



Negative Three Terminal Voltage Regulators

负三端稳压管

KA79XXA

产品特性 Features

| | |
|--|-------------------|
| 输出电压 Output Voltage | 稳压管 Regulators |
| -5V | KA7905A |
| -12V | KA7912A |
| -15V | KA7915A |
| 最大输出电流 Max Output Current | 1.5A |
| 过载保护 Internal thermal overload protection | |
| 短路电流限制 Internal short-current limiting | |
| 输出端最大安全工作区域 Output transistor safe-area compensation | |
| 输出电压精度在 4%以内 Output voltage offered in 4% tolerance | |

封装形式 Package



1 2 3

1:GND 2:Input 3:Output

功能图 Functional diagram

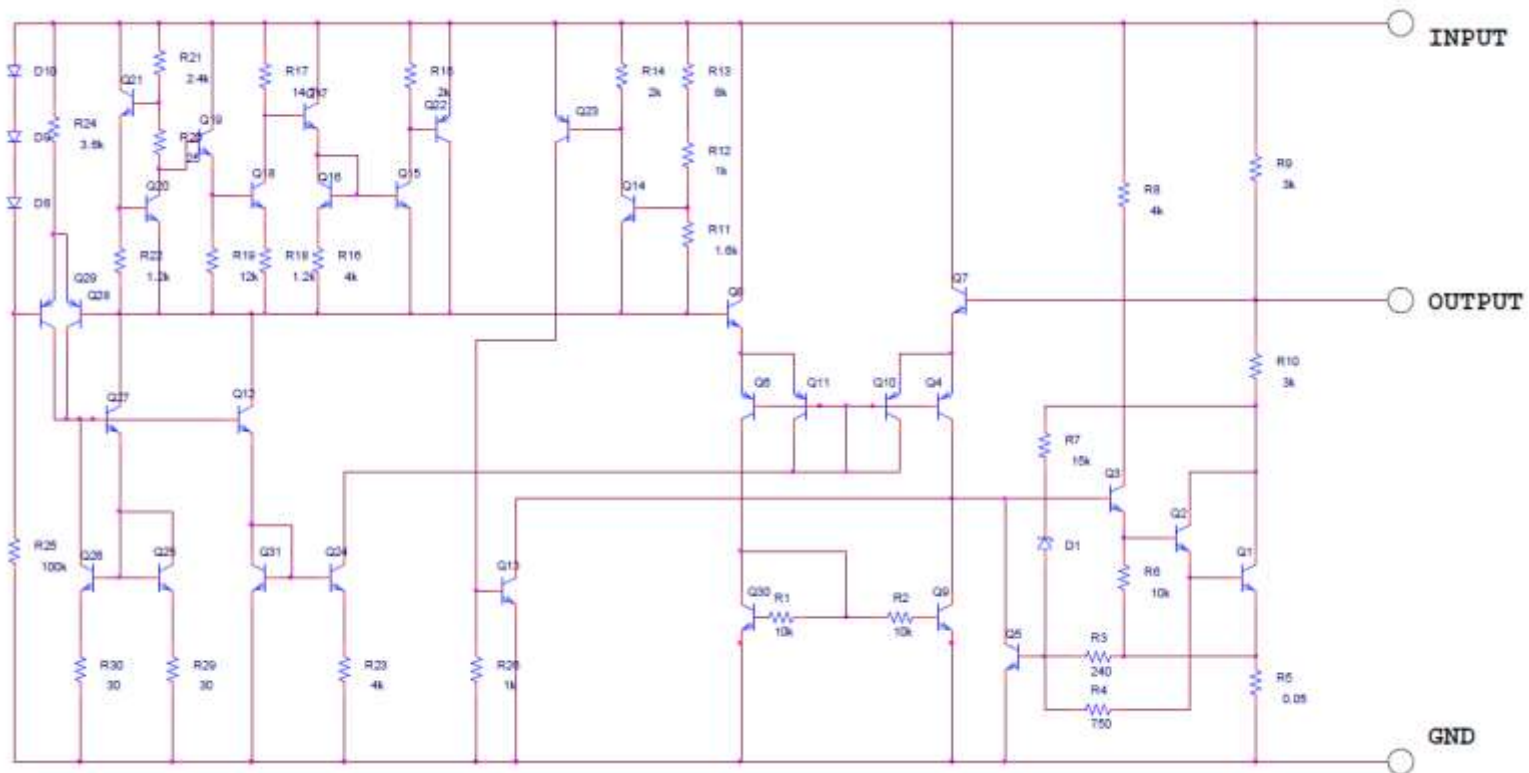
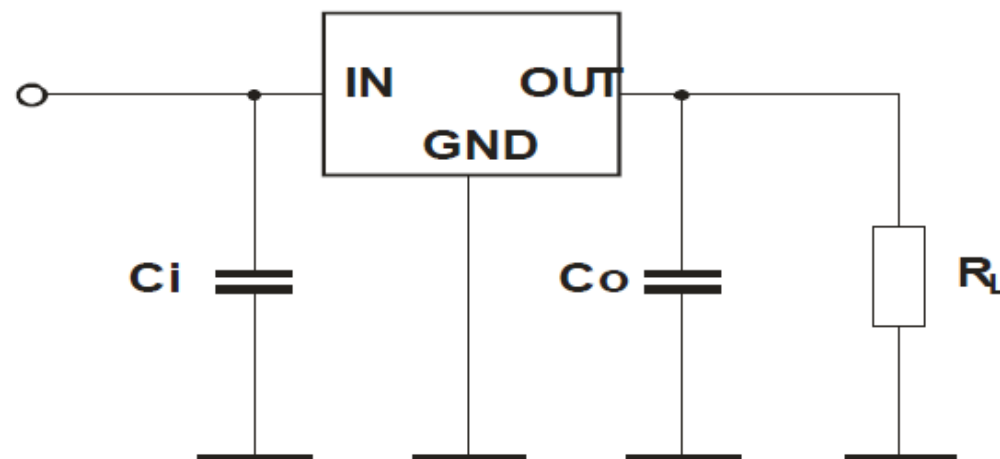


