polarity discrimination output



MSB comparator output



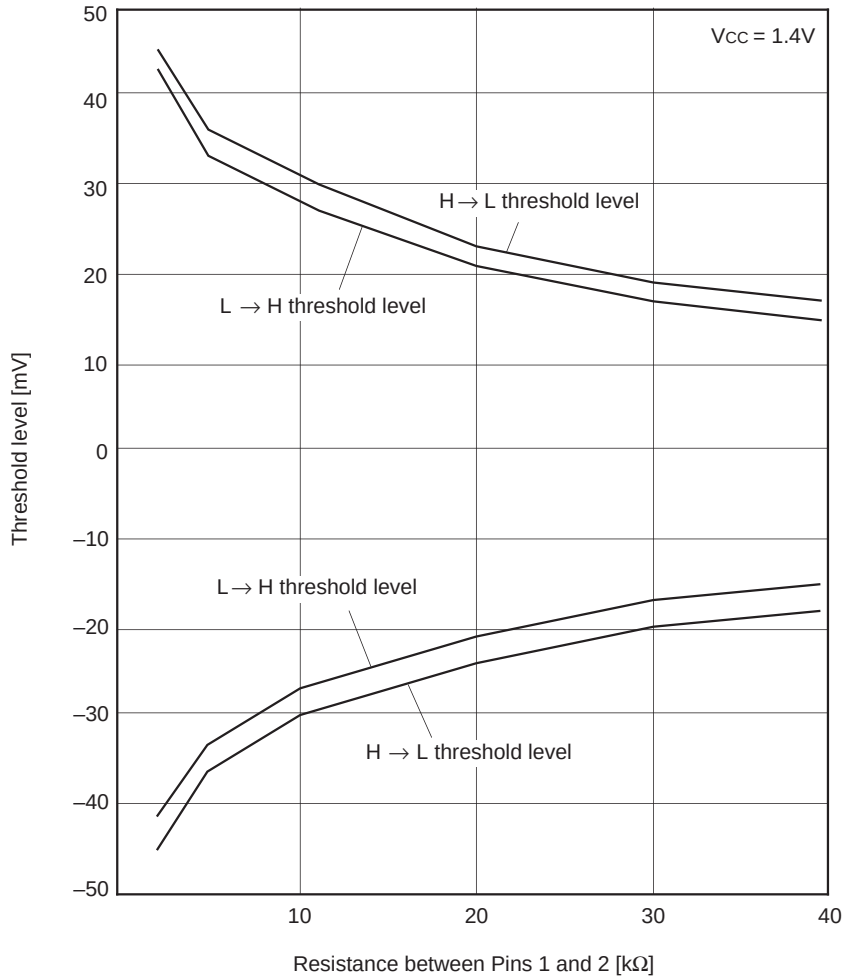
The 4-level FSK demodulating data is divided into a polarity discrimination output and a MSB comparator output shown above. Here, the polarity discrimination output corresponds to a conventional NRZ comparator output. The MSB comparator output is made comparing to the optional level setting between MSB and LSB levels as reference.

For the 2-level FSK demodulation, it corresponds to a conventional NRZ comparator output.

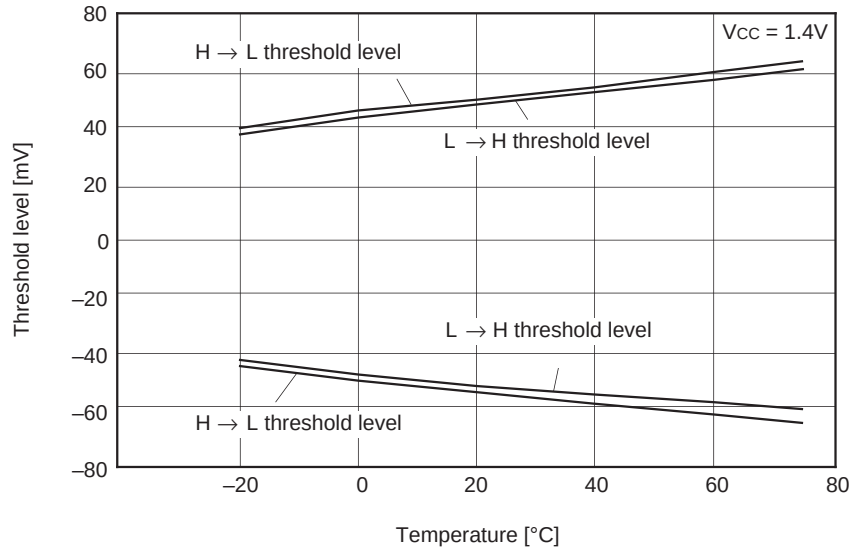
Take care that the polarity of NRZ output is inverted in CXA1484A.

