

#### 3 TERMINAL LOW DROP OUTPUT VOLTAGE REGULATOR

The KIA78DXXF Series are fixed positive output low drop out 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, 3.0V, 3.3V, 3.5V, 3.7V, 5V, 6V, 8V, 9V, 10V, 12V, and 15V.

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

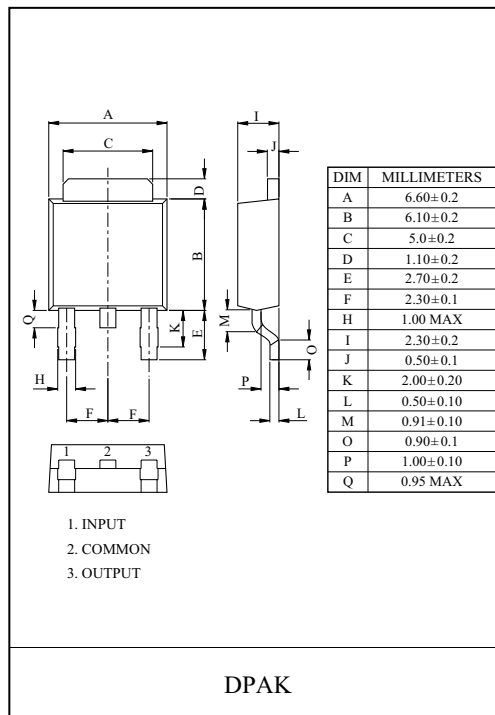
#### FEATURES

- 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    |
| * KIA78D30F | 3.0                   |      |
| KIA78D33F   | 3.3                   |      |
| * KIA78D35F | 3.5                   |      |
| * KIA78D37F | 3.7                   |      |
| KIA78D05F   | 5                     |      |
| KIA78D06F   | 6                     |      |
| KIA78D08F   | 8                     |      |
| KIA78D09F   | 9                     |      |
| KIA78D10F   | 10                    |      |
| KIA78D12F   | 12                    |      |
| KIA78D15F   | 15                    |      |

Note) \* : Under development.



#### MAXIMUM RATINGS (Ta=25 °C)

| CHARACTERISTIC                | SYMBOL           | RATING    | UNIT | Remark      |
|-------------------------------|------------------|-----------|------|-------------|
| Input Voltage                 | V <sub>IN</sub>  | 35        | V    | -           |
| Output Current                | I <sub>O</sub>   | 1         | A    | -           |
| Power Dissipation             | P <sub>d</sub>   | 1.3       | W    | No heatsink |
| Junction Temperature          | T <sub>j</sub>   | 125       | °C   | -           |
| Operating Temperature         | T <sub>opr</sub> | -40 ~ 85  | °C   | -           |
| Storage Temperature           | T <sub>stg</sub> | -50 ~ 150 | °C   | -           |
| Soldering Temperature (10sec) | T <sub>sol</sub> | 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    | KIA78D25 | -                 | 2.438 | 2.50 | 2.562 | V    |
|                   | KIA78D30 | -                 | 2.925 | 3.00 | 3.075 |      |
|                   | KIA78D33 | -                 | 3.220 | 3.30 | 3.380 |      |
|                   | KIA78D35 | -                 | 3.413 | 3.50 | 3.587 |      |
|                   | KIA78D37 | -                 | 3.608 | 3.70 | 3.792 |      |
|                   | KIA78D05 | -                 | 4.88  | 5.0  | 5.12  |      |
|                   | KIA78D06 | -                 | 5.85  | 6.0  | 6.15  |      |
|                   | KIA78D08 | -                 | 7.80  | 8.0  | 8.2   |      |
|                   | KIA78D09 | -                 | 8.78  | 9.0  | 9.22  |      |
|                   | KIA78D10 | -                 | 9.75  | 10.0 | 10.25 |      |
|                   | KIA78D12 | -                 | 11.70 | 12.0 | 12.30 |      |
|                   | KIA78D15 | -                 | 14.70 | 15.0 | 15.30 |      |
| Load Regulation   | Reg Load | $I_O=5mA \sim 1A$ | -     | 0.1  | 2.0   | %    |
| Line Regulation   | Reg Line | (Note 2)          | -     | 0.5  | 2.5   | %    |
| Ripple Rejection  | R · R    |                   | 45    | 55   | -     | dB   |
| Drop Out Voltage  | $V_D$    | (Note 3)          | -     | -    | 0.5   | V    |
| Quiescent Current | $I_Q$    | $I_O=0$           | -     | -    | 10    | mA   |