Fig.1

典型应用电路 Typical application circuit



$$C_i = 0.33\mu\text{F}, C_o = 0.1\mu\text{F}$$

Fig.2

绝对最大额定值 Absolute Maximum Rating (Ta = 25 °C unless otherwise noted)

| Parameter | Symbol | Limit | Unit | |
|--|------------------|-------------------------|------------|---|
| 输入电压 Input Voltage | V _{in} | for -5V to -12V -15V | -35 -40 | V |
| 功率损耗 Power Dissipation | P _D | Internal Limited | W | |
| 结温 Junction Temperature | T _j | +125 | °C | |
| 存储温度 Storage Temperature Range | T _{STG} | -65~+150 | °C | |
| 结-壳的热阻 Thermal Resistance -Junction to Case | R _{θJC} | 5 | °C/W | |
| 结-环境的热阻 Thermal Resistance -Junction to Ambient | R _{θJA} | 60 | °C/W | |

KA7905A电参数特性 Electrical Characteristics

(V_{in} = -10V, I_{out} = 500mA, 0 °C ≤ T_j ≤ 125 °C, C_{in} = 0.33uF, C_{out} = 0.1uF; unless otherwise specified.)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|-------------------------------------|---|----------------|----------|----------------|---------|
| 输出电压 Output voltage | V _{out} | T _j = 25 °C -7.0V ≤ V _{in} ≤ -20V, 5mA ≤ I _{out} ≤ 1A, P _D ≤ 15W | -4.80 -4.75 | -5 -5 | -5.20 -5.25 | V |
| 线性调节 Line Regulation | REG _{line} | T _j = 25 °C | | | | mV |
| | | -7.0V ≤ V _{in} ≤ -25V -8V ≤ V _{in} ≤ -12V | -- -- | 8 2 | 100 50 | |
| 负载调节 Load Regulation | REG _{load} | T _j = 25 °C | | | | mV |
| | | 5mA ≤ I _{out} ≤ 1A 250mA ≤ I _{out} ≤ 750mA | -- -- | 35 10 | 100 50 | |
| 静态电流 Quiescent Current | I _q | I _{out} = 0, T _j = 25 °C | -- | 3.2 | 8 | mA |
| 静态电流变化 Quiescent Current Change | ΔI _q | -7.0V ≤ V _{in} ≤ -25V 5mA ≤ I _{out} ≤ 1A | -- -- | -- -- | 1.3 0.5 | |
| 输出电压纹波 Output Noise Voltage | V _n | 10Hz ≤ f ≤ 100KHz, T _j = 25 °C | -- | 40 | -- | μV |
| 浪涌衰减 Ripple Rejection Ratio | RR | f = 120Hz, -8V ≤ V _{in} ≤ -18V | 62 | 74 | -- | dB |
| 衰减电压 Voltage Drop | V _{drop} | I _{out} = 1A, T _j = 25 °C | -- | 2 | -- | V |
| 短路电流 Output Short Circuit Current | I _{os} | T _j = 25 °C | -- | 200 | -- | mA |
| 峰值电流 Peak Output Current | I _{o peak} | T _j = 25 °C | -- | 2.2 | -- | A |
| 输出电压特性 Temperature Coefficient of Output Voltage | ΔV _{out} / ΔT _j | I _{out} = 5mA, 0 °C ≤ T _j ≤ 125 °C | -- | -0.2 | -- | mV / °C |

KA7912A电参数特性 Electrical Characteristics

($V_{in} = -19V$, $I_{out} = 500mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in} = 0.33\mu F$, $C_{out} = 0.1\mu F$; unless otherwise specified.)

