



LOW VOLTAGE VIDEO AMPLIFIER WITH LPF

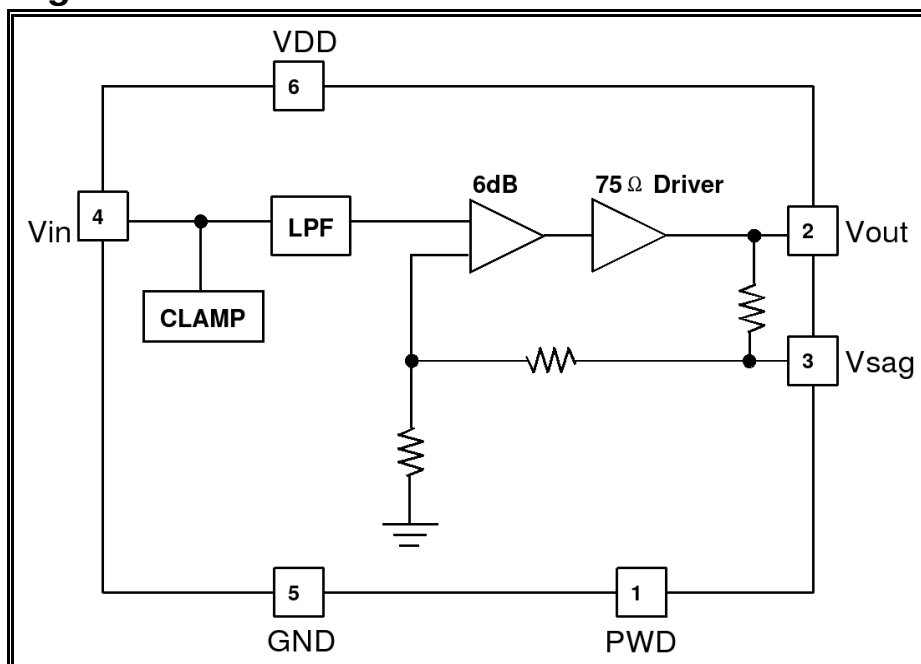
• Features

- ◆ Operating voltage 2.8V ~ 5.5V
- ◆ Internal clamp circuit
- ◆ Internal low pass filter
- ◆ 6dB amplifier, 75Ω driver circuit
- ◆ AC or DC-coupled output
- ◆ SAG correction reduce output capacitance
- ◆ Dual video load drive
- ◆ Low stand-by current at power save mode
- ◆ SOT-23-6 package

• Applications

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

• Block Diagram



• Description

IT8835 is a high performance, low voltage, low power consumption video amplifier, and it contains low pass filter circuit. The 75Ω buffer is capable of driving two circuits. The build-in clamp circuit can restore composite video signal to set DC level. The internal low pass filter can remove DAC sampling noise. 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 is suitable for portable device. Low current consumption during power save mode to under 0.2uA.

• Absolute Maximum Rating

| Parameter | Symbol | Ratings | Unit |
|-----------------------|------------------|-------------|------|
| Supply voltage | V* | 7 | V |
| Power dissipation | P _D | 200 | 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 | Min. | Typ. | Max. | Unit |
|--------------------------------------|--------------------|------|------|------|-----------------|
| Operating voltage | V _{opr} | 2.8 | 3 | 5.5 | V |
| Operating current | I _{opr} | | 6.8 | 11 | mA |
| Operating current at power save mode | I _{save} | | 100 | 200 | nA |
| Voltage gain | G _v | 6 | 6.2 | 6.4 | dB |
| Input clamp voltage | V _{clamp} | | 0.5 | | V |
| Output level shift voltage | V _{ol} | 0.26 | 0.3 | 0.35 | V |
| Max. output voltage swing | V _{os} | | 2.4 | | V _{pp} |
| Differential gain | DG | | 0.5 | | % |
| Differential phase | DP | | 0.5 | | ° |
| SNR | SNR | | 60 | | dB |
| Bandwidth | BW | 6.5 | | | MHz |
| 2nd. distortion | D _{2nd} | | -52 | | dB |