Note1)  $V_{IN}$  of KIA78D25=4.2V

$V_{IN}$  of KIA78D06=8V

Note2)  $V_{IN}$  of KIA78D25=3.2 ~ 10V

$V_{IN}$  of KIA78D06=7 ~ 15V

" KIA78D30=4.7V

" KIA78D08=10V

" KIA78D30=3.7 ~ 10V

" KIA78D08=9 ~ 25V

" KIA78D33=5.0V

" KIA78D09=15V

" KIA78D33=4.0 ~ 10V

" KIA78D09=10 ~ 25V

" KIA78D35=5.2V

" KIA78D10=16V

" KIA78D35=4.2 ~ 10V

" KIA78D10=11 ~ 26V

" KIA78D37=5.4V

" KIA78D12=18V

" KIA78D37=4.4 ~ 10V

" KIA78D12=13 ~ 29V

" KIA78D05=7V

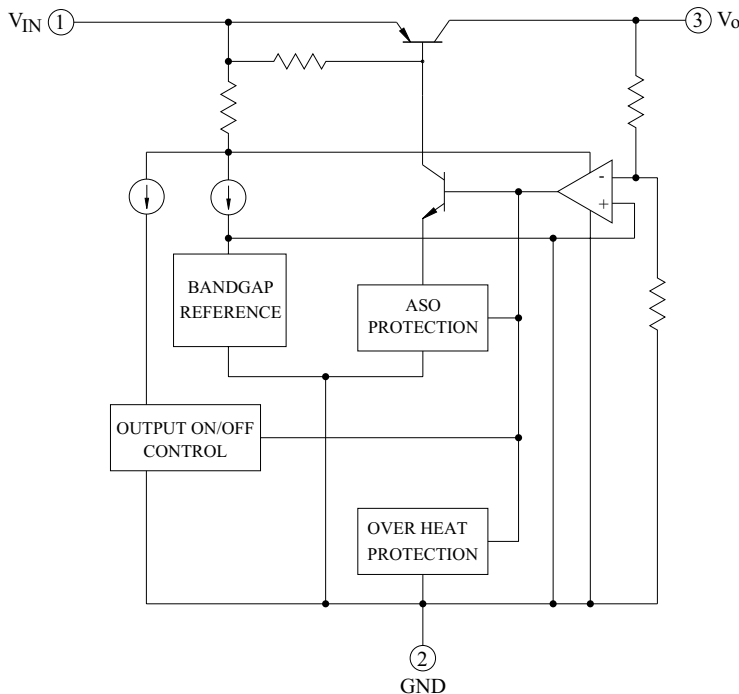
" KIA78D15=21V

" KIA78D05=6 ~ 12V

" KIA78D15=16 ~ 32V

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

