



LOW POWER VIDEO AMPLIFIER WITH Y-C MIXER

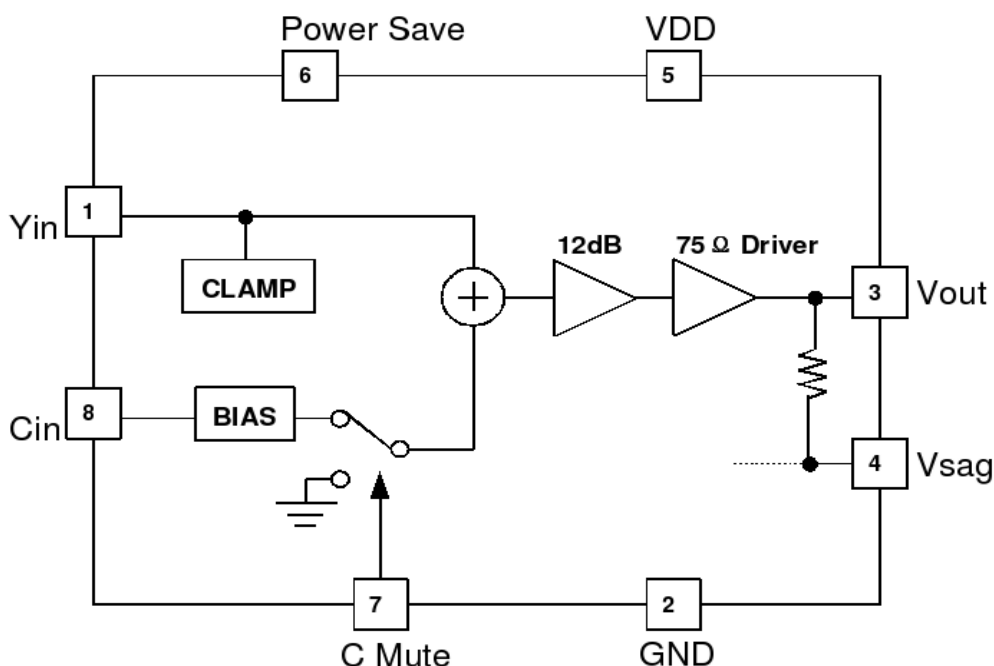
• Features

- ◆ Operating voltage 2.8V ~ 5.5V
- ◆ Internal clamp circuit
- ◆ 12dB amplifier, 75Ω driver circuit
- ◆ Y-input: Clamp; C-input: Bias
- ◆ AC or DC-coupled output
- ◆ SAG correction reduce output capacitance
- ◆ Low stand-by current at power save mode
- ◆ MSOP 8-pin package

• Applications

- ◆ DVD player
- ◆ Security camera
- ◆ Digital still camera
- ◆ Portable media player
- ◆ Set-top box

• Block Diagram



• Description

IT8837 is a high performance, low voltage, low power consumption video amplifier with Y/C mixer and 75 ohm driver and 12dB gain. The Y signal is clamped input, while the C signal is biased input. The build-in clamp circuit can restore composite video signal to set DC level. Only small capacitor is required for AC-coupled input. The output can be configured as AC or DC-coupled output. With AC-coupled, SAG correction can reduce output coupling capacitance size. With DC-coupled, it can remove large output coupling capacitors and save board space and cost. It is low voltage and low power

consumption suitable for portable device.

- **Absolute Maximum Rating**

Parameter	Symbol	Ratings	Unit
Supply voltage	V ⁺	7	V
Power dissipation	P _D	500	mW
Operating temperature	T _{opr}	-40 to +85	°C
Storage temperature	T _{stg}	-40 to +125	°C