- **Pin Description**

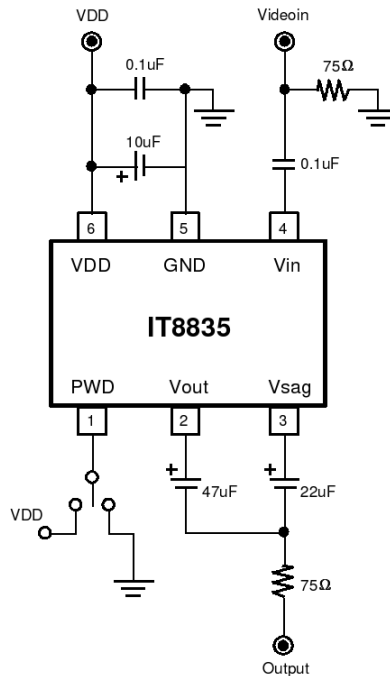
| Symbol | No. | Type | Function |
|--------|-----|--------|------------------------------|
| PWD | 1 | Input | Power save pin |
| Vout | 2 | Output | Video output |
| Vsag | 3 | Output | SAG correction output |
| Vin | 4 | Input | Composite video signal input |
| GND | 5 | - | GND |
| VDD | 6 | - | VDD, range 2.8V ~ 5.5V |

- **Power Save Control Pin Function**

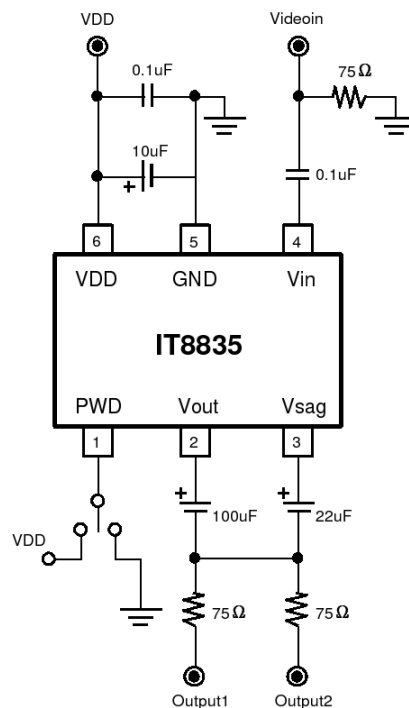
| Parameter | Status | Note |
|------------|--------|----------------|
| Power save | H | Power save OFF |
| | L | Power save ON |
| | OPEN | Power save ON |

• Typical Application

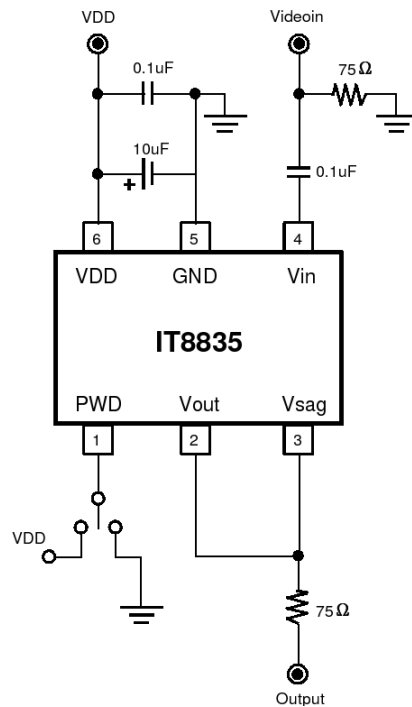
- ◆ Application 1 : AC-coupled output, VDD = 2.8V~5.5V, driving one 75Ω load



