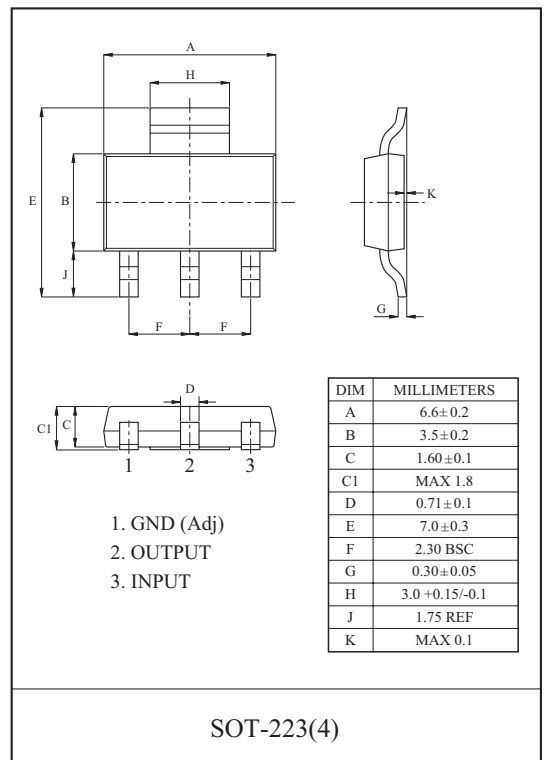


LOW DROP FIXED AND ADJUSTABLE POSITIVE VOLTAGE REGULATOR

The KIA1117DS × × Series are a Low Drop Voltage Regulator able to provide up to 1A of output current, available even in adjustable version (Vref=1.25V)

FEATURES

- Low Dropout Voltage : 1.3V/Typ. (Iout=1.0A)
- Very Low Quiescent Current : 2mA(Typ)
- Output Current up to 1A
- Fixed Output Voltage of 1.2V, 1.5V, 1.8V, 2.5V, 3.3V, 5.0V
- Adjustable Version Availability : Vref=1.25V
- Internal Current and Thermal Limit
- A Minimum of 10μF for stability
- Compatible with tantalum capacitor, electrolytic capacitor, MLCC
- Available in ± 2%(at 25 °C)

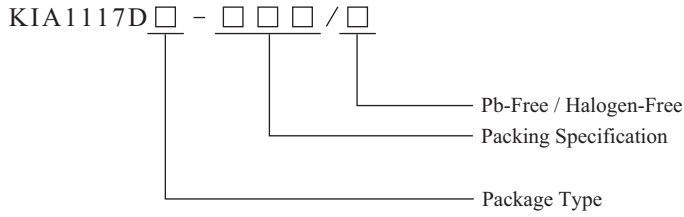


LINE UP

| ITEM | OUTPUT VOLTAGE (V) | PACKAGE |
|-------------|-----------------------|-----------------|
| KIA1117DS00 | Adjustable (1.25~12V) | DS : SOT-223(4) |
| KIA1117DS12 | 1.2 | |
| KIA1117DS15 | 1.5 | |
| KIA1117DS18 | 1.8 | |
| KIA1117DS25 | 2.5 | |
| KIA1117DS33 | 3.3 | |
| KIA1117DS50 | 5.0 | |

KIA1117DS00~KIA1117DS50

ORDERING INFORMATION



| ITEM | Package Code | | Packing Specification | | Pb-Free / Halogen-Free | |
|----------|--------------|------------|-----------------------|----------|------------------------|--------------|
| | Code | Package | | | | |
| KIA1117D | S | SOT-223(4) | RTK | RTK type | P | Pb-Free |
| | | | RTF | RTF type | H | Halogen-Free |

MAXIMUM RATINGS (Ta=25 °C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|---|--------------|---------|------|
| Input Voltage | V_{IN} | 15 | V |
| Output Current | I_{OUT} | 1.0 | A |
| Power Dissipation 1 (No Heatsink) | P_{D1} | 1.0 | W |
| Power Dissipation 2 (Infinite Heatsink) | P_{D2} | 8.3 | W |
| Maximum operating Junction Temperature | $T_{j(max)}$ | 150 | |
| Operating Temperature | T_{opr} | -40 85 | |
| Storage Temperature | T_{stg} | -40 150 | |

Note) Package Mounted on FR-4 PCB 36mm × 18mm × 1.5mm.
: mounting pad for the GND Lead min. 6cm²

