

LM7800 Series 3-Terminal Fixed Voltage Regulators



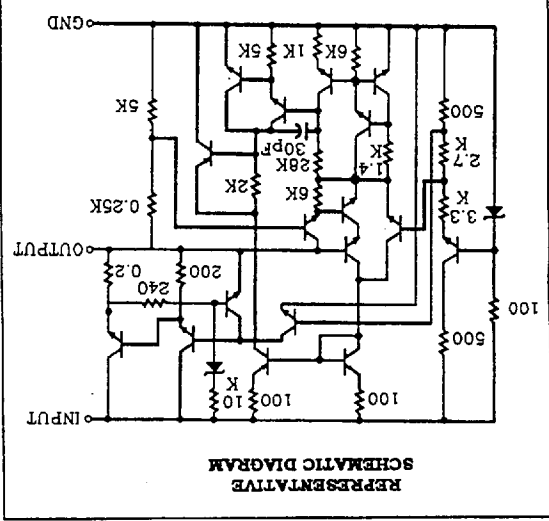
THREE-TERMINAL POSITIVE VOLTAGE REGULATORS

These voltage regulators are monolithic integrated circuits designed as fixed-voltage regulators for a wide variety of applications including local, on-card regulation. These regulators employ internal current limiting, thermal shutdown, and safe-area

- Output Current in Excess of 1.5 Ampere
- No External Components Required
- Internal Thermal Overload Protection
- Internal Short-Circuit Current Limiting
- Output Transistor Safe-Area Compensation
- Output Voltage Offered in 2% Tolerance

FEATURES

CIRCUIT SCHEMATIC



REPRESENTATIVE SCHEMATIC DIAGRAM

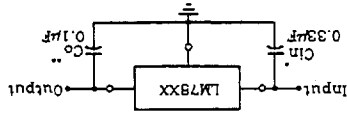
PIN ARRANGEMENT

Although designed primarily as a fixed voltage regulator, these devices can be used with external components to obtain adjustable voltages and currents. Although output currents in excess of 1.5 ampere deliver output currents in excess of 1.5 ampere. With adequate heatsinking they can compensation.



- PIN 1. INPUT
 - PIN 2. GROUND
 - PIN 3. OUTPUT
- (Heatsink surface connected to Pin 2.)

TYPICAL CONNECTING CIRCUIT



STANDARD APPLICATION

A common ground is required between the input and the output voltages. The input voltage must remain typically 2.0V above the output voltage even during the low point on the input ripple voltage.

XX = these two digits of the type number indicate approximate ripple voltage.

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ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| Item | Symbol | LM7800 Series | Unit |
|--------------------------------|------------------|---------------|------|
| Input Voltage | Vin * | 30 | V |
| Input Voltage | Vin ** | 40 | V |
| Power Dissipation | Pd *** | 15 | W |
| Operating Ambient Temperature | T _{opr} | -20 to +75 | °C |
| Operating Junction Temperature | T _j | -20 to +125 | °C |
| Storage Temperature | T _{stg} | -55 to +125 | °C |

Note: *LM7805 to LM7818

** LM7824

***Follow the derating curve

LM7805 ELECTRICAL CHARACTERISTICS

(Vin=10V, Iout=500mA, 0°C ≤ Tj ≤ 125°C, Cin=0.33µF, Cout=0.1µF; unless otherwise specified.)

