

Features

- Programmable Output Voltage 36V
- Sink Current Capability of 0.1mA to 100 mA
- Low Output Noise Voltage and Fast Turn On Response
- Temperature Compensated for Operation over Full Rated Operating Temperature Range
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)

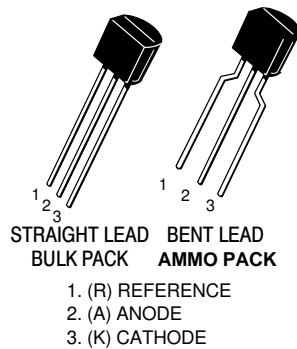
Maximum Ratings

| Parameter | Symbol | Value | Unit |
|--|-----------------|----------|------|
| Cathode Voltage | V_{KA} | 37 | V |
| Cathode Current Range | I_K | -100~150 | mA |
| Reference Input Current Range | I_{REF} | 0.05~10 | mA |
| Power Dissipation at 25°C | P_D | 0.7 | W |
| Thermal Resistance junction to ambient | $R_{\theta JA}$ | 178 | °C/W |
| Junction Temperature | T_J | 0~150 | °C |
| Operating Temperature | T_{opr} | 0~70 | °C |
| Storage Temperature Range | T_{STG} | -55~150 | °C |

Recommended Operating Conditions

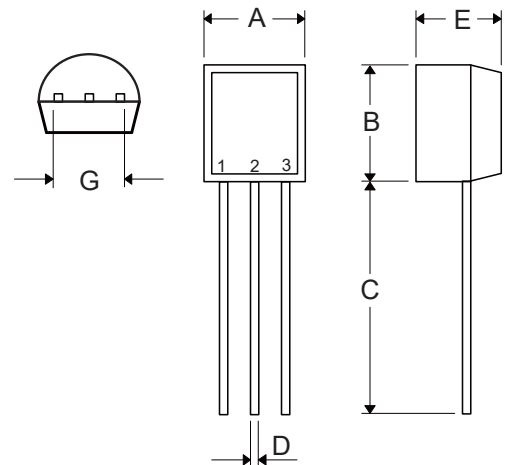
| Parameter | Symbol | Min | Max | Unit |
|-----------------------|----------|-----------|-----|------|
| Cathode Voltage | V_{KA} | V_{REF} | 36 | V |
| Cathode Current Range | I_K | 1 | 100 | mA |

Marking Code: TL431



Programmable Precision Regulator

TO-92



| DIM | DIMENSIONS | | | | NOTE |
|-----|------------|-------|-------|-------|---------------|
| | INCHES | | MM | | |
| | MIN | MAX | MIN | MAX | |
| A | 0.169 | 0.185 | 4.30 | 4.70 | |
| B | 0.169 | 0.185 | 4.30 | 4.70 | |
| C | 0.500 | ----- | 12.70 | ----- | |
| D | 0.015 | 0.022 | 0.38 | 0.55 | |
| E | 0.130 | 0.146 | 3.30 | 3.70 | |
| G | 0.095 | 0.105 | 2.42 | 2.67 | Straight Lead |
| | 0.173 | 0.220 | 4.40 | 5.60 | Bent |

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|--|--|-------|------|-------|----------|
| Reference Input Voltage | V_{ref} | | 2.475 | 2.5 | 2.525 | V |
| Deviation of Reference Input Voltage | $V_{ref(dev)}$ | $T_{min} \leq T_a \leq T_{max}$ | | 3.0 | 17 | mV |
| Ratio of Change in Reference Input Voltage to the Change in Cathode Voltage | $\frac{\Delta V_{ref}}{\Delta V_{KA}}$ | $\Delta V_{KA} = 10V \sim V_{ref}$ | | -1.4 | -2.7 | |
| | | $\Delta V_{KA} = 36V \sim 10V$ | | -1.0 | -2.0 | |
| Reference Input Current | I_{ref} | $I_{KA} = 10mA,$ $R_1 = 10K\Omega, R_2 = \infty$ | | 1.8 | 4.0 | μA |
| Deviation of Reference Input Current Over Full Temperature Range | $\frac{\Delta I_{ref}}{\Delta T}$ | $I_{KA} = 10mA,$ $R_1 = 10K\Omega, R_2 = \infty$ $T_A = \text{full Temperature}$ | | 0.4 | 1.2 | μA |
| Minimum Cathode Current for Regulation | $I_{KA(min)}$ | | | 0.5 | 1 | mA |
| Off-State Cathode Current | $I_{KA(off)}$ | $V_{KA} = 36V, V_{REF} = 0V$ | | 0.26 | 1 | μA |
| Dynamic Impedance | Z_{KA} | $I_{KA} = 10 \text{ to } 100mA,$ $f \leq 1.0KHz$ | | 0.22 | 0.5 | Ω |

Ordering Information

| Device | Packing |
|----------------|-----------------------------|
| Part Number-AP | Ammo Packing: 20Kpcs/Carton |
| Part Number-BP | Bulk: 100Kpcs/Carton |

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-BP-HF
 Adding "-HF" Suffix for Halogen Free, eg. Part Number-AP-HF

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