

# IL78XXC SERIES

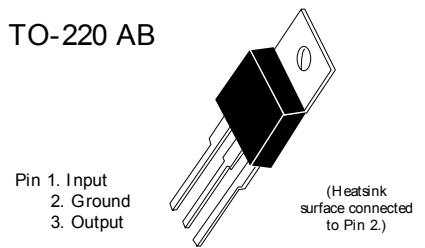
## THREE-TERMINAL POSITIVE VOLTAGE REGULATORS

These voltage regulators are monolithic integrated circuits designed 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 compensation. With adequate heatsinking they can deliver output currents in excess of 1.0 ampere. Although designed primarily as a fixed voltage regulator, these devices can be used with external components to obtain adjustable voltages and currents.

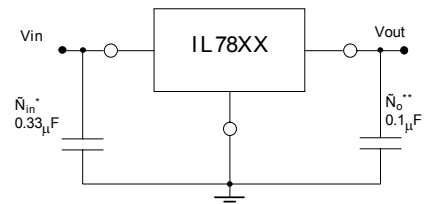
- Output Current in Excess of 1.0 Ampere
- No External Components Required
- Internal Thermal Overload Protection
- Internal Short - Circuit Current Limiting
- Output Transistor Safe-Area Compensation
- Output Voltage Offered in 2% and 4% Tolerance

| Device type/nominal output voltage |     |        |      |
|------------------------------------|-----|--------|------|
| IL7806                             | 5 V | IL7812 | 12 V |
| IL7806                             | 6 V | IL7815 | 15 V |
| IL7808                             | 8 V | IL7818 | 18 V |
| IL7809                             | 9 V | IL7824 | 24 V |

TO-220 AB



Standard application



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

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

\* = C<sub>in</sub> is required if regulator is located an appreciable distance from power supply filter.

\*\* = C<sub>o</sub> is not needed for stability ; however, it does improve transient response

XX indicates nominal voltage

### Maximum ratings (T<sub>A</sub> = +25 °C unless otherwise noted)

| Rating  | Symbol   | Value                            | Unit                   |
|---|--|----------------------------------|------------------------|
| Input Voltage (5.0 V - 18 V)<br>(24 V)  | V <sub>in</sub>  | 35<br>40                         | V <sub>dc</sub>        |
| Power Dissipation and Thermal Characteristics<br>Plastic Package<br>T <sub>A</sub> = +25 °C<br>Derate above T <sub>A</sub> = 25 °C<br>Thermal Resistance, Junction to Air | P <sub>D</sub><br>1/R <sub>θJA</sub><br>R <sub>θJC</sub> | Internally Limited<br>15.4<br>65 | Watts<br>mW/°C<br>°C/W |
| T <sub>A</sub> = +25 °C<br>Derate above T <sub>C</sub> = +75 °C (See Figure 1)<br>Thermal Resistance, Junction to Case  | P <sub>D</sub><br>1/R <sub>θJC</sub><br>R <sub>θJC</sub> | Internally Limited<br>200<br>5.0 | Watts<br>mW/°C<br>°C/W |
| Storage Junction Temperature Range  | T <sub>stg</sub>   | -65 to +150                      | °C                     |
| Operating Junction Temperature Range<br>IL78XXC   | T <sub>J</sub>   | 0 to +125                        | °C                     |

## IL78XXC SERIES

### IL7805

#### Electrical characteristics

( $V_{in} = 10V$ ,  $I_o = 500mA$ ,  $T_J =$  Tlow to Thigh (Note 1) unless otherwise noted)