- **Electrical Specifications** (VDD = 3V, R_L = 150Ω, T_a = 25°C)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Operating voltage	V _{opr}		2.8	3	5.5	V
Operating current	I _{opr}	No signal	7.6	7.9	11.6	mA
Operating current at power save mode	I _{save}	Power save mode	-	53	80	uA
Voltage gain	G _v	Y _{in} =100KHz, 0.5V _{pp}	12.2	12.5	12.8	dB
Frequency Characteristic	G _f	Y _{in} =10MHz/100kHz, 0.5V _{pp}	-1.0	0	+1.0	dB
Max. output voltage swing	V _{om}		2.2			V _{pp}
Differential gain	DG		-	0.5	-	%
Differential phase	DP		-	0.5	-	°
SNR	SNR		-	-60	-	dB
2nd. distortion	D2nd		-	-45	-	dB
Input Resistance	R _{cin}		-	20	-	Kohm

- **Pin Description**

Symbol	No.	Type	Function
Y _{in}	1	Input	Composite Y input signal is clamped input
GND	2	-	GND
V _{out}	3	Output	Y/C mix output
V _{sag}	4	Output	SAG correction output
VDD	5	-	VDD, range 2.8V ~ 5.5V
PS	6	Input	Power save
C _{mute}	7	Input	Close the C input signal
C _{in}	8	Input	Composite C input signal is biased input

- **Power Save Control Pin Function**

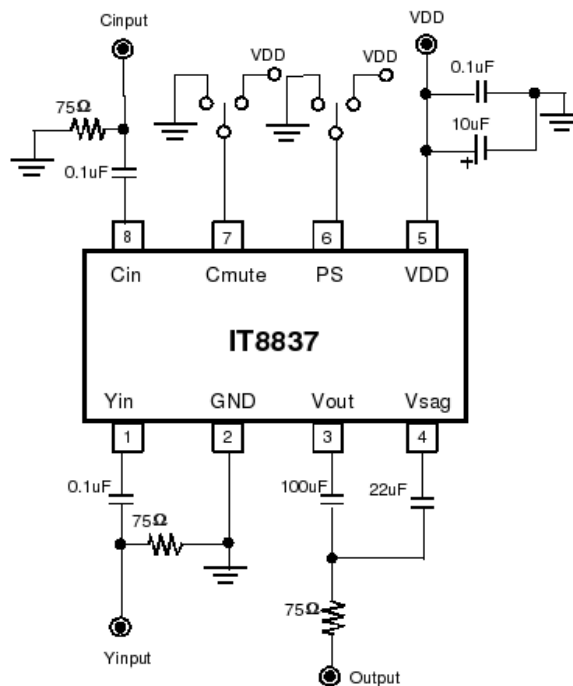
Parameter	Status	Note
Chroma Mute	H	Chroma Mute: ON
	L	Chroma Mute: OFF
	OPEN	Chroma Mute: OFF

Parameter	Status	Note
Power save	H	Power save OFF
	L	Power save ON
	OPEN	Power save ON

• **Typical Application**

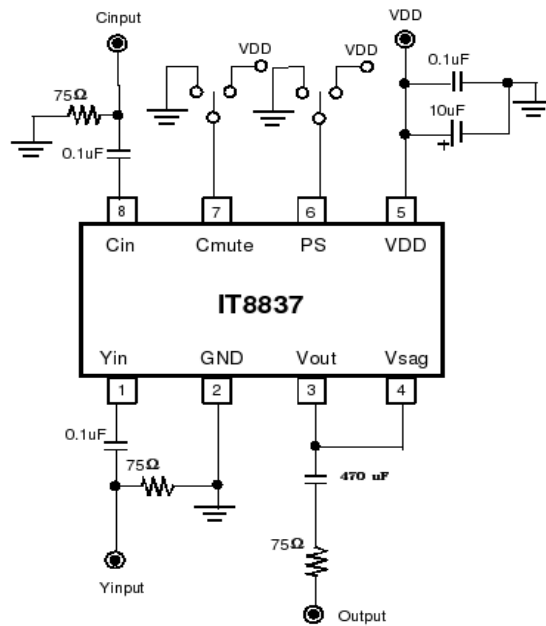
- ◆ Standard circuit :

