


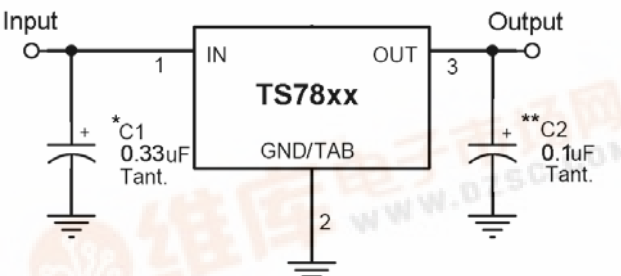


|  | <h2>TS78M00 series</h2> <h3>3-Terminal Medium Current Positive Voltage Regulator</h3> | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|------------------|----|---------------|---------------------------|---------|-----------|---------------|--------------------|-----------|--------|-------------------|--------|------------------|---|--------|--------|----|--------|------------------|---|--------------------------------------|----------------|----------|----|---------------------------|------------------|------------|----|
| <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>TO-220</p>  <p>1 2 3</p> </div> <div style="text-align: center;"> <p>TO-252</p>  <p>1 2 3</p> </div> </div> <p>Pin assignment:</p> <ol style="list-style-type: none"> 1. Input 2. Ground 3. Output <p>(Heatsink surface connected to Pin 2)</p> | <p>Voltage Range 5V to 24V Output Current up to 0.5A</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <h3>General Description</h3> <p>The TS78M00 Series positive voltage regulators are identical to the popular TS7800 Series devices, except that they are specified for only half the output current. Like the TS7800 devices, the TS78M00 Series 3-Terminal regulators are intended for local, on-card voltage regulation.</p> <p>Internal current limiting, thermal shutdown circuitry and safe-area compensation for the internal pass transistor combine to make these devices remarkably rugged under most operating conditions. Maximum output current with adequate heatsink is 500mA</p> <p>This series is offered in 3-pin TO-220, TO-252 package.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <h3>Features</h3> <ul style="list-style-type: none"> ◇ Output current up to 0.5A ◇ No external components required ◇ Internal thermal overload protection ◇ Internal short-circuit current limiting ◇ Output transistor safe-area compensation ◇ Output voltage offered in 4% tolerance | <h3>Standard Application</h3>  | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <h3>Ordering Information</h3> <table border="1" data-bbox="235 1375 755 1522"> <thead> <tr> <th>Part No.</th> <th>Operating Temp. (Ambient)</th> <th>Package</th> </tr> </thead> <tbody> <tr> <td>TS78MxxCZ</td> <td rowspan="2" style="text-align: center;">-20 ~ +85°C</td> <td>TO-220</td> </tr> <tr> <td>TS78MxxCP</td> <td>TO-252</td> </tr> </tbody> </table> <p>Note: Where xx denotes voltage option.</p> | | | | Part No. | Operating Temp. (Ambient) | Package | TS78MxxCZ | -20 ~ +85°C | TO-220 | TS78MxxCP | TO-252 | | | | | | | | | | | | | | | | | | |
| Part No. | Operating Temp. (Ambient) | Package | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TS78MxxCZ | -20 ~ +85°C | TO-220 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TS78MxxCP | | TO-252 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <h3>Absolute Maximum Rating</h3> <table border="1" data-bbox="212 1654 1421 1940"> <tbody> <tr> <td>Input Voltage</td> <td>V_{in} *</td> <td>35</td> <td>V</td> </tr> <tr> <td>Input Voltage</td> <td>V_{in} **</td> <td>40</td> <td>V</td> </tr> <tr> <td rowspan="3">Power Dissipation</td> <td>TO-220</td> <td>Without heatsink</td> <td>2</td> </tr> <tr> <td>TO-220</td> <td>Pt ***</td> <td>15</td> </tr> <tr> <td>TO-252</td> <td>Without heatsink</td> <td>1</td> </tr> <tr> <td>Operating Junction Temperature Range</td> <td>T_J</td> <td>0 ~ +150</td> <td>°C</td> </tr> <tr> <td>Storage Temperature Range</td> <td>T_{STG}</td> <td>-65 ~ +150</td> <td>°C</td> </tr> </tbody> </table> | | | | Input Voltage | V _{in} * | 35 | V | Input Voltage | V _{in} ** | 40 | V | Power Dissipation | TO-220 | Without heatsink | 2 | TO-220 | Pt *** | 15 | TO-252 | Without heatsink | 1 | Operating Junction Temperature Range | T _J | 0 ~ +150 | °C | Storage Temperature Range | T _{STG} | -65 ~ +150 | °C |
| Input Voltage | V _{in} * | 35 | V | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Input Voltage | V _{in} ** | 40 | V | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Power Dissipation | TO-220 | Without heatsink | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | TO-220 | Pt *** | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | TO-252 | Without heatsink | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operating Junction Temperature Range | T _J | 0 ~ +150 | °C | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Storage Temperature Range | T _{STG} | -65 ~ +150 | °C | | | | | | | | | | | | | | | | | | | | | | | | | | |

