

1A THREE TERMINAL NEGATIVE VOLTAGE REGULATORS -5V, -6V, -7V, -8V, -9V, -10V, -12V, -15V, -18V, -20V, -24V.

FEATURES

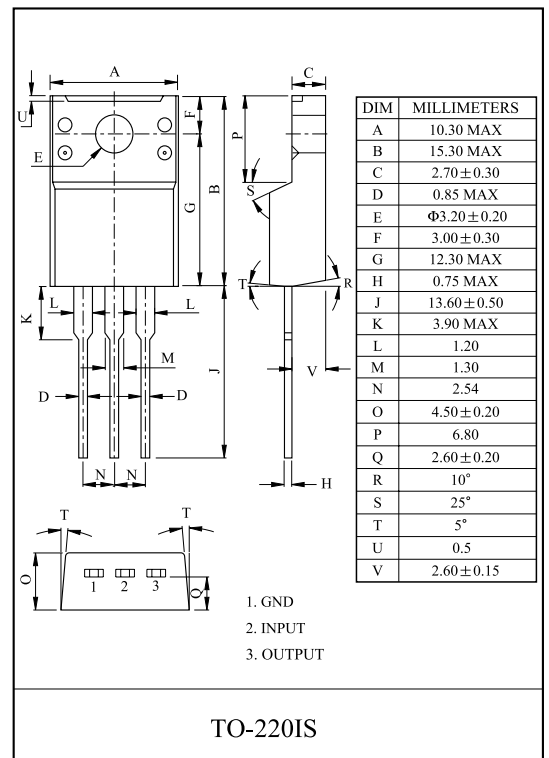
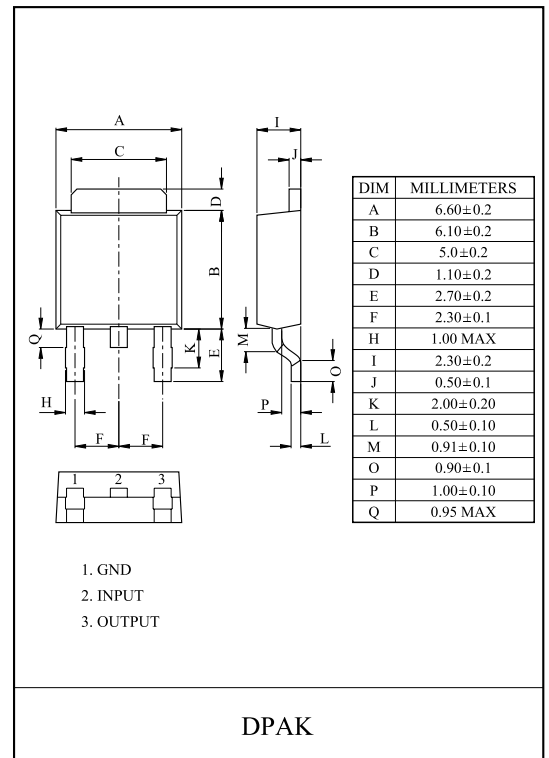
- Suitable for C-MOS, TTL, and the other digital IC power supply.
- Internal thermal overload protecting.
- Internal short circuit current limiting.
- Output current in excess of 1.0A.

LINE-UP

| ITEM | OUTPUT VOLTAGE (Typ.) | UNIT |
|-------------|-----------------------|---------------------------|
| KIA7905F/PI | -5 | F : DPAK PI : TO-220IS |
| KIA7906F/PI | -6 | |
| KIA7907F/PI | -7 | |
| KIA7908F/PI | -8 | |
| KIA7909F/PI | -9 | |
| KIA7910F/PI | -10 | |
| KIA7912F/PI | -12 | |
| KIA7915F/PI | -15 | |
| KIA7918F/PI | -18 | |
| KIA7920F/PI | -20 | |
| KIA7924F/PI | -24 | |

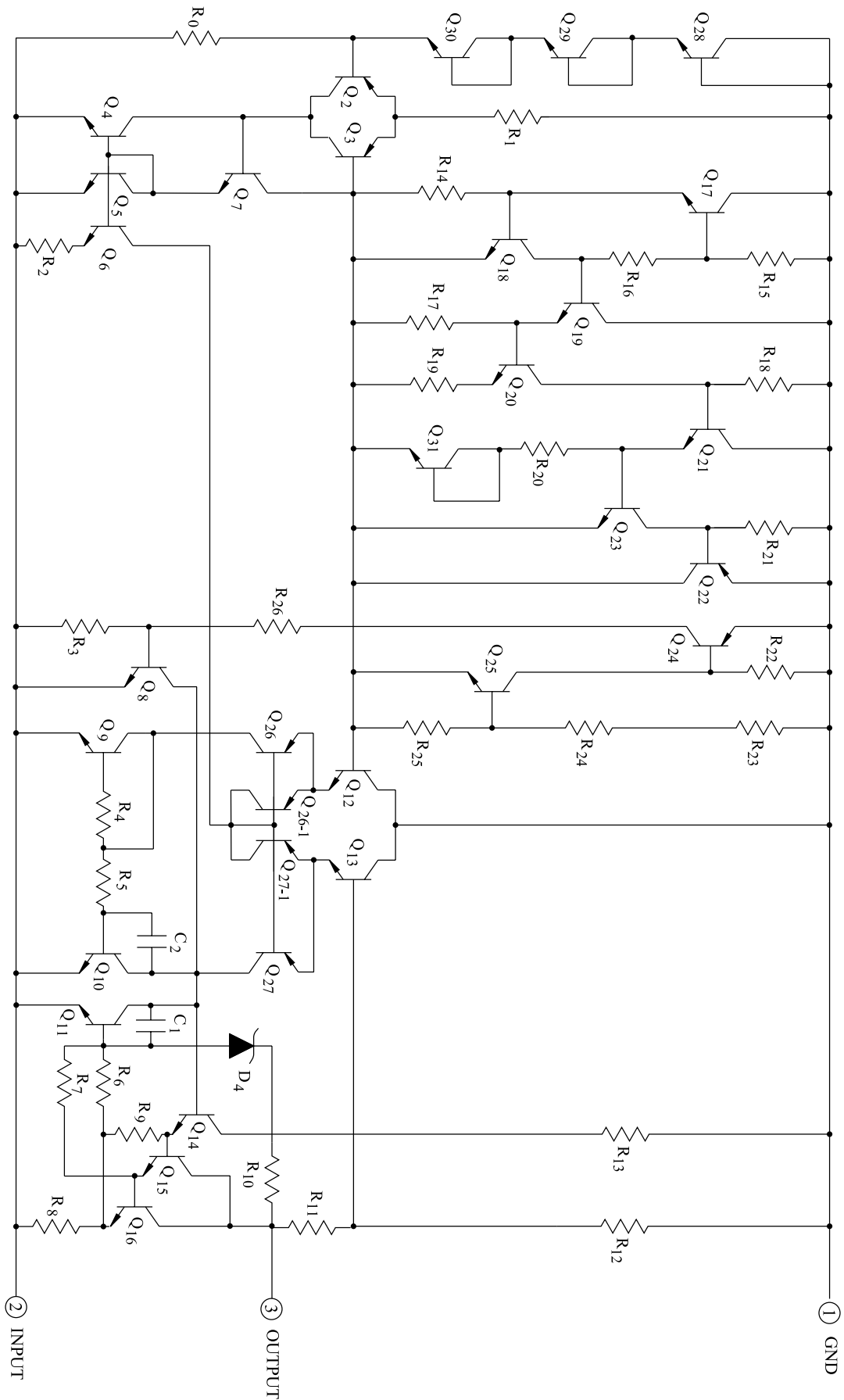
MAXIMUM RATINGS (Ta=25)

