

3 TERMINAL LOW DROP OUTPUT VOLTAGE REGULATOR

The KIA78D × × F Series are fixed positive output low dropout type, 3-pin voltage regulators with positive output.

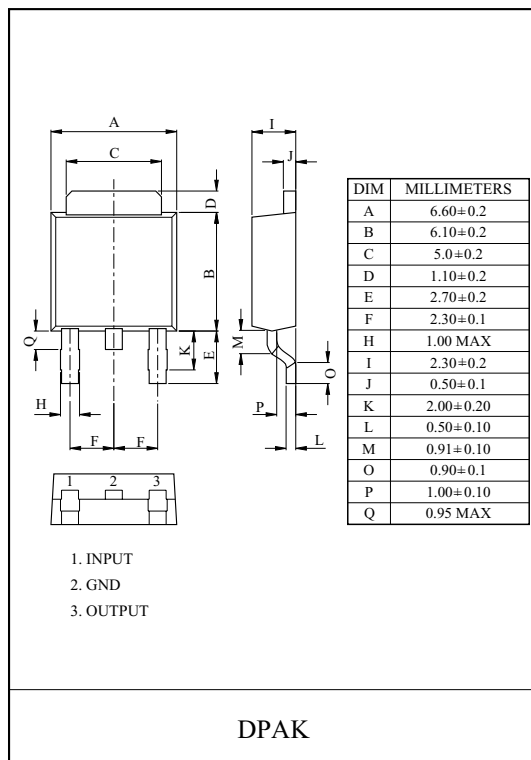
These regulators are used to provide a stabilized output voltage from a fluctuating DC input voltage.

These are 12 fixed output voltage, as follows ; 2.5V, 3.3V, 3.5V, 5V, 6V, 8V, 9V, 10V, 12V, and 15V.

The maximum current capacity is 1A for each of the above voltage.

FEATURES

- Built in over voltage protection circuit, over current protection circuit and thermal shut down circuit.
- Compatible with the KIA78DXXF Series.
- Richly diverse Lineup.
- Low minimum I/O voltage differential.



LINE UP

| ITEM | OUTPUT VOLTAGE (Typ.) | UNIT |
|-----------|-----------------------|------|
| KIA78D25F | 2.5 | V |
| KIA78D33F | 3.3 | |
| KIA78D35F | 3.5 | |
| KIA78D05F | 5 | |
| KIA78D06F | 6 | |
| KIA78D08F | 8 | |
| KIA78D09F | 9 | |
| KIA78D10F | 10 | |
| KIA78D12F | 12 | |
| KIA78D15F | 15 | |

MAXIMUM RATINGS (Ta=25 °C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT | Remark |
|-------------------------------|------------------|---------|------|---------------|
| Input Voltage | V _{IN} | 35 | V | - |
| Output Current | I _O | 1 | A | - |
| Power Dissipation | P _d | 1.3 | W | (No heatsink) |
| Junction Temperature | T _j | 150 | °C | - |
| Operating Temperature | T _{opr} | -40~85 | °C | - |
| Storage Temperature | T _{stg} | -50~150 | °C | - |
| Soldering Temperature (10sec) | T _{sol} | 260 | °C | - |

KIA78D25F~78D15F

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, $I_O=0.5A$, $T_a=25^\circ C$, Note1.)

