

• The implementation of standards:

Seven post-secondary level:(Enterprise standard number:Q/PS QZJ07-2004) QZJ840+15 " Seven special " Technical conditions

Prussians level: (Enterprise standard number:Q/PS 005-2004)

GB4589.1-89(IIClass) GB/T12750-91

Industrial Grade: (Enterprise standard number: Q/PS 005-2004)

GB4589. 1-89 (IClass) GB/T12750-91

• Main purposes:

The role of regulator and protection for a variety of electrical appliances, electronic equipment, regulator circuit

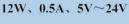
Maximum Ratings

| Parame | eter | Symbol | Ratings | Unit |
|------------------------|---------------------------------|----------------|---------|--------------|
| Input voltage | 78M05~78M15 | $V_{\rm I}$ | 35 | V |
| (T _A =25°C) | 78M18~78M24 | v _I | 40 | V |
| Output current | | I_{O} | 0.5 | A |
| Total power dissipati | on $(T_A=25^{\circ}C)^{1}$ | P_D | 1.3 | W |
| Ambient temperature | $(T_C=25^{\circ}C)^{2^{\circ}}$ | P_{D} | 12 | W |
| Work (tube shell) ten | perature | T_{OP} | -40~125 | $^{\circ}$ C |
| Storage temperature | | T_{stg} | -55~150 | $^{\circ}$ |

In a well-ventilated

When the device is installed in $T_{\rm C}{>}25^{\circ}\!{\rm C}$ the radiator should be a derating

Three-terminal fixed output voltage regulator





 $78M05 \ \ \textbf{Electrical characteristics} \quad \text{(Unless otherwise specified } 0 \leqslant T_{J} \leqslant +125 \, ^{\circ}\text{C} \, , \quad V_{i} = 10 \text{V}, \quad I_{0} = 350 \text{mA}, \quad C_{i} = 0. \quad 33 \mu\text{F}, \quad C_{0} = 0. \quad 1 \mu\text{F})$

| Parameter name | Symbol | Test | Condition | Min | Тур | Max | Unit |
|--------------------------------------|---------------------------------|---|---|------|-----|--------|------|
| Output Voltage Vo | | T _J =25℃ | | 4.8 | 5 | 5.2 | V |
| output vortage | V_0 | $5\text{mA} \leq I_{O} \leq 350\text{mA}$ | $7V \leqslant V_I \leqslant 20V$ | 4.75 | 5 | 5.25 | v |
| Voltage Regulation | S_V | T _J =25℃ | 7V≤V _I ≤25V | 1 | - | 100 | mV |
| Voltage Regulation | Sγ | I _O =200mA | $8V \leq V_I \leq 25V$ | | _ | 50 | mv |
| Current Regulation | S_{I} | T₁=25°C | 5mA≤I ₀ ≤500mA | Ι | 1 | 100 mV | mV |
| Current Regulation | SI | 1 ₃ -25 C | $5mA \leq I_0 \leq 200mA$, | _ | _ | 50 | - mv |
| Quiescent Current | I_Q | T _J =25℃ | | _ | _ | 6 | mA |
| 0.1 | ΛI | $5\text{mA} \leq I_O \leq 350\text{mA}$ | | | - | 0.5 | mA |
| Quiescent Current Change | $\triangle I_Q$ | I _O =200mA, 8V≤V | $I_0 = 200 \text{mA}, 8V \le V_1 \le 25V$ | | _ | 0.8 | IIIA |
| Input - output differential pressure | V _I - V _O | T _J =25°C, I _O =500mA | | | 2 | _ | V |
| Ripple Rejection Ratio | Srip | I _O =300mA, 8V≤V | ′ _I ≤18V, f=120Hz | _ | 78 | | dB |