| Characteristic  | Symbol              | Min    | Typ        | Max        | Unit            |
|---|---------------------|--------|------------|------------|-----------------|
| Output Voltage ( $T_J = +25^\circ C$ )  | $V_o$               | 4.8    | 5.0        | 5.2        | V <sub>dc</sub> |
| Output Voltage<br>( $5.0 mA \leq I_o \leq 1.0A$ , $P_o \leq 15 W$ )<br>$7.0V_{dc} \leq V_{in} \leq 20V_{dc}$                    | $V_o$               | 4.75   | 5.0        | 5.25       | V <sub>dc</sub> |
| Line Regulation( $T_J = +25^\circ C$ , Note2)<br>$7.0V_{dc} \leq V_{in} \leq 25V_{dc}$<br>$8.0V_{dc} \leq V_{in} \leq 13V_{dc}$ | Reg <sub>line</sub> | -<br>- | 9.0<br>3.0 | 100<br>50  | mV              |
| Load Regulation( $T_J = +25^\circ C$ , Note2)<br>$5.0mA \leq I_o \leq 1.5A$<br>$250mA \leq I_o \leq 750 mA$                     | Reg <sub>load</sub> | -<br>- | 43<br>16   | 100<br>50  | mV              |
| Quiescent Current ( $T_J = +25^\circ C$ )   | IB                  | -      | 4.3        | 8.0        | mA              |
| Quiescent Current Change<br>$7.0V_{dc} \leq V_{in} \leq 25V_{dc}$<br>$5.0mA \leq I_o \leq 1.0A$                                 | $\Delta IB$         | -<br>- | -<br>-     | 1.3<br>0.5 | mA              |
| Ripple Rejection<br>$8.0V_{dc} \leq V_{in} \leq 18V_{dc}$ , $f = 120 Hz$  | RR                  | -      | 68         | -          | dB              |
| Dropout Voltage ( $I_o = 1.0A$ , $T = +25^\circ C$ )  | $V_{in} - V_o$      | -      | 2.0        | -          | V <sub>dc</sub> |
| Output Noise Voltage( $T_A = +25^\circ C$ )<br>$10 Hz \leq f \leq 100 kHz$  | $V_n$               | -      | 10         | -          | $\mu V/V_o$     |
| Output Resistance $f = 1.0 kHz$   | $r_o$               | -      | 17         | -          | $m\Omega$       |
| Short -Circuit Current Limit<br>( $T_A = +25^\circ C$ ) $V_{in} = 35 V_{dc}$  | I <sub>sc</sub>     | -      | 0.2        | -          | A               |
| Peak Output Current( $T_J = +25^\circ C$ )  | I <sub>max</sub>    | -      | 2.2        | -          | A               |
| Average Temperature Coefficient of Output Voltage   | TCV <sub>o</sub>    | -      | -0.8       | -          | $mV/^\circ C$   |

### IL7806

#### Electrical characteristics

( $V_{in} = 11V$ ,  $I_o = 500mA$ ,  $T_J =$  Tlow to Thigh (Note 1) unless otherwise noted)

