# RC4195 Fixed ±15V Dual Tracking Voltage Regulator

## Features

- ±15V operational amplifier power at reduced cost and component density
- Thermal shutdown at Tj = +175°C in addition to short circuit protection
- Output currents to 100 mA
- May be used as single output regulator with up to +50V output
- Available in TO-66, TO-99 and 8-Pin Plastic Mini-DIP
- No external frequency compensation required

## Description

The RC/RM4195 is a dual polarity tracking regulator designed to provide balanced positive and negative 15V output voltages at currents up to 100 mA. this device is designed for local "on-card" regulation, eliminating distribution problems associated with single point regulation. The regulator is intended for ease of application. Only two external components are required for operation (two 10 µF bypass capacitors).

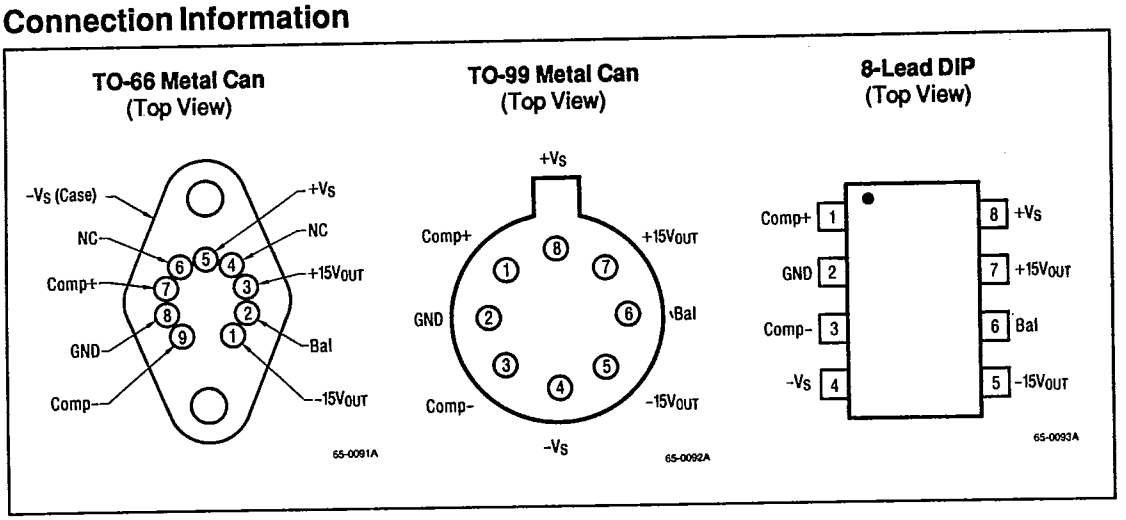
The device is available in three package types to accommodate various applications requiring economy, high power, dissipation, and reduced component density.

## Ordering Information

| Part Number | Package | Operating Temperature Range |
|---|---|---|
| RC4195N | N | 0°C to +70°C |
| RC4195T | T | 0°C to +70°C |
| RC4195K | K | 0°C to +70°C |
| RM4195T | T | -55°C to +125°C |
| RM4195T/883B | T | -55°C to +125°C |
| RM4195TK | K | -55°C to +125°C |
| RM4195D | D | -55°C to +125°C |
| RM4195D/883B | D | -55°C to +125°C |

Notes:
/883B suffix denotes Mil-Std-883, Level B processing
N = 8-lead plastic DIP
D = 8 lead ceramic DIP
T = 8-lead metal can TO-99
K = 9-lead power TO-66
Contact a Raytheon sales office or representative for ordering information on special package/temperature range combinations.