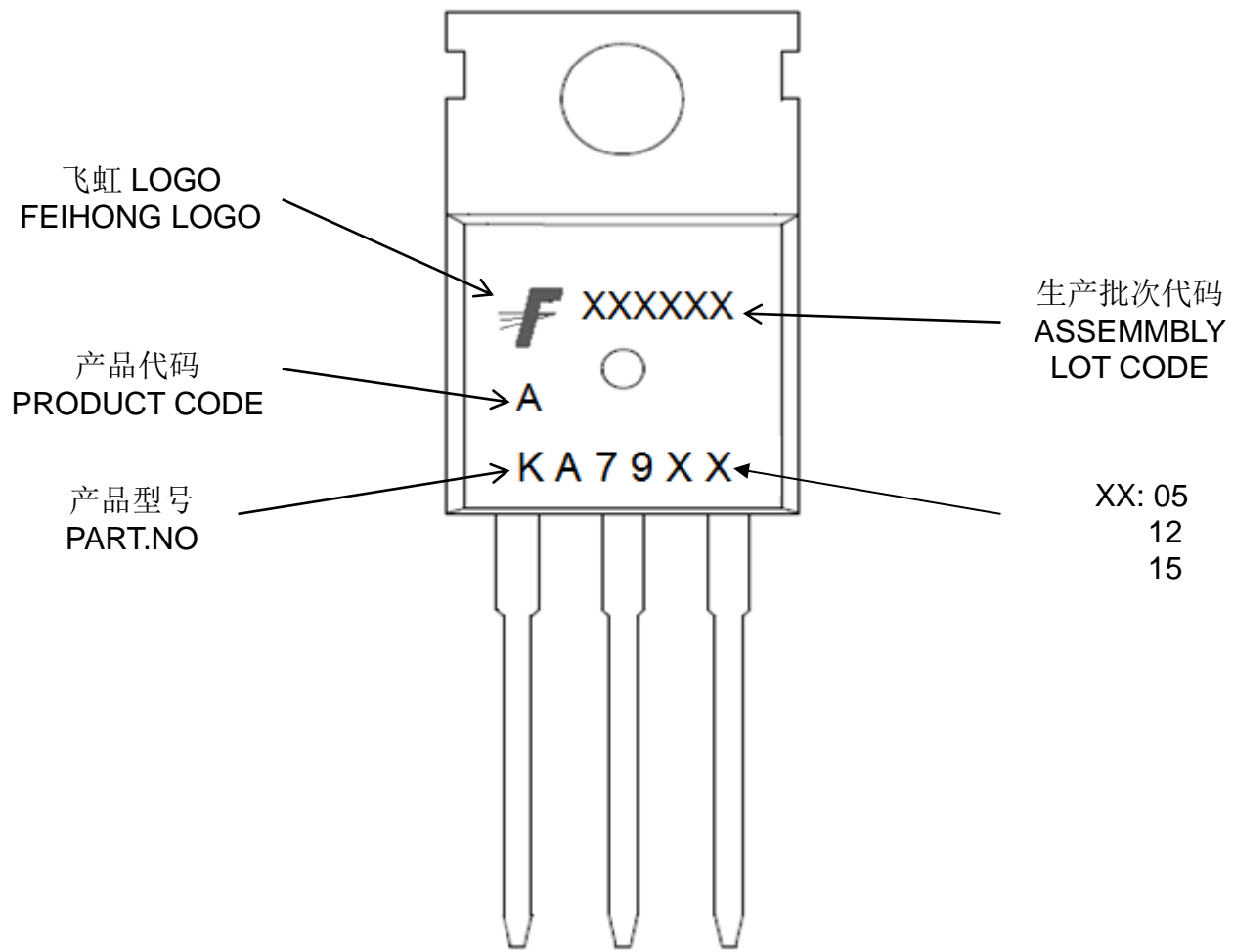
| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|-------------------------------|---|----------------|------------|----------------|--------------------|
| 输出电压 Output voltage | V_{out} | $T_j = 25^{\circ}C$ $-7.0V \leq V_{in} \leq -20V$, $5mA \leq I_{out} \leq 1A$, $PD \leq 15W$ | -11.5 -11.4 | -12 -12 | -12.5 -12.6 | V |
| 线性调节 Line Regulation | REGline | $T_j = 25^{\circ}C$ | | | | mV |
| | | $-14.5V \leq V_{in} \leq -30V$ $-16V \leq V_{in} \leq -22V$ | -- -- | 14 5 | 240 120 | |
| 负载调节 Load Regulation | REGload | $T_j = 25^{\circ}C$ | | | | mV |
| | | $5mA \leq I_{out} \leq 1A$ $250mA \leq I_{out} \leq 750mA$ | -- -- | 40 10 | 240 100 | |
| 静态电流 Quiescent Current | I_q | $I_{out} = 0$, $T_j = 25^{\circ}C$ | -- | 3.2 | 8 | mA |
| 静态电流变化 Quiescent Current Change | ΔI_q | $-7.0V \leq V_{in} \leq -25V$ $5mA \leq I_{out} \leq 1A$ | -- -- | -- -- | 1.3 0.5 | |
| 输出电压纹波 Output Noise Voltage | V_n | $10Hz \leq f \leq 100KHz$, $T_j = 25^{\circ}C$ | -- | 40 | -- | μV |
| 浪涌衰减 Ripple Rejection Ratio | RR | $f = 120Hz$, $-8V \leq V_{in} \leq -18V$ | 62 | 74 | -- | dB |
| 衰减电压 Voltage Drop | V_{drop} | $I_{out} = 1A$, $T_j = 25^{\circ}C$ | -- | 2 | -- | V |
| 短路电流 Output Short Circuit Current | I_{os} | $T_j = 25^{\circ}C$ | -- | 200 | -- | mA |
| 峰值电流 Peak Output Current | $I_{o peak}$ | $T_j = 25^{\circ}C$ | -- | 2.2 | -- | A |
| 输出电压特性 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/ $^{\circ}C$ |

