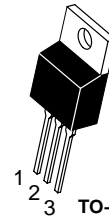


3 TERMINAL 1.5A POSITIVE VOLTAGE REGULATORS

FEATURES

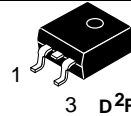
- * Output current up to 1.5A
- * 5V;6V;8V;9V;10V;12V;15V;18V;24V output voltage available
- * Thermal overload protection
- * Short circuit protection
- * Output transistor SOA protection



Heatsink surface connected to Pin 2.

TO-220-3

MC7805CT



Pin 1. Input
2. Ground
3. Output

D²PAK-3

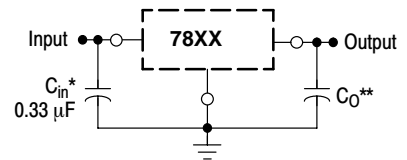
L7812ABD2T



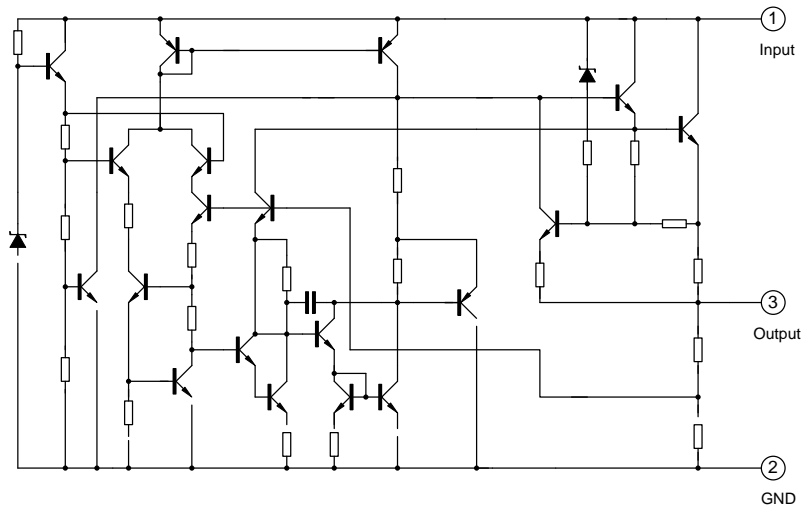
MC7805BDT L7805CDT
MC7812BDTR L78M12ABDT
MC7815CDTR
L78M10ABDT

DPAK-3

STANDARD APPLICATION



BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS $T_a = 25^\circ\text{C}$

| Characteristic | Symbol | Value | Unit |
|--|-----------|------------|------------------|
| Input voltage (for $V_o=5\text{V}$ to 18V) (for $V_o=24\text{V}$) | V_i | 35 40 | V |
| Operating Temperature | T_{opr} | -40~ +125 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -65 ~ +150 | $^\circ\text{C}$ |

7805 ELECTRICAL CHARACTERISTICS

 (Refer to test circuits, $0 < T_j < 125^\circ\text{C}$, $I_o=500\text{mA}$, $V_i=10\text{V}$, $C_i=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$, unless otherwise specified)

| Characteristic | Symbol | Test Conditions | Min | Typ | Max | Units |
|--------------------------|-----------------------|--|------|------|------|----------------------|
| Output voltage | V_o | $T_j=25^\circ\text{C}$ | 4.8 | 5.0 | 5.2 | V |
| | | $5.0\text{mA} < I_o < 1.0\text{A}$, $P_D < 15\text{W}$ $V_i=7.5\text{V}$ to 20V | 4.75 | 5.00 | 5.25 | V |
| Line regulation | ΔV_o | $T_j=25^\circ\text{C}$, $V_i=7.5\text{V}$ to 25V | - | 4.0 | 100 | mV |
| | | $T_j=25^\circ\text{C}$, $V_i=8\text{V}$ to 12V | - | 1.6 | 50 | mV |
| Load regulation | ΔV_o | $T_j=25^\circ\text{C}$, $I_o=5.0\text{mA}$ to 1.5A | - | 9 | 100 | mV |
| | | $T_j=25^\circ\text{C}$, $I_o=250\text{mA}$ to 750mA | - | 4 | 50 | mV |
| Quiescent current | I_q | $T_j=25^\circ\text{C}$ | - | 5.0 | 8 | mA |
| Quiescent current change | ΔI_q | $I_o=5\text{mA}$ to 1.0A | - | - | 0.5 | mA |
| | | $V_i=8\text{V}$ to 25V | - | - | 0.8 | mA |
| Output voltage drift | $\Delta V_o/\Delta T$ | $I_o=5\text{mA}$ | - | 0.8 | - | mV/ $^\circ\text{C}$ |
| Output noise voltage | V_N | $f=10\text{Hz}$ to 100kHz , $T_a=25^\circ\text{C}$ | - | 42 | - | $\mu\text{V}/V_o$ |
| Ripple rejection | RR | $f=120\text{Hz}$, $V_i=8\text{V}$ to 18V | 62 | 73 | - | dB |
| Dropout voltage | V_o | $I_o=1.0\text{A}$, $T_j=25^\circ\text{C}$ | - | 2 | - | V |
| Output resistance | R_o | $f=1\text{kHz}$ | - | 15 | - | $\text{m}\Omega$ |
| Short circuit current | I_{sc} | $V_i=35\text{V}$, $T_a=25^\circ\text{C}$ | - | 230 | - | mA |
| peak current | I_{pk} | $T_j=25^\circ\text{C}$ | - | 2.2 | - | A |

