

**SANYO**

No.2612A

**LA6515****0.5 A Power Operational Amplifier****OVERVIEW**

The LA6515 is a high-performance power operational amplifier IC capable of delivering larger output currents than conventional op amps.

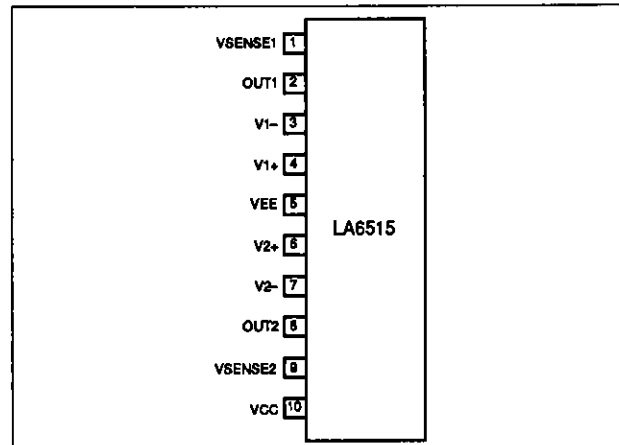
The LA6515 features an on-chip current limiter and provides high voltage gain and a high common-mode rejection ratio.

The LA6515 is an ideal choice for power applications such as DC servos, capstan drivers, actuator drivers, programmable power supplies and high-quality audio amplifiers.

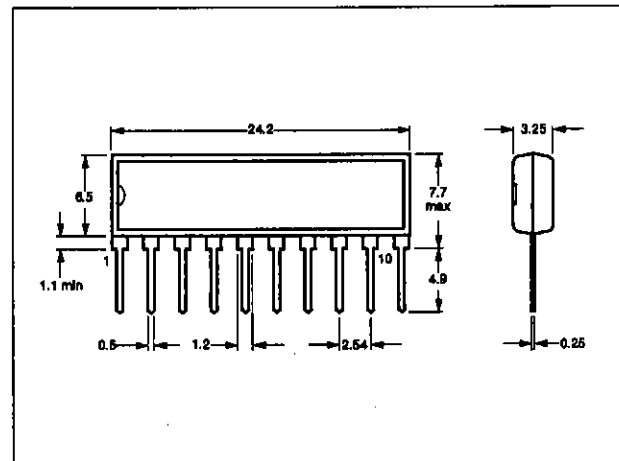
The LA6515 is available in 10-pin SIPs and operates from  $-15\text{ V}$  and  $15\text{ V}$  supplies.

**FEATURES**

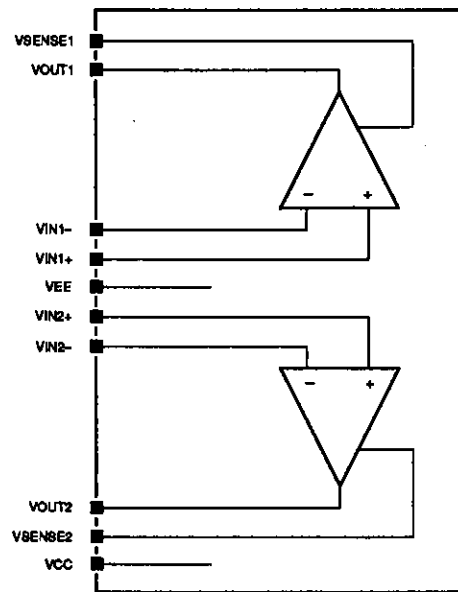
- 0.5 A output current
- 100 dB voltage gain
- 80 dB common-mode rejection
- 0.15 V/ $\mu\text{s}$  slew rate
- 2 mV offset voltage
- 10 nA offset current
- On-chip current limiter
- $-15\text{ V}$  and  $15\text{ V}$  supplies
- 10-pin SIP

**PINOUT****PACKAGE DIMENSIONS**

Unit: mm

**3043A-SIP10**

## BLOCK DIAGRAM



## PIN DESCRIPTION

| Number | Name    | Description         |
|--------|---------|---------------------|
| 1      | VSENSE1 | Voltage detect      |
| 2      | OUT1    | Output              |
| 3      | V1-     | Inverting input     |
| 4      | V1+     | Non-inverting input |
| 5      | VEE     | -15 V supply        |
| 6      | V2+     | Non-inverting input |
| 7      | V2-     | Inverting input     |
| 8      | OUT2    | Output              |
| 9      | VSENSE2 | Voltage detect      |
| 10     | VCC     | 15 V supply         |