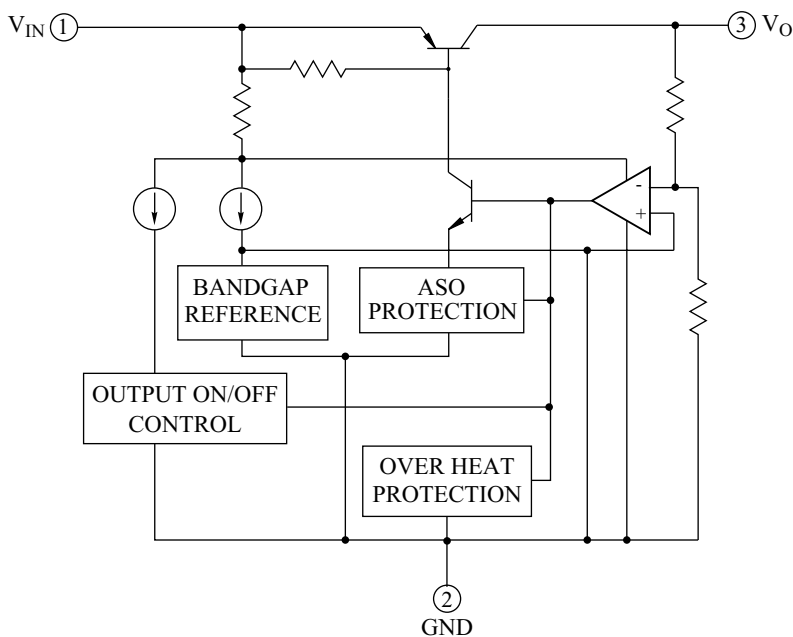
| CHARACTERISTIC | | SYMBOL | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|-------------------|-----------|----------|----------------------------|-------|------|-------|------|
| Output Voltage | KIA78D25F | V_O | - | 2.438 | 2.50 | 2.562 | V |
| | KIA78D33F | | - | 3.220 | 3.30 | 3.380 | |
| | KIA78D35F | | - | 3.413 | 3.50 | 3.587 | |
| | KIA78D05F | | - | 4.88 | 5.0 | 5.12 | |
| | KIA78D06F | | - | 5.85 | 6.0 | 6.15 | |
| | KIA78D08F | | - | 7.80 | 8.0 | 8.2 | |
| | KIA78D09F | | - | 8.78 | 9.0 | 9.22 | |
| | KIA78D10F | | - | 9.75 | 10.0 | 10.25 | |
| | KIA78D12F | | - | 11.70 | 12.0 | 12.30 | |
| | KIA78D15F | | - | 14.70 | 15.0 | 15.30 | |
| Load Regulation | | Reg Load | $5mA \leq I_{OUT} \leq 1A$ | - | - | 0.5 | % |
| Line Regulation | | Reg Line | (Note 2) | - | - | 0.5 | % |
| Ripple Rejection | | R · R | - | 45 | 55 | - | dB |
| Dropout Voltage | | V_D | (Note 3) | - | - | 0.5 | V |
| Quiescent Current | | I_Q | $I_{OUT}=0A$ | - | - | 10 | mA |

Note1) V_{IN} of KIA78D25F=4.2V, V_{IN} of KIA78D33F=5.0V, V_{IN} of KIA78D35F=5.2V, V_{IN} of KIA78D05F=7V,
 V_{IN} of KIA78D06F=8V, V_{IN} of KIA78D08F=10V, V_{IN} of KIA78D09F=15V, V_{IN} of KIA78D10F=16V,
 V_{IN} of KIA78D12F=18V V_{IN} of KIA78D15F=21V

Note2) V_{IN} of KIA78D25F=3.2~10V, V_{IN} of KIA78D33F=4.0~10V, V_{IN} of KIA78D35F=4.2~10V,
 V_{IN} of KIA78D05F=6~12V, V_{IN} of KIA78D06F=7~15V, V_{IN} of KIA78D08F=9~25V,
 V_{IN} of KIA78D09F=10~25V V_{IN} of KIA78D10F=11~26V, V_{IN} of KIA78D12F=13~29V V_{IN} of KIA78D15F=16~32V