Example of Representative Characteristics

Threshold level change



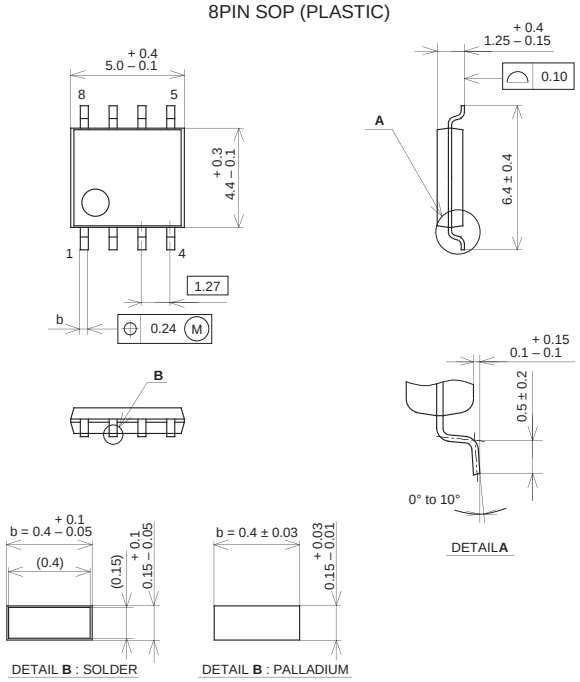
Threshold level temperature characteristics



Package Outline Unit : mm

CXA1994AM

8PIN SOP (PLASTIC)



PACKAGE STRUCTURE

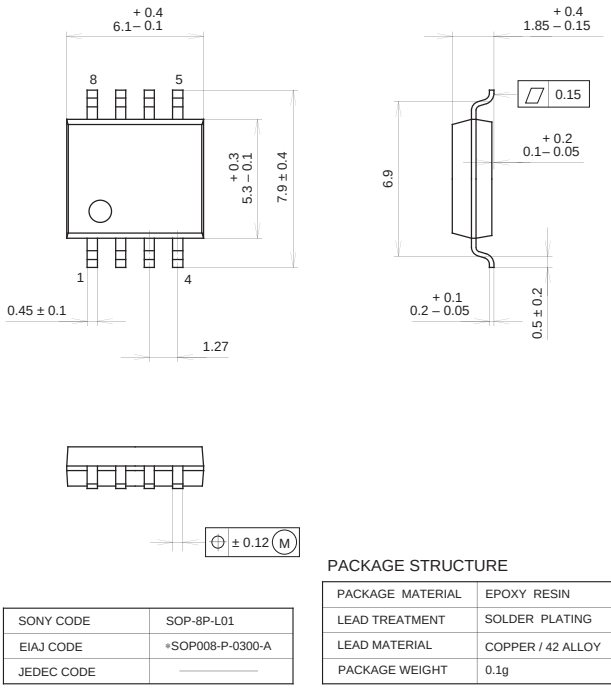
SONY CODE	SOP-8P-L03
EIAJ CODE	SOP008-P-0225
JEDEC CODE	

PACKAGE MATERIAL	EPOXY RESIN
LEAD TREATMENT	SOLDER/PALLADIUM PLATING
LEAD MATERIAL	42/COPPER ALLOY
PACKAGE MASS	0.1g

NOTE : PALLADIUM PLATING
This product uses S-PdPPF (Sony Spec.-Palladium Pre-Plated Lead Frame).

CXA1994BM

8PIN SOP (PLASTIC) 300mil



PACKAGE STRUCTURE

SONY CODE	SOP-8P-L01
EIAJ CODE	*SOP008-P-0300-A
JEDEC CODE	

PACKAGE MATERIAL	EPOXY RESIN
LEAD TREATMENT	SOLDER PLATING
LEAD MATERIAL	COPPER / 42 ALLOY
PACKAGE WEIGHT	0.1g