78M06 Electrical characteristics (Unless otherwise specified $0 \le T_{\downarrow} \le +125^{\circ}C$, $V_1 = 11V$, $I_0 = 350$ mA, $C_1 = 0$. 33μ F, $C_0 = 0$. 1μ F)

| Parameter name | Symbol | Te | est Condition | Min | Тур | Max | Unit | |
|--------------------------------------|---------------------------------|---|---|------|-----|------|-------|--|
| Output Voltage | V_{0} | T _J =25°C | | 5.75 | 6 | 6.25 | V | |
| output vortage | v ₀ | $5\text{mA} \leq I_0 \leq 350\text{m}$ | A, 8V≤V _I ≤21V | 5.7 | 6 | 6.3 | V | |
| Voltage Regulation | S_{V} | T _J =25 °C | $8V \leq V_I \leq 25V$ | _ | | 100 | mV | |
| vortage Regulation | Sγ | I _O =200mA | $9V \leq V_I \leq 25 V$ | _ | _ | 50 | III V | |
| Current Regulation | S_{I} | T₁=25°C | 5mA≤I ₀ ≤500mA | _ | | 120 | mV | |
| current Regulation | SI | 1 j-25 C | $5mA \leq I_0 \leq 200mA$, | _ | _ | 60 | III V | |
| Quiescent Current | I_Q | T _J =25℃ | | _ | _ | 6 | mA | |
| Quiescent Current Change | ΛI | $5\text{mA} \leq I_{\text{O}} \leq 350\text{m}$ | A | _ | | 0.5 | mA | |
| Quiescent current change | $\triangle I_Q$ | I _O =200mA, 9V≤ | $I_0=200 \text{mA}, 9V \leqslant V_1 \leqslant 25V$ | | - | 0.8 | ША | |
| Input - output differential pressure | V _I - V _O | $T_J=25^{\circ}\text{C}$, $I_O=500\text{mA}$ | | _ | 2 | | V | |
| Ripple Rejection Ratio | Srip | I _O =300mA, 9V≤ | ≤V _I ≤19V, f=120Hz | _ | 75 | _ | dB | |

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78M08 Electrical characteristics (Unless otherwise specified $0 \leqslant T_{J} \leqslant +125 ^{\circ}\text{C}$, $V_{i}=14V$, $I_{0}=350\text{mA}$, $C_{i}=0.33\mu\text{F}$, $C_{0}=0.1\mu\text{F}$)

| Parameter name | Symbol | 16 | Test Condition | Min | Тур | Max | Unit |
|--------------------------------------|---------------------------------|---------------------------|--|-----|-----|-----|--------|
| Out out Valtage | V | T _J =25°C | | 7.7 | 8 | 8.3 | V |
| Output Voltage | V_{O} | 5mA≤I _O ≤3501 | mA, 10.5V≤V ₁ ≤23V | 7.6 | 8 | 8.4 | v |
| V-14 D1-4: | c | T _J =25℃ | 10.5V≤V _I ≤25V | = | _ | 100 | 100 mV |
| Voltage Regulation | S_V | I _O =200mA | 11V≤V ₁ ≤25V | _ | _ | 50 | |
| Consent Beauleties | c | T-25°C | 5mA≤I ₀ ≤500mA | = | = | 160 | |
| Current Regulation | S_{I} | T _J =25℃ | $5mA \leq I_0 \leq 200mA$, | - | - | 80 | mV |
| Quiescent Current | I_Q | T _J =25℃ | A. | | _ | 6 | mA |
| | ^ I | 5mA≤I _O ≤350i | mA | _ | _ | 0.5 | A |
| Quiescent Current Change | $\triangle I_Q$ | I _O =200mA, 10 | $I_{O} = 200 \text{mA}, 10.5 \text{V} \leq V_{I} \leq 25 \text{V}$ | | _ | 0.8 | mA |
| Input - output differential pressure | V _I - V _O | $T_J=25$ °C, $I_O=500$ mA | | _ | 2 | _ | V |
| Ripple Rejection Ratio | Srip | I _O =300mA, 9V | ′≤V _I ≤19V, f=120Hz | _ | 73 | _ | dB |

