

# SECAM discriminator IC

## BA7007

The BA7007 is a SECAM discriminator suitable for use in video cassette recorders. The BA7007 includes a pre-limiter circuit, detector, slicer-tuning amplifier and comparator. By adding a ceramic filter, and LC circuit for the  $f_H/2$  oscillation frequency, and a few resistors and capacitors it is possible to construct an extremely sensitive SECAM discriminator using a simple circuit with low space requirements that will lead to lower costs, and better performance and reliability.

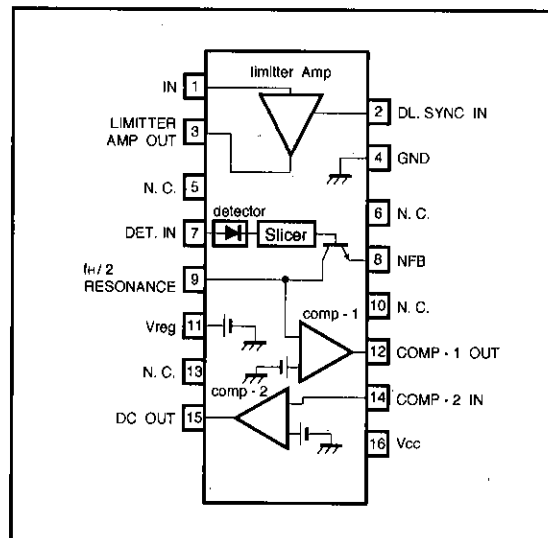
### ●Applications

SECAM discriminator for VCRs.

### ●Features

- 1)Extremely stable SECAM discrimination even with power supply and burst-signal input level fluctuations.
- 2)Digital conversion-type integration is used to ensure a large noise margin, and give high sensitivity.
- 3)Low variation in discriminator sensitivity means that adjustment is not necessary.
- 4)Few external components required.
- 5)Large current output capacity.

### ●Block diagram



● Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Power supply voltage	V <sub>CC</sub>	15	V
Power dissipation	P <sub>d</sub>	400 *	mW
Operating temperature	T <sub>opr</sub>	-25~75	°C
Storage temperature	T <sub>stg</sub>	-55~125	°C

\* Reduced by 4mW for each increase in Ta of 1°C over 25°C.

● Electrical characteristics (Unless otherwise specified Ta=25°C and V<sub>CC</sub>=9V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	Measurement Circuit
Quiescent current	I <sub>Q</sub>	—	10	15	mA	Limiter amplifier off, no output	Fig.1
Limiter amplifier gain	G <sub>V1-4</sub>	11	15	19	dB	V <sub>IN</sub> =0.1V <sub>P-P</sub> ; f=10kHz, R <sub>L</sub> =100kΩ	Fig.1
Limiter amplifier maximum gain	V <sub>O4</sub>	0.9	1.25	1.6	V <sub>P-P</sub>	V <sub>IN</sub> =0.1V <sub>P-P</sub> ; f=10kHz, R <sub>L</sub> =100kΩ	Fig.1
Extracted pulse threshold	V <sub>TH</sub>	—	0.6	—	V	Pin 2 voltage	Fig.1
Tuning amplifier output voltage	V <sub>O10</sub>	0.2	1.35	2.5	V <sub>P-P</sub>	V=0.2V <sub>P-P</sub> ; f=10kHz	Fig.1
Tuning amplifier supply voltage	V <sub>10</sub>	—	4.3	—	V	R <sub>L</sub> =10kΩ	Fig.1
DC output voltage	V <sub>15ON</sub>	6.5	8.2	—	V	R <sub>L</sub> =510Ω	Fig.1
DC output leakage voltage	V <sub>15OFF</sub>	—	0.0	0.5	V	R <sub>L</sub> =100kΩ	Fig.1