KA7915A电参数特性 Electrical Characteristics

($V_{in} = -19V$, $I_{out} = 500mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in} = 0.33\mu F$, $C_{out} = 0.1\mu F$; unless otherwise specified.)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|-------------------------------|---|-----------------|------------|-----------------|--------------------|
| 输出电压 Output voltage | V_{out} | $T_j = 25^{\circ}C$ $-7.0V \leq V_{in} \leq -20V$, $5mA \leq I_{out} \leq 1A$, $PD \leq 15W$ | -14.4 -14.25 | -15 -15 | -15.6 -15.75 | V |
| 线性调节 Line Regulation | REGline | $T_j = 25^{\circ}C$ | | | | mV |
| | | $-17.5V \leq V_{in} \leq -30V$ $-20V \leq V_{in} \leq -26V$ | -- -- | 15 5 | 300 150 | |
| 负载调节 Load Regulation | REGload | $T_j = 25^{\circ}C$ | | | | mV |
| | | $5mA \leq I_{out} \leq 1A$ $250mA \leq I_{out} \leq 750mA$ | -- -- | 50 10 | 300 150 | |
| 静态电流 Quiescent Current | I_q | $I_{out} = 0$, $T_j = 25^{\circ}C$ | -- | 3.2 | 8 | mA |
| 静态电流变化 Quiescent Current Change | ΔI_q | $-7.0V \leq V_{in} \leq -25V$ $5mA \leq I_{out} \leq 1A$ | -- -- | -- -- | 1.3 0.5 | |
| 输出电压纹波 Output Noise Voltage | V_n | $10Hz \leq f \leq 100KHz$, $T_j = 25^{\circ}C$ | -- | 40 | -- | μV |
| 浪涌衰减 Ripple Rejection Ratio | RR | $f = 120Hz$, $-8V \leq V_{in} \leq -18V$ | 62 | 74 | -- | dB |
| 衰减电压 Voltage Drop | V_{drop} | $I_{out} = 1A$, $T_j = 25^{\circ}C$ | -- | 2 | -- | V |
| 短路电流 Output Short Circuit Current | I_{os} | $T_j = 25^{\circ}C$ | -- | 200 | -- | mA |
| 峰值电流 Peak Output Current | $I_{o peak}$ | $T_j = 25^{\circ}C$ | -- | 2.2 | -- | A |
| 输出电压特性 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/ $^{\circ}C$ |