78M09 Electrical characteristics (Unless otherwise specified $0 \leqslant T_{\text{J}} \leqslant +125\,^{\circ}\text{C}$, $V_{\text{i}} = 15\text{V}$, $I_{\text{0}} = 350\text{mA}$, $C_{\text{i}} = 0.33\mu\text{F}$, $C_{\text{0}} = 0.1\mu\text{F}$)

| Parameter name | Symbol | Test C | Condition | Min | Тур | Max | Unit |
|--------------------------------------|-----------------------|--|---|------|-----|--------|-------|
| | Vo | T _J =25℃ | | 8.6 | 9 | 9.4 | v |
| Output Voltage | v ₀ | $5\text{mA} \leq I_{\text{O}} \leq 350\text{mA}$ | , 11.5V≤V _I ≤24V | 8.55 | 9 | 9.45 | v |
| Voltage Regulation | S_V | T _J =25℃ | $11.5V \leqslant V_I \leqslant 25V$ | | I | 100 | mV |
| vortage Regulation | 30 | I _O =200mA | $12V \leqslant V_I \leqslant 25V$ | | I | 50 | 111 V |
| Current Regulation | $S_{\rm I}$ | T₁=25°C | 5mA≤I ₀ ≤500mA | _ | 1 | 180 mV | mV |
| Current Regulation | 3] | 1]-23 C | $5mA \leq I_0 \leq 200mA$, | _ | | 90 |] "" |
| Quiescent Current | I_Q | T _J =25℃ | | Ι | Ţ | 6 | mA |
| Quiescent Current Change | $\triangle I_Q$ | $5\text{mA} \leq I_{\text{O}} \leq 350\text{mA}$ | | | I | 0.5 | mA |
| Quiescent current change | ΔIQ | I _O =200mA, 11.5V | $I_{O}=200 \text{mA}$, $11.5 \text{V} \leqslant V_{I} \leqslant 25 \text{V}$ | | ĺ | 0.8 | IIIA |
| Input - output differential pressure | V_{I} - V_{O} | $T_J=25$ °C, $I_O=500$ mA | | | 2 | _ | V |
| Ripple Rejection Ratio | Srip | I _O =300mA, 12.5V | ≤V _I ≤23V, f=120Hz | | 71 | | dB |

78M10 Electrical characteristics (Unless otherwise specified $0 \le T_{\cup} \le +125 \,^{\circ}\text{C}$, $V_{1} = 17V$, $I_{0} = 350 \,\text{mA}$, $C_{1} = 0$. $33 \,\mu\text{F}$, $C_{0} = 0$. $1 \,\mu\text{F}$)

| Parameter name | Symbol | | Test Condition | Min | Тур | Max | Unit |
|--------------------------------------|---------------------------------|---|--|-----|-----|------|-------|
| Output Voltage | V | T _J =25 ℃ | | 9.6 | 10 | 10.4 | V |
| output voltage | V_{O} | 5mA≤I _O ≤350n | mA, 12.5V≤V _I ≤25V | 9.5 | 10 | 10.5 | v |
| Voltage Degulation | c | T _J =25℃ | 12.5V≤V _I ≤25V | 1— | _ | 100 | mV |
| Voltage Regulation | S_V $I_{O}=2$ | I _O =200mA | 13V≤V _I ≤25V | | | 50 | III V |
| Current Regulation | Sı | T₁=25°C | 5mA≤I ₀ ≤500mA | \—- | - | 200 | mV |
| Current Regulation | SI | | $5mA \leq I_0 \leq 200mA$, | _ | _ | 100 | III V |
| Quiescent Current | I_Q | T _J =25℃ | • | 1- | — i | 6 | mA |
| 0 | Λ.Ι. | 5mA≤I _O ≤350n | mA | | | 0.5 | A |
| Quiescent Current Change | $\triangle I_Q$ | I _O =200mA, 12 | $I_{O}=200 \text{mA}, 12.5 \text{V} \leq V_{I} \leq 25 \text{V}$ | | 5—A | 0.8 | mA |
| Input - output differential pressure | V _I - V _O | T _J =25°C, I _O =500mA | | s | 2 | - | V |
| Ripple Rejection Ratio | Srip | I _O =300mA, 13 | V≤V _I ≤23V, f=120Hz | - | 71 | - | dB |

