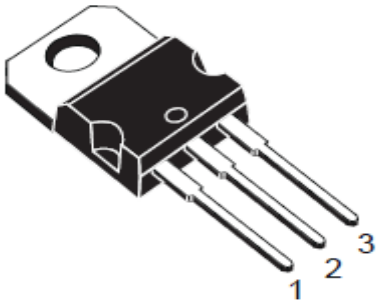
# SK7805A THRU SK7812A

Three-terminal positive voltage regulator
OUTPUT CURRENT TO 1.2A
OUTPUT VOLTAGES OF 5; 6; 8; 9; 12V
THERMAL OVERLOAD PROTECTION
SHORT CIRCUIT PROTECTION
OUTPUT TRANSITION SOA PROTECTION

## 1、 Absolute Maximum Ratings Tc=25℃

| Symbol | Parameter | Value | UNIT |
|---|---|---|---|
| VI | Input Voltage | 35 | V |
| TOPR | Operating Temperature Range | 0 ～ +125 | ℃ |
| TSTG | Storage Temperature Range | -65 ～+150 | ℃ |




**TO-220**

1 Input 2 Gnd 3 Out

## 2、Electrical Characteristics （Tc＝25℃）Of SK7805A (refer to the test circuits , TJ = -55 to 150℃ VI = 10V, IO = 500 mA , CI = 0.33 μF, CO = 0.1 μF unless otherwise specified)。

| Parameter | Symbol | Test Condition | | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| Output Voltage | VO | TJ = +25℃ | | 4.8 | 5 | 5.2 | V |
| | | IO = 5mA to 1A, PO ≤ 15W<br>VI = 8V to 20V | | 4.75 | 5 | 5.25 | |
| Line Regulation (Note1) | Δ VO | TJ = +25℃ | VI = 7V to 25V | | | 100 | mV |
| | | | VI = 8V to 12V | | | 50 | |
| Load Regulation (Note1) | Δ VO | TJ = +25℃<br>IO = 5mA to 1.2A | | | | 100 | mV |
| | | TJ = +25℃<br>IO = 250mA to 750mA | | | | 50 | |
| Quiescent Current | IQ | TJ = +25℃ | | | | 6 | mA |
| Quiescent Current Change | Δ IQ | IO = 5mA to 1A | | | | 0.5 | mA |
| | | VI = 8V to 25V | | | | 0.8 | |
| Quiescent Current Change | Δ Vo/Δ T | IO = 5mA | | | 0.6 | | mV/℃ |
| Short Circuit Current | ISC | TJ = +25° C, VI = 35V | | | 0.75 | 1.2 | A |

3、Electrical Characteristics （Tc＝25℃）Of SK7806A(refer to the test circuits , TJ = -55 to 150℃ VI = 11V, IO = 500 mA , CI = 0.33 μF, CO = 0.1 μF unless otherwise specified)

| Parameter | Symbol | Test Condition | | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| Output Voltage | VO | TJ = +25℃ | | 5.75 | 6 | 6.25 | V |
| | | IO = 5mA to 1A, PO ≤ 15W<br>VI = 9V to 21V | | 5.65 | 6 | 6.35 | |
| Line Regulation (Note1) | ΔVO | TJ = +25℃ | VI = 8V to 25V | | | 100 | mV |
| | | | VI = 9V to 13V | | | 50 | |
| Load Regulation (Note1) | ΔVO | TJ = +25℃<br>IO = 5mA to 1.2A | | | | 100 | mV |
| | | TJ = +25℃<br>IO = 250mA to 750mA | | | | 50 | |
| Quiescent Current | IQ | TJ = +25℃ | | | | 6 | mA |
| Quiescent Current Change | ΔIQ | IO = 5mA to 1A | | | | 0.5 | mA |
| | | VI = 9V to 25V | | | | 0.8 | |
| Quiescent Current Change | ΔVo/ΔT | IO = 5mA | | | 0.7 | | mV/℃ |
| Short Circuit Current | ISC | TJ = +25° C, VI = 35V | | | 0.75 | 1.2 | A |

