



UZ2085A

Preliminary

LINEAR INTEGRATED CIRCUIT

3A ADJUSTABLE/FIXED LOW DROPOUT LINEAR REGULATOR

DESCRIPTION

The UTC **UZ2085A** series are low dropout three-terminal regulators with 3A output current capability. These devices have been optimized for low voltage applications including VTT bus termination in which transient response and minimum input voltage are critical.

Current limit is trimmed to ensure specified output current and controlled short-circuit current. On-chip thermal limitation provides protection against any combination of overload and ambient temperature that would create excessive junction temperature.

FEATURES

- * Fast transient response
- * Low dropout voltage at up to 3A
- * Trimmed current limit
- * On-chip thermal limiting
- * Ultra low current consumption (0.35mA typ.)
- * Ultra low Adjustment Current (7µA typ.)
- * Ultra low minimum Load (0.3mA typ.)
- * Stable with low ESR ceramic output capacitor (MLCC)

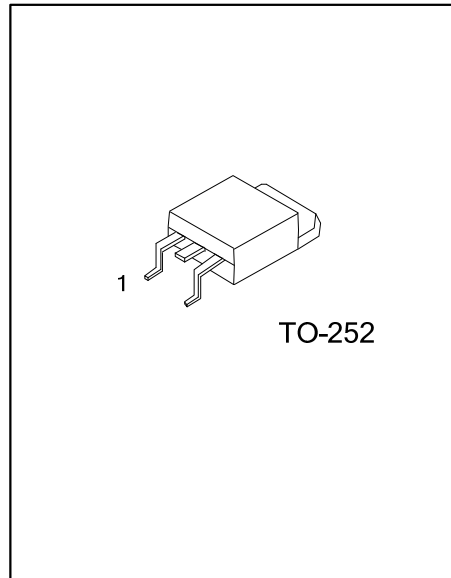
ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | Packing |
|-------------------|-------------------|---------|----------------|---|---|-----------|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| UZ2085AL-xx-TN3-T | UZ2085AG-xx-TN3-T | TO-252 | A/G | O | I | Tube |
| UZ2085AL-xx-TN3-R | UZ2085AG-xx-TN3-R | TO-252 | A/G | O | I | Tape Reel |

Note: 1. xx: Output Voltage, refer to Marking Information.

2. A: ADJ (for adjustable regulator), G: GND (for fixed regulator), O: V_{OUT} , I: V_{IN}

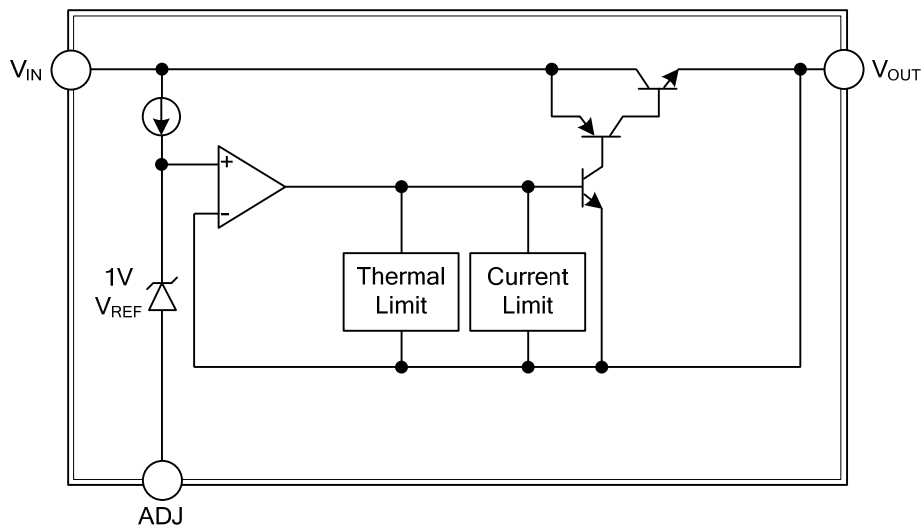
| | |
|---|---|
| <p>UZ2085AL-xx-TN3-T</p> <p>(1) Packing Type (2) Package Type (3) Output Voltage Code (4) Lead Free</p> | <p>(1) T: Tube, R: Tape Reel (2) TN3: TO-252 (3) xx: Refer to Marking Information (4) L: Lead Free, G: Halogen Free</p> |
|---|---|



MARKING INFORMATION

| PACKAGE | VOLTAGE CODE | MARKING |
|---------|--------------|---|
| TO-252 | AD:ADJ | <p> UTC UZ2085A Lot Code Voltage Code L: Lead Free G: Halogen Free Date Code </p> |

BLOCK DIAGRAM



For Adjustable Voltage

■ ABSOLUTE MAXIMUM RATINGS

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------|-----------|--------------------|------|
| Input Voltage | V_{IN} | 18 | V |
| Power Dissipation | P_D | Internally Limited | W |
| Junction Temperature | T_J | +150 | °C |
| Operating Temperature | T_{OPR} | -20 ~ +85 | °C |
| Storage Temperature | T_{STG} | -40 ~ +150 | °C |