| Item | Symbol | Test Conditions | | | | min. | typ. | max. | unit |
|---|---------------------|---|--|----------------------|-----|------|------|------|-------|
| Output Voltage | Vout | 7V ≤ Vin ≤ 25V | | 4.90 | 5.0 | 4.85 | -- | 5.15 | V |
| | | 5mA ≤ Iout ≤ 1.0A, P _s ≤ 15W | | 4.90 | 5.0 | 4.85 | -- | 5.15 | V |
| Line Regulation | REG _{line} | 7V ≤ Vin ≤ 25V | | 3 | -- | -- | 3 | 100 | mV |
| | | 8V ≤ Vin ≤ 12V | | 1 | -- | -- | 1 | 50 | mV |
| | | 5mA ≤ Iout ≤ 1.5A | | 15 | -- | -- | 15 | 100 | mV |
| Load Regulation | REG _{load} | Tj=25°C | | 250mA ≤ Iout ≤ 750mA | -- | -- | 5 | 50 | mV |
| | | Tj=25°C, Iout=0 | | 4.2 | -- | -- | 4.2 | 8.0 | mV |
| Quiescent Current Change | Δ Iq | 5mA ≤ Iout ≤ 1.0A | | -- | -- | -- | -- | 0.5 | mA |
| | | 7V ≤ Vin ≤ 25V | | -- | -- | -- | -- | 1.3 | mA |
| Output Noise Voltage | Vn | Ta=25°C, 10Hz ≤ f ≤ 100KHz | | -- | -- | -- | 40 | µV | |
| | | f=120Hz | | 62 | -- | -- | 62 | 78 | dB |
| Ripple Rejection Ratio | RR | f=120Hz | | 62 | -- | -- | 62 | 78 | dB |
| | | Iout=1.0A, Tj=25°C | | -- | -- | -- | -- | 2.0 | V |
| Voltage Drop | Vdrop | f=1KHz | | -- | -- | -- | 17 | mΩ | |
| | | Tj=25°C | | -- | -- | -- | 2.2 | 750 | mA |
| Output Short Circuit Current | Ios | Tj=25°C | | -- | -- | -- | 2.2 | 750 | mA |
| | | Iout=5mA, 0°C ≤ Tj ≤ 125°C | | -- | -- | -- | -1.1 | -- | mV/°C |
| Temperature Coefficient of Output Voltage | Δ Vout/Δ Tj | Iout=5mA, 0°C ≤ Tj ≤ 125°C | | -- | -- | -- | -1.1 | -- | mV/°C |
| | | Tj=25°C | | -- | -- | -- | 2.2 | -- | A |
| Peak Output Current | I _{o peak} | Tj=25°C | | -- | -- | -- | 2.2 | A | |

LM7800 Series 3-Terminal Fixed Voltage Regulators



LM7806 ELECTRICAL CHARACTERISTICS

($V_{in}=11V$, $I_{out}=500mA$, $0^\circ C \leq T_j \leq 125^\circ C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

| Item | Symbol | Test Conditions | | | unit |
|---|-----------------------------|---|---------------------------------|------|------|
| | | min. | typ. | max. | |
| Output Voltage | V_{out} | $8V \leq V_{in} \leq 21V$, $5mA \leq I_{out} \leq 1.0A$, $P_{D} \leq 15W$ | 5.83 | -- | 6.17 |
| | | $T_j=25^\circ C$ | 5.88 | 6.0 | 6.12 |
| Line Regulation | Δ REGline | $T_j=25^\circ C$ | $8V \leq V_{in} \leq 25V$ | -- | 5 |
| | | | $9V \leq V_{in} \leq 13V$ | -- | 1.5 |
| Load Regulation | Δ REGload | $T_j=25^\circ C$ | $250mA \leq I_{out} \leq 750mA$ | -- | 4.0 |
| | | | $5mA \leq I_{out} \leq 1.5A$ | -- | 14 |
| Quiescent Current | I_q | $T_j=25^\circ C$, $I_{out}=0$ | $8V \leq V_{in} \leq 25V$ | -- | 1.3 |
| | | | $5mA \leq I_{out} \leq 1.0A$ | -- | 0.5 |
| Quiescent Current Change | ΔI_q | $T_a=25^\circ C$, $10Hz \leq f \leq 100KHz$ | -- | -- | 45 |
| | | | $f=120Hz$ | 59 | 75 |
| Ripple Rejection Ratio | RR | $f=120Hz$ | -- | -- | 75 |
| Output Noise Voltage | V_n | $T_a=25^\circ C$, $10Hz \leq f \leq 100KHz$ | -- | -- | 45 |
| Output Resistance | R_{out} | $f=1KHz$ | -- | -- | 19 |
| Output Short Circuit Current | I_{os} | $T_j=25^\circ C$ | -- | -- | 550 |
| Peak Output Current | $I_{o peak}$ | $T_j=25^\circ C$ | -- | -- | 2.2 |
| Temperature Coefficient of Output Voltage | $\Delta V_{out}/\Delta T_j$ | $I_{out}=5mA$, $0^\circ C \leq T_j \leq 125^\circ C$ | -- | -- | -0.8 |