7806 ELECTRICAL CHARACTERISTICS

 (Refer to test circuits, $0 < T_j < 125^\circ\text{C}$, $I_o = 500\text{mA}$, $V_i = 11\text{V}$, $C_i = 0.33\mu\text{F}$, $C_o = 0.1\mu\text{F}$, unless otherwise specified)

| Characteristic | Symbol | Test Conditions | Min | Typ | Max | Units |
|--------------------------|-------------------------|---|------|------|------|----------------------------|
| Output voltage | V_o | $T_j = 25^\circ\text{C}$ | 5.75 | 6.00 | 6.25 | V |
| | | $5.0\text{mA} < I_o < 1.0\text{A}$, $P_D < 15\text{W}$ $V_i = 8.5\text{V to } 21\text{V}$ | 5.7 | 6.0 | 6.3 | V |
| Line regulation | ΔV_o | $T_j = 25^\circ\text{C}$, $V_i = 8.5\text{V to } 25\text{V}$ | - | 5 | 120 | mV |
| | | $T_j = 25^\circ\text{C}$, $V_i = 9\text{V to } 13\text{V}$ | - | 1.8 | 60 | mV |
| Load regulation | ΔV_o | $T_j = 25^\circ\text{C}$, $I_o = 5.0\text{mA to } 1.5\text{A}$ | - | 9 | 130 | mV |
| | | $T_j = 25^\circ\text{C}$, $I_o = 250\text{mA to } 750\text{mA}$ | - | 4 | 60 | mV |
| Quiescent current | I_q | $T_j = 25^\circ\text{C}$ | - | 5.0 | 8 | mA |
| Quiescent current change | ΔI_q | $I_o = 5\text{mA to } 1.0\text{A}$ | - | - | 0.5 | mA |
| | | $V_i = 9\text{V to } 25\text{V}$ | - | - | 0.8 | mA |
| Output voltage drift | $\Delta V_o / \Delta T$ | $I_o = 5\text{mA}$ | - | 0.9 | - | $\text{mV}/^\circ\text{C}$ |
| Output noise voltage | V_N | $f = 10\text{Hz to } 100\text{kHz}$, $T_a = 25^\circ\text{C}$ | - | 45 | - | $\mu\text{V}/V_o$ |
| Ripple rejection | RR | $f = 120\text{Hz}$, $V_i = 9\text{V to } 19\text{V}$ | 59 | 70 | - | dB |
| Dropout voltage | V_o | $I_o = 1.0\text{A}$, $T_j = 25^\circ\text{C}$ | - | 2 | - | V |
| Output resistance | R_o | $f = 1\text{kHz}$ | - | 19 | - | $\text{m}\Omega$ |
| Short circuit current | I_{sc} | $V_i = 35\text{V}$, $T_a = 25^\circ\text{C}$ | - | 230 | - | mA |
| peak current | I_{pk} | $T_j = 25^\circ\text{C}$ | - | 2.2 | - | A |