Note : * TS78M05 to TS78M18
 ** TS78M24
 *** Follow the derating curve





TS78M05 Electrical Characteristics

($V_{in}=10V$, $I_{out}=350mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|-------------------------------|---|-------------------------------|------|------|-----------------|
| Output voltage | Vout | $T_j=25^{\circ}C$ | 4.80 | 5 | 5.20 | V |
| | | $7.5V \leq V_{in} \leq 20V$, $5mA \leq I_{out} \leq 350mA$, $PD \leq 5W$ | 4.75 | 5 | 5.25 | |
| Line Regulation | REGline | $T_j=25^{\circ}C$ | -- | 3 | 50 | mV |
| Load Regulation | REGload | $T_j=25^{\circ}C$ | $5mA \leq I_{out} \leq 500mA$ | -- | 20 | |
| | | | $5mA \leq I_{out} \leq 200mA$ | -- | 10 | 50 |
| Quiescent Current | Iq | $I_{out}=0$, $T_j=25^{\circ}C$ | -- | 3 | 6 | mA |
| Quiescent Current Change | ΔIq | $7.5V \leq V_{in} \leq 25V$ | -- | -- | 0.8 | |
| | | $5mA \leq I_{out} \leq 350mA$ | -- | -- | 0.5 | |
| Output Noise Voltage | Vn | $10Hz \leq f \leq 100KHz$, $T_j=25^{\circ}C$ | -- | 40 | -- | μV |
| Ripple Rejection Ratio | RR | $f=120Hz$, $8V \leq V_{in} \leq 18V$ | 62 | 80 | -- | dB |
| Voltage Drop | Vdrop | $I_{out}=350mA$, $T_j=25^{\circ}C$ | -- | 2 | -- | V |
| Peak Output Current | $I_{o peak}$ | $T_j=25^{\circ}C$ | -- | 0.7 | -- | A |
| Temperature Coefficient of Output Voltage | $\Delta V_{out} / \Delta T_j$ | $I_{out}=5mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$ | -- | -0.2 | -- | mV/ $^{\circ}C$ |

TS78M06 Electrical Characteristics

($V_{in}=11V$, $I_{out}=350mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|-------------------------------|---|-------------------------------|------|------|-----------------|
| Output Voltage | Vout | $T_j=25^{\circ}C$ | 5.75 | 6 | 6.25 | V |
| | | $8.5V \leq V_{in} \leq 21V$, $5mA \leq I_{out} \leq 350mA$, $PD \leq 5W$ | 6.3 | 6 | 6.3 | |
| Line Regulation | REGline | $T_j=25^{\circ}C$ | -- | 3 | 50 | mV |
| Load Regulation | REGload | $T_j=25^{\circ}C$ | $5mA \leq I_{out} \leq 500A$ | -- | 20 | |
| | | | $5mA \leq I_{out} \leq 200mA$ | -- | 10 | 60 |
| Quiescent Current | Iq | $I_{out}=0$, $T_j=25^{\circ}C$ | -- | 3 | 6 | mA |
| Quiescent Current Change | ΔIq | $8.5V \leq V_{in} \leq 25V$ | -- | -- | 0.8 | |
| | | $5mA \leq I_{out} \leq 350mA$ | -- | -- | 0.5 | |
| Output Noise Voltage | Vn | $10Hz \leq f \leq 100KHz$, $T_j=25^{\circ}C$ | -- | 45 | -- | μV |
| Ripple Rejection Ratio | RR | $f=120Hz$, $9V \leq V_{in} \leq 19V$ | 59 | 80 | -- | dB |
| Voltage Drop | Vdrop | $I_{out}=350mA$, $T_j=25^{\circ}C$ | -- | 2 | -- | V |
| Output Short Circuit Current | I_{os} | $T_j=25^{\circ}C$ | -- | 50 | -- | mA |
| Peak Output Current | $I_{o peak}$ | $T_j=25^{\circ}C$ | -- | 0.7 | -- | A |
| Temperature Coefficient of Output Voltage | $\Delta V_{out} / \Delta T_j$ | $I_{out}=5mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$ | -- | -0.2 | -- | mV/ $^{\circ}C$ |

- Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible, and thermal effects must be taken into account separately.
- This specification applies only for DC power dissipation permitted by absolute maximum ratings.



TS78M08 Electrical Characteristics

($V_{in}=14V$, $I_{out}=350mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|-------------------------------|---|----------|----------|------------|--------------------|
| Output Voltage | Vout | $T_j=25^{\circ}C$ | 7.69 | 8 | 8.32 | V |
| | | $10.5V \leq V_{in} \leq 23V$, $5mA \leq I_{out} \leq 350mA$, $PD \leq 5W$ | 7.61 | 8 | 8.40 | |
| Line Regulation | REGline | $T_j=25^{\circ}C$ $10.5V \leq V_{in} \leq 25V$, $I_o=200mA$ | -- | 6 | 50 | mV |
| Load Regulation | REGload | $T_j=25^{\circ}C$ $5mA \leq I_{out} \leq 500mA$ $5mA \leq I_{out} \leq 200mA$ | -- -- | 25 10 | 160 80 | |
| Quiescent Current | Iq | $I_{out}=0$, $T_j=25^{\circ}C$ | -- | 3 | 6 | mA |
| Quiescent Current Change | ΔIq | $10.5V \leq V_{in} \leq 25V$ $5mA \leq I_{out} \leq 350mA$ | -- -- | -- -- | 0.8 0.5 | |
| Output Noise Voltage | Vn | $10Hz \leq f \leq 100KHz$, $T_j=25^{\circ}C$ | -- | 52 | -- | μV |
| Ripple Rejection Ratio | RR | $f=120Hz$, $11V \leq V_{in} \leq 21V$ | 56 | 80 | -- | dB |
| Voltage Drop | Vdrop | $I_{out}=350mA$, $T_j=25^{\circ}C$ | -- | 2 | -- | V |
| Output Short Circuit Current | Ios | $T_j=25^{\circ}C$ | -- | 50 | -- | mA |
| Peak Output Current | I _{o peak} | $T_j=25^{\circ}C$ | -- | 0.7 | -- | A |
| Temperature Coefficient of Output Voltage | $\Delta V_{out} / \Delta T_j$ | $I_{out}=5mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$ | -- | -0.2 | -- | mV/ $^{\circ}C$ |

TS78M09 Electrical Characteristics

($V_{in}=15V$, $I_{out}=350mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|-------------------------------|---|----------|----------|------------|--------------------|
| Output Voltage | Vout | $T_j=25^{\circ}C$ | 8.65 | 9 | 9.36 | V |
| | | $11.5V \leq V_{in} \leq 23V$, $5mA \leq I_{out} \leq 350mA$, $PD \leq 5W$ | 8.57 | 9 | 9.45 | |
| Line Regulation | REGline | $T_j=25^{\circ}C$ $11.5V \leq V_{in} \leq 26V$, $I_o=200mA$ | -- | 6 | 50 | mV |
| Load Regulation | REGload | $T_j=25^{\circ}C$ $5mA \leq I_{out} \leq 500mA$ $5mA \leq I_{out} \leq 200mA$ | -- -- | 25 10 | 180 90 | |
| Quiescent Current | Iq | $I_{out}=0$, $T_j=25^{\circ}C$ | -- | 3 | 6 | mA |
| Quiescent Current Change | ΔIq | $11.5V \leq V_{in} \leq 26V$ $5mA \leq I_{out} \leq 350mA$ | -- -- | -- -- | 0.8 0.5 | |
| Output Noise Voltage | Vn | $10Hz \leq f \leq 100KHz$, $T_j=25^{\circ}C$ | -- | 52 | -- | μV |
| Ripple Rejection Ratio | RR | $f=120Hz$, $12V \leq V_{in} \leq 22V$ | 55 | 80 | -- | dB |
| Voltage Drop | Vdrop | $I_{out}=350mA$, $T_j=25^{\circ}C$ | -- | 2 | -- | V |
| Output Short Circuit Current | Ios | $T_j=25^{\circ}C$ | -- | 50 | -- | mA |
| Peak Output Current | I _{o peak} | $T_j=25^{\circ}C$ | -- | 0.7 | -- | A |
| Temperature Coefficient of Output Voltage | $\Delta V_{out} / \Delta T_j$ | $I_{out}=5mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$ | -- | -0.2 | -- | mV/ $^{\circ}C$ |

- Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible, and thermal effects must be taken into account separately.
- This specification applies only for DC power dissipation permitted by absolute maximum ratings.



TS78M12 Electrical Characteristics

($V_{in}=19V$, $I_{out}=350mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|-------------------------------|--|-------|------|-------|--------------------|
| Output Voltage | V_{out} | $T_j=25^{\circ}C$ | 11.53 | 12 | 12.48 | V |
| | | $14.5V \leq V_{in} \leq 27V$, $5mA \leq I_{out} \leq 350mA$, $PD \leq 5W$ | 11.42 | 12 | 12.60 | |
| Line Regulation | REGline | $T_j=25^{\circ}C$ $14.5V \leq V_{in} \leq 30V$, $I_o=200mA$ | -- | 8 | 50 | mV |
| Load Regulation | REGload | $T_j=25^{\circ}C$ $5mA \leq I_{out} \leq 500mA$ | -- | 25 | 240 | |
| | | $0mA \leq I_{out} \leq 200mA$ | -- | 10 | 120 | |
| Quiescent Current | I_q | $T_j=25^{\circ}C$, $I_{out}=0$ | -- | 3 | 6 | mA |
| Quiescent Current Change | ΔI_q | $14.5V \leq V_{in} \leq 30V$ | -- | -- | 0.8 | |
| | | $5mA \leq I_{out} \leq 200mA$ | -- | -- | 0.5 | |
| Output Noise Voltage | V_n | $10Hz \leq f \leq 100KHz$, $T_j=25^{\circ}C$ | -- | 75 | -- | μV |
| Ripple Rejection Ratio | RR | $f=120Hz$, $15V \leq V_{in} \leq 25V$ | 55 | 80 | -- | dB |
| Voltage Drop | V_{drop} | $I_{out}=350mA$, $T_j=25^{\circ}C$ | -- | 2 | -- | V |
| Output Short Circuit Current | I_{os} | $T_j=25^{\circ}C$ | -- | 50 | -- | mA |
| Peak Output Current | $I_o \text{ peak}$ | $T_j=25^{\circ}C$ | -- | 0.7 | -- | A |
| Temperature Coefficient of Output Voltage | $\Delta V_{out} / \Delta T_j$ | $I_{out}=5mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$ | -- | -0.3 | -- | mV/ $^{\circ}C$ |