| CHARACTERISTIC | | SYMBOL | RATING | UNIT |
|--------------------------------------------|------------------|-----------------|--------|------|
| Input Voltage | KIA7905 | V _{IN} | -35 | V |
| | KIA7915 | | | |
| | KIA7918 | | -40 | |
| | KIA7924 | | | |
| Power Dissipation-1 (No Heatsink) | F | P _{D1} | 1.3 | W |
| | PI | | 2.0 | |
| Power Dissipation-2 (Infinite Heatsink) | F | P _{D2} | 12.0 | W |
| | PI | | 20.8 | |
| Operating Junction Temperature | T _j | -30 150 | | |
| Operating Temperature | T _{opr} | -30 75 | | |
| Storage Temperature | T _{stg} | -55 150 | | |



KIA7905F/PI~KIA7924F/PI

EQUIVALENT CIRCUIT



KIA7905F/PI~KIA7924F/PI

ELECTRICAL CHARACTERISTICS

KIA7905F/PI

(Unless otherwise specified, $V_{IN}=-10V$, $I_{OUT}=500mA$, $\theta = 125$, $C_{IN}=2.2\mu F$, $C_{OUT}=1\mu F$)

| CHARACTERISTIC | SYMBOL | TEST CIRCUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT | |
|---------------------------------------------------|-----------|--------------|-----------------------------------------|-----------------------|------|-------|---------------|----|
| Output Voltage | V_{OUT} | Fig.1 | $T_j=25$ | -5.2 | -5.0 | -4.8 | V | |
| Input Regulation | Reg line | Fig.1 | $T_j=25$ | -12V V_{IN} -8V | - | 5 | 50 | mV |
| | | | | -25V V_{IN} -7V | - | 10 | 100 | |
| Load Regulation | Reg load | Fig.1 | $T_j=25$ | 5mA I_{OUT} 1.5A | - | 10 | 100 | mV |
| | | | | 250mA I_{OUT} 750mA | - | 3 | 50 | |
| Output Voltage | V_{OUT} | Fig.1 | -20V V_{IN} -7V 5mA I_{OUT} 1.0A | -5.25 | -5.0 | -4.75 | V | |
| Quiescent Current | I_B | Fig.1 | $T_j=25$ | - | 3 | 6 | mA | |
| Quiescent Current Change | I_{BI} | Fig.1 | $T_j=25$ | -25V V_{IN} -8V | - | 0.1 | 1.3 | mA |
| | I_{BO} | | | 5mA I_{OUT} 1.0A | - | 0.05 | 0.5 | |
| Output Noise Voltage | V_{NO} | Fig.2 | $T_a=25$, 10Hz f 100kHz | - | 100 | - | μV_{rms} | |
| Ripple Rejection Ratio | RR | Fig.3 | $f=120Hz$, $I_{OUT}=20mA$, | 54 | 60 | - | dB | |
| Short Circuit Current Limit | I_{SC} | Fig.1 | $T_j=25$ | - | 1.9 | - | A | |
| Average Temperature Coefficient of Output Voltage | T_{CVO} | Fig.1 | $I_{OUT}=5.0mA$ | - | -0.4 | - | mV/ | |
| Dropout Voltage | V_D | Fig.1 | $T_j=25$, $I_{OUT}=1A$ | - | 2.0 | - | V | |