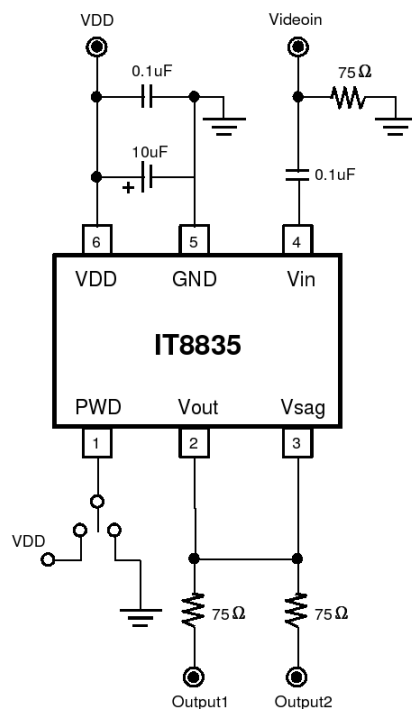
- ◆ Application 2 : AC-coupled output, VDD = 2.8V~5.5V, driving two 75Ω loads



- ◆ Application 3 : DC-coupled output, VDD = 2.8V~5.5V, driving one 75Ω load

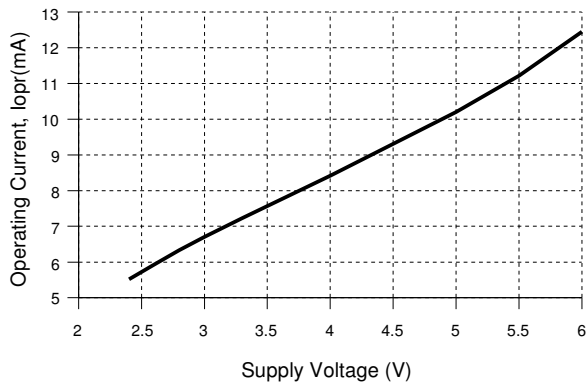


- ◆ Application 4 : DC-coupled output, VDD = 2.8V~5.5V, driving two 75Ω loads

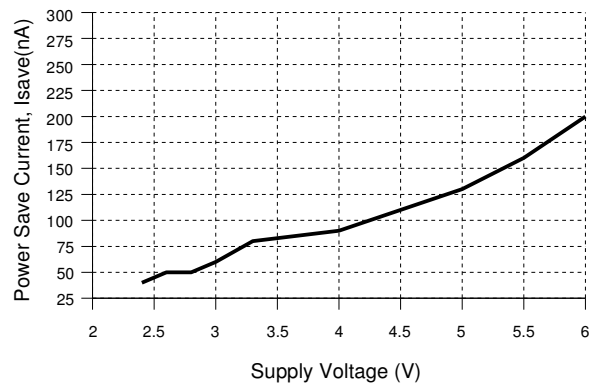


● Performance Curve

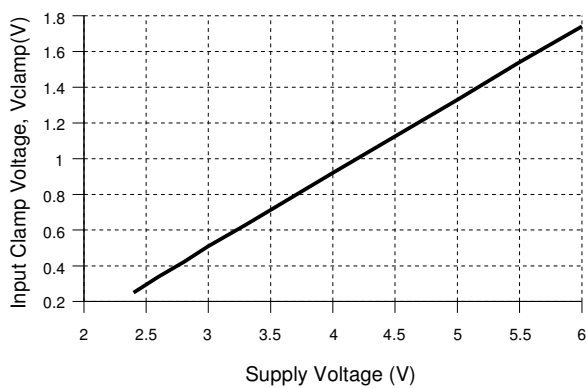
Operating Current vs. Supply Voltage