4、Electrical Characteristics （Tc＝25℃）Of SK7808A(refer to the test circuits , TJ = -55 to 150℃ VI = 14V, IO = 500 mA , CI = 0.33 μF, CO = 0.1 μF unless otherwise specified)。

| Parameter | Symbol | Test Condition | | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| Output Voltage | VO | TJ = +25℃ | | 7.7 | 8 | 8.3 | V |
| | | IO = 5mA to 1A, PO ≤ 15W<br>VI = 11.5V to 23V | | 7.6 | 8 | 8.4 | |
| Line Regulation (Note1) | ΔVO | TJ = +25℃ | VI = 10.5V to 25V | | | 100 | mV |
| | | | VI = 11V to 17V | | | 50 | |
| Load Regulation (Note1) | ΔVO | TJ = +25℃<br>IO = 5mA to 1.2A | | | | 100 | mV |
| | | TJ = +25℃<br>IO = 250mA to 750mA | | | | 50 | |
| Quiescent Current | IQ | TJ = +25℃ | | | | 6 | mA |
| Quiescent Current Change | ΔIQ | IO = 5mA to 1A | | | | 0.5 | mA |
| | | VI = 11.5V to 25V | | | | 1 | |
| Quiescent Current Change | ΔVo/ΔT | IO = 5mA | | | 1 | | mV/℃ |
| Short Circuit Current | ISC | TJ = +25° C, VI = 35V | | | 0.75 | 1.2 | A |

5、Electrical Characteristics （Tc＝25℃）Of SK7809A(refer to the test circuits , TJ = -55 to 150℃ VI = 15V, IO = 500 mA , CI = 0.33 μF, CO = 0.1 μF unless otherwise specified)。

| Parameter | Symbol | Test Condition | | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| Output Voltage | VO | TJ = +25℃ | | 8.64 | 9 | 9.36 | V |
| | | IO = 5mA to 1A, PO ≤ 15W<br>VI = 11.5V to 26V | | 8.55 | 9 | 9.45 | |
| Line Regulation (Note1) | ΔVO | TJ = +25℃ | VI = 11.5V to 26V | | | 100 | mV |
| | | | VI = 12V to 18V | | | 50 | |
| Load Regulation (Note1) | ΔVO | TJ = +25℃<br>IO = 5mA to 1.2A | | | | 100 | mV |
| | | TJ = +25℃<br>IO = 250mA to 750mA | | | | 50 | |
| Quiescent Current | IQ | TJ = +25℃ | | | | 6 | mA |
| Quiescent Current Change | ΔIQ | IO = 5mA to 1A | | | | 0.5 | mA |
| | | VI = 11.5V to 26V | | | | 1 | |
| Quiescent Current Change | ΔVo/ΔT | IO = 5mA | | | 1 | | mV/℃ |
| Short Circuit Current | ISC | TJ = +25° C, VI = 35V | | | 0.75 | 1.2 | A |

6、Electrical Characteristics （Tc＝25℃）Of SK7812A (refer to the test circuits ，TJ = -55 to 150℃ VI = 19V，IO = 500 mA，CI = 0.33 μF， CO = 0.1 μF unless otherwise specified)。

| Parameter | Symbol | Test Condition | | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| Output Voltage | VO | TJ = +25℃ | | 11.5 | 12 | 12.5 | V |
| | | IO = 5mA to 1A, PO ≤ 15W<br>VI =15.5V to 27V | | 11.4 | 12 | 12.6 | |
| Line Regulation (Note1) | Δ VO | TJ = +25℃ | VI = 14.5V to 30V | | | 100 | mV |
| | | | VI = 16V to 22V | | | 50 | |
| Load Regulation (Note1) | Δ VO | TJ = +25℃<br>IO = 5mA to 1.2A | | | | 100 | mV |
| | | TJ = +25℃<br>IO = 250mA to 750mA | | | | 50 | |
| Quiescent Current | IQ | TJ = +25℃ | | | | 6 | mA |
| Quiescent Current Change | Δ IQ | IO = 5mA to 1A | | | | 0.5 | mA |
| | | VI = 15V to 30V | | | | 1 | |
| Quiescent Current Change | Δ Vo/Δ T | IO = 5mA | | | 1.5 | | mV/℃ |
| Short Circuit Current | ISC | TJ = +25° C, VI = 35V | | | 0.75 | 1.2 | A |