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78M12 Electrical characteristics (Unless otherwise specified $0 \le T_{\cup} \le +125\,^{\circ}\text{C}$, $V_{i} = 19V$, $I_{0} = 350\text{mA}$, $C_{i} = 0$. $33\mu\text{F}$, $C_{0} = 0$. $1\mu\text{F}$)

| Parameter name | Symbol | Test 0 | Condition | Min | Тур | Max | Unit |
|--------------------------------------|-------------------|--|------------------------------|------|-----|------|-------|
| Out of Wilder | V | T _J =25°C | | 11.5 | 12 | 12.5 | V |
| Output voltage | Output Voltage Vo | | $14.5V \leq V_I \leq 27V$ | 11.5 | 12 | 12.6 | · |
| Valtara Basslatian | c | T _J =25°C | 14.5V≤V _I ≤30V | _ | _ | 100 | mV |
| Voltage Regulation | S_V | I _O =200mA | 16V≤V _I ≤30V | _ | _ | 50 | III V |
| Consest Description | Sı | T₁=25°C | 5mA≤I ₀ ≤500mA | 7— | _ | 240 | mV |
| Current Regulation | SI | 1j-23 C | 5mA≤I ₀ ≤200mA, | - | _ | 120 | |
| Quiescent Current | I_Q | T _J =25°C | | === | _ | 6 | mA |
| 0. | ΔI | 5mA≤I _O ≤350mA | | _ | _ | 0.5 | mA |
| Quiescent Current Change | $\triangle I_Q$ | $I_0 = 200 \text{mA}, 14.5 \text{V} \le V_1 \le 30 \text{V}$ | | _ | _ | 0.8 | ША |
| Input - output differential pressure | V_{I} - V_{O} | $T_J=25$ °C, $I_O=500$ mA | | _ | 2 | _ | V |
| Ripple Rejection Ratio | Srip | I _O =300mA, 15V≤V | V _I ≤25V, f=120Hz | _ | 71 | _ | dB |

78M15 Electrical characteristics (Unless otherwise specified 0 ≤ T_J≤+125 °C, V_i=23V, I₀=350mA, C_i=0. 33µF, C₀=0. 1µF)

| Parameter name | Symbol | Test (| Condition | Min | Тур | Max | Unit |
|--------------------------------------|---------------------------------|--|-----------------------------------|-------|-----|-------|------|
| Output Voltage | V | T _J =25°C | | 14.4 | 15 | 15.6 | V |
| output voltage | V_{O} | $5\text{mA} \leq I_{\text{O}} \leq 350\text{mA}$ | $17.5V \leq V_I \leq 30V$ | 14.25 | 15 | 15.75 | V |
| Voltage Regulation | c | T _J =25℃ | 17.5V≤V _I ≤30V | _ | _ | 100 | mV |
| vortage Regulation | S_V | I _O =200mA | $20V \leqslant V_I \leqslant 30V$ | _ | _ | 50 | mv |
| Current Regulation | c | T₁=25°C | 5mA≤I ₀ ≤500mA | _ | _ | 300 | V |
| Current Regulation | S_{I} | $5\text{mA} \leq I_0 \leq 200\text{mA}$ | _ | _ | 150 | mV | |
| Quiescent Current | I_Q | T _J =25℃ | | _ | _ | 6 | mA |
| Outros Channel Channel | ^ I | 5mA≤I _O ≤350mA | | _ | _ | 0.5 | A |
| Quiescent Current Change | $\triangle I_Q$ | $I_0 = 200 \text{mA}, 17.5 \text{V} \le V_1 \le 30 \text{V}$ | | _ | _ | 0.8 | mA |
| Input - output differential pressure | V _I - V _O | T _J =25°C, I _O =500mA | | _ | 2 | _ | V |
| Ripple Rejection Ratio | Srip | I _O =300mA, 18.5V | ≤V _I ≤28.5V, f=120Hz | _ | 70 | | dB |