Note3) At $V_{IN}=0.95V_O$

BLOCK DIAGRAM



KIA78D25F~78D15F

Fig. 1 Standard Test Circuit

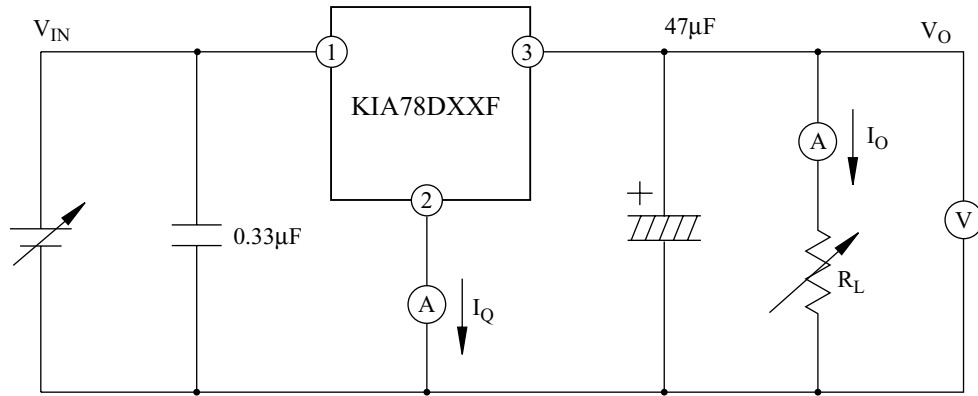


Fig. 2 Ripple Rejection Test Circuit

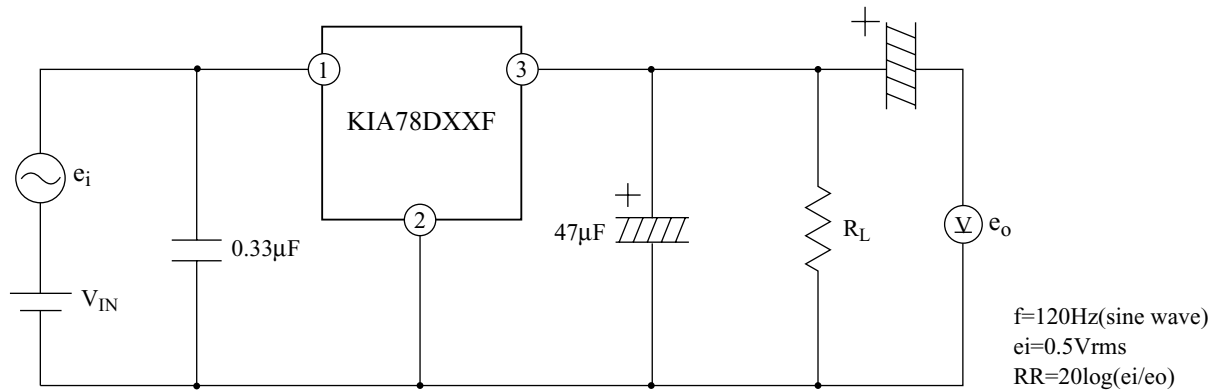
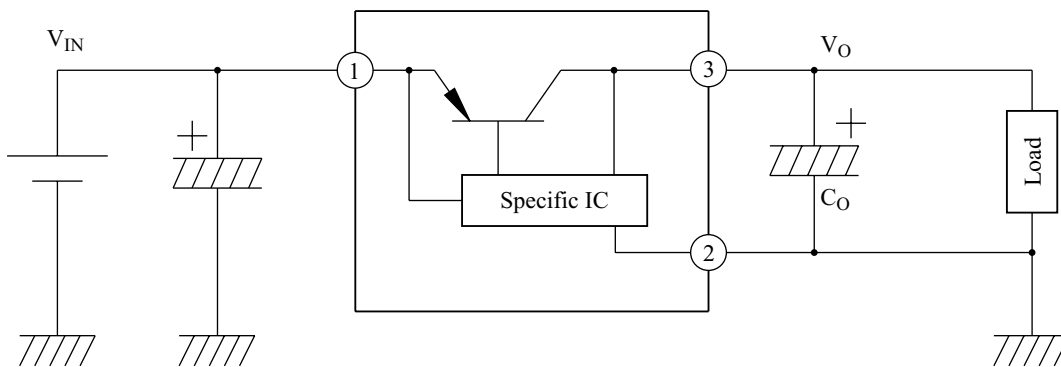


Fig. 3 Application Circuit for Standard



KIA78D25F~78D15F

Fig.3 $P_D - T_a$ (F-Type : DPAK)