7808 ELECTRICAL CHARACTERISTICS

 (Refer to test circuits, $0 < T_j < 125^\circ\text{C}$, $I_o = 500\text{mA}$, $V_i = 14\text{V}$, $C_i = 0.33\mu\text{F}$, $C_o = 0.1\mu\text{F}$, unless otherwise specified)

| Characteristic | Symbol | Test Conditions | Min | Typ | Max | Units |
|--------------------------|-------------------------|--|-----|-----|-----|----------------------------|
| Output voltage | V_o | $T_j = 25^\circ\text{C}$ | 7.7 | 8.0 | 8.3 | V |
| | | $5.0\text{mA} < I_o < 1.0\text{A}$, $P_D < 15\text{W}$ $V_i = 11\text{V to } 23\text{V}$ | 7.6 | 8.0 | 8.4 | V |
| Line regulation | ΔV_o | $T_j = 25^\circ\text{C}$, $V_i = 10.5\text{V to } 25\text{V}$ | - | 5.0 | 160 | mV |
| | | $T_j = 25^\circ\text{C}$, $V_i = 11\text{V to } 17\text{V}$ | - | 2.0 | 80 | mV |
| Load regulation | ΔV_o | $T_j = 25^\circ\text{C}$, $I_o = 5.0\text{mA to } 1.5\text{A}$ | - | 10 | 160 | mV |
| | | $T_j = 25^\circ\text{C}$, $I_o = 250\text{mA to } 750\text{mA}$ | - | 5.0 | 80 | mV |
| Quiescent current | I_q | $T_j = 25^\circ\text{C}$ | - | 5.0 | 8 | mA |
| Quiescent current change | ΔI_q | $I_o = 5\text{mA to } 1.0\text{A}$ | - | - | 0.5 | mA |
| | | $V_i = 11\text{V to } 25\text{V}$ | - | - | 0.8 | mA |
| Output voltage drift | $\Delta V_o / \Delta T$ | $I_o = 5\text{mA}$ | - | 1.2 | - | $\text{mV}/^\circ\text{C}$ |
| Output noise voltage | V_N | $f = 10\text{Hz to } 100\text{kHz}$, $T_a = 25^\circ\text{C}$ | - | 52 | - | $\mu\text{V}/V_o$ |
| Ripple rejection | RR | $f = 120\text{Hz}$, $V_i = 11.5\text{V to } 21.5\text{V}$ | 56 | 67 | - | dB |
| Dropout voltage | V_o | $I_o = 1.0\text{A}$, $T_j = 25^\circ\text{C}$ | - | 2 | - | V |
| Output resistance | R_o | $f = 1\text{kHz}$ | - | 17 | - | $\text{m}\Omega$ |
| Short circuit current | I_{sc} | $V_i = 35\text{V}$, $T_a = 25^\circ\text{C}$ | - | 230 | - | mA |
| peak current | I_{pk} | $T_j = 25^\circ\text{C}$ | - | 2.2 | - | A |

7809 ELECTRICAL CHARACTERISTICS

 (Refer to test circuits, $0 < T_j < 125^\circ\text{C}$, $I_o = 500\text{mA}$, $V_i = 15\text{V}$, $C_i = 0.33\mu\text{F}$, $C_o = 0.1\mu\text{F}$, unless otherwise specified)

| Characteristic | Symbol | Test Conditions | Min | Typ | Max | Units |
|--------------------------|-------------------------|---|------|------|------|----------------------|
| Output voltage | V_o | $T_j = 25^\circ\text{C}$ | 8.65 | 9.00 | 9.35 | V |
| | | $5.0\text{mA} < I_o < 1.0\text{A}$, $P_D < 15\text{W}$ $V_i = 11.5\text{V}$ to 24V | 8.6 | 9.0 | 9.4 | V |
| Line regulation | ΔV_o | $T_j = 25^\circ\text{C}$, $V_i = 11.5\text{V}$ to 25V | - | 6 | 180 | mV |
| | | $T_j = 25^\circ\text{C}$, $V_i = 12\text{V}$ to 25V | - | 2 | 90 | mV |
| Load regulation | ΔV_o | $T_j = 25^\circ\text{C}$, $I_o = 5.0\text{mA}$ to 1.5A | - | 12 | 180 | mV |
| | | $T_j = 25^\circ\text{C}$, $I_o = 250\text{mA}$ to 750mA | - | 5 | 90 | mV |
| Quiescent current | I_q | $T_j = 25^\circ\text{C}$ | - | 5.0 | 8 | mA |
| Quiescent current change | ΔI_q | $I_o = 5\text{mA}$ to 1.0A | - | - | 0.5 | mA |
| | | $V_i = 12\text{V}$ to 26V | - | - | 0.8 | mA |
| Output voltage drift | $\Delta V_o / \Delta T$ | $I_o = 5\text{mA}$ | - | 1.3 | - | mV/ $^\circ\text{C}$ |
| Output noise voltage | V_N | $f = 10\text{Hz}$ to 100kHz , $T_a = 25^\circ\text{C}$ | - | 58 | - | $\mu\text{V}/V_o$ |
| Ripple rejection | RR | $f = 120\text{Hz}$, $V_i = 13\text{V}$ to 23V | 55 | 66 | - | dB |
| Dropout voltage | V_o | $I_o = 1.0\text{A}$, $T_j = 25^\circ\text{C}$ | - | 2 | - | V |
| Output resistance | R_o | $f = 1\text{kHz}$ | - | 15 | - | $\text{m}\Omega$ |
| Short circuit current | I_{sc} | $V_i = 35\text{V}$, $T_a = 25^\circ\text{C}$ | - | 230 | - | mA |
| peak current | I_{pk} | $T_j = 25^\circ\text{C}$ | - | 2.2 | - | A |