KIA7905F/PI~KIA7924F/PI

ELECTRICAL CHARACTERISTICS

KIA7906F/PI

(Unless otherwise specified, $V_{IN}=-11V$, $I_{OUT}=500mA$, $0 < T_j < 125$, $C_{IN}=2.2 \mu F$, $C_{OUT}=1 \mu F$)

| CHARACTERISTIC | | SYMBOL | TEST CIRCUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT | |
|---------------------------------------------------|--|-----------|--------------|-----------------------------------------|-----------------------|------|-------|---------------|----|
| Output Voltage | | V_{OUT} | Fig.1 | $T_j=25$ | -6.25 | -6.0 | -5.75 | V | |
| Input Regulation | | Reg line | Fig.1 | $T_j=25$ | -13V V_{IN} -9V | - | 5 | 60 | mV |
| | | | | | -25V V_{IN} -8V | - | 10 | 120 | |
| Load Regulation | | Reg load | Fig.1 | $T_j=25$ | 5mA I_{OUT} 1.5A | - | 10 | 120 | mV |
| | | | | | 250mA I_{OUT} 750mA | - | 3 | 60 | |
| Output Voltage | | V_{OUT} | Fig.1 | -21V V_{IN} -9V 5mA I_{OUT} 1.0A | -6.3 | -6.0 | -5.7 | V | |
| Quiescent Current | | I_B | Fig.1 | $T_j=25$ | - | 3 | 6 | mA | |
| Quiescent Current Change | | Line | Fig.1 | $T_j=25$ | -25V V_{IN} -9V | - | - | 1.3 | mA |
| | | Load | | | 5mA I_{OUT} 1.0A | - | - | 0.5 | |
| Output Noise Voltage | | V_{NO} | Fig.2 | $T_a=25$, 10Hz f 100kHz | - | 130 | - | μV_{rms} | |
| Ripple Rejection Ratio | | RR | Fig.3 | $f=120Hz$, $I_{OUT}=20mA$, | 54 | 60 | - | dB | |
| Short Circuit Current Limit | | I_{SC} | Fig.1 | $T_j=25$ | - | 1.9 | - | A | |
| Average Temperature Coefficient of Output Voltage | | T_{CVO} | Fig.1 | $I_{OUT}=5mA$ | - | -0.5 | - | mV/ | |
| Dropout Voltage | | V_D | Fig.1 | $T_j=25$, $I_{OUT}=1A$ | - | 2.0 | - | V | |

KIA7905F/PI~KIA7924F/PI

ELECTRICAL CHARACTERISTICS

KIA7907F/PI

(Unless otherwise specified, $V_{IN}=-12V$, $I_{OUT}=500mA$, $0 < T_j < 125$, $C_{IN}=2.2 \mu F$, $C_{OUT}=1 \mu F$)

| CHARACTERISTIC | | SYMBOL | TEST CIRCUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT | |
|---------------------------------------------------|--|-----------|--------------|-----------------------------------------|-----------------------|------|-------|---------------|----------|
| Output Voltage | | V_{OUT} | Fig.1 | $T_j=25$ | -7.28 | -7.0 | -6.72 | V | |
| Input Regulation | | Reg line | Fig.1 | $T_j=25$ | -15V V_{IN} -10V | - | 10 | 70 | mV |
| | | | | | -25V V_{IN} -9V | - | 45 | 140 | |
| Load Regulation | | Reg load | Fig.1 | $T_j=25$ | 5mA I_{OUT} 1.5A | - | 20 | 140 | mV |
| | | | | | 250mA I_{OUT} 750mA | - | 7 | 70 | |
| Output Voltage | | V_{OUT} | Fig.1 | -22V V_{IN} -9V 5mA I_{OUT} 1.0A | -7.35 | - | -6.65 | V | |
| Quiescent Current | | I_B | Fig.1 | $T_j=25$ | - | 4.3 | 8.0 | mA | |
| Quiescent Current Change | | Line | Fig.1 | -25V V_{IN} -9V 5mA I_{OUT} 1.0A | - | - | 1.0 | mA | |
| | | Load | | | | | | | I_{BO} |
| Output Noise Voltage | | V_{NO} | Fig.2 | $T_a=25$, 10Hz f 100kHz | - | 49 | - | μV_{rms} | |
| Ripple Rejection Ratio | | RR | Fig.3 | $f=120Hz$, $I_{OUT}=20mA$, | 60 | 67 | - | dB | |
| Short Circuit Current Limit | | I_{SC} | Fig.1 | $T_j=25$ | - | 1.9 | - | A | |
| Average Temperature Coefficient of Output Voltage | | T_{CVO} | Fig.1 | $I_{OUT}=5mA$ | - | 0.9 | - | mV/ | |
| Dropout Voltage | | V_D | Fig.1 | $T_j=25$, $I_{OUT}=1A$ | - | 2.0 | - | V | |

KIA7905F/PI~KIA7924F/PI

ELECTRICAL CHARACTERISTICS

KIA7908F/PI

(Unless otherwise specified, $V_{IN}=-14V$, $I_{OUT}=500mA$, $0 < T_j < 125$, $C_{IN}=2.2\mu F$, $C_{OUT}=1\mu F$)

| CHARACTERISTIC | | SYMBOL | TEST CIRCUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT | |
|---------------------------------------------------|--|-----------|--------------|--------------------------------------------|-----------------------|------|------|---------------|----|
| Output Voltage | | V_{OUT} | Fig.1 | $T_j=25$ | -8.3 | -8.0 | -7.7 | V | |
| Input Regulation | | Reg line | Fig.1 | $T_j=25$ | -17V V_{IN} -11V | - | 5 | 80 | mV |
| | | | | | -25V V_{IN} -10.5V | - | 10 | 100 | |
| Load Regulation | | Reg load | Fig.1 | $T_j=25$ | 5mA I_{OUT} 1.5A | - | 12 | 160 | mV |
| | | | | | 250mA I_{OUT} 750mA | - | 4 | 80 | |
| Output Voltage | | V_{OUT} | Fig.1 | -23V V_{IN} -11.5V 5mA I_{OUT} 1.0A | -8.4 | -8.0 | -7.6 | V | |
| Quiescent Current | | I_B | Fig.1 | $T_j=25$ | - | 3 | 6 | mA | |
| Quiescent Current Change | | Line | Fig.1 | $T_j=25$ | -25V V_{IN} -11.5V | - | 0.1 | 1.0 | mA |
| | | Load | | | 5mA I_{OUT} 1.0A | - | 0.05 | 0.5 | |
| Output Noise Voltage | | V_{NO} | Fig.2 | $T_a=25$, 10Hz f 100kHz | - | 175 | - | μV_{rms} | |
| Ripple Rejection Ratio | | RR | Fig.3 | $f=120Hz$, $I_{OUT}=20mA$, | 54 | 60 | - | dB | |
| Short Circuit Current Limit | | I_{SC} | Fig.1 | $T_j=25$ | - | 1.9 | - | A | |
| Average Temperature Coefficient of Output Voltage | | T_{CVO} | Fig.1 | $I_{OUT}=5mA$ | - | -0.6 | - | mV/ | |
| Dropout Voltage | | V_D | Fig.1 | $T_j=25$, $I_{OUT}=1A$ | - | 2.0 | - | V | |