Note:1 Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

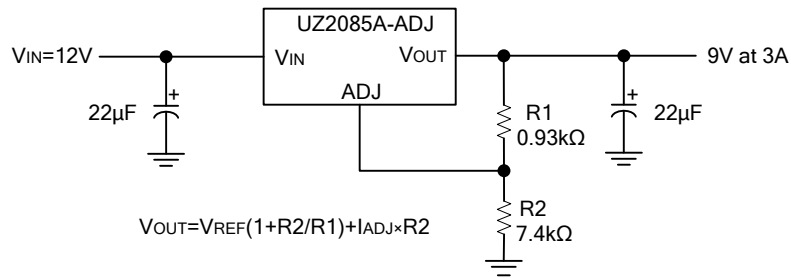
| PARAMETER | SYMBOL | RATINGS | UNIT |
|---------------------|---------------|---------|------|
| Junction to Ambient | θ_{JA} | 118 | °C/W |
| Junction to Case | θ_{JC} | 12 | °C/W |

■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, $C_{OUT}=22\mu\text{F}$, unless otherwise specified.)

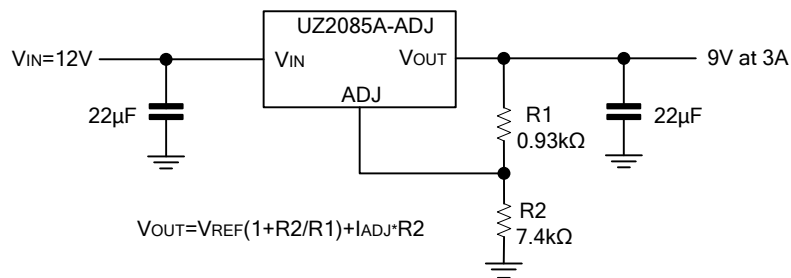
For UZ2085A-ADJ (Adjustable Voltage)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-------------------------------|------------------|---|------|-------|------|---------------|
| Reference Voltage | V_{REF} | $1.5V \leq (V_{IN} - V_{OUT}) \leq 8.25V$, $10mA \leq I_{OUT} \leq 3A$ | 0.98 | 1.0 | 1.02 | V |
| Line Regulation | ΔV_{OUT} | $(V_{OUT} + 1.5V) \leq V_{IN} \leq 12V$, $I_{OUT} = 10mA$ | | 0.005 | 0.2 | % |
| Load Regulation | ΔV_{OUT} | $(V_{IN} - V_{OUT}) = 3V$, $10mA \leq I_{OUT} \leq 3A$ | | 0.05 | 0.5 | % |
| Dropout Voltage | V_D | $\Delta V_{REF}\% = 1\%$, $I_{OUT} = 3A$ | | 1.2 | 1.40 | V |
| Current Limit | I_{LIMIT} | $(V_{IN} - V_{OUT}) = 2V$ | 3.1 | 5.8 | | A |
| Adjust Pin Current | I_{ADJ} | | | 7 | 10 | μA |
| Adjust Pin Current Change | ΔI_{ADJ} | $(V_{OUT} + 1.5V) \leq V_{IN} \leq 12V$, $10mA \leq I_{OUT} \leq 3A$ | | 0.3 | 2 | μA |
| Minimum Load Current | $I_{O(MIN)}$ | $(V_{OUT} + 1.5V) \leq V_{IN} \leq 12V$ | | 0.3 | 1 | mA |
| Ripple Rejection | RR | $f = 120\text{Hz}$, Tantalum, $(V_{IN} - V_{OUT}) = 3V$, $I_{OUT} = 3A$ | | 45 | | dB |
| Thermal Regulation | | $T_A = 25^\circ\text{C}$, 30ms pulse | | 0.004 | 0.02 | %/W |
| Temperature Stability | ΔV_{OUT} | | | 0.5 | | % |
| Long-Term Stability | ΔV_{OUT} | $T_A = 125^\circ\text{C}$, 1000hr | | 0.03 | 1.0 | % |
| Output Noise(% of V_{OUT}) | e_N | $T_A = 25^\circ\text{C}$, $10\text{Hz} \leq f \leq 10\text{kHz}$ | | 0.003 | | % |
| Thermal Shutdown | | | | 150 | | °C |

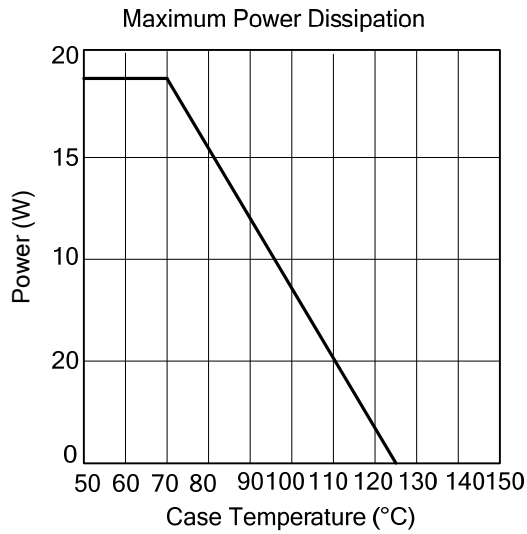
■ TYPICAL APPLICATION CIRCUIT



The UTC **UZ2085A** also supports MLCC.



■ TYPICAL CHARACTERISTICS



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