7810 ELECTRICAL CHARACTERISTICS

 (Refer to test circuits, $0 < T_j < 125^\circ\text{C}$, $I_o = 500\text{mA}$, $V_i = 16\text{V}$, $C_i = 0.33\mu\text{F}$, $C_o = 0.1\mu\text{F}$, unless otherwise specified)

| Characteristic | Symbol | Test Conditions | Min | Typ | Max | Units |
|--------------------------|-------------------------|---|-----|-----|------|----------------------|
| Output voltage | V_o | $T_j = 25^\circ\text{C}$ | 9.6 | 10 | 10.4 | V |
| | | $5.0\text{mA} < I_o < 1.0\text{A}$, $P_D < 15\text{W}$ $V_i = 12.5\text{V}$ to 25V | 9.5 | 10 | 10.5 | V |
| Line regulation | ΔV_o | $T_j = 25^\circ\text{C}$, $V_i = 12.5\text{V}$ to 25V | - | 8 | 200 | mV |
| | | $T_j = 25^\circ\text{C}$, $V_i = 13\text{V}$ to 20V | - | 3 | 100 | mV |
| Load regulation | ΔV_o | $T_j = 25^\circ\text{C}$, $I_o = 5.0\text{mA}$ to 1.5A | - | 12 | 200 | mV |
| | | $T_j = 25^\circ\text{C}$, $I_o = 250\text{mA}$ to 750mA | - | 5 | 100 | mV |
| Quiescent current | I_q | $T_j = 25^\circ\text{C}$ | - | 5.0 | 8 | mA |
| Quiescent current change | ΔI_q | $I_o = 5\text{mA}$ to 1.0A | - | - | 0.5 | mA |
| | | $V_i = 13\text{V}$ to 29V | - | - | 0.8 | mA |
| Output voltage drift | $\Delta V_o / \Delta T$ | $I_o = 5\text{mA}$ | - | 1.4 | - | mV/ $^\circ\text{C}$ |
| Output noise voltage | V_N | $f = 10\text{Hz}$ to 100kHz , $T_a = 25^\circ\text{C}$ | - | 58 | - | $\mu\text{V}/V_o$ |
| Ripple rejection | RR | $f = 120\text{Hz}$, $V_i = 14\text{V}$ to 24V | 54 | 65 | - | dB |
| Dropout voltage | V_o | $I_o = 1.0\text{A}$, $T_j = 25^\circ\text{C}$ | - | 2 | - | V |
| Output resistance | R_o | $f = 1\text{kHz}$ | - | 17 | - | $\text{m}\Omega$ |
| Short circuit current | I_{sc} | $V_i = 35\text{V}$, $T_a = 25^\circ\text{C}$ | - | 230 | - | mA |
| peak current | I_{pk} | $T_j = 25^\circ\text{C}$ | - | 2.2 | - | A |

7812 ELECTRICAL CHARACTERISTICS

 (Refer to test circuits, $0 < T_j < 125^\circ\text{C}$, $I_o = 500\text{mA}$, $V_i = 19\text{V}$, $C_i = 0.33\mu\text{F}$, $C_o = 0.1\mu\text{F}$, unless otherwise specified)