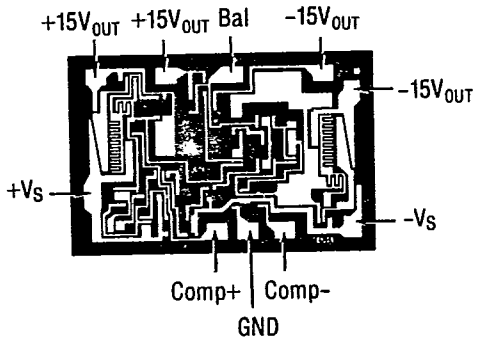
## Connection Information




## Absolute Maximum Ratings

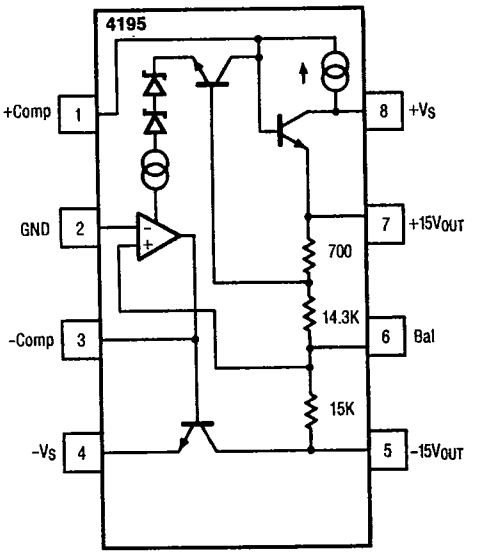
Supply Voltage ($\pm V_S$) to Ground ..... ±30V
Load Current
TK Package ..... 150 mA
T and N Package ..... 100 mA
Storage Temperature
Range ..... -65°C to +150°C
Operating Junction Temperature Range
RM4195 ..... -55°C to +150°C
RC4195 ..... 0°C to +125°C
Lead Soldering Temperature
(DIP, LCC, TO-99; 60 sec) ..... +300°C

## Mask Pattern




**Die Size: 49 x 74 mils**
**Min. Pad Dimensions: 4 x 4 mils**

## Functional Block Diagram




Pin out for dual in-line package shown.

65-00088A

## Thermal Characteristics

| | 8-Lead Plastic DIP | 8-Lead TO-99 Metal Can | 9-Lead TO-66 Metal Can | 8-Lead Ceramic DIP |
|---|---|---|---|---|
| Max. Junction Temp. | 125°C | 175°C | 150°C | 175°C |
| Max. $P_D$ $T_A$ <50°C | 468mW | 658mW | 2381mW | 833mW |
| Therm. Res $\theta_{JC}$ | — | 50°C/W | 7°C/W | 45°C/W |
| Therm. Res. $\theta_{JA}$ | 160°C/W | 190°C/W | 42°C/W | 150°C/W |
| For $T_A$ >50°C Derate at | 6.25 mW/°C | 5.26 mW/°C | 23.81 mW/°C | 8.33 mW/°C |

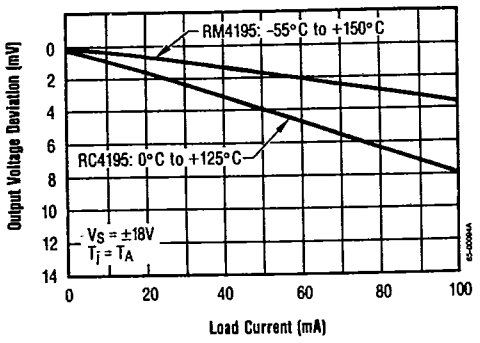
## Electrical Characteristics ($I_L$ = ±1mA, $V_S$ = ±20V, $C_L$ = 10μF
RM4195: -55°C ≤ $T_j$ ≤ +125°C; RC4195: 0°C ≤ $T_j$ ≤ +70°C unless otherwise specified)[1]

| Parameters | Test Conditions | RC/RM4195 Min | Typ | Max | Units |
|---|---|---|---|---|---|
| Line Regulation | $V_S$ = ±18V to ±30V | | 2 | 20 | mV |
| Load Regulation | $I_L$ = 1mA to 100mA | | 5 | 30 | mV |
| Output Voltage Drift With Temperature | | | 0.005 | 0.015 | %/°C |
| Supply Current | $V_S$ = ±30V, $I_L$ = 0mA | | ±1.5 | ±4.0 | mA |
| Supply Voltage | | 18 | | 30 | V |
| Output Voltage | $T_j$ = +25°C | 14.5 | 15.0 | 15.5 | V |
| Output Voltage Tracking | | | ±50 | ±300 | mV |
| Ripple Rejection | f = 120Hz, $T_j$ = +25°C | | 75 | | dB |
| Input-Output Voltage Differential | $I_L$ = 50mA | 3 | | | V |
| Short Circuit Current | $T_j$ = +25°C | | 220 | | mA |
| Output Voltage Noise | $T_j$ = +25°C, f = 100Hz to 10kHz | | 60 | | $\mu V_{RMS}$ |
| Internal Thermal Shutdown | | | 175 | | °C |

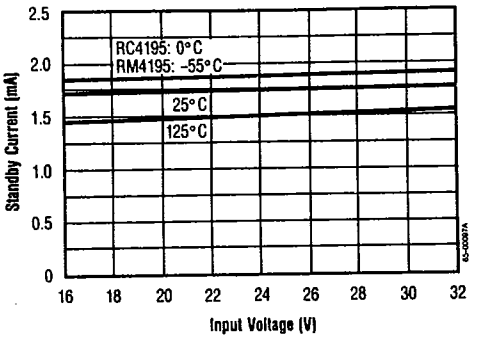
Notes: 1. The specifications above apply for the given junction temperature since pulse test conditions are used.