## BLOCK DIAGRAM



# KIA78D25F~78D15F

Fig. 1 Standard Test Circuit

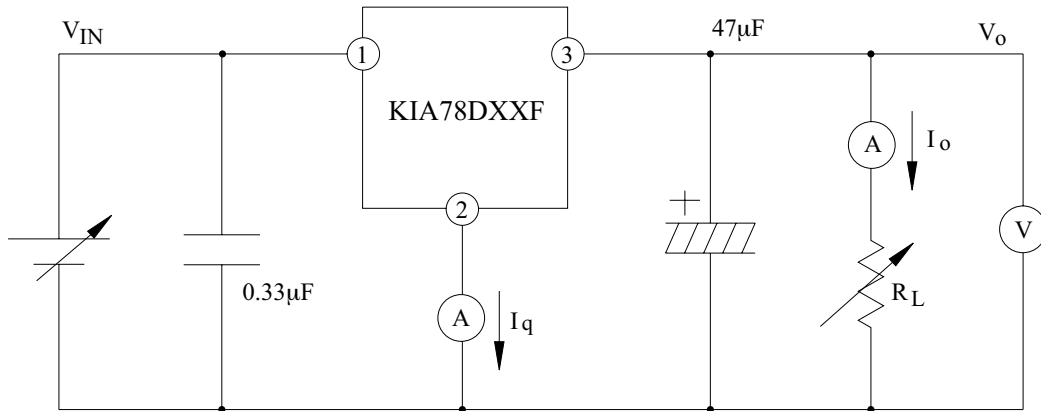


Fig. 1-2 Ripple Rejection Test Circuit

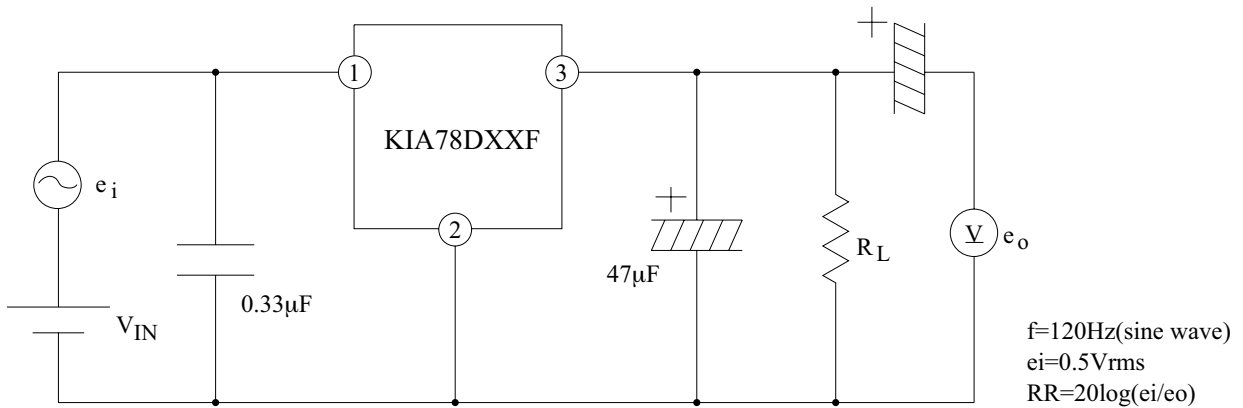
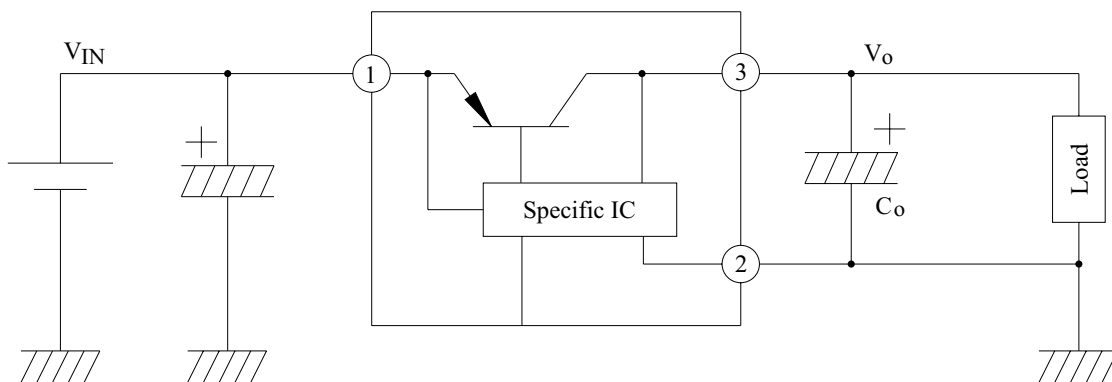


Fig. 2 Application Circuit for Standard



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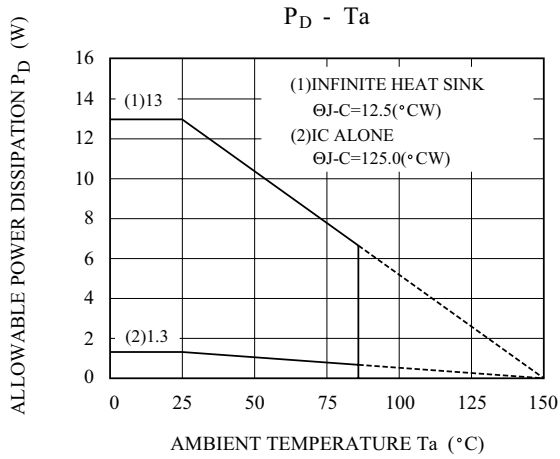


Fig 3. Power Dissipation Characteristics.

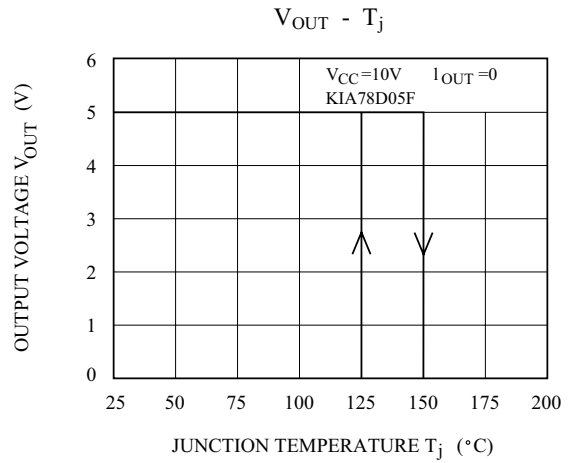


Fig 4. Thermal Cutoff Circuit Characteristics.

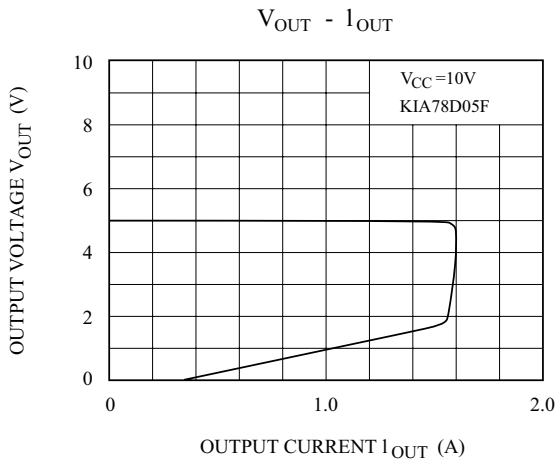


Fig 5. Current limit Characteristics.