## 7、Typical Characteristics

**Figure 1:** Dropout Voltage vs Junction Temperature

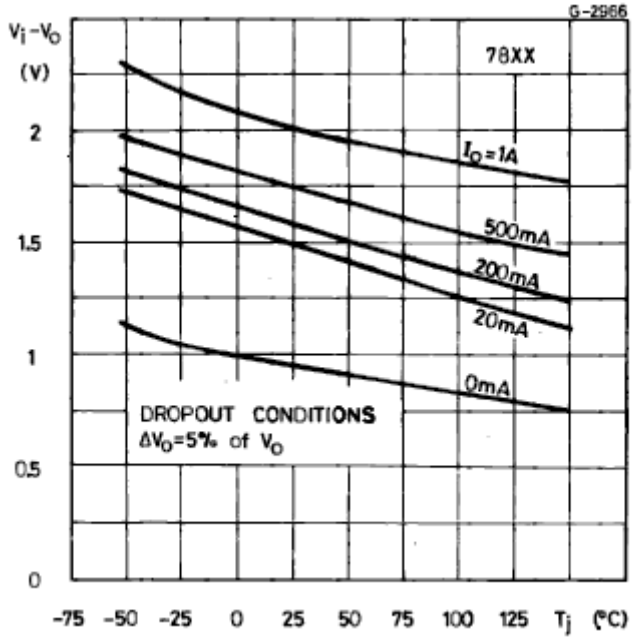



**Figure 2:** Peak Output Current vs Input/output Differential Voltage

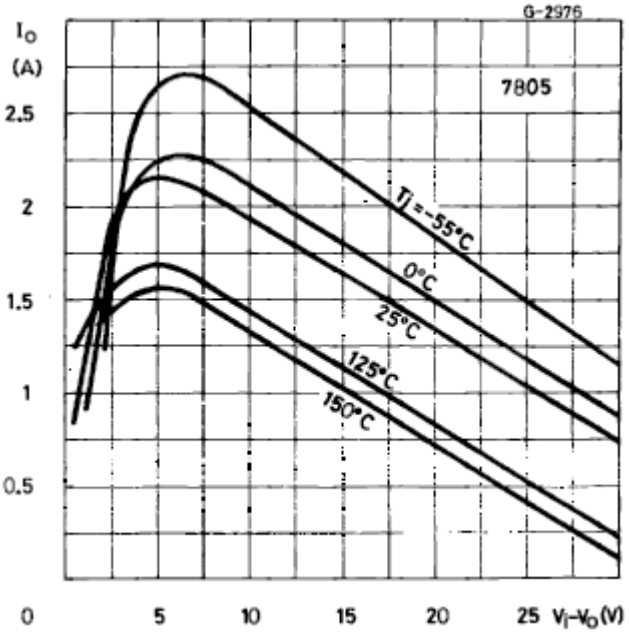



**Figure3:** Supply Voltage Rejection vs Frequency Temperature

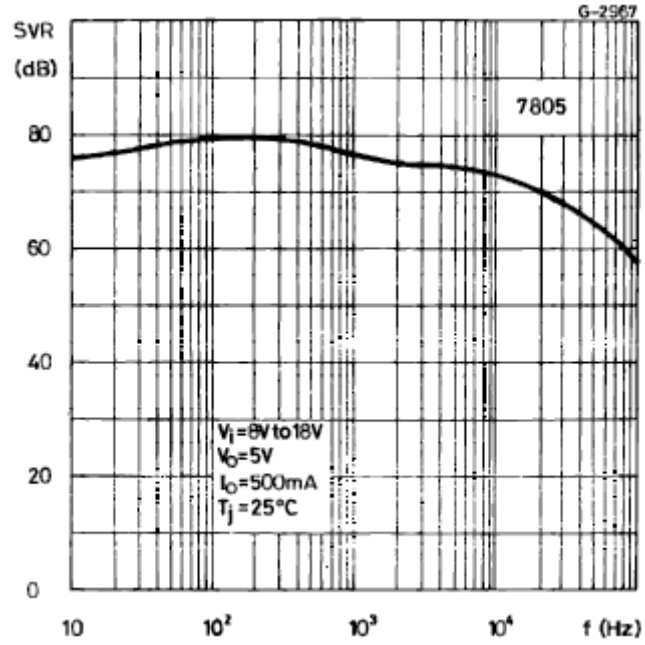



**Figure 4:** Quiescent Current vs Junction

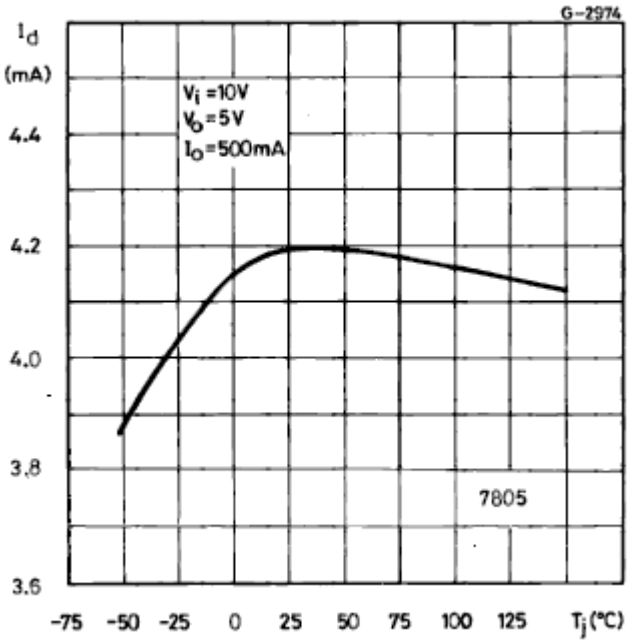


**Figure 5:** Output Voltage vs Junction Temperature

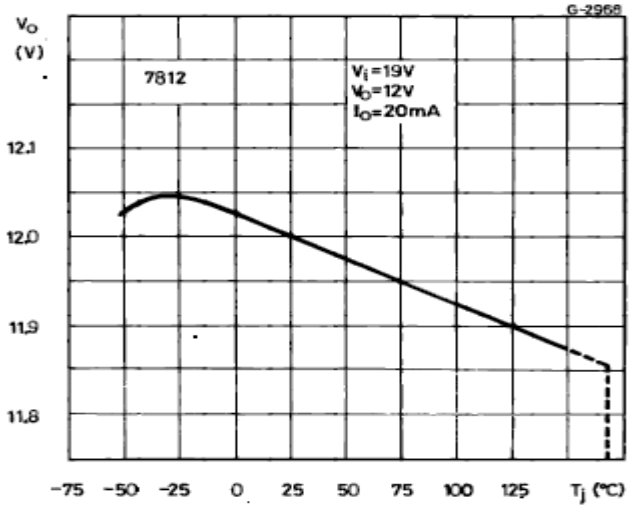



**Figure 6:** Load Transient Response

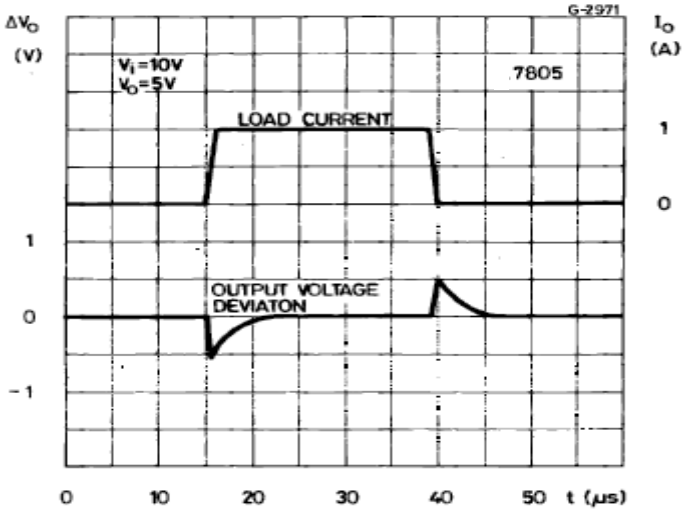