TS78M15 Electrical Characteristics

($V_{in}=23V$, $I_{out}=350mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|-------------------------------|--|-------|------|-------|--------------------|
| Output Voltage | V_{out} | $T_j=25^{\circ}C$ | 14.42 | 15 | 15.60 | V |
| | | $17.5V \leq V_{in} \leq 30V$, $5mA \leq I_{out} \leq 350mA$, $PD \leq 5W$ | 14.28 | 15 | 15.75 | |
| Line Regulation | REGline | $T_j=25^{\circ}C$ $17.5V \leq V_{in} \leq 30V$, $I_o=200mA$ | -- | 8 | 50 | mV |
| Load Regulation | REGload | $T_j=25^{\circ}C$ $5mA \leq I_{out} \leq 500mA$ | -- | 25 | 300 | |
| | | $5mA \leq I_{out} \leq 200mA$ | -- | 10 | 150 | |
| Quiescent Current | I_q | $T_j=25^{\circ}C$, $I_{out}=0$ | -- | 3 | 6 | mA |
| Quiescent Current Change | ΔI_q | $17.5V \leq V_{in} \leq 30V$ | -- | -- | 0.8 | |
| | | $5mA \leq I_{out} \leq 350mA$ | -- | -- | 0.5 | |
| Output Noise Voltage | V_n | $10Hz \leq f \leq 100KHz$, $T_j=25^{\circ}C$ | -- | 90 | -- | μV |
| Ripple Rejection Ratio | RR | $f=120Hz$, $18V \leq V_{in} \leq 28V$ | 54 | 70 | -- | dB |
| Voltage Drop | V_{drop} | $I_{out}=350mA$, $T_j=25^{\circ}C$ | -- | 2 | -- | V |
| Output Short Circuit Current | I_{os} | $T_j=25^{\circ}C$ | -- | 50 | -- | mA |
| Peak Output Current | $I_o \text{ peak}$ | $T_j=25^{\circ}C$ | -- | 0.7 | -- | A |
| Temperature Coefficient of Output Voltage | $\Delta V_{out} / \Delta T_j$ | $I_{out}=5mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$ | -- | -0.3 | -- | mV/ $^{\circ}C$ |

- Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible, and thermal effects must be taken into account separately.
- This specification applies only for DC power dissipation permitted by absolute maximum ratings.



TS78M18 Electrical Characteristics

($V_{in}=27V$, $I_{out}=350mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|-------------------------------|--|-------|------|-------|--------------------|
| Output Voltage | V_{out} | $T_j=25^{\circ}C$ | 17.30 | 18 | 18.72 | V |
| | | $21V \leq V_{in} \leq 33V$, $5mA \leq I_{out} \leq 350mA$, $PD \leq 5W$ | 17.14 | 18 | 18.90 | |
| Line Regulation | REGline | $T_j=25^{\circ}C$ $21V \leq V_{in} \leq 33V$, $I_o=200mA$ | -- | 8 | 50 | mV |
| Load Regulation | REGload | $T_j=25^{\circ}C$ $5mA \leq I_{out} \leq 500mA$ | -- | 25 | 360 | |
| | | $5mA \leq I_{out} \leq 200mA$ | -- | 10 | 180 | |
| Quiescent Current | I_q | $T_j=25^{\circ}C$, $I_{out}=0$ | -- | 3 | 6 | mA |
| Quiescent Current Change | ΔI_q | $21V \leq V_{in} \leq 33V$ | -- | -- | 0.8 | |
| | | $5mA \leq I_{out} \leq 350mA$ | -- | -- | 0.5 | |
| Output Noise Voltage | V_n | $10Hz \leq f \leq 100KHz$, $T_j=25^{\circ}C$ | -- | 110 | -- | μV |
| Ripple Rejection Ratio | RR | $f=120Hz$, $21V \leq V_{in} \leq 31V$ | 54 | 70 | -- | dB |
| Voltage Drop | V_{drop} | $I_{out}=350mA$, $T_j=25^{\circ}C$ | -- | 2 | -- | V |
| Output Short Circuit Current | I_{os} | $T_j=25^{\circ}C$ | -- | 50 | -- | mA |
| Peak Output Current | $I_o \text{ peak}$ | $T_j=25^{\circ}C$ | -- | 0.7 | -- | A |
| Temperature Coefficient of Output Voltage | $\Delta V_{out} / \Delta T_j$ | $I_{out}=5mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$ | -- | -0.5 | -- | mV/ $^{\circ}C$ |