| Characteristic | Symbol | Test Conditions | Min | Typ | Max | Units |
|--------------------------|-------------------------|---|------|------|------|----------------------|
| Output voltage | V_o | $T_j = 25^\circ\text{C}$ | 11.5 | 12.0 | 12.5 | V |
| | | $5.0\text{mA} < I_o < 1.0\text{A}$, $P_D < 15\text{W}$ $V_i = 14.5\text{V}$ to 27V | 11.4 | 12 | 12.6 | V |
| Line regulation | ΔV_o | $T_j = 25^\circ\text{C}$, $V_i = 14.5\text{V}$ to 30V | - | 10 | 240 | mV |
| | | $T_j = 25^\circ\text{C}$, $V_i = 16\text{V}$ to 22V | - | 3 | 120 | mV |
| Load regulation | ΔV_o | $T_j = 25^\circ\text{C}$, $I_o = 5.0\text{mA}$ to 1.5A | - | 12 | 240 | mV |
| | | $T_j = 25^\circ\text{C}$, $I_o = 250\text{mA}$ to 750mA | - | 5.0 | 120 | mV |
| Quiescent current | I_q | $T_j = 25^\circ\text{C}$ | - | 5.1 | 8 | mA |
| Quiescent current change | ΔI_q | $I_o = 5\text{mA}$ to 1.0A | - | - | 0.5 | mA |
| | | $V_i = 15\text{V}$ to 30V | - | - | 0.8 | mA |
| Output voltage drift | $\Delta V_o / \Delta T$ | $I_o = 5\text{mA}$ | - | 1.7 | - | mV/ $^\circ\text{C}$ |
| Output noise voltage | V_N | $f = 10\text{Hz}$ to 100kHz , $T_a = 25^\circ\text{C}$ | - | 76 | - | $\mu\text{V}/V_o$ |
| Ripple rejection | RR | $f = 120\text{Hz}$, $V_i = 15\text{V}$ to 25V | 53 | 64 | - | dB |
| Dropout voltage | V_o | $I_o = 1.0\text{A}$, $T_j = 25^\circ\text{C}$ | - | 2 | - | V |
| Output resistance | R_o | $f = 1\text{kHz}$ | - | 18 | - | $\text{m}\Omega$ |
| Short circuit current | I_{sc} | $V_i = 35\text{V}$, $T_a = 25^\circ\text{C}$ | - | 230 | - | mA |
| peak current | I_{pk} | $T_j = 25^\circ\text{C}$ | - | 2.2 | - | A |

7815 ELECTRICAL CHARACTERISTICS

 (Refer to test circuits, $0 < T_j < 125^\circ\text{C}$, $I_o = 500\text{mA}$, $V_i = 23\text{V}$, $C_i = 0.33\mu\text{F}$, $C_o = 0.1\mu\text{F}$, unless otherwise specified)

| Characteristic | Symbol | Test Conditions | Min | Typ | Max | Units |
|--------------------------|-------------------------|---|-------|------|-------|----------------------|
| Output voltage | V_o | $T_j = 25^\circ\text{C}$ | 14.4 | 15.0 | 15.6 | V |
| | | $5.0\text{mA} < I_o < 1.0\text{A}$, $P_D < 15\text{W}$ $V_i = 17.5\text{V}$ to 30V | 14.25 | 15 | 15.75 | V |
| Line regulation | ΔV_o | $T_j = 25^\circ\text{C}$, $V_i = 17.5\text{V}$ to 30V | - | 11 | 300 | mV |
| | | $T_j = 25^\circ\text{C}$, $V_i = 20\text{V}$ to 26V | - | 3 | 150 | mV |
| Load regulation | ΔV_o | $T_j = 25^\circ\text{C}$, $I_o = 5.0\text{mA}$ to 1.5A | - | 12 | 300 | mV |
| | | $T_j = 25^\circ\text{C}$, $I_o = 250\text{mA}$ to 750mA | - | 5 | 150 | mV |
| Quiescent current | I_q | $T_j = 25^\circ\text{C}$ | - | 5.2 | 8 | mA |
| Quiescent current change | ΔI_q | $I_o = 5\text{mA}$ to 1.0A | - | - | 0.5 | mA |
| | | $V_i = 18\text{V}$ to 30.5V | - | - | 0.8 | mA |
| Output voltage drift | $\Delta V_o / \Delta T$ | $I_o = 5\text{mA}$ | - | 2.0 | - | mV/ $^\circ\text{C}$ |
| Output noise voltage | V_N | $f = 10\text{Hz}$ to 100kHz , $T_a = 25^\circ\text{C}$ | - | 90 | - | $\mu\text{V}/V_o$ |
| Ripple rejection | RR | $f = 120\text{Hz}$, $V_i = 18.5\text{V}$ to 28.5V | 51 | 62 | - | dB |
| Dropout voltage | V_o | $I_o = 1.0\text{A}$, $T_j = 25^\circ\text{C}$ | - | 2 | - | V |
| Output resistance | R_o | $f = 1\text{kHz}$ | - | 19 | - | $\text{m}\Omega$ |
| Short circuit current | I_{sc} | $V_i = 35\text{V}$, $T_a = 25^\circ\text{C}$ | - | 230 | - | mA |
| peak current | I_{pk} | $T_j = 25^\circ\text{C}$ | - | 2.2 | - | A |