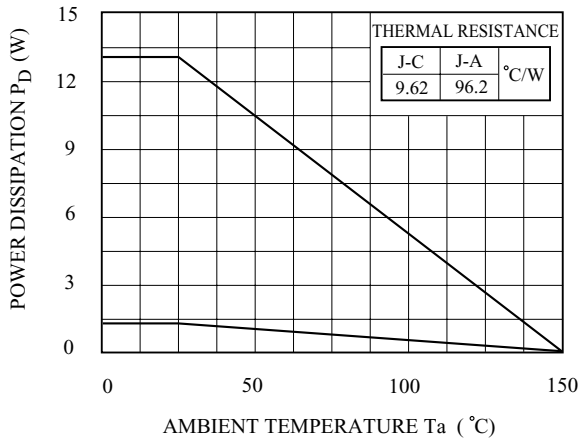


Fig. 4 $I_O - V_O$

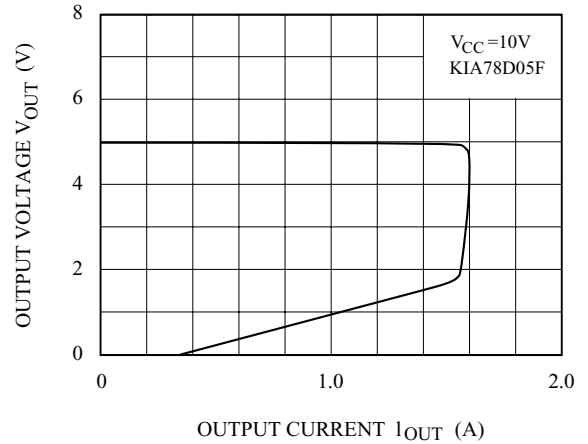


Fig.5-1 $T_j - \Delta V_O$ (KIA78D25F)

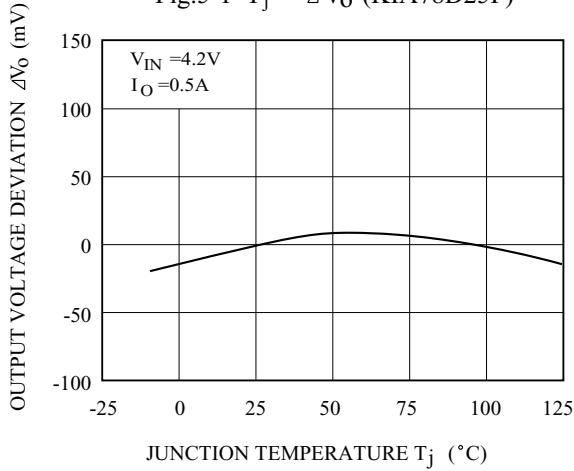


Fig.5-2 $T_j - \Delta V_O$ (KIA78D33F)

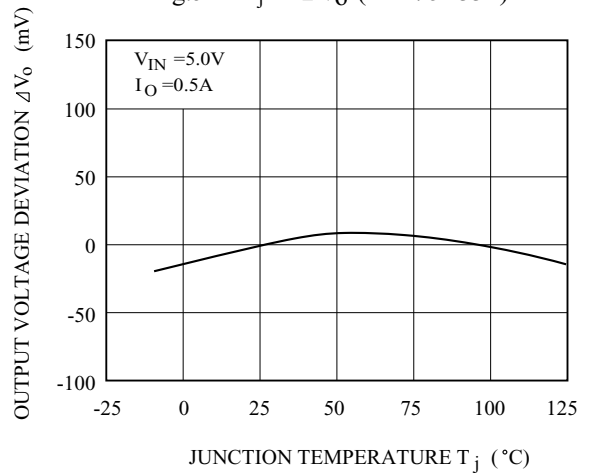


Fig.5-3 $T_j - \Delta V_O$ (KIA78D25F)