TS78M24 Electrical Characteristics

($V_{in}=33V$, $I_{out}=350mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|-------------------------------|--|-------|------|-------|--------------------|
| Output Voltage | V_{out} | $T_j=25^{\circ}C$ | 23.07 | 24 | 24.96 | V |
| | | $27V \leq V_{in} \leq 38V$, $5mA \leq I_{out} \leq 350mA$, $PD \leq 5W$ | 22.85 | 24 | 25.20 | |
| Line Regulation | REGline | $T_j=25^{\circ}C$ $27V \leq V_{in} \leq 38V$, $I_o=200mA$ | -- | 10 | 50 | mV |
| Load Regulation | REGload | $T_j=25^{\circ}C$ $5mA \leq I_{out} \leq 500mA$ | -- | 30 | 480 | |
| | | $5mA \leq I_{out} \leq 200mA$ | -- | 10 | 240 | |
| Quiescent Current | I_q | $I_{out}=0$, $T_j=25^{\circ}C$ | -- | 4 | 7 | mA |
| Quiescent Current Change | ΔI_q | $27V \leq V_{in} \leq 38V$ | -- | -- | 0.8 | |
| | | $5mA \leq I_{out} \leq 350mA$ | -- | -- | 0.5 | |
| Output Noise Voltage | V_n | $10Hz \leq f \leq 100KHz$, $T_j=25^{\circ}C$ | -- | 170 | -- | μV |
| Ripple Rejection Ratio | RR | $f=120Hz$, $27V \leq V_{in} \leq 37V$ | 50 | 70 | -- | dB |
| Voltage Drop | V_{drop} | $I_{out}=350mA$, $T_j=25^{\circ}C$ | -- | 2 | -- | V |
| Output Short Circuit Current | I_{os} | $T_j=25^{\circ}C$ | -- | 50 | -- | mA |
| Peak Output Current | $I_o \text{ peak}$ | $T_j=25^{\circ}C$ | -- | 0.7 | -- | A |
| Temperature Coefficient of Output Voltage | $\Delta V_{out} / \Delta T_j$ | $I_{out}=5mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$ | -- | -0.5 | -- | mV/ $^{\circ}C$ |

- Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible, and thermal effects must be taken into account separately.
- This specification applies only for DC power dissipation permitted by absolute maximum ratings.