7818 ELECTRICAL CHARACTERISTICS

 (Refer to test circuits, $0 < T_j < 125^\circ\text{C}$, $I_o = 500\text{mA}$, $V_i = 26\text{V}$, $C_i = 0.33\mu\text{F}$, $C_o = 0.1\mu\text{F}$, unless otherwise specified)

| Characteristic | Symbol | Test Conditions | Min | Typ | Max | Units |
|--------------------------|-------------------------|---|------|------|------|----------------------|
| Output voltage | V_o | $T_j = 25^\circ\text{C}$ | 17.3 | 18.0 | 18.7 | V |
| | | $5.0\text{mA} < I_o < 1.0\text{A}$, $P_D < 15\text{W}$ $V_i = 21$ to 33V | 17.1 | 18.0 | 18.9 | V |
| Line regulation | ΔV_o | $T_j = 25^\circ\text{C}$, $V_i = 21$ to 33V | - | - | 360 | mV |
| | | $T_j = 25^\circ\text{C}$, $V_i = 24\text{V}$ to 30V | - | - | 180 | mV |
| Load regulation | ΔV_o | $T_j = 25^\circ\text{C}$, $I_o = 5.0\text{mA}$ to 1.5A | - | - | 360 | mV |
| | | $T_j = 25^\circ\text{C}$, $I_o = 250\text{mA}$ to 750mA | - | - | 180 | mV |
| Quiescent current | I_q | $T_j = 25^\circ\text{C}$ | - | 5.2 | 8 | mA |
| Quiescent current change | ΔI_q | $I_o = 5\text{mA}$ to 1.0A | - | - | 0.5 | mA |
| | | $V_i = 21\text{V}$ to 33V | - | - | 1 | mA |
| Output voltage drift | $\Delta V_o / \Delta T$ | $I_o = 5\text{mA}$ | - | 2.3 | - | mV/ $^\circ\text{C}$ |
| Output noise voltage | V_N | $f = 10\text{Hz}$ to 100kHz , $T_a = 25^\circ\text{C}$ | - | 110 | - | $\mu\text{V}/V_o$ |
| Ripple rejection | RR | $f = 120\text{Hz}$, $V_i = 22\text{V}$ to 32V | 51 | 57 | - | dB |
| Dropout voltage | V_o | $I_o = 1.0\text{A}$, $T_j = 25^\circ\text{C}$ | - | 2 | - | V |
| Output resistance | R_o | $f = 1\text{kHz}$ | - | 22 | - | $\text{m}\Omega$ |
| Short circuit current | I_{sc} | $V_i = 35\text{V}$, $T_a = 25^\circ\text{C}$ | - | 230 | - | mA |
| peak current | I_{pk} | $T_j = 25^\circ\text{C}$ | - | 2.2 | - | A |

7824 ELECTRICAL CHARACTERISTICS

 (Refer to test circuits, $0 < T_j < 125^\circ\text{C}$, $I_o = 500\text{mA}$, $V_i = 33\text{V}$, $C_i = 0.33\mu\text{F}$, $C_o = 0.1\mu\text{F}$, unless otherwise specified)