## SPECIFICATIONS

## Absolute Maximum Ratings

| Parameter                   | Symbol            | Rating     | Unit   |
|-----------------------------|-------------------|------------|--------|
| Supply voltages             | V <sub>CC</sub>   | 18         | V      |
|                             | V <sub>EE</sub>   | -18        |        |
| Differential input voltage  | V <sub>ID</sub>   | 30         | V      |
| Common-mode input voltage   | V <sub>ICOM</sub> | ±15        | V      |
| Output current              | I <sub>o</sub>    | 1.0        | A      |
| Power dissipation           | P <sub>d</sub>    | 1.3        | W      |
| Operating temperature range | T <sub>opr</sub>  | -20 to 75  | deg. C |
| Storage temperature range   | T <sub>stg</sub>  | -55 to 150 | deg. C |

**Recommended Operating Conditions**

$T_a = 25 \text{ deg. C}$

| Parameter       | Symbol   | Rating | Unit |
|-----------------|----------|--------|------|
| Supply voltages | $V_{CC}$ | 15     | V    |
|                 | $V_{EE}$ | -15    | V    |

**Electrical Characteristics**

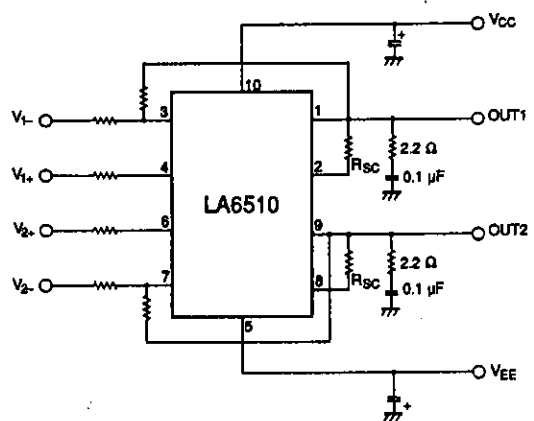
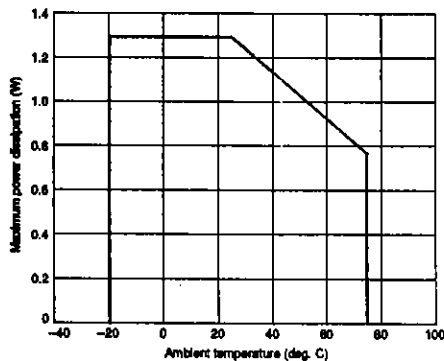
$V_{CC} = 15 \text{ V}$ ,  $V_{EE} = -15 \text{ V}$ ,  $T_a = 25 \text{ deg. C}$  unless otherwise noted

| Parameter                      | Symbol    | Condition   | Rating   |          |     | Unit             |
|--------------------------------|-----------|---|----------|----------|-----|------------------|
|                                |           |   | min      | typ      | max |                  |
| Quiescent current              | $I_{CCO}$ |   | 6        | 12       | 20  | mA               |
| Input offset voltage           | $V_{IO}$  | $R_B \leq 10 \text{ k}\Omega$   | -        | 2        | 6   | mV               |
| Input offset current           | $I_{IO}$  |   | -        | 10       | 200 | nA               |
| Input bias current             | $I_B$     |   | -        | 100      | 700 | nA               |
| Common-mode input voltage      | $V_{ICM}$ |   | -15      | -        | 13  | V                |
| Common-mode rejection ratio    | CMR       |   | 70       | 80       | -   | dB               |
| Maximum output voltage         | $V_O$     | $R_L = 33 \Omega$   | $\pm 12$ | $\pm 13$ | -   | V                |
| Voltage gain                   | $V_{G0}$  |   | -        | 100      | -   | dB               |
| Slew rate                      | SR        | $G_V = 0$ , $R_L = 33 \Omega$ ,<br>$R = 2.2 \Omega$ , $L = 0.1 \mu\text{F}$ | -        | 0.15     | -   | V/ $\mu\text{s}$ |
| Equivalent input noise voltage | $V_{NI}$  | $R_0 = 1 \text{ k}\Omega$ , DIN AUDIO                                       | -        | 2        | -   | $\mu\text{V}$    |
| Supply voltage rejection ratio | SVR       |   | -        | 30       | 150 | $\mu\text{V/V}$  |
| Limiting current               | $I_{SC}$  | $R_{SC} = 2.2 \Omega$   | -        | 0.35     | -   | A                |

**Typical Performance Characteristics**

**APPLICATION CIRCUIT**

**Power dissipation vs. ambient temperature**



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