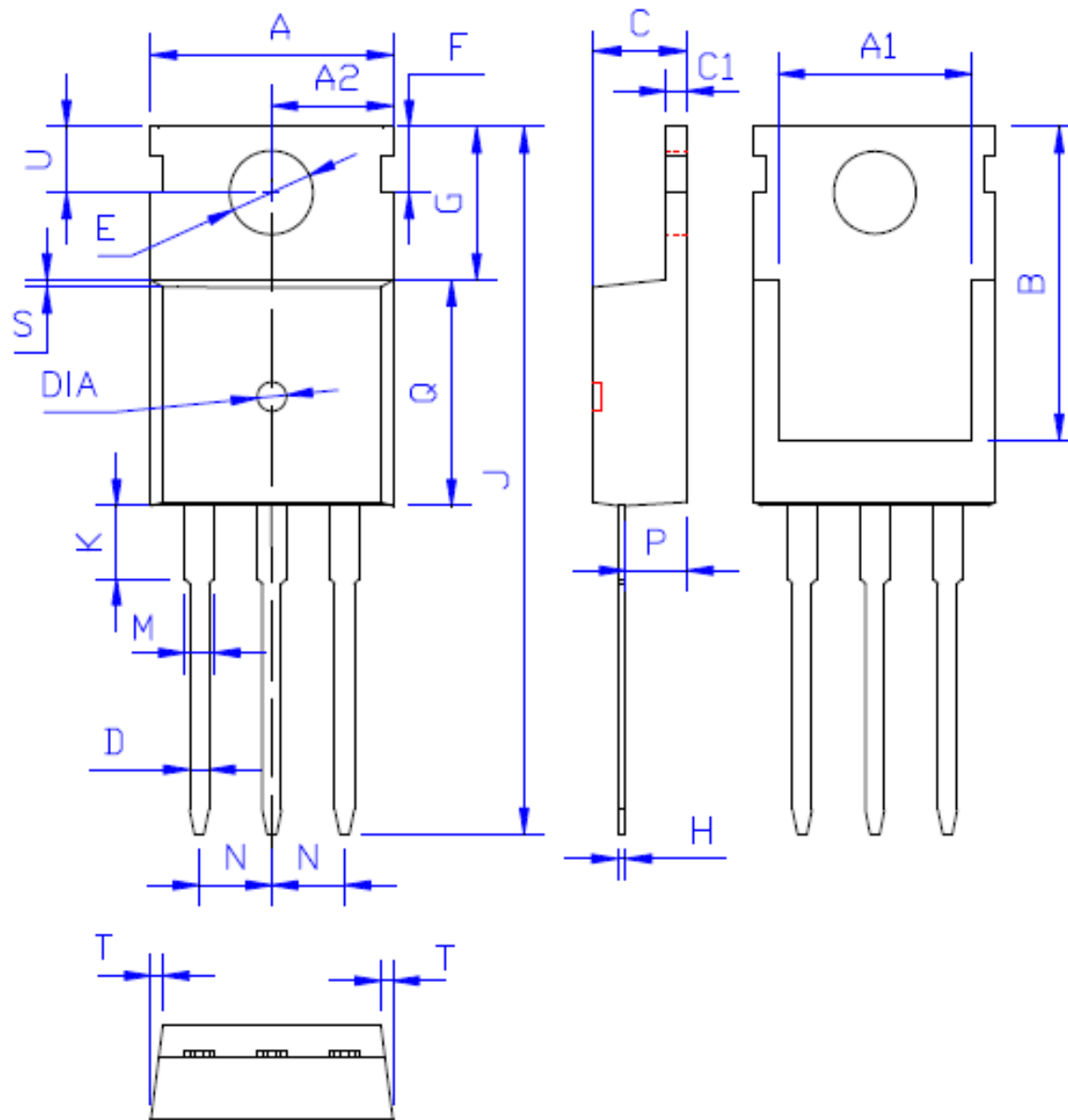
印记 Marking:



外形尺寸:

Package Dimension:

TO-220



| DIM | MILLIMETERS |
|-----|-----------------------------|
| A | 10.00 ± 0.30 |
| A1 | 8.00 ± 0.30 |
| A2 | 5.00 ± 0.30 |
| B | 13.20 ± 0.40 |
| C | 4.50 ± 0.20 |
| C1 | 1.30 ± 0.20 |
| D | 0.80 ± 0.20 |
| E | 3.60 ± 0.20 |
| F | 3.00 ± 0.30 |
| G | 6.60 ± 0.40 |
| H | 0.50 ± 0.20 |
| J | 28.88 ± 0.50 |
| K | 3.00 ± 0.30 |
| M | 1.30 ± 0.30 |
| N | Typical 2.54 |
| P | 2.40 ± 0.40 |
| Q | 9.20 ± 0.40 |
| S | 0.25 ± 0.15 |
| T | 0.25 ± 0.15 |
| U | 2.80 ± 0.30 |
| DIA | 宽 1.50 ± 0.10 深 0.50 MAX |

(Unit: mm)

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