 $78M18 \ \ \textbf{Electrical characteristics} \quad \text{(Unless otherwise specified } 0 \leqslant T_{\text{\tiny J}} \leqslant +125\,^{\circ}\text{C} \,, \quad V_{\text{\tiny I}} = 26V, \quad I_{\text{\tiny 0}} = 350\text{mA}, \quad C_{\text{\tiny I}} = 0. \quad 33\mu\text{F}, \quad C_{\text{\tiny 0}} = 0. \quad 1\mu\text{F} \,\, \text{)}$

| Parameter name | Symbol | Te | est Condition | Min | Тур | Max | Unit |
|--------------------------------------|---------------------------------|--|---|---------------|------|------|---------------|
| Output Voltage | V | T _J =25°C | | 17.3 | 18 | 18.7 | V |
| output voltage | V_{O} | 5mA≤I _O ≤350n | mA, 20.5V≤V _I ≤33V | 17.1 | 18 | 18.9 | |
| | c | T _J =25℃ | 21V≤V _I ≤33V | _ | _ | 100 | 100 50 mV |
| Voltage Regulation | S_V | I _O =200mA | 24V≤V _I ≤33V | _ | _ | 50 | |
| | Sı | T₁=25°C | 5mA≤I ₀ ≤500mA | 4 | s=== | 360 | 360 180 mV |
| Current Regulation | SI | 1,-23 C | $5\text{mA} \leq I_0 \leq 200\text{mA}$ | _ | - | 180 | |
| Quiescent Current | I_Q | T _J =25°C | • | - | - | 6 | mA |
| 0.1 | Λ1 | 5mA≤I _O ≤350r | mA | _ | - | 0.5 | A |
| Quiescent Current Change | $\triangle I_Q$ | I ₀ =200mA, 21V≤V _I ≤33V | | _ | :: | 0.8 | mA |
| Input - output differential pressure | V _I - V _O | T _J =25°C, I _O =500mA | | - | 2 | | V |
| Ripple Rejection Ratio | Srip | I _O =300mA, 22 | V≤V _I ≤32V, f=120Hz | _ | 69 | | dB |

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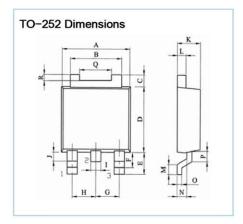


78M20 Electrical characteristics (Unless otherwise specified $0 \le T_{\text{\tiny J}} \le +125 \,^{\circ}\text{C}$, $V_{\text{\tiny I}} = 29V$, $I_{\text{\tiny 0}} = 350 \text{mA}$, $C_{\text{\tiny I}} = 0$. $33 \mu\text{F}$, $C_{\text{\tiny 0}} = 0$. $1 \mu\text{F}$