LM7808 ELECTRICAL CHARACTERISTICS

($V_{in}=14V$, $I_{out}=500mA$, $0^\circ C \leq T_j \leq 125^\circ C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

| Item | Symbol | Test Conditions | | | unit |
|---|-----------------------------|--|---------------------------------|------|------|
| | | min. | typ. | max. | |
| Output Voltage | V_{out} | $10.5V \leq V_{in} \leq 23V$, $5mA \leq I_{out} \leq 1.0A$, $P_{D} \leq 15W$ | 7.74 | -- | 8.26 |
| | | $T_j=25^\circ C$ | 7.84 | 8.0 | 8.16 |
| Line Regulation | Δ REGline | $T_j=25^\circ C$ | $10.5V \leq V_{in} \leq 25V$ | -- | 6 |
| | | | $11V \leq V_{in} \leq 17V$ | -- | 2.0 |
| Load Regulation | Δ REGload | $T_j=25^\circ C$ | $250mA \leq I_{out} \leq 750mA$ | -- | 4 |
| | | | $5mA \leq I_{out} \leq 1.5A$ | -- | 12 |
| Quiescent Current | I_q | $T_j=25^\circ C$, $I_{out}=0$ | $10.5V \leq V_{in} \leq 25V$ | -- | 1.0 |
| | | | $5mA \leq I_{out} \leq 1.0A$ | -- | 0.5 |
| Quiescent Current Change | ΔI_q | $T_a=25^\circ C$, $10Hz \leq f \leq 100KHz$ | -- | -- | 52 |
| | | | $f=120Hz$ | 56 | 72 |
| Ripple Rejection Ratio | RR | $f=120Hz$ | -- | -- | 72 |
| Output Noise Voltage | V_n | $T_a=25^\circ C$, $10Hz \leq f \leq 100KHz$ | -- | -- | 52 |
| Output Resistance | R_{out} | $f=1KHz$ | -- | -- | 16 |
| Temperature Coefficient of Output Voltage | $\Delta V_{out}/\Delta T_j$ | $I_{out}=5mA$, $0^\circ C \leq T_j \leq 125^\circ C$ | -- | -- | -0.8 |

LM7800 Series 3-Terminal Fixed Voltage Regulators



LM7809 ELECTRICAL CHARACTERISTICS

($V_{in}=15V$, $I_{out}=500mA$, $0^\circ C \leq T_j \leq 125^\circ C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

| Item | Symbol | Test Conditions | min. | typ. | max. | unit |
|---|-----------------------------|---|------|------|------|----------------|
| Output Voltage | V_{out} | $10.5V \leq V_{in} \leq 27V$, $5mA \leq I_{out} \leq 1.0A$, $P_p \leq 15W$ | 8.77 | -- | 9.23 | V |
| Line Regulation | Δ REGline | $T_j=25^\circ C$ $11.5V \leq V_{in} \leq 30V$ $12V \leq V_{in} \leq 18V$ | -- | 2.0 | 6 | mV |
| Load Regulation | Δ REGload | $T_j=25^\circ C$ $5mA \leq I_{out} \leq 1.5A$ $250mA \leq I_{out} \leq 750mA$ | -- | 4 | 80 | mV |
| Quiescent Current | I_q | $T_j=25^\circ C$, $I_{out}=0$ | -- | 4.3 | 1.0 | mA |
| Quiescent Current Change | ΔI_q | $5mA \leq I_{out} \leq 1.0A$ | -- | -- | 0.5 | mA |
| Output Noise Voltage | V_n | $T_a=25^\circ C$, $10Hz \leq f \leq 100KHz$ | -- | 52 | -- | μV |
| Ripple Rejection Ratio | RR | $f=120Hz$ | 55 | 72 | -- | dB |
| Voltage Drop | V_{drop} | $I_{out}=1.0A$, $T_j=25^\circ C$ | -- | 2.0 | -- | V |
| Output Resistance | R_{out} | $f=1KHz$ | -- | 16 | -- | m Ω |
| Output Short Circuit Current | I_{os} | $T_j=25^\circ C$ | -- | 450 | -- | mA |
| Peak Output Current | $I_{o\ peak}$ | $T_j=25^\circ C$ | -- | 2.2 | -- | A |
| Temperature Coefficient of Output Voltage | $\Delta V_{out}/\Delta T_j$ | $I_{out}=5mA$, $0^\circ C \leq T_j \leq 125^\circ C$ | -- | -1.8 | -- | mV/ $^\circ C$ |