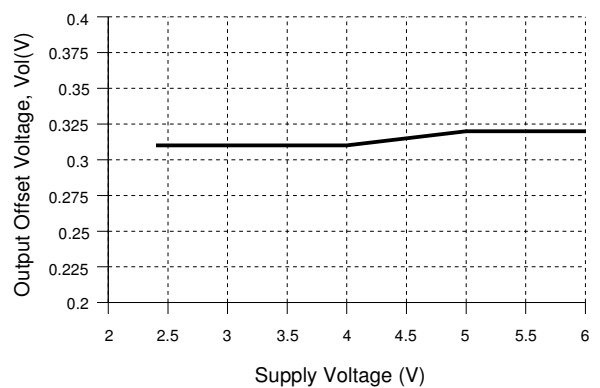
Power Save Current vs. Supply Voltage



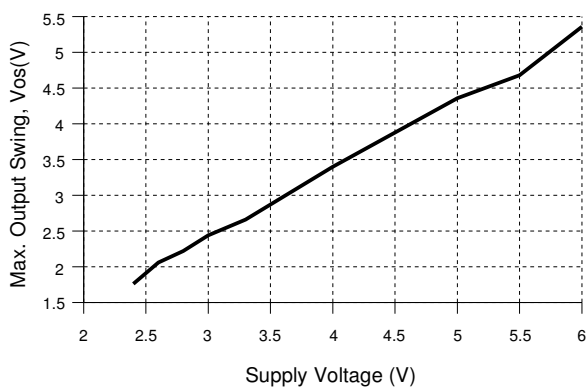
Input Clamp Voltage vs. Supply Voltage



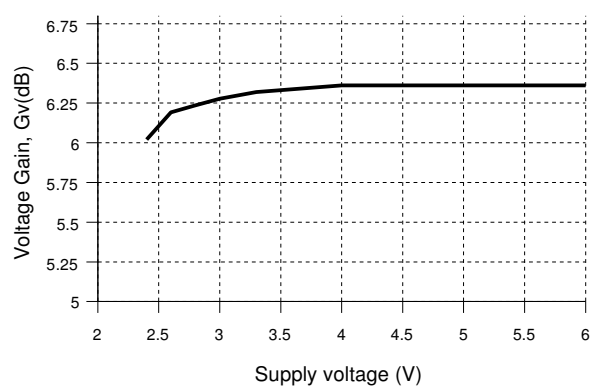
Output Offset Voltage vs. Supply Voltage



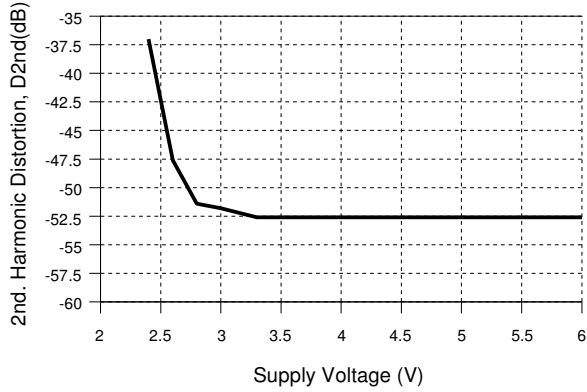
Max. Output Swing vs. Supply Voltage



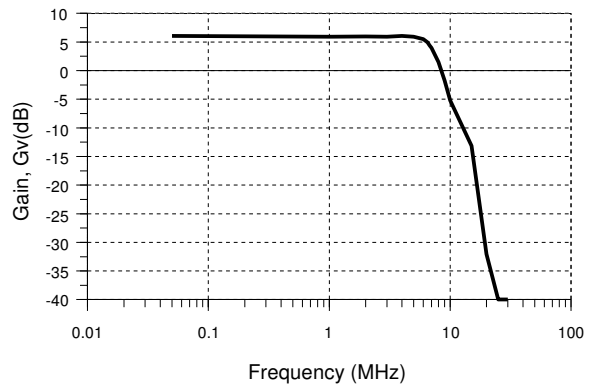
Voltage Gain vs. Supply Voltage



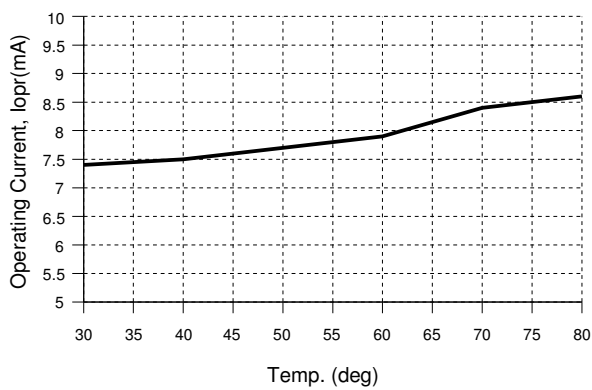
2nd. Harmonic Distortion vs. Supply Voltage