KIA7905F/PI~KIA7924F/PI

ELECTRICAL CHARACTERISTICS

KIA7909F/PI

(Unless otherwise specified, $V_{IN}=-15V$, $I_{OUT}=500mA$, $\theta = 125$, $C_{IN}=2.2\mu F$, $C_{OUT}=1\mu F$)

| CHARACTERISTIC | | SYMBOL | TEST CIRCUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT | |
|---------------------------------------------------|--|-----------|--------------|--------------------------------------------|-----------------------|------|------|---------------|----|
| Output Voltage | | V_{OUT} | Fig.1 | $T_j=25$ | -9.3 | -9.0 | -8.7 | V | |
| Input Regulation | | Reg line | Fig.1 | $T_j=25$ | -19V V_{IN} -13V | - | 5 | 90 | mV |
| | | | | | -26V V_{IN} -11.5V | - | 10 | 100 | |
| Load Regulation | | Reg load | Fig.1 | $T_j=25$ | 5mA I_{OUT} 1.5A | - | 10 | 150 | mV |
| | | | | | 250mA I_{OUT} 750mA | - | 5 | 120 | |
| Output Voltage | | V_{OUT} | Fig.1 | -24V V_{IN} -11.5V 5mA I_{OUT} 1.0A | -9.4 | -9.0 | -8.6 | V | |
| Quiescent Current | | I_B | Fig.1 | $T_j=25$ | - | 3 | 6 | mA | |
| Quiescent Current Change | | Line | Fig.1 | $T_j=25$ | -26.5V V_{IN} -13V | - | 0.1 | 1.0 | mA |
| | | Load | | | 5mA I_{OUT} 1.0A | - | 0.05 | 0.5 | |
| Output Noise Voltage | | V_{NO} | Fig.2 | $T_a=25$, 10Hz f 100kHz | - | 180 | - | μV_{rms} | |
| Ripple Rejection Ratio | | RR | Fig.3 | $f=120Hz$, $I_{OUT}=20mA$, | 54 | 60 | - | dB | |
| Short Circuit Current Limit | | I_{SC} | Fig.1 | $T_j=25$ | - | 1.9 | - | A | |
| Average Temperature Coefficient of Output Voltage | | T_{CVO} | Fig.1 | $I_{OUT}=5mA$ | - | -0.7 | - | mV/ | |
| Dropout Voltage | | V_D | Fig.1 | $T_j=25$, $I_{OUT}=1A$ | - | 2.0 | - | V | |

KIA7905F/PI~KIA7924F/PI

ELECTRICAL CHARACTERISTICS

KIA7910F/PI

(Unless otherwise specified, $V_{IN}=-16V$, $I_{OUT}=500mA$, θ T_j 125 , $C_{IN}=2.2\mu F$, $C_{OUT}=1\mu F$)

| CHARACTERISTIC | | SYMBOL | TEST CIRCUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---------------------------------------------------|----------|-----------|--------------|--------------------------------------------|-------|------|------|---------------|
| Output Voltage | | V_{OUT} | Fig.1 | $T_j=25$ | -10.4 | -10 | -9.6 | V |
| Input Regulation | Reg line | Fig.1 | $T_j=25$ | -20V V_{IN} -14V | - | 5 | 100 | mV |
| | | | | -27V V_{IN} -12.5V | - | 10 | 110 | |
| Load Regulation | Reg load | Fig.1 | $T_j=25$ | 5mA I_{OUT} 1.5A | - | 10 | 180 | mV |
| | | | | 250mA I_{OUT} 750mA | - | 6 | 120 | |
| Output Voltage | | V_{OUT} | Fig.1 | -25V V_{IN} -12.5V 5mA I_{OUT} 1.0A | -10.5 | -10 | -9.5 | V |
| Quiescent Current | | I_B | Fig.1 | $T_j=25$ | - | 3 | 6 | mA |
| Quiescent Current Change | Line | I_{BI} | Fig.1 | -27.5V V_{IN} -14V | - | 0.1 | 1.0 | mA |
| | Load | I_{BO} | | 5mA I_{OUT} 1.0A | - | 0.05 | 0.5 | |
| Output Noise Voltage | | V_{NO} | Fig.2 | $T_a=25$, 10Hz f 100kHz | - | 190 | - | μV_{rms} |
| Ripple Rejection Ratio | | RR | Fig.3 | $f=120Hz$, $I_{OUT}=20mA$ | 54 | 60 | - | dB |
| Short Circuit Current Limit | | I_{SC} | Fig.1 | $T_j=25$ | - | 1.9 | - | A |
| Average Temperature Coefficient of Output Voltage | | T_{CVO} | Fig.1 | $I_{OUT}=5mA$ | - | -0.7 | - | mV/ |
| Dropout Voltage | | V_D | Fig.1 | $T_j=25$, $I_{OUT}=1A$ | - | 2.0 | - | V |