**Figure 7:** Output Impedance vs Frequency

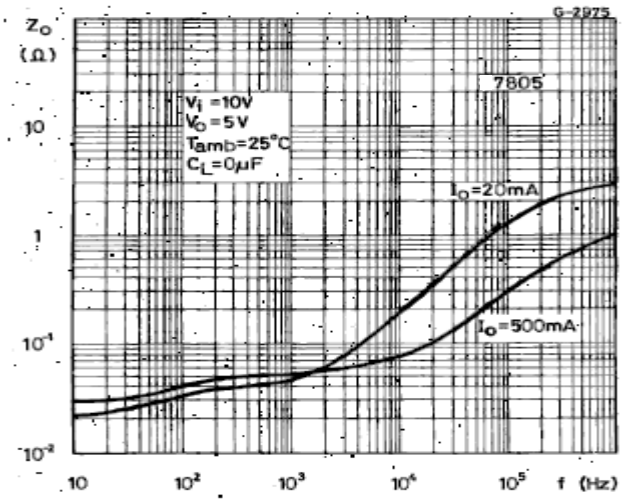



**Figure 8:** Line Transient Response

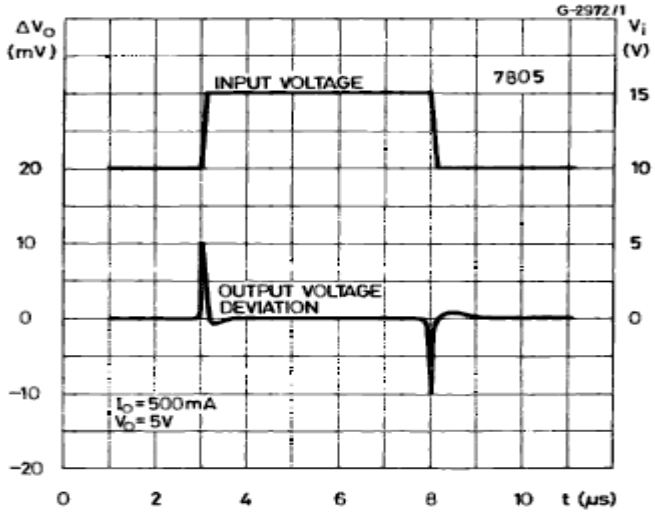
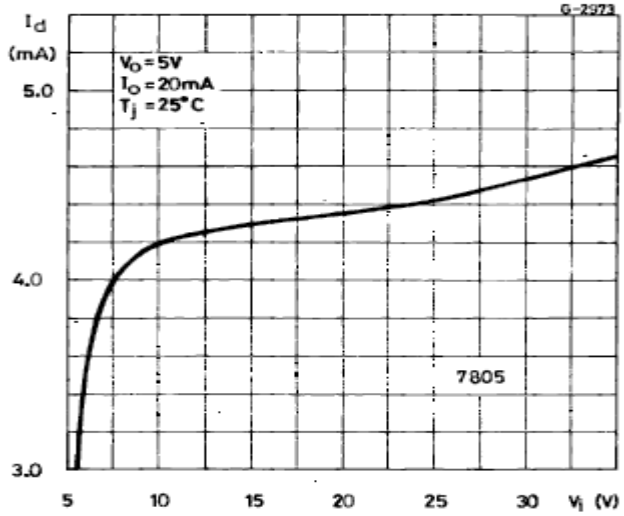



**Figure 9:** Quiescent Current vs Input Voltage



## 8、Package Demensions

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| DIM. | mm | | | inch | | |
|---|---|---|---|---|---|---|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 4.40 | | 4.60 | 0.173 | | 0.181 |
| C | 1.23 | | 1.32 | 0.048 | | 0.051 |
| D | 2.40 | | 2.72 | 0.094 | | 0.107 |
| D1 | | 1.27 | | | 0.050 | |
| E | 0.49 | | 0.70 | 0.019 | | 0.027 |
| F | 0.61 | | 0.88 | 0.024 | | 0.034 |
| F1 | 1.14 | | 1.70 | 0.044 | | 0.067 |
| F2 | 1.14 | | 1.70 | 0.044 | | 0.067 |
| G | 4.95 | | 5.15 | 0.194 | | 0.203 |
| G1 | 2.4 | | 2.7 | 0.094 | | 0.106 |
| H2 | 10.0 | | 10.40 | 0.393 | | 0.409 |
| L2 | | 16.4 | | | 0.645 | |
| L4 | 13.0 | | 14.0 | 0.511 | | 0.551 |
| L5 | 2.65 | | 2.95 | 0.104 | | 0.116 |
| L6 | 15.25 | | 15.75 | 0.600 | | 0.620 |
| L7 | 6.2 | | 6.6 | 0.244 | | 0.260 |
| L9 | 3.5 | | 3.93 | 0.137 | | 0.154 |
| DIA. | 3.75 | | 3.85 | 0.147 | | 0.151 |