LM7810 ELECTRICAL CHARACTERISTICS

($V_{in}=16V$, $I_{out}=500mA$, $0^\circ C \leq T_j \leq 125^\circ C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

| Item | Symbol | Test Conditions | min. | typ. | max. | unit |
|--------------------------|------------------|---|------|------|-------|---------|
| Output Voltage | V_{out} | $17.5V \leq V_{in} \leq 30V$, $5mA \leq I_{out} \leq 1.0A$, $P_p \leq 15W$ | 9.75 | - | 12.25 | V |
| Line Regulation | Δ REGline | $T_j=25^\circ C$ $10.5V \leq V_{in} \leq 30V$ $13V \leq V_{in} \leq 9V$ | -- | 3.0 | 10 | mV |
| Load Regulation | Δ REGload | $T_j=25^\circ C$ $5mA \leq I_{out} \leq 1.5A$ $250mA \leq I_{out} \leq 750mA$ | -- | 4.0 | 120 | mV |
| Quiescent Current | I_q | $T_j=25^\circ C$, $I_{out}=0$ | -- | 4.3 | 8.0 | mA |
| Quiescent Current Change | ΔI_q | $14.5V \leq V_{in} \leq 30V$ $5mA \leq I_{out} \leq 1.0A$ | -- | -- | 1.0 | mA |
| Output Noise Voltage | V_n | $T_a=25^\circ C$, $10Hz \leq f \leq 100KHz$ | -- | 52 | -- | μV |
| Ripple Rejection Ratio | RR | $f=120Hz$ | 54 | 72 | -- | dB |
| Voltage Drop | V_{drop} | $f=1KHz$ | -- | 2.0 | -- | V |

LM7800 Series 3-Terminal Fixed Voltage Regulators



LM7812 ELECTRICAL CHARACTERISTICS

($V_{in}=19V$, $I_{out}=500mA$, $0^\circ C \leq T_j \leq 125^\circ C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

| Item | Symbol | Test Conditions | | | min. | typ. | max. | unit |
|--|------------------------------|---|---------------------------------|----------------|-------|------|-------|----------------|
| Output Voltage | V_{out} | $14.5V \leq V_{in} \leq 30V$ | $5mA \leq I_{out} \leq 1.0A$ | $P_{Diss} 15W$ | 11.76 | 12.0 | 12.24 | V |
| | | $14.5V \leq V_{in} \leq 27V$ | $5mA \leq I_{out} \leq 1.0A$ | | 11.66 | -- | 12.34 | V |
| Line Regulation | Δ REG _{line} | $T_j=25^\circ C$ | $16V \leq V_{in} \leq 22V$ | | -- | 3.0 | 120 | mV |
| | | | $5mA \leq I_{out} \leq 1.5A$ | | -- | 12 | 240 | mV |
| Load Regulation | Δ REG _{load} | $T_j=25^\circ C$ | $250mA \leq I_{out} \leq 750mA$ | | -- | 4.0 | 120 | mV |
| | | | $5mA \leq I_{out} \leq 1.0A$ | | -- | 4.3 | 8.0 | mA |
| Quiescent Current | I_q | $T_j=25^\circ C$, $I_{out}=0$ | | | -- | 8.0 | 1.0 | mA |
| | | | $14.5V \leq V_{in} \leq 30V$ | | -- | 1.0 | 0.5 | mA |
| Quiescent Current Change | ΔI_q | | $5mA \leq I_{out} \leq 1.0A$ | | -- | -- | -- | mA |
| Output Noise Voltage | V_n | $T_a=25^\circ C$, $10Hz \leq f \leq 100KHz$ | | | -- | 75 | -- | μV |
| Ripple Rejection Ratio | RR | $f=120Hz$ | | | 55 | 71 | -- | dB |
| Voltage Drop | V_{drop} | $I_{out}=1.0A$, $T_j=25^\circ C$ | | | -- | 2.0 | -- | V |
| Output Resistance | R_{out} | $f=1KHz$ | | | -- | 18 | -- | m Ω |
| Output Short Circuit Current | I_{os} | $T_j=25^\circ C$ | | | -- | 350 | -- | mA |
| Peak Output Current | $I_{o peak}$ | $T_j=25^\circ C$ | | | -- | 2.2 | -- | A |
| Temperature Coefficient of $\Delta V_{out}/\Delta T_j$ | | $I_{out}=5mA$, $0^\circ C \leq T_j \leq 125^\circ C$ | | | -- | -1.0 | -- | mV/ $^\circ C$ |