KIA7905F/PI~KIA7924F/PI

ELECTRICAL CHARACTERISTICS

KIA7912F/PI

(Unless otherwise specified, $V_{IN}=-18V$, $I_{OUT}=500mA$, $\theta = 125$, $C_{IN}=2.2\mu F$, $C_{OUT}=1\mu F$)

| CHARACTERISTIC | | SYMBOL | TEST CIRCUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT | |
|---------------------------------------------------|--|-----------|--------------|--------------------------------------------|-----------------------|------|-------|---------------|----|
| Output Voltage | | V_{OUT} | Fig.1 | $T_j=25$ | -12.5 | -12 | -11.5 | V | |
| Input Regulation | | Reg line | Fig.1 | $T_j=25$ | -22V V_{IN} -16V | - | 6 | 120 | mV |
| | | | | | -30V V_{IN} -14.5V | - | 12 | 240 | |
| Load Regulation | | Reg load | Fig.1 | $T_j=25$ | 5mA I_{OUT} 1.5A | - | 12 | 240 | mV |
| | | | | | 250mA I_{OUT} 750mA | - | 4 | 120 | |
| Output Voltage | | V_{OUT} | Fig.1 | -27V V_{IN} -15.5V 5mA I_{OUT} 1.0A | -12.6 | -12 | -11.4 | V | |
| Quiescent Current | | I_B | Fig.1 | $T_j=25$ | - | 3 | 6 | mA | |
| Quiescent Current Change | | Line | Fig.1 | $T_j=25$ | -30V V_{IN} -15V | - | 0.1 | 1.0 | mA |
| | | Load | | | 5mA I_{OUT} 1.0A | - | 0.05 | 0.5 | |
| Output Noise Voltage | | V_{NO} | Fig.2 | $T_a=25$, 10Hz f 100kHz | - | 200 | - | μV_{rms} | |
| Ripple Rejection Ratio | | RR | Fig.3 | $f=120Hz$, $I_{OUT}=20mA$, | 54 | 60 | - | dB | |
| Short Circuit Current Limit | | I_{SC} | Fig.1 | $T_j=25$ | - | 1.9 | - | A | |
| Average Temperature Coefficient of Output Voltage | | T_{CVO} | Fig.1 | $I_{OUT}=5mA$ | - | -0.8 | - | mV/ | |
| Dropout Voltage | | V_D | Fig.1 | $T_j=25$, $I_{OUT}=1A$ | - | 2.0 | - | V | |

KIA7905F/PI~KIA7924F/PI

ELECTRICAL CHARACTERISTICS

KIA7915F/PI

(Unless otherwise specified, $V_{IN}=-23V$, $I_{OUT}=500mA$, $0 < T_j < 125$, $C_{IN}=2.2 \mu F$, $C_{OUT}=1 \mu F$)

| CHARACTERISTIC | | SYMBOL | TEST CIRCUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT | |
|---------------------------------------------------|--|-----------|--------------|------------------------------------------|-----------------------|------|--------|---------------|----|
| Output Voltage | | V_{OUT} | Fig.1 | $T_j=25$ | -15.6 | -15 | -14.4 | V | |
| Input Regulation | | Reg line | Fig.1 | $T_j=25$ | -26V V_{IN} -20V | - | 6 | 150 | mV |
| | | | | | -30V V_{IN} -17.5V | - | 12 | 300 | |
| Load Regulation | | Reg load | Fig.1 | $T_j=25$ | 5mA I_{OUT} 1.5A | - | 12 | 300 | mV |
| | | | | | 250mA I_{OUT} 750mA | - | 4 | 150 | |
| Output Voltage | | V_{OUT} | Fig.1 | -30V V_{IN} -18V 5mA I_{OUT} 1.0A | -15.75 | -15 | -14.25 | V | |
| Quiescent Current | | I_B | Fig.1 | $T_j=25$ | - | 3 | 6 | mA | |
| Quiescent Current Change | | Line | Fig.1 | $T_j=25$ | -30V V_{IN} -17.5V | - | 0.1 | 1.0 | mA |
| | | Load | | | 5mA I_{OUT} 1.0A | - | 0.05 | 0.5 | |
| Output Noise Voltage | | V_{NO} | Fig.2 | $T_a=25$, 10Hz f 100kHz | - | 250 | - | μV_{rms} | |
| Ripple Rejection Ratio | | RR | Fig.3 | $f=120Hz$, $I_{OUT}=20mA$, | 54 | 60 | - | dB | |
| Short Circuit Current Limit | | I_{SC} | Fig.1 | $T_j=25$ | - | 1.9 | - | A | |
| Average Temperature Coefficient of Output Voltage | | T_{CVO} | Fig.1 | $I_{OUT}=5mA$ | - | -0.9 | - | mV/ | |
| Dropout Voltage | | V_D | Fig.1 | $T_j=25$, $I_{OUT}=1A$ | - | 2.0 | - | V | |

KIA7905F/PI~KIA7924F/PI

ELECTRICAL CHARACTERISTICS

KIA7918F/PI

(Unless otherwise specified, $V_{IN}=-27V$, $I_{OUT}=500mA$, $\theta_{Tj} = 125$, $C_{IN}=2.2\mu F$, $C_{OUT}=1\mu F$)