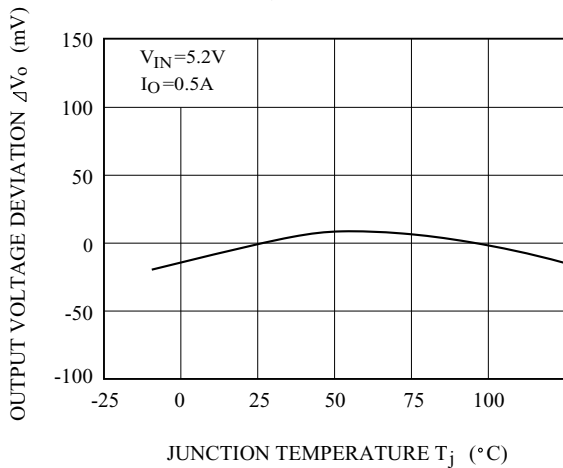
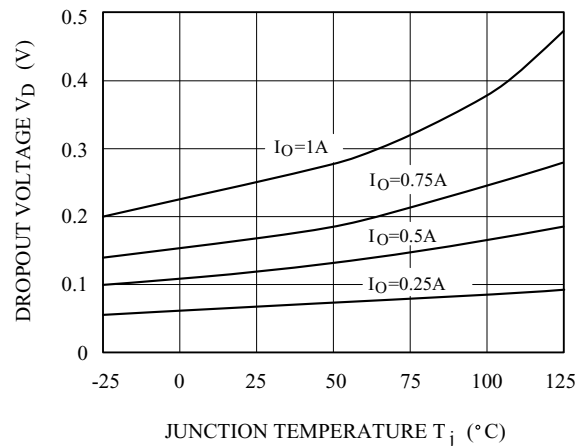


Fig.6 $T_j - V_D$



KIA78D25F~78D15F

Fig.7 $T_j - I_q$

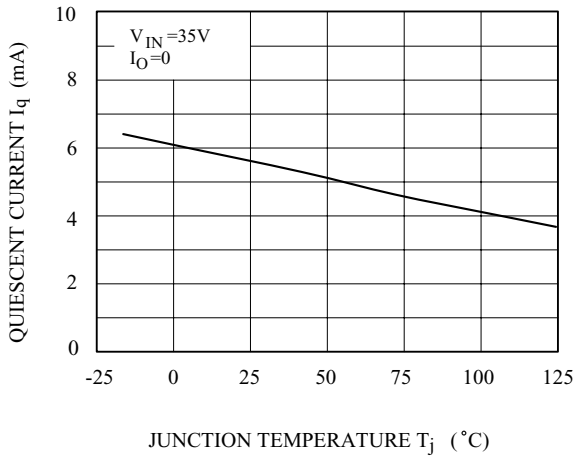


Fig.8 $f - R \cdot R$

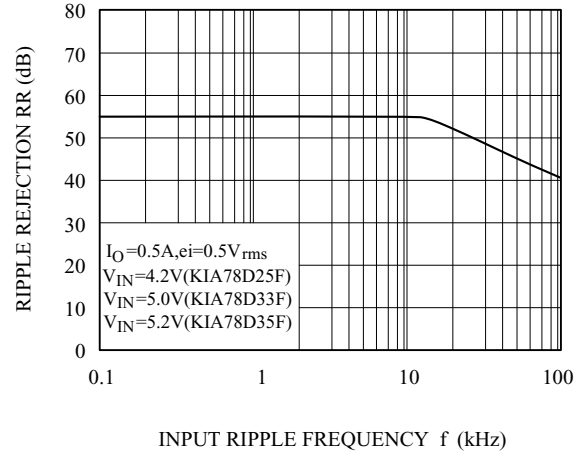


Fig.9 $I_O - R \cdot R$

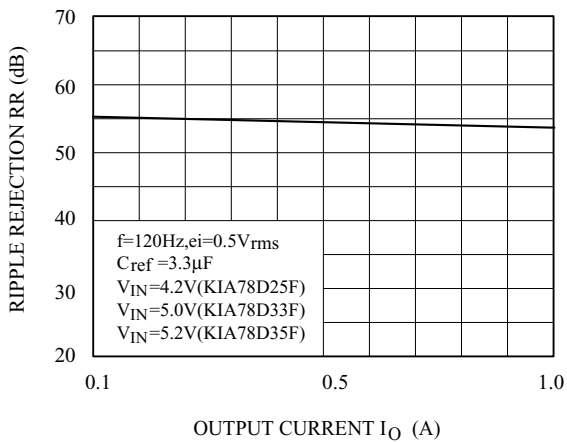


Fig. 10 $V_{OUT} - V_{CC}$