LM7815 ELECTRICAL CHARACTERISTICS

($V_{in}=23V$, $I_{out}=500mA$, $0^\circ C \leq T_j \leq 125^\circ C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

| Item | Symbol | Test Conditions | | | min. | typ. | max. | unit |
|--------------------------|------------------------------|--|---------------------------------|----------------|-------|------|-------|------------|
| Output Voltage | V_{out} | $17.5V \leq V_{in} \leq 30V$ | $5mA \leq I_{out} \leq 1.0A$ | $P_{Diss} 15W$ | 14.55 | 15.0 | 15.45 | V |
| | | $17.5V \leq V_{in} \leq 30V$ | $5mA \leq I_{out} \leq 1.0A$ | | 14.7 | 15.3 | -- | V |
| Line Regulation | Δ REG _{line} | $T_j=25^\circ C$ | $20V \leq V_{in} \leq 26V$ | | -- | 3.0 | 150 | mV |
| | | | $5mA \leq I_{out} \leq 1.5A$ | | -- | 12 | 300 | mV |
| Load Regulation | Δ REG _{load} | $T_j=25^\circ C$ | $250mA \leq I_{out} \leq 750mA$ | | -- | 4 | 150 | mV |
| | | | $5mA \leq I_{out} \leq 1.0A$ | | -- | 4.4 | 8.0 | mA |
| Quiescent Current | I_q | $T_j=25^\circ C$, $I_{out}=0$ | | | -- | 8.0 | 1.0 | mA |
| | | | $17.5V \leq V_{in} \leq 30V$ | | -- | 1.0 | 0.5 | mA |
| Quiescent Current Change | ΔI_q | | $5mA \leq I_{out} \leq 1.0A$ | | -- | -- | -- | mA |
| Output Noise Voltage | V_n | $T_a=25^\circ C$, $10Hz \leq f \leq 100KHz$ | | | -- | 90 | -- | μV |
| Ripple Rejection Ratio | RR | $f=120Hz$ | | | 54 | 70 | -- | dB |
| Voltage Drop | V_{drop} | $I_{out}=1.0A$, $T_j=25^\circ C$ | | | -- | 2.0 | -- | V |
| Output Resistance | R_{out} | $f=1KHz$ | | | -- | 19 | -- | m Ω |

LM7800 Series 3-Terminal Fixed Voltage Regulators



LM7818 ELECTRICAL CHARACTERISTICS

($V_{in}=27V$, $I_{out}=500mA$, $0^\circ C \leq T_j \leq 125^\circ C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

| Item | Symbol | Test Conditions | | | min. | typ. | max. | unit |
|---|-------------------------------|---|---------------------------------|-------|------|-------|----------------|------|
| Output Voltage | V_{out} | $P_o \leq 1.5W$ | $21.0V \leq V_{in} \leq 33V$ | 17.44 | -- | 18.56 | V | |
| | | | $T_j = 25^\circ C$ | 17.64 | 18.0 | 18.36 | V | |
| Line Regulation | ΔV_o line | $T_j = 25^\circ C$ | $21.0V \leq V_{in} \leq 33V$ | -- | 15 | 360 | mV | |
| | | | $24V \leq V_{in} \leq 30V$ | -- | 5.0 | 180 | mV | |
| Load Regulation | ΔV_o load | $T_j = 25^\circ C$ | $250mA \leq I_{out} \leq 750mA$ | -- | 4.0 | 180 | mV | |
| | | | $5mA \leq I_{out} \leq 1.5A$ | -- | 12 | 360 | mV | |
| Quiescent Current | I_q | $T_j = 25^\circ C$, $I_{out} = 0$ | -- | 4.5 | 8.0 | mA | | |
| Quiescent Current Change | ΔI_q | $5mA \leq I_{out} \leq 1.0A$ | $21.0V \leq V_{in} \leq 33V$ | -- | -- | 1.0 | mA | |
| | | | $5mA \leq I_{out} \leq 1.0A$ | -- | -- | 0.5 | mA | |
| Output Noise Voltage | V_n | $T_a = 25^\circ C$, $10Hz \leq f \leq 100KHz$ | -- | 110 | -- | -- | μV | |
| Ripple Rejection Ratio | RR | $f = 120Hz$ | 53 | -- | 69 | -- | dB | |
| Voltage Drop | V_{drop} | $I_{out} = 1.0A$, $T_j = 25^\circ C$ | -- | 2.0 | -- | -- | V | |
| Output Resistance | R_{out} | $f = 1KHz$ | -- | 22 | -- | -- | m Ω | |
| Output Short Circuit Current | I_{os} | $T_j = 25^\circ C$ | -- | 200 | -- | -- | mA | |
| Peak Output Current | $I_{o peak}$ | $T_j = 25^\circ C$ | -- | 2.1 | -- | -- | A | |
| Temperature Coefficient of Output Voltage | $\Delta V_{out} / \Delta T_j$ | $I_{out} = 5mA$, $0^\circ C \leq T_j \leq 125^\circ C$ | -- | -- | -1.0 | -- | mV/ $^\circ C$ | |