| Characteristic  | Symbol              | Min      | Typ        | Max        | Unit            |
|---|---------------------|----------|------------|------------|-----------------|
| Output Voltage ( $T_J = +25^\circ C$ )  | $V_o$               | 5.75     | 6.0        | 6.25       | V <sub>dc</sub> |
| Output Voltage<br>( $5.0 mA \leq I_o \leq 1.0A$ , $P_o \leq 15 W$ )<br>$8.0V_{dc} \leq V_{in} \leq 21V_{dc}$<br>$9.0V_{dc} \leq V_{in} \leq 21V_{dc}$ | $V_o$               | 5.7<br>- | 6.0<br>-   | 6.3<br>-   | V <sub>dc</sub> |
| Line Regulation( $T_J = +25^\circ C$ , Note2)<br>$8.0V_{dc} \leq V_{in} \leq 25V_{dc}$<br>$9.0V_{dc} \leq V_{in} \leq 13V_{dc}$                       | Reg <sub>line</sub> | -<br>-   | 9.0<br>3.0 | 120<br>60  | mV              |
| Load Regulation( $T_J = +25^\circ C$ , Note2)<br>$5.0mA \leq I_o \leq 1.5A$<br>$250mA \leq I_o \leq 750 mA$   | Reg <sub>load</sub> | -<br>-   | 43<br>16   | 120<br>60  | mV              |
| Quiescent Current ( $T_J = +25^\circ C$ )   | IB                  | -        | 4.3        | 8.0        | mA              |
| Quiescent Current Change<br>$8.0V_{dc} \leq V_{in} \leq 25V_{dc}$<br>$5.0mA \leq I_o \leq 1.0A$   | $\Delta IB$         | -<br>-   | -<br>-     | 1.3<br>0.5 | mA              |
| Ripple Rejection<br>$9.0V_{dc} \leq V_{in} \leq 19V_{dc}$ , $f = 120 Hz$  | RR                  | -        | 65         | -          | dB              |
| Dropout Voltage ( $I_o = 1.0A$ , $T = +25^\circ C$ )  | $V_{in} - V_o$      | -        | 2.0        | -          | V <sub>dc</sub> |
| Output Noise Voltage( $T_A = +25^\circ C$ )<br>$10 Hz \leq f \leq 100 kHz$  | $V_n$               | -        | 10         | -          | $\mu V/V_o$     |
| Output Resistance $f = 1.0 kHz$   | $r_o$               | -        | 17         | -          | $m\Omega$       |
| Short -Circuit Current Limit( $T_A = +25^\circ C$ )<br>$V_{in} = 35 V_{dc}$   | I <sub>sc</sub>     | -        | 0.2        | -          | A               |
| Peak Output Current( $T_J = +25^\circ C$ )  | I <sub>max</sub>    | -        | 2.2        | -          | A               |
| Average Temperature Coefficient of Output Voltage   | TCV <sub>o</sub>    | -        | -0.8       | -          | $mV/^\circ C$   |

Note:

1. Tlow =  $0^\circ C$ , Thigh =  $+125^\circ C$

2. Load and line regulation are specified at constant junction temperature. Changes in  $V_o$  due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

## IL78XXC SERIES

### IL7808

#### Electrical characteristics

( $V_{in} = 11V$ ,  $I_o = 500mA$ ,  $T_J = T_{low}$  to  $T_{high}$  (Note 1) unless otherwise noted)

| Characteristic   | Symbol              | Min    | Typ       | Max        | Unit          |
|--|---------------------|--------|-----------|------------|---------------|
| Output Voltage ( $T_J = +25^\circ C$ )   | $V_o$               | 7.7    | 8.0       | 8.0        | Vdc           |
| Output Voltage<br>( $5.0 mA \leq I_o \leq 1.0A$ , $P_o \leq 15 W$ )<br>$10.5V_{dc} \leq V_{in} \leq 23V_{dc}$                    | $V_o$               | 7.6    | 8.0       | 8.4        | Vdc           |
| Line Regulation ( $T_J = +25^\circ C$ , Note2)<br>$10.5V_{dc} \leq V_{in} \leq 25V_{dc}$<br>$11V_{dc} \leq V_{in} \leq 17V_{dc}$ | Reg <sub>line</sub> | -<br>- | 12<br>5.0 | 160<br>80  | mV            |
| Load Regulation ( $T_J = +25^\circ C$ , Note2)<br>$5.0mA \leq I_o \leq 1.5A$<br>$250mA \leq I_o \leq 750 mA$                     | Reg <sub>load</sub> | -<br>- | 45<br>16  | 160<br>80  | mV            |
| Quiescent Current ( $T_J = +25^\circ C$ )  | $I_B$               | -      | 4.3       | 8.0        | mA            |
| Quiescent Current Change<br>$10.5V_{dc} \leq V_{in} \leq 25V_{dc}$<br>$5.0mA \leq I_o \leq 1.0A$                                 | $\Delta I_B$        | -<br>- | -<br>-    | 1.0<br>0.5 | mA            |
| Ripple Rejection<br>$11.5V_{dc} \leq V_{in} \leq 21.5V_{dc}$ , $f = 120 Hz$  | RR                  | -      | 62        | -          | dB            |
| Dropout Voltage ( $I_o = 1.0A$ , $T = +25^\circ C$ )   | $V_{in} - V_o$      | -      | 2.0       | -          | Vdc           |
| Output Noise Voltage ( $T_A = +25^\circ C$ )<br>$10 Hz \leq f \leq 100 kHz$  | $V_n$               | -      | 10        | -          | $\mu V/V_o$   |
| Output Resistance $f = 1.0 kHz$  | $r_o$               | -      | 18        | -          | $m\Omega$     |
| Short -Circuit Current Limit ( $T_A = +25^\circ C$ )<br>$V_{in} = 35 V_{dc}$   | $I_{sc}$            | -      | 0.2       | -          | A             |
| Peak Output Current ( $T_J = +25^\circ C$ )  | $I_{max}$           | -      | 2.2       | -          | A             |
| Average Temperature Coefficient of Output Voltage  | $TCV_o$             | -      | -0.8      | -          | $mV/^\circ C$ |

