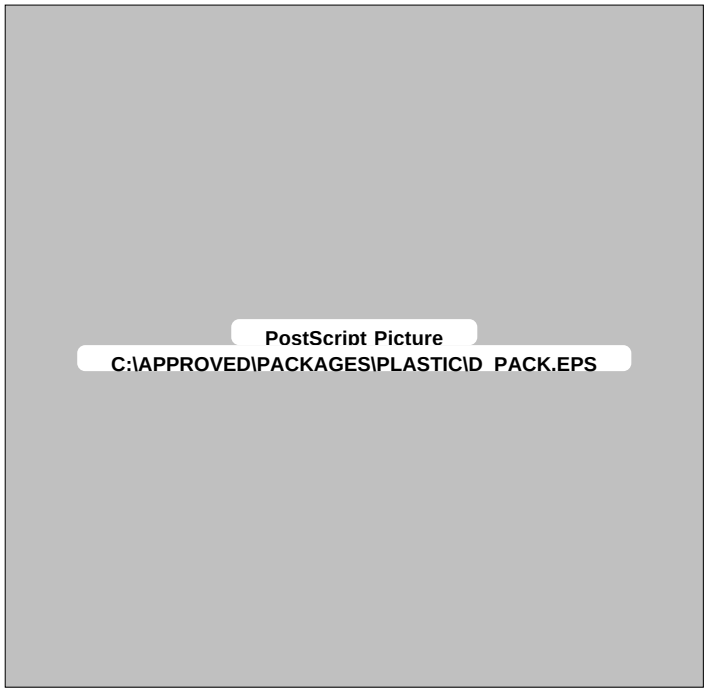
# IP78M05ADP
# IP78M05DP

**MECHANICAL DATA**

Dimensions in mm (inches)




D–PACK — TO251 plastic package

Pin 1 – $V_{IN}$ Pin 2 – GND Pin 3 – $V_{OUT}$

# 3 TERMINAL LOW CURRENT 5 VOLT POSITIVE VOLTAGE REGULATOR

## FEATURES

- **0.01%/V LINE REGULATION**
- **0.3%/A LOAD REGULATION**
- **THERMAL OVERLOAD PROTECTION**
- **SHORT CIRCUIT PROTECTION**
- **SAFE OPERATING AREA PROTECTION**
- **1% OUTPUT VOLTAGE TOLERANCE**

## ABSOLUTE MAXIMUM RATINGS ($T_{case}$ = 25°C unless otherwise stated)

| | | |
|---|---|---|
| $V_I$ | DC Input Voltage | 35V |
| $P_D$ | Power Dissipation | Internally limited |
| $T_j$ | Operating Junction Temperature Range | 0°C to 125°C |
| | Maximum Junction Temperature | 125°C |
| $T_{stg}$ | Storage Temperature Range | –65°C to +150°C |
| $T_L$ | Lead Temperature (Soldering, 10 sec) | 300°C |

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## ELECTRICAL CHARACTERISTICS ($T_j$ = 25°C unless stated)

| Parameter | | Test Conditions | IP78M05ADP | | | IP78M05DP | | | Unit |
|---|---|---|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | Min. | Typ. | Max. | |
| $V_O$ | Output Voltage* | $I_O$ = 100mA $V_{IN}$ = 10V | 4.95 | 5 | 5.05 | 4.80 | 5 | 5.20 | V |
| | | $I_O$ = 5mA to 350mA<br>$V_{IN}$ = 7.5 to 20V<br>$T_j$ = 0 to 125°C $P_D \leq P_{MAX}$ | 4.85 | | 5.15 | 4.75 | | 5.25 | |
| $\Delta V_O$ | Line Regulation* | $I_O$ = 200mA $V_{IN}$ = 7 to 25V | | 3 | 10 | | | 50 | mV |
| | | $I_O$ = 200mA $V_{IN}$ = 8 to 25V<br>$T_j$ = 0 to 125°C | | 3 | 10 | | | 25 | |
| | | $I_O$ = 500mA $V_{IN}$ = 8 to 12V | | 3 | 10 | | | 50 | |
| $\Delta V_O$ | Load Regulation* | $I_O$ = 5mA to 500mA $V_{IN}$ = 10V<br>$T_j$ = 0 to 125°C | | 5 | 50 | | | 50 | mV |
| $I_d$ | Quiescent Current* | $I_O$ = 350mA $V_{IN}$ = 10V<br>$T_j$ = 0 to 125°C | | 4 | 6 | | 4 | 6 | mA |
| $\Delta I_Q$ | Quiescent Current Change* | $I_O$ = 5 to 500mA $V_{IN}$ = 10V<br>$T_j$ = 0 to 125°C | | 0.1 | 0.5 | | | 0.5 | mA |
| | | $I_O$ = 200mA $V_{IN}$ = 8 to 25V<br>$T_j$ = 0 to 125°C | | 0.2 | 0.8 | | | 0.8 | |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz | | 40 | 200 | | 40 | 200 | µV |
| $\frac{\Delta V_{IN}}{\Delta V_O}$ | Ripple Rejection | $V_{IN}$ = 8 to 18V f = 120Hz<br>$I_O$ = 300mA | 65 | 80 | | 62 | | | dB |
| | | $V_{IN}$ = 8 to 18V f = 120Hz<br>$I_O$ = 100mA $T_j$ = 0 to 125°C | 65 | 80 | | 62 | | | |
| | Dropout Voltage* | $I_O$ = 350mA | | 2 | 2.5 | | | 2.5 | V |
| $I_{SC}$ | Short Circuit Current* | $V_{IN}$ = 35V | | 300 | 600 | | 300 | 600 | mA |
| $I_{PK}$ | Peak Output Current* | $V_{IN}$ = 10V | 0.7 | 1.0 | 1.4 | | 1.0 | 1.6 | A |
| | Average Temperature Coefficient of Output Voltage* | $I_O$ = 5mA | | 0.5 | 2.0 | | 0.5 | | mV / °C |

* Pulse Test: $t_p \leq 10ms$ , $\delta \leq 5\%$.

All characteristics are measured with a capacitor across the input of 0.22µF and a capacitor across the output of 0.1µF.

Output Voltage changes due to changes in internal temperature must be taken into account separately.