LM7824 ELECTRICAL CHARACTERISTICS

($V_{in}=33V$, $I_{out}=500mA$, $0^\circ C \leq T_j \leq 125^\circ C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

| Item | Symbol | Test Conditions | | | min. | typ. | max. | unit |
|--------------------------|-------------------|--|---|-------|------|-------|------------|------|
| Output Voltage | V_{out} | $P_o \leq 1.5W$ | $27.0V \leq V_{in} \leq 38V$, $5mA \leq I_{out} \leq 1.0A$ | 23.32 | -- | 24.68 | V | |
| | | | $T_j = 25^\circ C$ | 23.52 | 24.0 | 24.48 | V | |
| Line Regulation | ΔV_o line | $T_j = 25^\circ C$ | $27.0V \leq V_{in} \leq 38V$ | -- | 18 | 480 | mV | |
| | | | $30V \leq V_{in} \leq 36V$ | -- | 6.0 | 240 | mV | |
| Load Regulation | ΔV_o load | $T_j = 25^\circ C$ | $250mA \leq I_{out} \leq 750mA$ | -- | 4.0 | 240 | mV | |
| | | | $5mA \leq I_{out} \leq 1.5A$ | -- | 12 | 480 | mV | |
| Quiescent Current | I_q | $T_j = 25^\circ C$, $I_{out} = 0$ | -- | 4.6 | 8.0 | mA | | |
| Quiescent Current Change | ΔI_q | $5mA \leq I_{out} \leq 1.0A$ | $27.0V \leq V_{in} \leq 38V$ | -- | -- | 1.0 | mA | |
| | | | $5mA \leq I_{out} \leq 1.0A$ | -- | -- | 0.5 | mA | |
| Output Noise Voltage | V_n | $T_a = 25^\circ C$, $10Hz \leq f \leq 100KHz$ | -- | 170 | -- | -- | μV | |
| Ripple Rejection Ratio | RR | $f = 120Hz$ | 50 | -- | 66 | -- | dB | |
| Voltage Drop | V_{drop} | $I_{out} = 1.0A$, $T_j = 25^\circ C$ | -- | 2.0 | -- | -- | V | |
| Output Resistance | R_{out} | $f = 1KHz$ | -- | 28 | -- | -- | m Ω | |

LM7800 Series 3-Terminal Fixed Voltage Regulators



FIGURE 1 - WORST CASE POWER DISSIPATION versus AMBIENT TEMPERATURE (Case 221A)

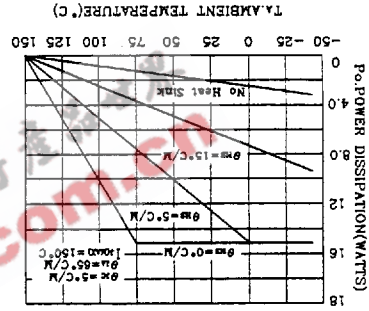


FIGURE 2 - WORST CASE POWER DISSIPATION versus AMBIENT TEMPERATURE (Case 1)