## Typical Performance Characteristics

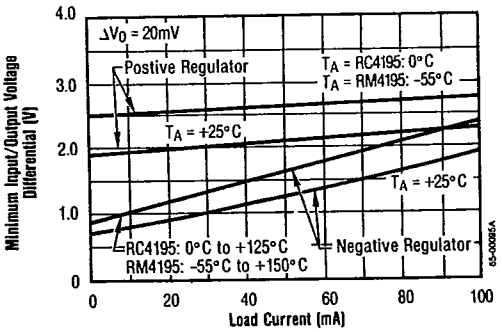
### Output Load Regulation



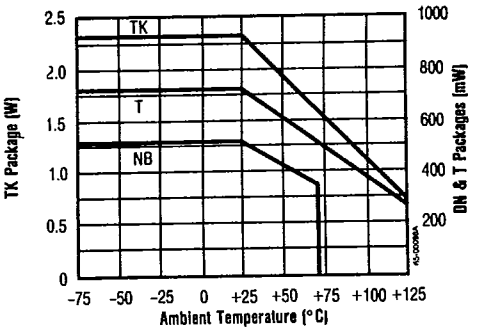

### Standby Current Drain



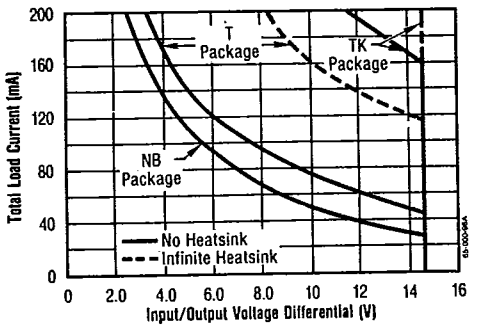

### Regulator Dropout Voltage



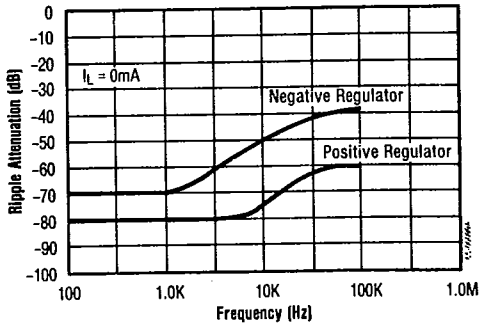

### Power Dissipation




### Maximum Current Capability

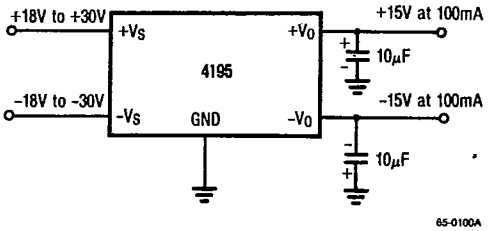



### Ripple Rejection

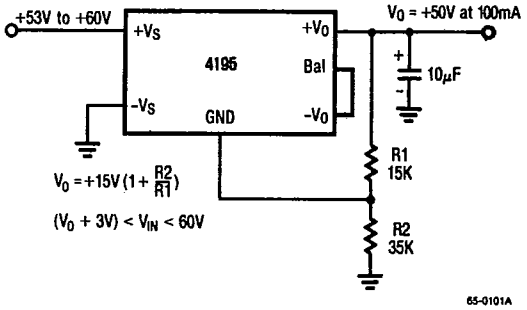


## Typical Applications

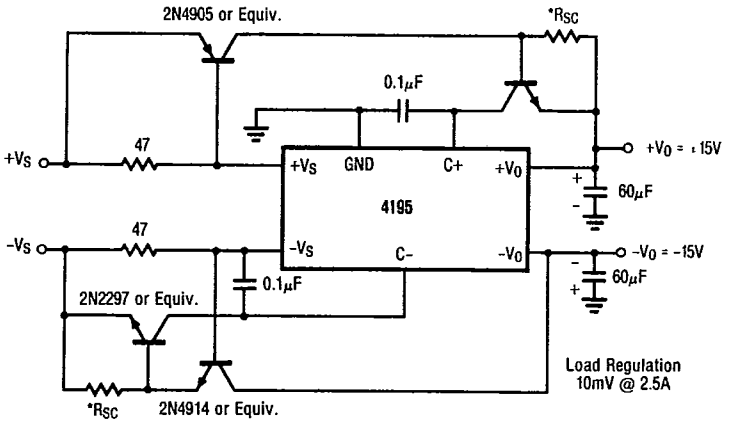
### Balanced Output ($V_O = \pm 15V$)




### Positive Single Supply ($+15V < V_O < +50V$)




### High Output Current




$$*R_{SC} = \frac{0.7}{I_{SC}}$$

## Schematic Diagram