Electrical Characteristics Curve

FIGURE 1 - Worst Case Power Dissipation v.s. Ambient Temperature

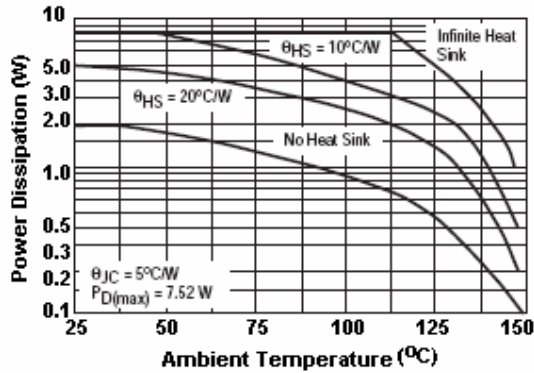


FIGURE 2 - Peak Output Current v.s. Dropout Voltage

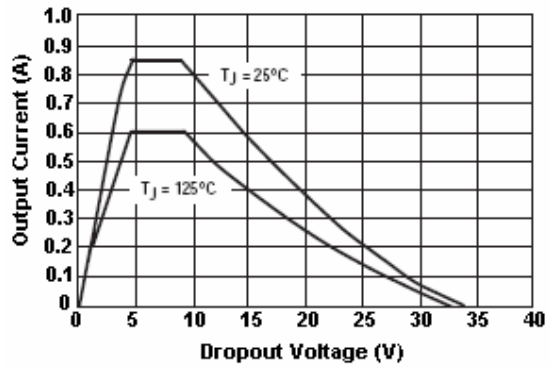


FIGURE 3 - Quiescent Current v.s. Input Voltage

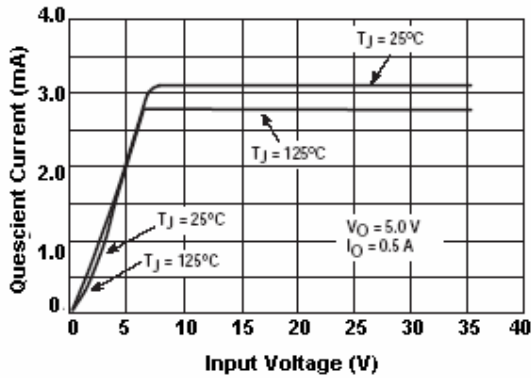


FIGURE 4 - Dropout Voltage v.s. Junction Temperature

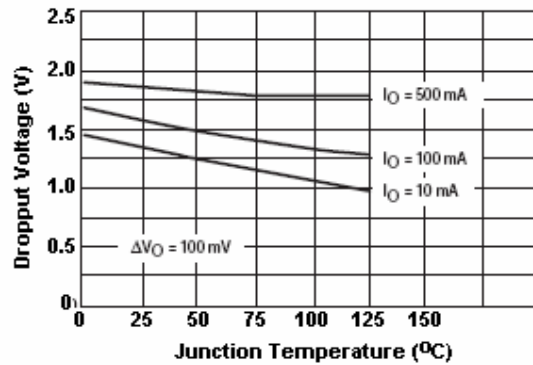


FIGURE 5 - Quiescent Current v.s. Output Current

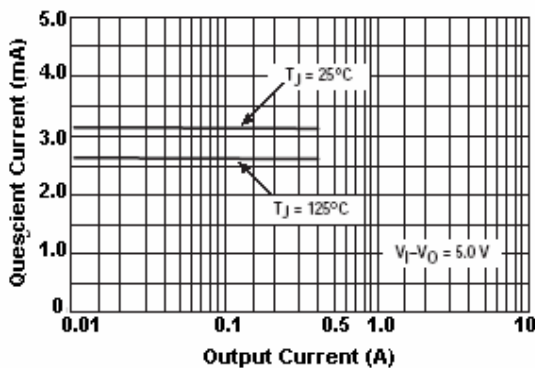
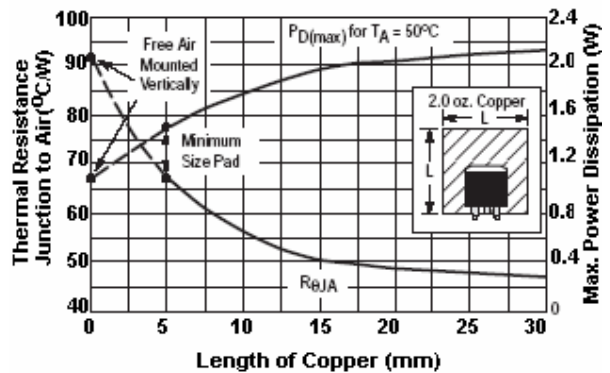


FIGURE 6 - TO-252 Thermal Resistance and P_{D(max)} v.s. P.C.B Copper Length





Electrical Characteristics Curve

FIGURE 7 – Ripple Rejection v.s. Frequency

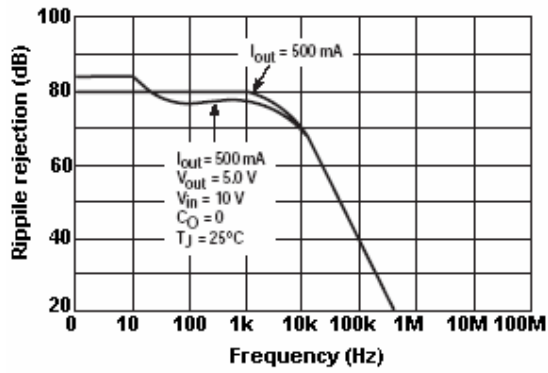
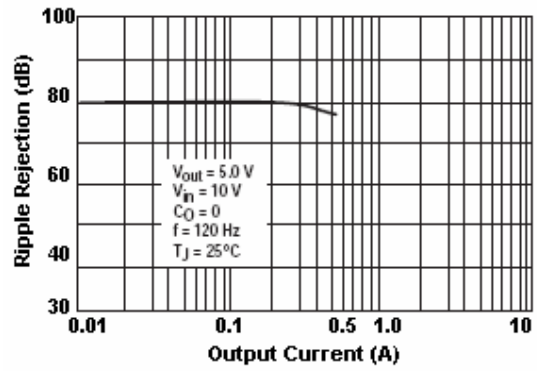
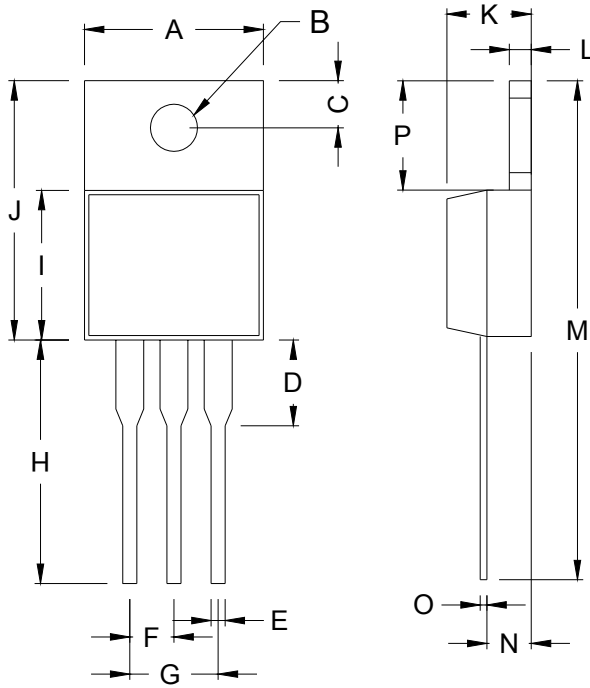