| Characteristic | Symbol | Test Conditions | Min | Typ | Max | Units |
|--------------------------|-------------------------|---|------|-----|------|----------------------|
| Output voltage | V_o | $T_j = 25^\circ\text{C}$ | 23 | 24 | 25 | V |
| | | $5.0\text{mA} < I_o < 1.0\text{A}$, $P_D < 15\text{W}$ $V_i = 27\text{V}$ to 38V | 22.8 | 24 | 25.2 | V |
| Line regulation | ΔV_o | $T_j = 25^\circ\text{C}$, $V_i = 27\text{V}$ to 38V | - | - | 480 | mV |
| | | $T_j = 25^\circ\text{C}$, $V_i = 30\text{V}$ to 36V | - | - | 240 | mV |
| Load regulation | ΔV_o | $T_j = 25^\circ\text{C}$, $I_o = 5.0\text{mA}$ to 1.5A | - | - | 480 | mV |
| | | $T_j = 25^\circ\text{C}$, $I_o = 250\text{mA}$ to 750mA | - | - | 240 | mV |
| Quiescent current | I_q | $T_j = 25^\circ\text{C}$ | - | 5.2 | 8 | mA |
| Quiescent current change | ΔI_q | $I_o = 5\text{mA}$ to 1.0A | - | - | 0.5 | mA |
| | | $V_i = 27\text{V}$ to 38V | - | - | 1 | mA |
| Output voltage drift | $\Delta V_o / \Delta T$ | $I_o = 5\text{mA}$ | - | 3.0 | - | mV/ $^\circ\text{C}$ |
| Output noise voltage | V_N | $f = 10\text{Hz}$ to 100kHz , $T_a = 25^\circ\text{C}$ | - | 170 | - | $\mu\text{V}/V_o$ |
| Ripple rejection | RR | $f = 120\text{Hz}$, $V_i = 28\text{V}$ to 38V | 50 | 54 | - | dB |
| Dropout voltage | V_o | $I_o = 1.0\text{A}$, $T_j = 25^\circ\text{C}$ | - | 2 | - | V |
| Output resistance | R_o | $f = 1\text{kHz}$ | - | 28 | - | $\text{m}\Omega$ |
| Short circuit current | I_{sc} | $V_i = 35\text{V}$, $T_a = 25^\circ\text{C}$ | - | 230 | - | mA |
| peak current | I_{pk} | $T_j = 25^\circ\text{C}$ | - | 2.2 | - | A |

TEST CIRCUITS

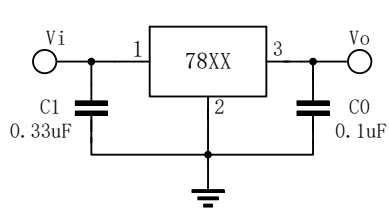


FIG.1 DC PARAMETERS

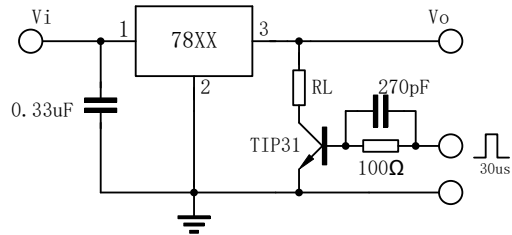


FIG.2 LOAD REGULATION

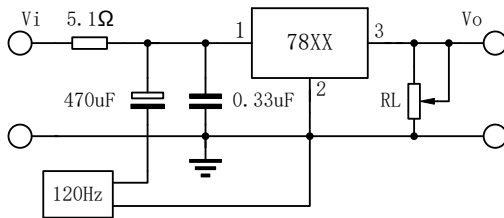


FIG.3 RIPPLE REJECTION

APPLICATION CIRCUITS

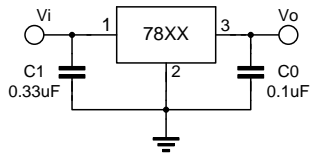


Fig.4 Fixed output regulator

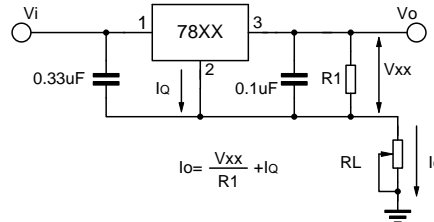


Fig.5 Constant current regulator

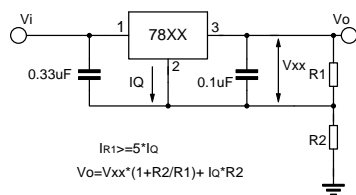


Fig.6 Circuit for increasing Regulator output voltage

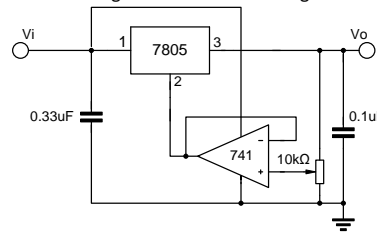
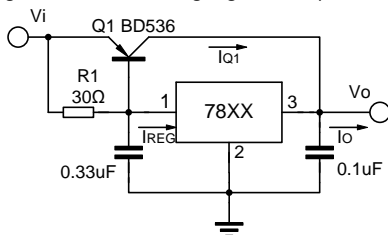