| CHARACTERISTIC | | SYMBOL | TEST CIRCUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT | |
|---------------------------------------------------|--|-----------|--------------|--------------------------------------------|-----------------------|------|--------|---------------|--------------------|
| Output Voltage | | V_{OUT} | Fig.1 | $T_j=25$ | -18.7 | -18 | -17.3 | V | |
| Input Regulation | | Reg line | Fig.1 | $T_j=25$ | -30V V_{IN} -24V | - | 8 | 180 | mV |
| | | | | | -33V V_{IN} -21V | - | 15 | 360 | |
| Load Regulation | | Reg load | Fig.1 | $T_j=25$ | 5mA I_{OUT} 1.5A | - | 15 | 360 | mV |
| | | | | | 250mA I_{OUT} 750mA | - | 5 | 180 | |
| Output Voltage | | V_{OUT} | Fig.1 | -33V V_{IN} -22.5V 5mA I_{OUT} 1.0A | -18.85 | -18 | -17.15 | V | |
| Quiescent Current | | I_B | Fig.1 | $T_j=25$ | - | 3 | 6 | mA | |
| Quiescent Current Change | | Line | Fig.1 | -33V V_{IN} -22V | - | - | 1.0 | mA | |
| | | Load | | | | | | | 5mA I_{OUT} 1.0A |
| Output Noise Voltage | | V_{NO} | Fig.2 | $T_a=25$, 10Hz f 100kHz | - | 300 | - | μV_{rms} | |
| Ripple Rejection Ratio | | RR | Fig.3 | $f=120Hz$, $I_{OUT}=20mA$, | 54 | 60 | - | dB | |
| Short Circuit Current Limit | | I_{SC} | Fig.1 | $T_j=25$ | - | 1.9 | - | A | |
| Average Temperature Coefficient of Output Voltage | | T_{CVO} | Fig.1 | $I_{OUT}=5mA$ | - | -1.0 | - | mV/ | |
| Dropout Voltage | | V_D | Fig.1 | $T_j=25$, $I_{OUT}=1A$ | - | 2.0 | - | V | |

KIA7905F/PI~KIA7924F/PI

ELECTRICAL CHARACTERISTICS

KIA7920F/PI

(Unless otherwise specified, $V_{IN}=-30V$, $I_{OUT}=500mA$, $0 < T_j < 125$, $C_{IN}=2.2\mu F$, $C_{OUT}=1\mu F$)

| CHARACTERISTIC | | SYMBOL | TEST CIRCUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT | |
|---------------------------------------------------|--|-----------|--------------|--------------------------------------------|-----------------------|------|-------|---------------|--------------------|
| Output Voltage | | V_{OUT} | Fig.1 | $T_j=25$ | -20.8 | -20 | -19.2 | V | |
| Input Regulation | | Reg line | Fig.1 | $T_j=25$ | -32V V_{IN} -26V | - | 10 | 180 | mV |
| | | | | | -35V V_{IN} -24V | - | 18 | 360 | |
| Load Regulation | | Reg load | Fig.1 | $T_j=25$ | 5mA I_{OUT} 1.5A | - | 18 | 360 | mV |
| | | | | | 250mA I_{OUT} 750mA | - | 10 | 180 | |
| Output Voltage | | V_{OUT} | Fig.1 | -35V V_{IN} -24 5mA I_{OUT} 1.0A | -21.0 | -20 | -19.0 | V | |
| Quiescent Current | | I_B | Fig.1 | $T_j=25$ | - | 3 | 6 | mA | |
| Quiescent Current Change | | Line | Fig.1 | -36.5V V_{IN} -25V 5mA I_{OUT} 1.0A | - | - | 1.0 | mA | |
| | | Load | | | | | | | 5mA I_{OUT} 1.0A |
| Output Noise Voltage | | V_{NO} | Fig.2 | $T_a=25$, 10Hz f 100kHz | - | 350 | - | μV_{rms} | |
| Ripple Rejection Ratio | | RR | Fig.3 | $f=120Hz$, $I_{OUT}=20mA$ | 54 | 60 | - | dB | |
| Short Circuit Current Limit | | I_{SC} | Fig.1 | $T_j=25$ | - | 1.9 | - | A | |
| Average Temperature Coefficient of Output Voltage | | T_{CVO} | Fig.1 | $I_{OUT}=5mA$ | - | -1.0 | - | mV/ | |
| Dropout Voltage | | V_D | Fig.1 | $T_j=25$, $I_{OUT}=1A$ | - | 2.0 | - | V | |

KIA7905F/PI~KIA7924F/PI

ELECTRICAL CHARACTERISTICS

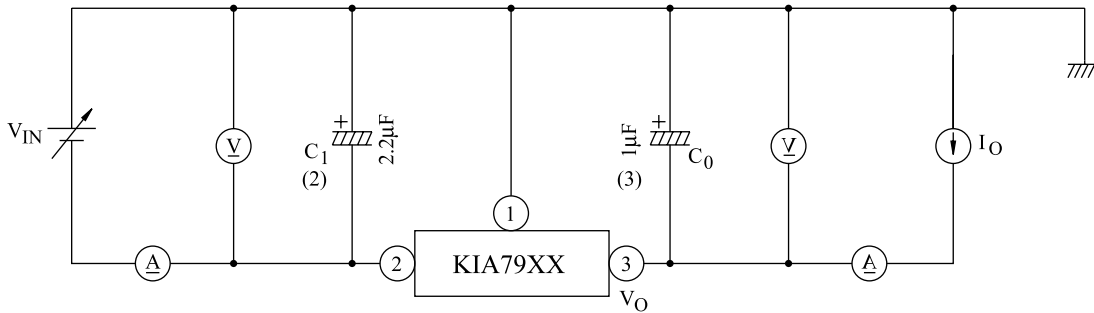
KIA7924F/PI

(Unless otherwise specified, $V_{IN}=-33V$, $I_{OUT}=500mA$, $\theta_{Tj} = 125$, $C_{IN}=0.33 \mu F$, $C_{OUT}=0.1 \mu F$)