### IL7809

#### Electrical characteristics

( $V_{in} = 15V$ ,  $I_o = 500mA$ ,  $T_J = 0^\circ C$  to  $+125^\circ C$  unless otherwise noted)

| Characteristic   | Symbol              | Min    | Typ       | Max        | Unit            |
|--|---------------------|--------|-----------|------------|-----------------|
| Output Voltage ( $T_J = +25^\circ C$ )   | $V_o$               | 8.65   | 9.0       | 9.35       | V <sub>dc</sub> |
| Output Voltage<br>( $5.0 mA \leq I_o \leq 1.0A$ , $P_o \leq 15 W$ )<br>$11.5V_{dc} \leq V_{in} \leq 24V_{dc}$                      | $V_o$               | 8.55   | 9.0       | 9.45       | V <sub>dc</sub> |
| Line Regulation ( $T_J = +25^\circ C$ , Note2)<br>$11.5V_{dc} \leq V_{in} \leq 26V_{dc}$<br>$11.5V_{dc} \leq V_{in} \leq 17V_{dc}$ | Reg <sub>line</sub> | -<br>- | 12<br>5.0 | 180<br>90  | mV              |
| Load Regulation ( $T_J = +25^\circ C$ , Note2)<br>$5.0mA \leq I_o \leq 1.5A$<br>$250mA \leq I_o \leq 750 mA$                       | Reg <sub>load</sub> | -<br>- | 35<br>12  | 180<br>90  | mV              |
| Quiescent Current ( $T_J = +25^\circ C$ )  | $I_B$               | -      | 4.3       | 8.0        | mA              |
| Quiescent Current Change<br>$11.5V_{dc} \leq V_{in} \leq 26V_{dc}$<br>$5.0mA \leq I_o \leq 1.0A$                                   | $\Delta I_B$        | -<br>- | -<br>-    | 1.0<br>0.5 | mA              |
| Ripple Rejection<br>$11.5V_{dc} \leq V_{in} \leq 21.5V_{dc}$ , $f = 120 Hz$  | RR                  | -      | 61        | -          | dB              |
| Dropout Voltage ( $I_o = 1.0A$ , $T = +25^\circ C$ )   | $V_{in} - V_o$      | -      | 2.0       | -          | V <sub>dc</sub> |
| Output Noise Voltage ( $T_A = +25^\circ C$ )<br>$10 Hz \leq f \leq 100 kHz$  | $V_n$               | -      | 10        | -          | $\mu V/V_o$     |
| Output Resistance $f = 1.0 kHz$  | $r_o$               | -      | 18        | -          | $m\Omega$       |
| Short -Circuit Current Limit<br>( $T_A = +25^\circ C$ ) $V_{in} = 35 V_{dc}$   | $I_{sc}$            | -      | 0.2       | -          | A               |
| Peak Output Current ( $T_J = +25^\circ C$ )  | $I_{max}$           | -      | 2.2       | -          | A               |
| Average Temperature Coefficient of Output Voltage  | $TCV_o$             | -      | -1.0      | -          | $mV/^\circ C$   |

Note:

- $T_{low} = 0^\circ C$ ,  $T_{high} = +125^\circ C$
- Load and line regulation are specified at constant junction temperature. Changes in  $V_o$  due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

## IL78XXC SERIES

### IL7812

#### Electrical characteristics

( $V_{in} = 19V$ ,  $I_o = 500mA$ ,  $T_J = T_{low}$  to  $T_{low}$  (Note 1) unless otherwise noted)

| Characteristic   | Symbol         | Min  | Typ       | Max        | Unit          |
|--|----------------|------|-----------|------------|---------------|
| Output Voltage ( $T_J = +25^\circ C$ )   | $V_o$          | 11.5 | 12        | 12.5       | Vdc           |
| Output Voltage<br>( $5.0 mA \leq I_o \leq 1.0A$ , $P_o \leq 15 W$ )<br>$14.5Vdc \leq V_{in} \leq 27Vdc$              | $V_o$          | 11.4 | 12        | 12.6       | Vdc           |
| Line Regulation ( $T_J = +25^\circ C$ , Note2)<br>$14.5Vdc \leq V_{in} \leq 30Vdc$<br>$16Vdc \leq V_{in} \leq 22Vdc$ | Regline        | -    | 13<br>6.0 | 240<br>120 | mV            |
| Load Regulation ( $T_J = +25^\circ C$ , Note2)<br>$5.0mA \leq I_o \leq 1.5A$<br>$250mA \leq I_o \leq 750 mA$         | Regload        | -    | 46<br>17  | 240<br>120 | mV            |
| Quiescent Current ( $T_J = +25^\circ C$ )  | $I_B$          | -    | 4.4       | 8.0        | mA            |
| Quiescent Current Change<br>$14.5Vdc \leq V_{in} \leq 30Vdc$<br>$5.0mA \leq I_o \leq 1.0A$                           | $\Delta I_B$   | -    | -         | 1.0<br>0.5 | mA            |
| Ripple Rejection<br>$15Vdc \leq V_{in} \leq 25Vdc$ , $f = 120 Hz$  | RR             | -    | 60        | -          | dB            |
| Dropout Voltage ( $I_o = 1.0A$ , $T = +25^\circ C$ )   | $V_{in} - V_o$ | -    | 2.0       | -          | Vdc           |
| Output Noise Voltage ( $T_A = +25^\circ C$ )<br>$10 Hz \leq f \leq 100 kHz$  | $V_n$          | -    | 10        | -          | $\mu V/V_o$   |
| Output Resistance $f = 1.0 kHz$  | $r_o$          | -    | 18        | -          | $m\Omega$     |
| Short - Circuit Current Limit<br>( $T_A = +25^\circ C$ ) $V_{in} = 35 Vdc$   | $I_{sc}$       | -    | 0.2       | -          | A             |
| Peak Output Current ( $T_J = +25^\circ C$ )  | $I_{max}$      | -    | 2.2       | -          | A             |
| Average Temperature Coefficient of Output Voltage  | $TCV_o$        | -    | -1.0      | -          | $mV/^\circ C$ |

### IL7815

#### Electrical characteristics

( $V_{in} = 11V$ ,  $I_o = 500mA$ ,  $T_J = T_{low}$  to Thigh (Note 1) unless otherwise noted)