AC-coupled output, VDD = 2.8V~5.5V, driving one 75Ω load



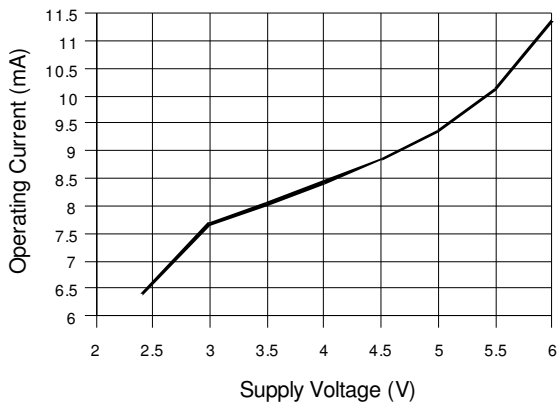
- ◆ SAG correction unused circuit :

DC-coupled output, VDD = 2.8V~5.5V, driving one 75Ω load

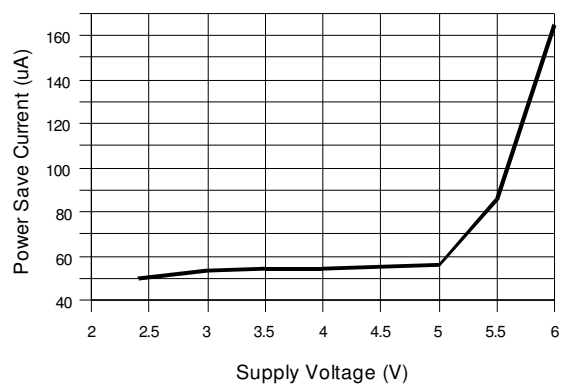


● **Performance Curve**

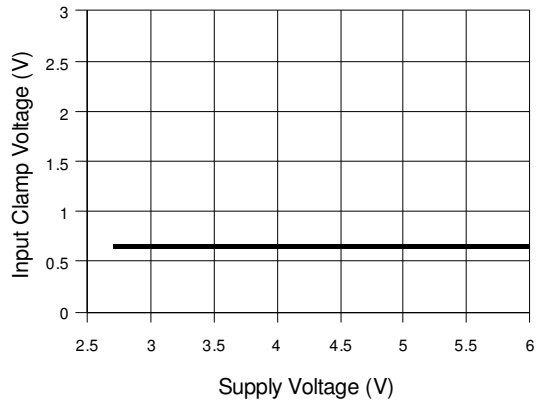
Operating Current vs. Supply Voltage



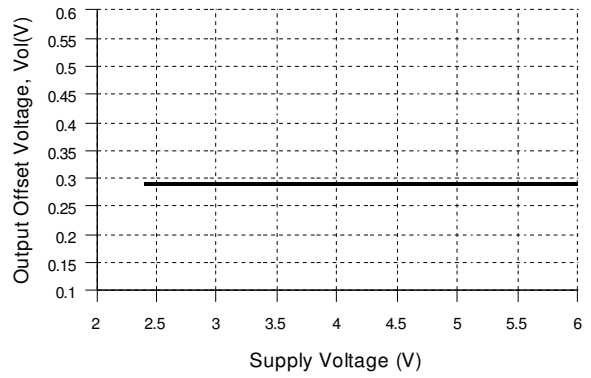
Power Save Current vs. Supply Voltage



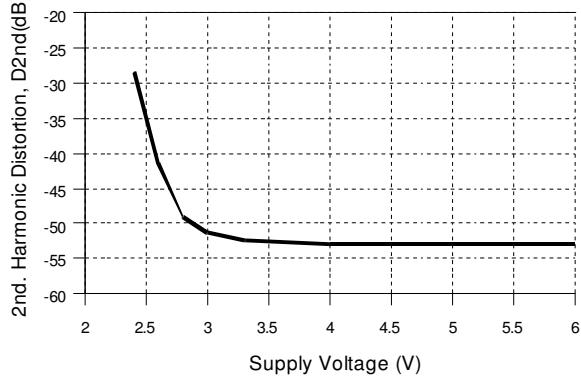
Input Clamp Voltage vs. Supply Voltage



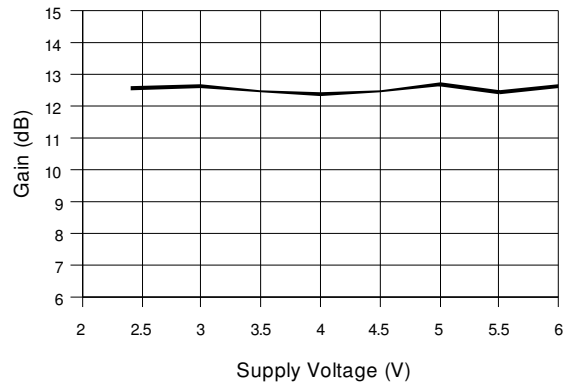
Output Offset Voltage vs. Supply Voltage



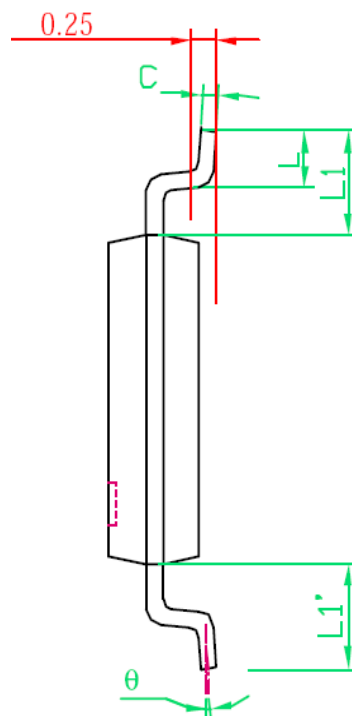
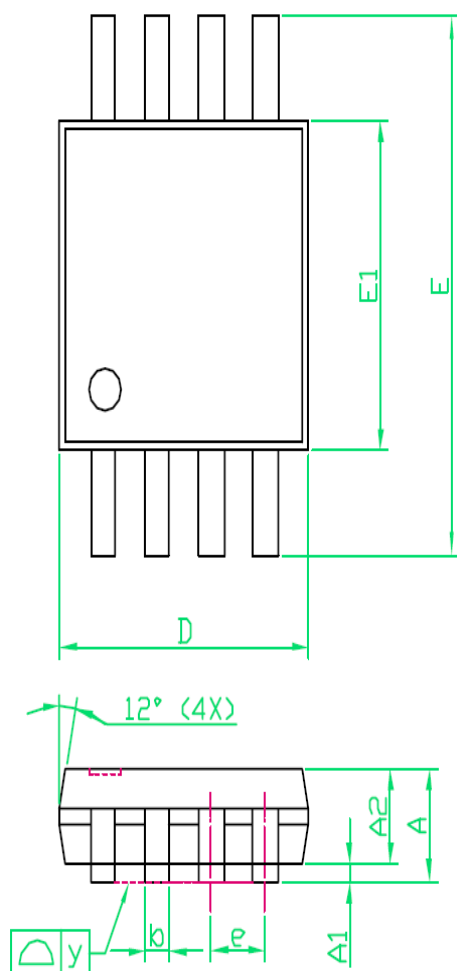
2nd. Harmonic Distortion vs. Supply Voltage



Gain vs. Supply Voltage



- Package Outline drawing (MSOP-8)



NOTE

1. PACKAGE BODY SIZE DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
2. MOLD FLASH, PROTRUSIONS OR GATE BURRS SHALL NOT EXCEED 0.15mm PER END.
3. DIMENSION L IS MEASURED IN GAUGE PLANE.
4. TOLERANCE 0.10 mm UNLESS OTHERWISE SPECIFIED.
5. REFER TO JEDEC MO-187.

SYMBOLS	DIMENSIONS IN MILLIMETER		
	MIN	NOM	MAX
A	---	---	1.10
A1	0.00	---	0.10
A2	0.75	0.85	0.95
b	0.22	0.30	0.38
C	0.13	0.15	0.23
D	---	3.00BSC	---
E	---	4.90BSC	---
E1	---	3.00BSC	---
e	---	0.65BSC	---
L	0.40	0.53	0.66
y	---	---	0.10
θ	0°	---	6°
L1	---	0.95(REF)	---
L1-L1'	---	---	0.12