| CHARACTERISTIC | | SYMBOL | TEST CIRCUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT | |
|---------------------------------------------------|--|-----------|--------------|------------------------------------------|-----------------------|------|-------|---------------|----|
| Output Voltage | | V_{OUT} | Fig.1 | $T_j=25$ | -25 | -24 | -23 | V | |
| Input Regulation | | Reg line | Fig.1 | $T_j=25$ | -36V V_{IN} -30V | - | 8 | 240 | mV |
| | | | | | -38V V_{IN} -27V | - | 15 | 480 | |
| Load Regulation | | Reg load | Fig.1 | $T_j=25$ | 5mA I_{OUT} 1.5A | - | 15 | 480 | mV |
| | | | | | 250mA I_{OUT} 750mA | - | 5 | 240 | |
| Output Voltage | | V_{OUT} | Fig.1 | -38V V_{IN} -27V 5mA I_{OUT} 1.0A | -25.2 | -24 | -22.5 | V | |
| Quiescent Current | | I_B | Fig.1 | $T_j=25$ | - | 3 | 6 | mA | |
| Quiescent Current Change | | Line | Fig.1 | $T_j=25$ | -38V V_{IN} -27V | - | - | 1.0 | mA |
| | | Load | | | 5mA I_{OUT} 1.0A | - | - | 0.5 | |
| Output Noise Voltage | | V_{NO} | Fig.2 | $T_a=25$, 10Hz f 100kHz | - | 400 | - | μV_{rms} | |
| Ripple Rejection Ratio | | RR | Fig.3 | $f=120Hz$, $I_{OUT}=20mA$, | 54 | 60 | - | dB | |
| Short Circuit Current Limit | | I_{SC} | Fig.1 | $T_j=25$ | - | 1.9 | - | A | |
| Average Temperature Coefficient of Output Voltage | | T_{CVO} | Fig.1 | $I_{OUT}=5mA$ | - | -1.0 | - | mV/ | |
| Dropout Voltage | | V_D | Fig.1 | $T_a=25$, $I_{OUT}=1A$ | - | 2.0 | - | V | |

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Fig.1 Standard Test Circuit



Notes : (1) To specify an output voltage, substitute voltage value for "XX"

(2) Required for stability. For value given, capacitor must be solid tantalum. If aluminium electrolytics are used, at least ten times value shown should be selected. C_1 is required if regulator is located an appreciable distance from power supply filter.

(3) To improve transient response. If large capacitors are used, a high current diode from input to output (1N4001 or similar) should be introduced to protect the device from momentary input short circuit.

Fig.2 V_{NO} Test Circuit

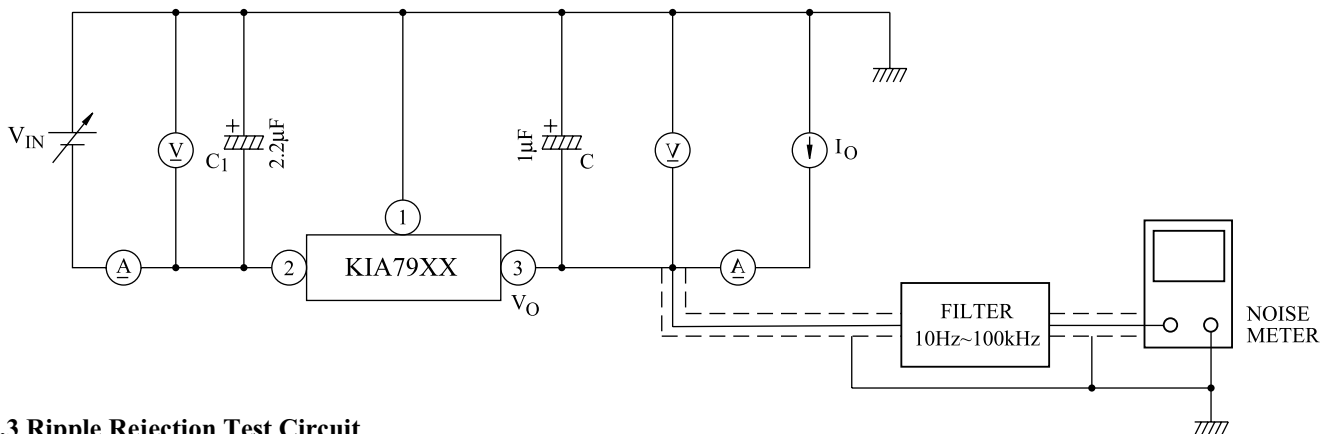
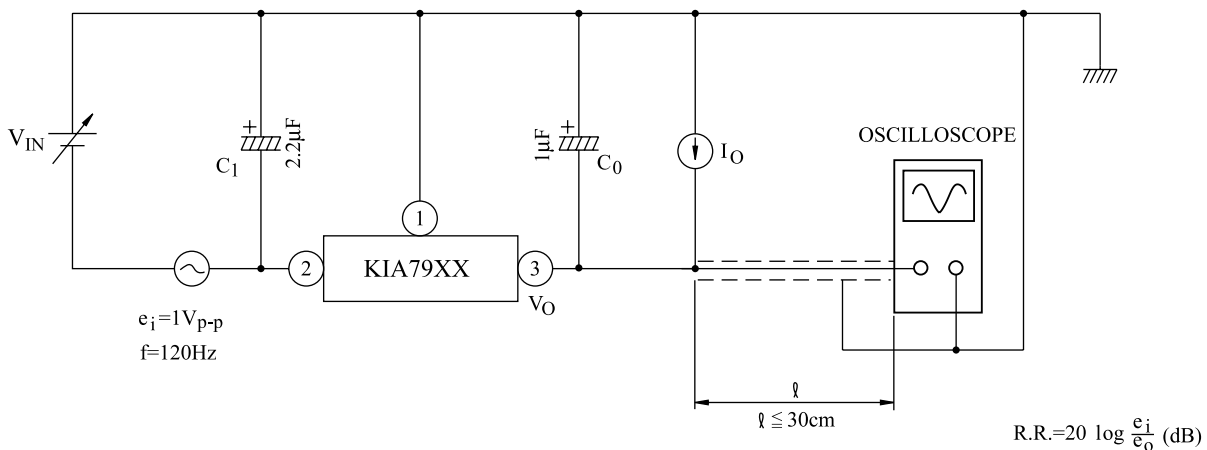