| Characteristic   | Symbol         | Min   | Typ       | Max        | Unit          |
|--|----------------|-------|-----------|------------|---------------|
| Output Voltage ( $T_J = +25^\circ C$ )   | $V_o$          | 14.4  | 15        | 15.6       | Vdc           |
| Output Voltage<br>( $5.0 mA \leq I_o \leq 1.0A$ , $P_o \leq 15 W$ )<br>$17.5Vdc \leq V_{in} \leq 30Vdc$              | $V_o$          | 14.25 | 15        | 15.75      | Vdc           |
| Line Regulation ( $T_J = +25^\circ C$ , Note2)<br>$17.5Vdc \leq V_{in} \leq 30Vdc$<br>$20Vdc \leq V_{in} \leq 26Vdc$ | Regline        | -     | 13<br>6.0 | 300<br>150 | mV            |
| Load Regulation ( $T_J = +25^\circ C$ , Note2)<br>$5.0mA \leq I_o \leq 1.5A$<br>$250mA \leq I_o \leq 750 mA$         | Regload        | -     | 52<br>20  | 300<br>150 | mV            |
| Quiescent Current ( $T_J = +25^\circ C$ )  | $I_B$          | -     | 4.4       | 8.0        | mA            |
| Quiescent Current Change<br>$17.5Vdc \leq V_{in} \leq 30Vdc$<br>$5.0mA \leq I_o \leq 1.0A$                           | $\Delta I_B$   | -     | -         | 1.0<br>0.5 | mA            |
| Ripple Rejection<br>$18.5Vdc \leq V_{in} \leq 28.5Vdc$ , $f = 120 Hz$  | RR             | -     | 58        | -          | dB            |
| Dropout Voltage ( $I_o = 1.0A$ , $T = +25^\circ C$ )   | $V_{in} - V_o$ | -     | 2.0       | -          | Vdc           |
| Output Noise Voltage ( $T_A = +25^\circ C$ )<br>$10 Hz \leq f \leq 100 kHz$  | $V_n$          | -     | 10        | -          | $\mu V/V_o$   |
| Output Resistance $f = 1.0 kHz$  | $r_o$          | -     | 19        | -          | $m\Omega$     |
| Short - Circuit Current Limit<br>( $T_A = +25^\circ C$ ) $V_{in} = 35 Vdc$   | $I_{sc}$       | -     | 0.2       | -          | A             |
| Peak Output Current ( $T_J = +25^\circ C$ )  | $I_{max}$      | -     | 2.2       | -          | A             |
| Average Temperature Coefficient of Output Voltage  | $TCV_o$        | -     | -1.0      | -          | $mV/^\circ C$ |

Note:

1.  $T_{low} = 0^\circ C$ ,  $T_{high} = +125^\circ C$
2. Load and line regulation are specified at constant junction temperature. Changes in  $V_o$  due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

## IL78XXC SERIES

### IL7818

#### Electrical characteristics

( $V_{in} = 27V$ ,  $I_o = 500mA$ ,  $T_J = \text{Tlow to Thigh}$  (Note 1) unless otherwise noted)

| Characteristic   | Symbol         | Min    | Typ      | Max        | Unit          |
|--|----------------|--------|----------|------------|---------------|
| Output Voltage ( $T_J = +25^\circ C$ )   | $V_o$          | 17.3   | 18       | 18.7       | Vdc           |
| Output Voltage<br>( $5.0 mA \leq I_o \leq 1.0A$ , $P_o \leq 15 W$ )<br>$21Vdc \leq V_{in} \leq 33Vdc$              | $V_o$          | 17.1   | 18       | 18.9       | Vdc           |
| Line Regulation ( $T_J = +25^\circ C$ , Note2)<br>$21Vdc \leq V_{in} \leq 33Vdc$<br>$24Vdc \leq V_{in} \leq 30Vdc$ | Regline        | -<br>- | 25<br>10 | 360<br>180 | mV            |
| Load Regulation ( $T_J = +25^\circ C$ , Note2)<br>$5.0mA \leq I_o \leq 1.5A$<br>$250mA \leq I_o \leq 750 mA$       | Regload        | -<br>- | 55<br>22 | 360<br>180 | mV            |
| Quiescent Current ( $T_J = +25^\circ C$ )  | $I_B$          | -      | 4.5      | 8.0        | mA            |
| Quiescent Current Change<br>$21Vdc \leq V_{in} \leq 33Vdc$<br>$5.0mA \leq I_o \leq 1.0A$                           | $\Delta I_B$   | -<br>- | -<br>-   | 1.0<br>0.5 | mA            |
| Ripple Rejection<br>$22Vdc \leq V_{in} \leq 33Vdc$ , $f = 120 Hz$  | RR             | -      | 57       | -          | dB            |
| Dropout Voltage ( $I_o = 1.0A$ , $T = +25^\circ C$ )   | $V_{in} - V_o$ | -      | 2.0      | -          | Vdc           |
| Output Noise Voltage ( $T_A = +25^\circ C$ )<br>$10 Hz \leq f \leq 100 kHz$  | $V_n$          | -      | 10       | -          | $\mu V/V_o$   |
| Output Resistance $f = 1.0 kHz$  | $r_o$          | -      | 19       | -          | $m\Omega$     |
| Short - Circuit Current Limit<br>( $T_A = +25^\circ C$ ) $V_{in} = 35 Vdc$   | $I_{sc}$       | -      | 0.2      | -          | A             |
| Peak Output Current ( $T_J = +25^\circ C$ )  | $I_{max}$      | -      | 2.2      | -          | A             |
| Average Temperature Coefficient of Output Voltage  | $TCV_o$        | -      | -1.0     | -          | $mV/^\circ C$ |