● Measurement circuit

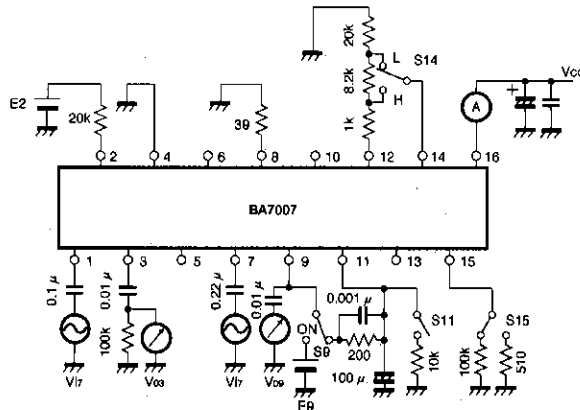


Fig.1

	E2	E9	S9	S11	S14	S15
I <sub>CC</sub>	0	0	OFF	OPEN	L	100k
G <sub>V2-3</sub> , V <sub>03</sub>	2.5V	0	OFF	OPEN	L	100k
V <sub>09</sub>	0	0	OFF	OPEN	L	100k
V <sub>11</sub>	0	0	OFF	CLOSE	L	100k
V <sub>15 ON</sub>	0	6.5V	ON	OPEN	H	510
V <sub>15 OFF</sub>	0	6.5V	ON	OPEN	L	100k

PAL/SECAM detector

VCR components

●Application example

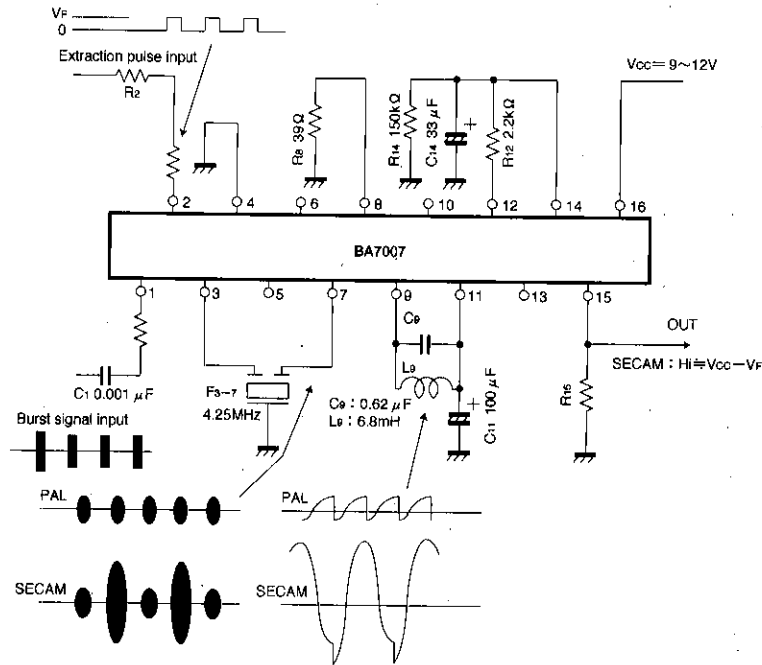
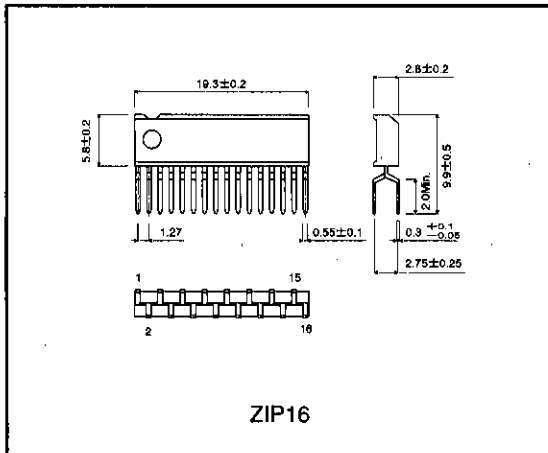


Fig 2

C1	Limiting amplifier input coupling capacitor
R2	Extraction pulse current limiting resistor
F3-7	4.25MHz band-pass filter (impedance: 1kΩ) (It is also possible to use a 4.4MHz filter, but there will be a slight drop in discrimination sensitivity). Input/output impedance: 1kΩ
R8	Resistor for adjusting the tuning amplifier output level
C9 L9	For $f_{H/2}$ resonator circuit
C11	Ripple filter (for LC resonator circuit)
C12	Components that determine the discrimination time (charge/discharge time constant)
C14	Charging time constant = $R_{12}$ and $C_{14}$
R14	Discharge time constant = $R_{14}$ and $C_{14}$
R15	Resistor for absorption of output leakage

●External dimensions (Units: mm)



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