Fig.3 Ripple Rejection Test Circuit



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Fig. 4

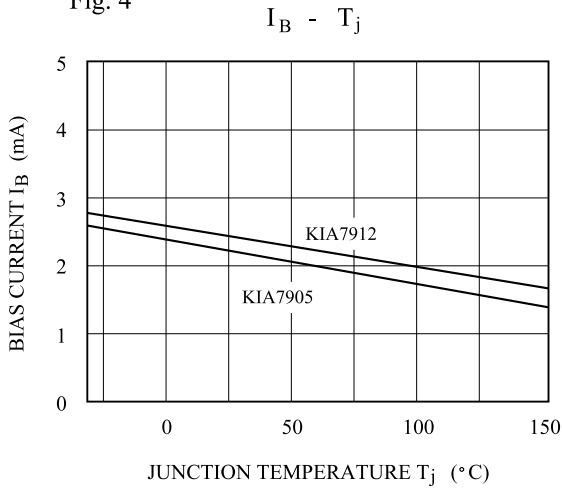


Fig. 5

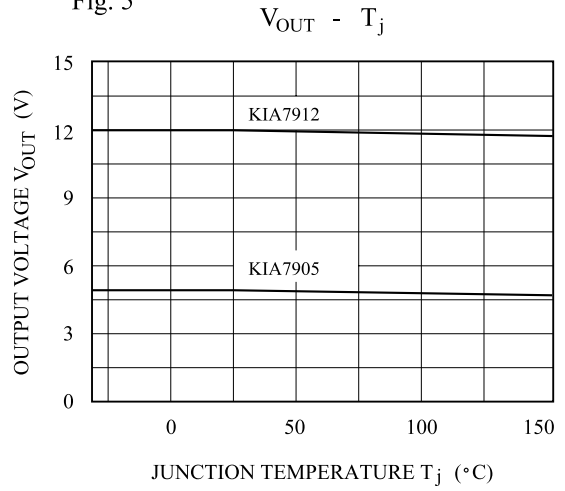


Fig. 6

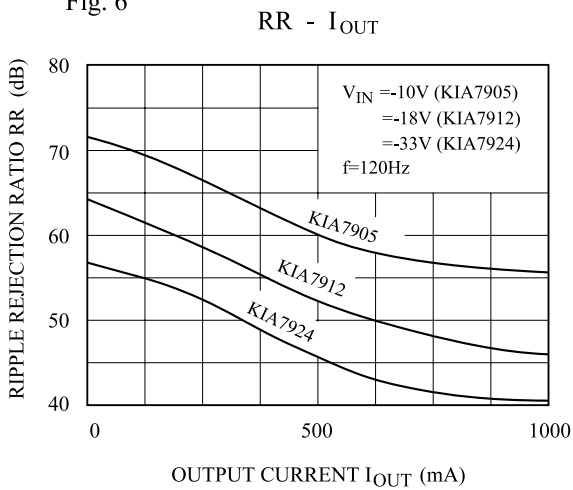


Fig. 7

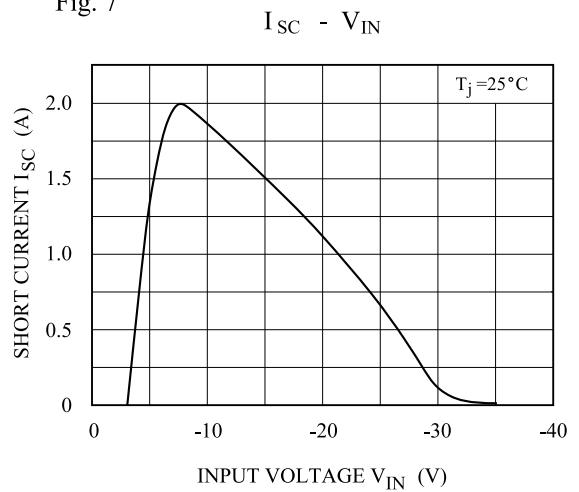


Fig. 8

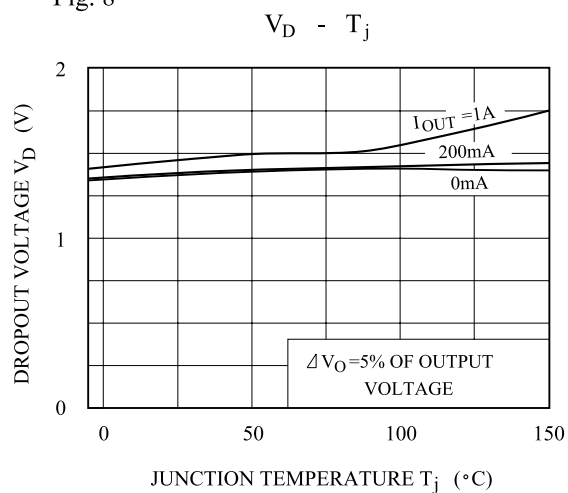
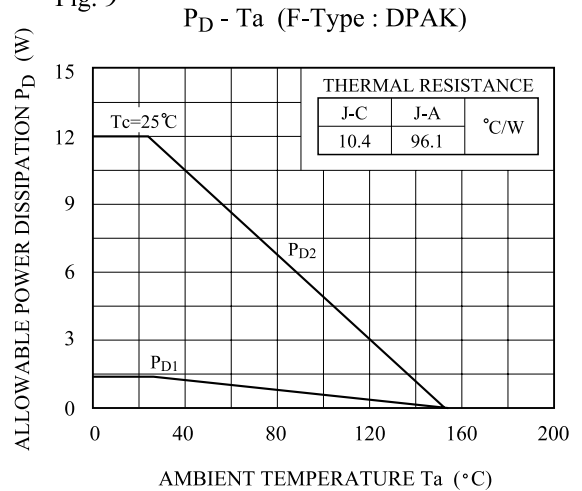


Fig. 9



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