

# FG/CTL amplifier

## BA6305/BA6305F

The BA6305 and BA6305F are fast-response wave-shaping preamplifiers for use in VCR CTL amplifiers. They meet the fast REC mode to PB mode response required in VCR CTL amplifiers. The ICs contain a fast-response preamplifier (with precharge function) and a noise-rejecting hysteresis amplifier that converts the CTL signal to a rectangular-wave output. The hysteresis width can be switched between two levels to maintain the S/N ratio, and provide compatibility with various tape speeds.

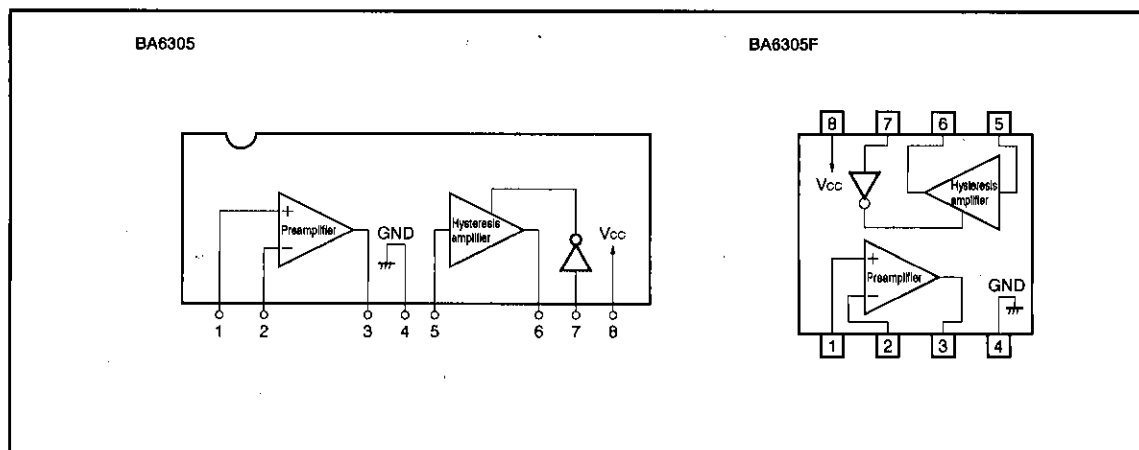
### ●Applications

VCR CTL amplifiers  
VCR FG amplifiers  
VCR DTP amplifiers  
Other preamplifier and hysteresis amplifier applications

### ●Features

- 1) Fast response from strong input when recording to CTL signal playback when playing.
- 2) High gain.
- 3) Schmitt trigger circuit ensures high S/N ratio, and accurate hysteresis width and level.
- 4) The hysteresis comparator level can be switched to suit the CTL amplifier level.
- 5) Compact SIP 8 pin and SOP 8pin packages.

### ●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>	-20~70	°C
Storage temperature	T <sub>stg</sub>	-55~125	°C

\* Reduced by 4.0mW 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
Operating voltage	V <sub>CC</sub>	4.5	—	13.0	V	—
Quiescent current	I <sub>Q</sub>	0.6	1.5	2.6	mA	—
Preamplifier bias voltage	V <sub>B pre</sub>	1.0	1.3	1.6	V	—
Small-signal preamplifier input resistance	R <sub>INS</sub>	20	30	40	kΩ	V <sub>IN</sub> =1.0V
Large-signal preamplifier input resistance	R <sub>EN</sub>	2.1	4.4	9.0	kΩ	V <sub>IN</sub> =5.0V
Preamplifier bias input current	I <sub>B pre</sub>	—	30	300	nA	—
Preamplifier output level	V <sub>O pre</sub>	2.0	2.4	—	V <sub>pp</sub>	—
Preamplifier open-loop voltage gain	G <sub>VO</sub>	64.0	72.5	—	dB	R <sub>NF</sub> =330kΩ
Preamplifier input conversion noise voltage	V <sub>N pre</sub>	—	3.4	12.0	μV <sub>rms</sub>	DIN Audio R <sub>G</sub> =2.2kΩ
Schmitt circuit input bias potential	V <sub>B hys</sub>	1.6	2.0	2.4	V	—
Schmitt circuit hysteresis width I	V <sub>hys I</sub>	±70	±90	±130	mV <sub>o-p</sub>	—
Schmitt circuit hysteresis width II	V <sub>hys II</sub>	±200	±250	±360	mV <sub>o-p</sub>	—
Schmitt circuit output level	V <sub>ohys</sub>	5.1	6.6	—	V <sub>pp</sub>	R <sub>L</sub> =20kΩ

The switching time from REC mode to PB mode is 1 sec. (Max.), and the power on start up time is 3 sec. (Max.).

●External dimensions (Units: mm)