KIA1117DS00~KIA1117DS50

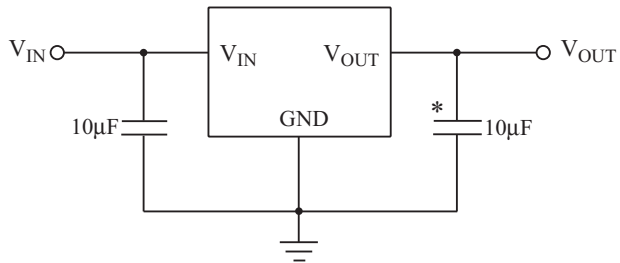
ELECTRICAL CHARACTERISTICS

Unless otherwise specified, $T_j=25$

| CHARACTERISTIC | ITEM | SYMBOL | TEST CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|------------------------|-------------|-------------|--|-------|-----------|-------|---------|
| Reference Voltage | KIA1117-Adj | V_{REF} | $V_{IN}=3.25V, I_{OUT} = 1A$ | 1.225 | 1.25 | 1.275 | V |
| Output Voltage | KIA1117-12 | V_{OUT} | $V_{IN}=3.2V, I_{OUT} = 1A$ | 1.176 | 1.2 | 1.224 | V |
| | KIA1117-15 | V_{OUT} | $V_{IN}=3.5V, I_{OUT} = 1A$ | 1.47 | 1.5 | 1.53 | V |
| | KIA1117-18 | V_{OUT} | $V_{IN}=3.8V, I_{OUT} = 1A$ | 1.764 | 1.8 | 1.836 | V |
| | KIA1117-25 | V_{OUT} | $V_{IN}=4.5V, I_{OUT} = 1A$ | 2.45 | 2.5 | 2.55 | V |
| | KIA1117-33 | V_{OUT} | $V_{IN}=5.3V, I_{OUT} = 1A$ | 3.234 | 3.3 | 3.366 | V |
| | KIA1117-50 | V_{OUT} | $V_{IN}=7.0V, I_{OUT} = 1A$ | 4.9 | 5 | 5.1 | V |
| Line Regulation | KIA1117-12 | Reg Line | $2.7V, V_{IN} = 10V, I_{OUT}=10mA$ | - | 0.1 | 0.2 | %/V |
| | - | | $V_{OUT}+1.5V, V_{IN} = 12V, I_{OUT}=10mA$ | - | 0.1 | 0.2 | %/V |
| Load Regulation | - | Reg Load | $10mA, I_{OUT} = 1A, V_{IN}=V_{OUT}+1.5V$ | - | 10 | 30 | mV |
| Adjustable Pin Current | KIA1117-Adj | I_{ADJ} | $V_{IN}=5V, I_{OUT} = 1A$ | - | 55 | 120 | μA |
| Minimum Load Current | KIA1117-Adj | I_{min} | $V_{IN}=V_{OUT}+1.5V$ | - | 2 | 10 | mA |
| Quiescent Current | KIA1117-12 | I_{B1} | $V_{IN}=10V, I_{OUT}=0A$ | - | 2 | 5 | mA |
| | - | I_{B2} | $V_{IN}=12V, I_{OUT}=0A$ | | | | |
| Current Limit | - | I_{limit} | $V_{IN}=V_{OUT}+2.0V, T_j=25$ | 1 | - | - | A |
| Dropout Voltage | - | V_{DROP} | $I_{OUT}=1A$ | - | 1.3 | 1.5 | V |
| | | | $I_{OUT}=100mA$ | - | 1.23 | 1.3 | V |
| Temperature Stability | - | TCV_O | $V_{IN}=V_{OUT}+1.5V, I_{OUT}=10mA, T_j=-20\sim 125$ | - | ± 100 | - | ppm/ |

KIA1117DS00~KIA1117DS50

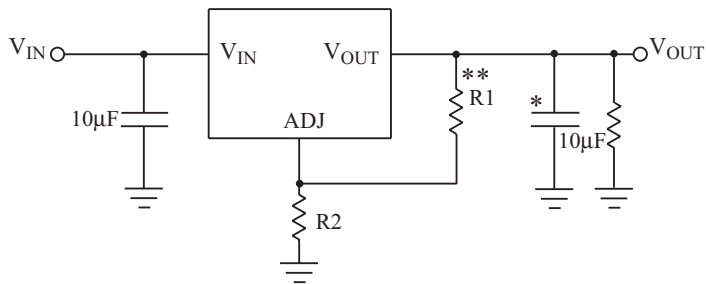
Fig.1 Application Circuit-1 (Fixed-Type)



* Note 1) Recommend using 10uF tan capacitor, MLCC to assure circuit stability.