### IL7824

#### Electrical characteristics

( $V_{in} = 33V$ ,  $I_o = 500mA$ ,  $T_J = \text{Tlow to Thigh}$  (Note 1) unless otherwise noted)

| Characteristic   | Symbol         | Min    | Typ      | Max        | Unit          |
|--|----------------|--------|----------|------------|---------------|
| Output Voltage ( $T_J = +25^\circ C$ )   | $V_o$          | 23     | 24       | 25         | Vdc           |
| Output Voltage<br>( $5.0 mA \leq I_o \leq 1.0A$ , $P_o \leq 15 W$ )<br>$27Vdc \leq V_{in} \leq 38Vdc$              | $V_o$          | 22.8   | 24       | 25.2       | Vdc           |
| Line Regulation ( $T_J = +25^\circ C$ , Note2)<br>$27Vdc \leq V_{in} \leq 38Vdc$<br>$30Vdc \leq V_{in} \leq 38Vdc$ | Regline        | -<br>- | 31<br>14 | 480<br>240 | mV            |
| Load Regulation ( $T_J = +25^\circ C$ , Note2)<br>$5.0mA \leq I_o \leq 1.5A$<br>$250mA \leq I_o \leq 750 mA$       | Regload        | -<br>- | 60<br>25 | 480<br>240 | mV            |
| Quiescent Current ( $T_J = +25^\circ C$ )  | $I_B$          | -      | 4.6      | 8.0        | mA            |
| Quiescent Current Change<br>$27Vdc \leq V_{in} \leq 38Vdc$<br>$5.0mA \leq I_o \leq 1.0A$                           | $\Delta I_B$   | -<br>- | -<br>-   | 1.0<br>0.5 | mA            |
| Ripple Rejection<br>$28Vdc \leq V_{in} \leq 38Vdc$ , $f = 120 Hz$  | RR             | -      | 54       | -          | dB            |
| Dropout Voltage ( $I_o = 1.0A$ , $T = +25^\circ C$ )   | $V_{in} - V_o$ | -      | 2.0      | -          | Vdc           |
| Output Noise Voltage ( $T_A = +25^\circ C$ )<br>$10 Hz \leq f \leq 13100 kHz$                                      | $V_n$          | -      | 10       | -          | $\mu V/V_o$   |
| Output Resistance $f = 1.0 kHz$  | $r_o$          | -      | 20       | -          | $m\Omega$     |
| Short - Circuit Current Limit<br>( $T_A = +25^\circ C$ ) $V_{in} = 35 Vdc$   | $I_{sc}$       | -      | 0.2      | -          | A             |
| Peak Output Current ( $T_J = +25^\circ C$ )  | $I_{max}$      | -      | 2.2      | -          | A             |
| Average Temperature Coefficient of Output Voltage  | $TCV_o$        | -      | -1.5     | -          | $mV/^\circ C$ |

Note: 1. Tlow =  $0^\circ C$ , Thigh =  $+125^\circ C$   
2. Load and line regulation are specified at constant junction temperature. Changes in  $V_o$  due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.