| Parameter name | Symbol | 3 | Test Condition | Min | Тур | Max | Unit |
|--------------------------------------|---------------------------------|--|--|------|-----|------|--------|
| Output Voltage | X7 | T _J =25 ℃ | | 19.2 | 20 | 20.8 | V |
| output voltage | V_{O} | 5mA≤I ₀ ≤350ı | mA, 23V≤V _I ≤35V | 19 | 20 | 21 | V |
| Voltage Regulation | 6 | T _J =25℃ | 23V≤V _I ≤35V | _ | _ | 100 | |
| Voltage Regulation | S_V | I _O =200mA | 24V≤V _I ≤35V | _ | _ | 50 | mV |
| Current Regulation | C | T-25% | 5mA≤I ₀ ≤500mA | _ | _ | 400 | 400 mV |
| Current Regulation | S_{I} | T _J =25°C | $5mA \leq I_0 \leq 200mA$, | _ | 2 | 200 | mv |
| Quiescent Current | I_Q | T _J =25℃ | | | _ | 6 | mA |
| Outros of Connect Channel | Λ.Ι. | 5mA≤I ₀ ≤350ı | mA | _ | _ | 0.5 | mA |
| Quiescent Current Change | $\triangle I_Q$ | I _O =200mA, 23 | $I_{O} = 200 \text{mA}, 23 \text{V} \leq V_{I} \leq 35 \text{V}$ | | _ | 0.8 | |
| Input - output differential pressure | V _I - V _O | T _J =25℃, I _O =500mA | | _ | 2 | _ | V |
| Ripple Rejection Ratio | Srip | I _O =300mA, 24 | V≤V _I ≤34V, f=120Hz | | 69 | | dB |

78M24 Electrical characteristics (Unless otherwise specified $0 \le T_{J} \le +125 \,^{\circ}\text{C}$, $V_{I} = 33V$, $I_{0} = 350 \text{mA}$, $C_{I} = 0.33 \,\mu\text{F}$, $C_{0} = 0.1 \,\mu\text{F}$)

| Parameter name | Symbol | Te | st Condition | Min | Тур | Max | Unit |
|--------------------------------------|---------------------------------|--|------------------------------|------|-----|------|------|
| Output Voltage | V | T _J =25 °C | | 23 | 24 | 25 | V |
| output vortage | V_{O} | $5\text{mA} \leq I_0 \leq 350\text{mA}$ | , 27V≤V _I ≤38V | 22.8 | 24 | 25.2 | V |
| | | T₁=25°C | $27V \leq V_I \leq 38V$ | _ | l | 100 | |
| Voltage Regulation | S_V | I _O =200mA | $28V \leq V_I \leq 38V$ | _ | | 50 | mV |
| G P . 1 . 1 | C | T-25°C | 5mA≤I ₀ ≤500mA | _ | _ | 480 | |
| Current Regulation | S_{I} | $T_J=25$ °C | $5mA \leq I_0 \leq 200mA$, | _ | _ | 240 | mV |
| Quiescent Current | I_Q | T _J =25 °C | | _ | _ | 6 | mA |
| | Λ. | $5\text{mA} \leq I_0 \leq 350\text{mA}$ | | _ | | 0.5 | 4 |
| Quiescent Current Change | $\triangle I_Q$ | I _O =200mA, 27V≤ | {V _I ≤38V | _ | _ | 0.8 | mA |
| Input - output differential pressure | V _I - V _O | T _J =25℃, I _O =500mA | | _ | 2 | _ | V |
| Ripple Rejection Ratio | Srip | I _O =300mA, 28V≤ | V _I ≤38V; f=120Hz | _ | 67 | _ | dB |



| | TO | 252 | | TO | Unit : mr |
|----------------|------|-------------|------|------|-------------|
| Size Symbol | min | -252 max | Size | min | -252 max |
| Α | 6.4 | 6.8 | J | 0.6 | 0.95 |
| В | 4.8 | 5.53 | K | 2.1 | 2.5 |
| С | 0.9 | 1.3 | L | 0.4 | 0.6 |
| D | 5.9 | 6.3 | M | 0.80 | 1.4 |
| Е | 2.3 | 2.9 | N | 0.9 | 1.1 |
| F | 1.8 | 2.2 | 0 | 0.4 | 0.6 |
| G | 2.2 | 2.4 | P | 0.81 | 1.01 |
| Н | 2.2 | 2.4 | Q | 3.6 | 4.0 |
| I | 0.66 | 0.92 | R | 0.4 | 0.6 |

1 IN 2 GND 3 OUT 4 GND

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