** Note 2) To meet the minimum load current (>10mA) requirement, R1 is recommended to be 125 ohm or lower. As KIA1117-ADJ can keep itself stable at load current about 2mA, R1 is not allowed to be higher than 625 ohm.

Fig.2 Application Circuit-2 (Adjustable-Type)



$$V_{OUT}=1.25 \times (1+R2/R1) + I_{ADJ} \times R2$$

KIA1117DS00~KIA1117DS50

Fig. 3 KIA1117-ADJ V_{OUT} - V_{IN}

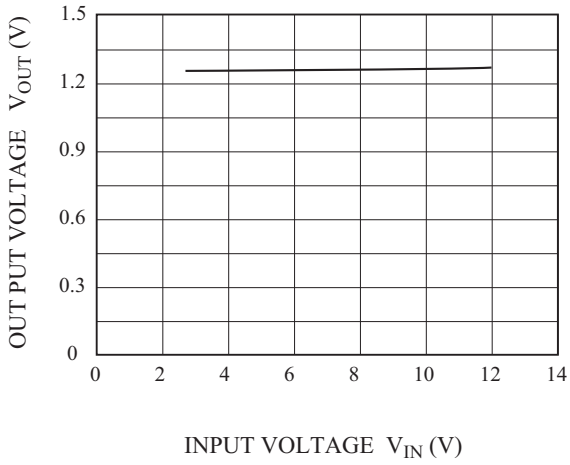


Fig. 4 KIA1117-ADJ V_{OUT} - I_{OUT}

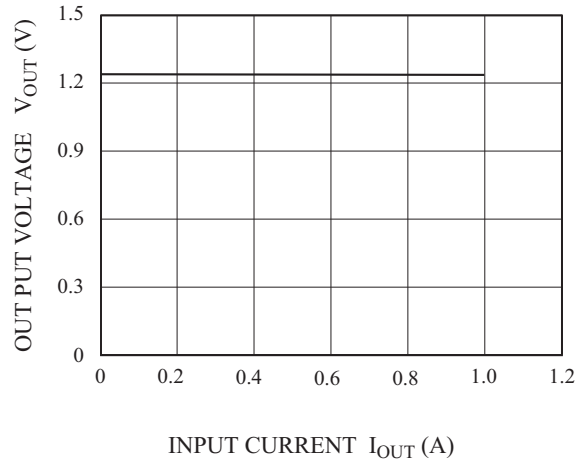


Fig. 5 KIA1117-ADJ DROPOUT - I_{OUT}

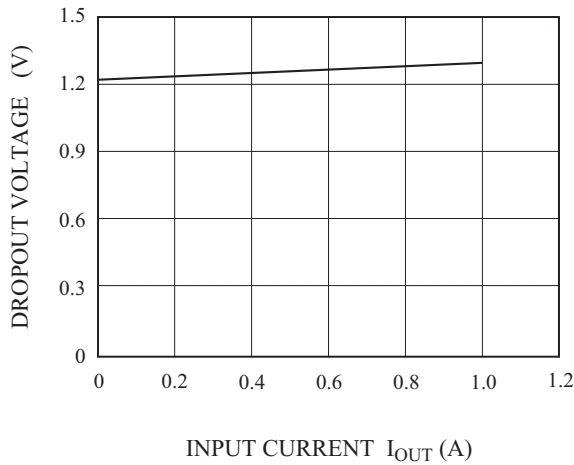


Fig. 6 KIA1117-ADJ V_{OUT} - TEMP

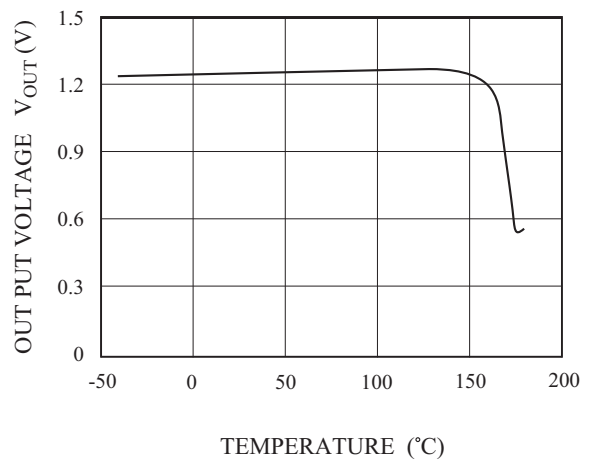


Fig.7 P_D - T_a