FIGURE 8 – Ripple Rejection v.s. Output Voltage



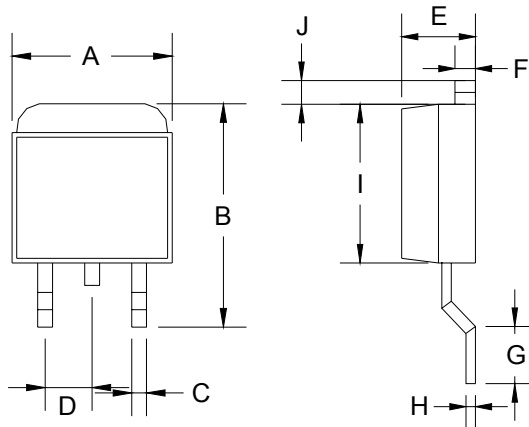


TO-220 Mechanical Drawing



| DIM | TO-220 DIMENSION | | | |
|-----|------------------|--------|--------|-------|
| | MILLIMETERS | | INCHES | |
| | MIN | MAX | MIN | MAX |
| A | 10.000 | 10.500 | 0.394 | 0.413 |
| B | 3.240 | 4.440 | 0.128 | 0.175 |
| C | 2.440 | 2.940 | 0.096 | 0.116 |
| D | - | 6.350 | - | 0.250 |
| E | 0.381 | 1.106 | 0.015 | 0.040 |
| F | 2.345 | 2.715 | 0.092 | 0.058 |
| G | 4.690 | 5.430 | 0.092 | 0.107 |
| H | 12.700 | 14.732 | 0.500 | 0.581 |
| I | 8.382 | 9.017 | 0.330 | 0.355 |
| J | 14.224 | 16.510 | 0.560 | 0.650 |
| K | 3.556 | 4.826 | 0.140 | 0.190 |
| L | 0.508 | 1.397 | 0.020 | 0.055 |
| M | 27.700 | 29.620 | 1.060 | 1.230 |
| N | 2.032 | 2.921 | 0.080 | 0.115 |
| O | 0.255 | 0.610 | 0.010 | 0.024 |
| P | 5.842 | 6.858 | 0.230 | 0.270 |

TO-252 Mechanical Drawing



| DIM | TO-252 DIMENSION | | | |
|-----|------------------|--------|--------|-------|
| | MILLIMETERS | | INCHES | |
| | MIN | MAX | MIN | MAX |
| A | 6.570 | 6.840 | 0.259 | 0.269 |
| B | 9.250 | 10.400 | 0.364 | 0.409 |
| C | 0.550 | 0.700 | 0.022 | 0.028 |
| D | 2.560 | 2.670 | 0.101 | 0.105 |
| E | 2.300 | 2.390 | 0.090 | 0.094 |
| F | 0.490 | 0.570 | 0.019 | 0.022 |
| G | 1.460 | 1.580 | 0.057 | 0.062 |
| H | 0.520 | 0.570 | 0.020 | 0.022 |
| I | 5.340 | 5.550 | 0.210 | 0.219 |
| J | 1.460 | 1.640 | 0.057 | 0.065 |