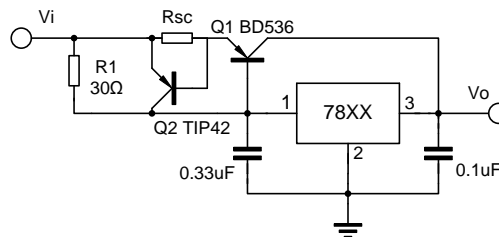
Fig.7 Adjustable output



$$I_o = I_{REG} \cdot (I_{REG} - V_{BEQ1}/R_1)$$

$$R_1 = V_{BEQ1}/I_{REG} - I_{Q1} \cdot Q_1$$

Fig.8 High current with voltage regulator



$$R_{sc} = V_{BEQ2}/I_{sc}$$

Fig.9 High output current short circuit protection

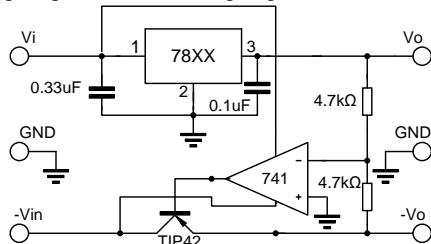


Fig.10 Tracking voltage regulator

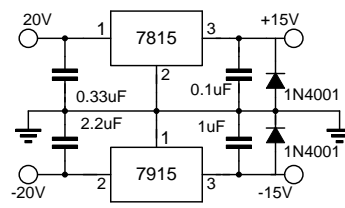


Fig.11 Split power supply ($\pm 15V, 1A$)

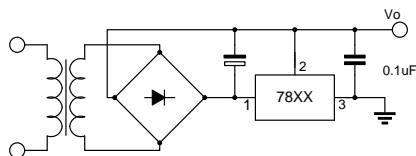


Fig.12 Negative output voltage circuit

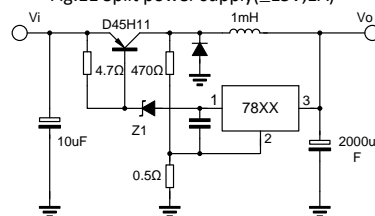


Fig.13 switching regulator

TYPICAL PERFORMANCE CHARACTERISTICS

Fig. 14 Quiescent current

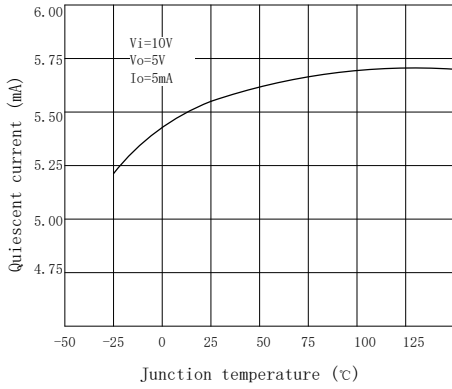


Fig. 15 Output voltage

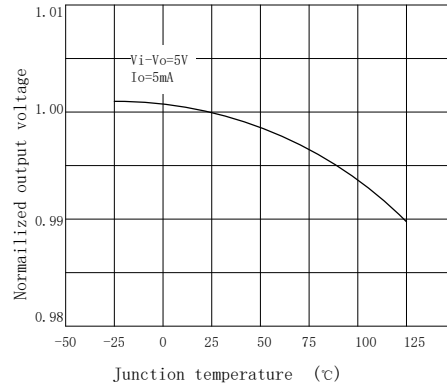


Fig. 16 Peak output current

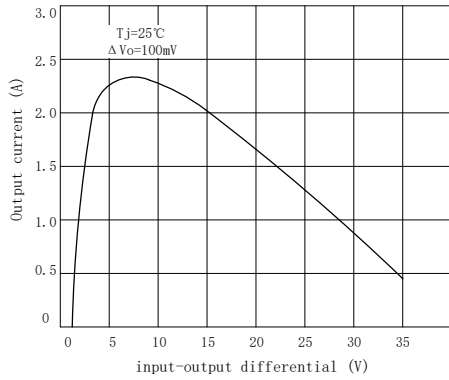
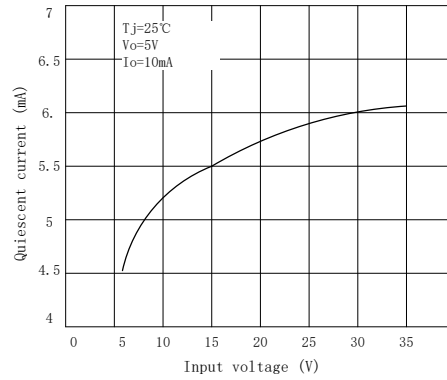


Fig. 17 Quiescent current



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