LINEAR SYSTEMS

# J500
Current Regulator Diode

micross

## Linear Systems replaces discontinued Siliconix J500

### The Linear Systems J500 is a ± 20% range current regulator

The J500 is a ±20% range current regulator designed for demanding applications in test equipment and instrumentation. The J500 utilizes JFET techniques to produce a single two-leaded device which is extremely simple to operate.

- Two-Lead Plastic Package
- Guaranteed ±20% Tolerance
- Operation up to 50V
- Excellent Temperature Stability
- Simple Series Circuitry, No Separate Voltage Source
- Tight Guaranteed Circuit Performance
- Excellent Performance in Low-Voltage/Battery Circuits and High-Voltage Spike Protection
- High Circuit Stability vs. Temperature

**J500 Applications:**

- Constant-Current Supply
- Current-Limiting
- Timing Circuits

| FEATURES | |
|---|---|
| REPLACEMENT SOURCE FOR SILICONIX J500 | |
| WIDE CURRENT RANGE | 0.24mA ± 20% |
| BIASING NOT REQUIRED | $V_{GS}$ = 0V |
| **ABSOLUTE MAXIMUM RATINGS**[1] @ 25 °C (unless otherwise stated) | |
| **Maximum Temperatures** | |
| Storage Temperature | -55 to 150°C |
| Junction Operating Temperature | -55 to 135°C |
| **Maximum Power Dissipation** | |
| Continuous Power Dissipation @125°C | 360mW |
| **Maximum Currents** | |
| Forward Current | 20mA |
| Reverse Current | 50mA |
| **Maximum Voltages** | |
| Peak Operating Voltage | $P_{OV}$ = 50V |

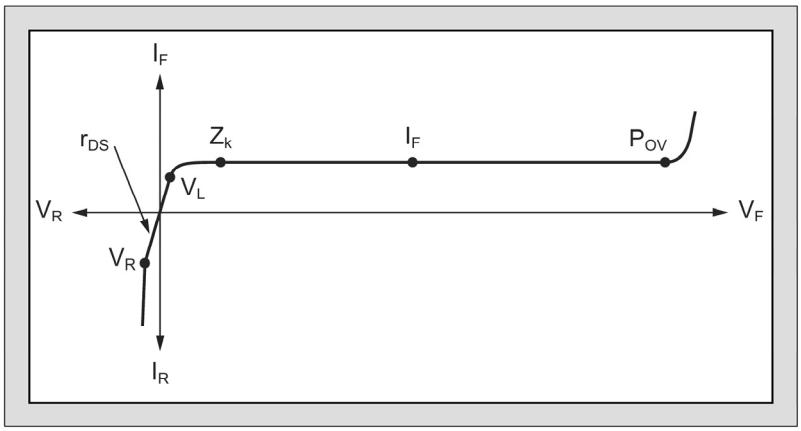
### ELECTRICAL CHARACTERISTICS @ 25 °C (unless otherwise stated)

| SYMBOL | CHARACTERISTIC | MIN | TYP | MAX | UNITS | CONDITIONS |
|---|---|---|---|---|---|---|
| $P_{OV}$ | Peak Operating Voltage[2] | 50 | | | V | $I_F = 1.1I_{F(max)}$ |
| $V_R$ | Reverse Voltage | | 0.8 | | V | $I_R$ = 1mA |
| $C_F$ | Forward Capacitance | | 2.2 | | pF | $V_F$ = 25V, $f$ = 1MHz |

### SPECIFIC ELECTRICAL CHARACTERISTICS @ 25 °C (unless otherwise stated)

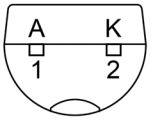
| PART | Forward Current[3] $I_F$ | | | Dynamic Impedance[4] $Z_d$ | | Knee Impedance $Z_k$ | Limiting Voltage[5] $V_L$ | |
|---|---|---|---|---|---|---|---|---|
| | $V_F$ = 25V | | | $V_F$ = 25V | | $V_F$ = 6V | $I_F = 0.8I_{F(min)}$ | |
| | MIN | NOM | MAX | MIN | TYP | TYP | TYP | MAX |
| J500 | 0.192 | 0.24 | 0.288 | 4.00 | 15 | 2.50 | 1.2 | 0.4 |

V-I CHARACTERISTICS CURRENT REGULATING DIODE

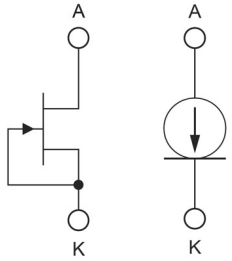



Available Packages:

TO-92 BOTTOM VIEW




TO-92 Bare Die.




Please contact Micross for full package and die dimensions

Notes:
1. Absolute maximum ratings are limiting values above which serviceability may be impaired.
2. Pulsed, t = 2ms. Maximum $V_F$ where IF < $1.1_{IF}$(max).
3. Pulsed, t = 2ms. Continuous currents may vary.
4. Pulsed, t = 2ms. Continuous impedances may vary.
5. Min $V_F$ required to ensure $I_F = 0.8_{IF}$(min).


Micross Components Europe

micross

Tel: +44 1603 788967
Email: chipcomponents@micross.com
Web: http://www.micross.com/distribution



Information furnished by Linear Integrated Systems and Micross Components is believed to be accurate and reliable. However, no responsibility is assumed for its use; nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Linear Integrated Systems.