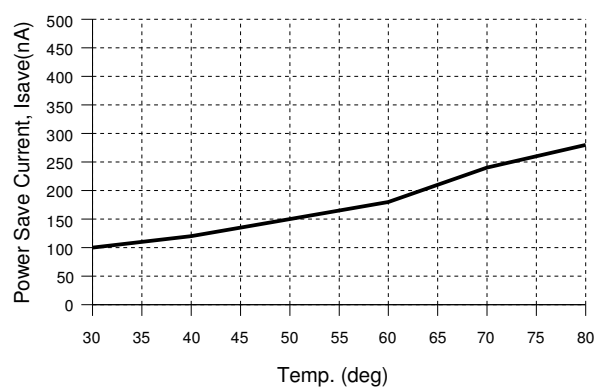
Frequency Characteristic



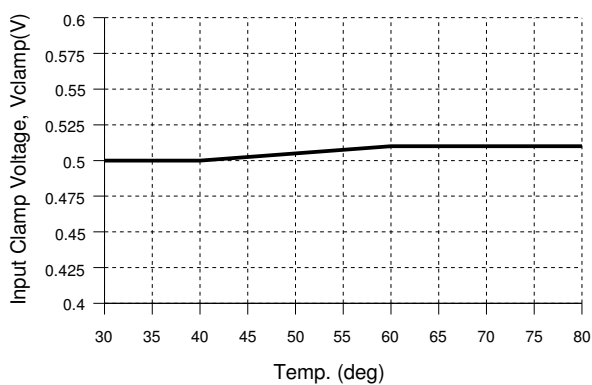
Operating Current vs. Temp.



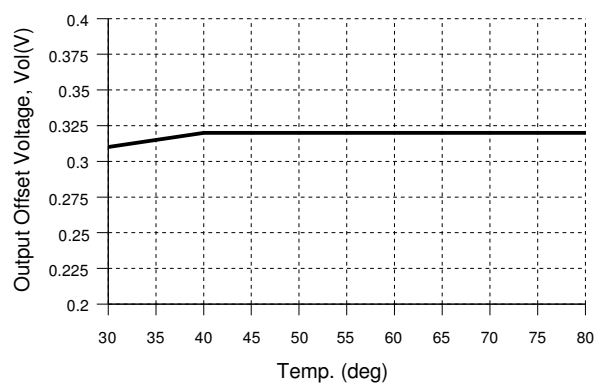
Power Save Current vs. Temp.



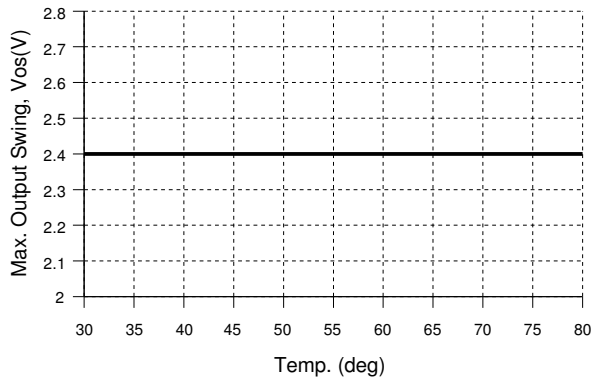
Input Clamp Voltage vs. Temp.



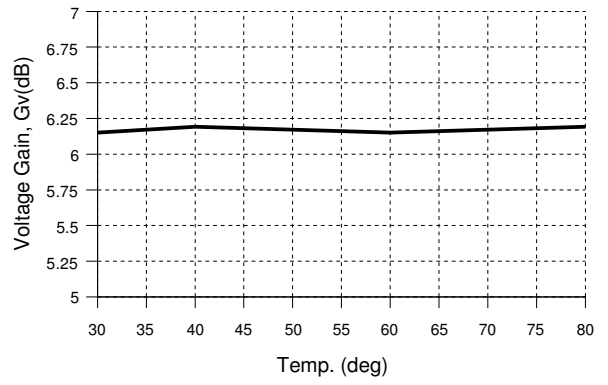
Output Offset Voltage vs. Temp.



Max. Output Swing vs. Temp.



Voltage Gain vs. Temp.



2nd. Harmonic Distortion vs. Temp.