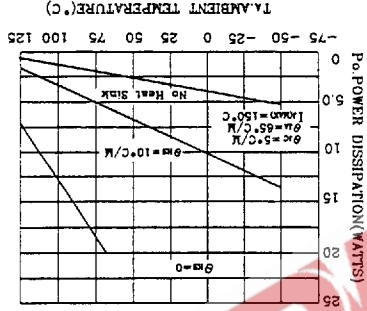


FIGURE 3 - INPUT OUTPUT DIFFERENTIAL AS A FUNCTION OF JUNCTION TEMPERATURE

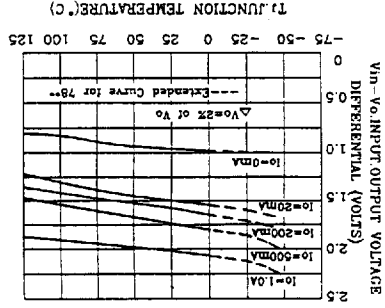


FIGURE 4 - INPUT OUTPUT DIFFERENTIAL AS A FUNCTION OF JUNCTION TEMPERATURE

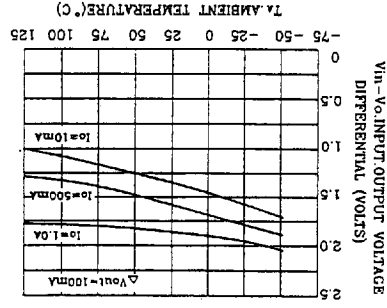


FIGURE 5 - PEAK OUTPUT CURRENT AS A FUNCTION OF INPUT-OUTPUT DIFFERENTIAL VOLTAGE

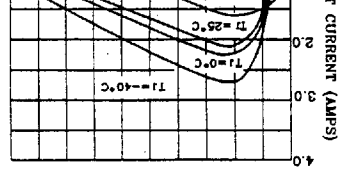


FIGURE 6 - PEAK OUTPUT CURRENT AS A FUNCTION OF INPUT-OUTPUT DIFFERENTIAL VOLTAGE

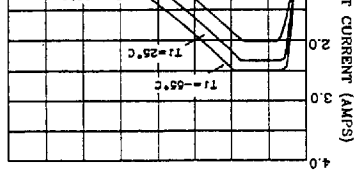


FIGURE 7 - RIPPLE REJECTION AS A FUNCTION OF OUTPUT VOLTAGE

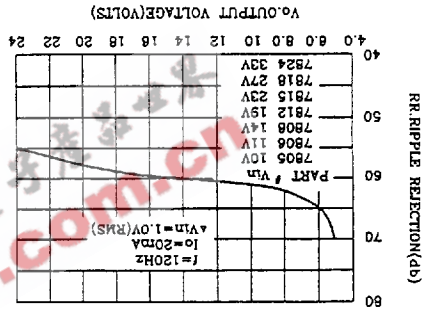


FIGURE 8 - RIPPLE REJECTION AS A FUNCTION OF FREQUENCY

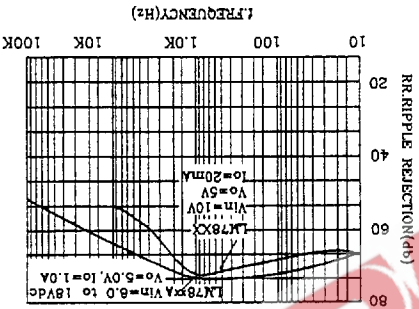


FIGURE 9 - OUTPUT VOLTAGE AS A FUNCTION OF JUNCTION TEMPERATURE

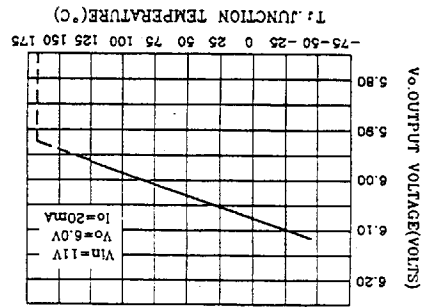


FIGURE 10 - OUTPUT IMPEDANCE AS A FUNCTION OF OUTPUT VOLTAGE

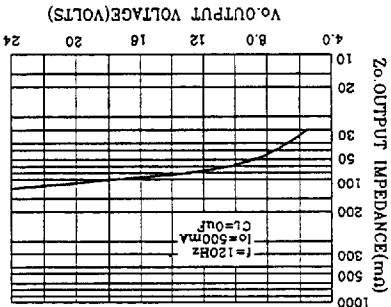


FIGURE 11 - QUIESCENT CURRENT AS A FUNCTION OF TEMPERATURE

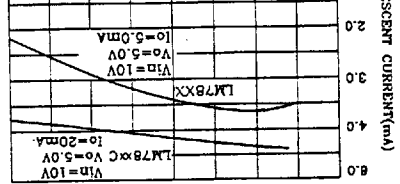


FIGURE 12 - DROPOUT CHARACTERISTICS

