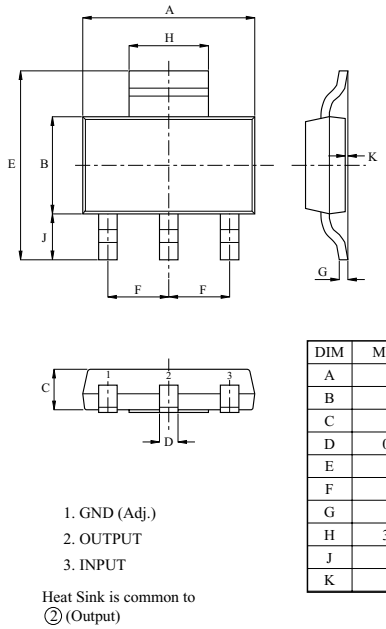
LOW DROP FIXED AND ADJUSTABLE POSITIVE VOLTAGE REGULATOR

The KIA1117SCB×× Series are a Low Drop Voltage Regulator able to provide up to 1.0A of output current, available even in adjustable version (Vref=1.25V)

FEATURES

- Low Dropout Voltage : 1.3V/Typ. (Iout=1A)
- Very Low Quiescent Current : 5㎃(Typ)
- Output Current up to 1.0A
- 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
- Operating Junction Temperature Range : -40℃ 125℃



DIM	MILLIMETERS
A	6.5±0.2
B	3.5±0.2
C	1.65±0.1
D	0.7+0.15/-0.1
E	7±0.3
F	2.3 BSC
G	0.23~0.35
H	3.0+0.15/-0.1
J	1.75 REF
K	0.1 MAX

1. GND (Adj.)
2. OUTPUT
3. INPUT

Heat Sink is common to ② (Output)

SOT-223(2)

LINE UP

ITEM	OUTPUT VOLTAGE (V)	ACCURANCY (%)	PACKAGE
KIA1117SCB00	Adjustable (1.25~10V)	±1.5	SOT-223(2)
KIA1117SCB12	1.2	±2.0	
KIA1117SCB15	1.5	±1.5	
KIA1117SCB18	1.8		
KIA1117SCB25	2.5		
KIA1117SCB33	3.3		
KIA1117SCB50	5.0		

MAXIMUM RATINGS (Ta=25℃)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Input Voltage	V_{IN}	15	V
Output Current	I_{OUT}	1.0	A
Power Dissipation (No Heatsink) * Note)	$P_{D(max)}$	1.0	W
Maximum Junction Temperature	$T_{j(max)}$	150	℃
Operating Junction Temperature	T_{opr}	-40 125	℃
Storage Temperature	T_{stg}	-55 150	℃

Note) Device mounted on FR-4 substuate PCB 36mm×18mm×15mm, 2oz copper, with 10mm×10mm thermal pad layout.

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, Ta=25℃)

CHARACTERISTIC	ITEM	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Reference Voltage	KIA1117-Adj	V_{REF1}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	1.231	1.25	1.268	V
		V_{REF2}	$10mA \leq I_{OUT} \leq 1A$, $V_{OUT}+1.4V \leq V_{IN} \leq 10V$	1.225	1.25	1.275	V
Output Voltage	KIA1117-12	V_{OUT1}	$V_{IN}=3.2V$, $I_{OUT}=10mA$	1.176	1.2	1.224	V
		V_{OUT2}	$10mA \leq I_{OUT} \leq 1A$, $3.0V \leq V_{IN} \leq 10V$	1.152	1.2	1.248	V
	KIA1117-15	V_{OUT1}	$V_{IN}=3.5V$, $I_{OUT}=10mA$	1.477	1.5	1.522	V
		V_{OUT2}	$10mA \leq I_{OUT} \leq 1A$, $3.0V \leq V_{IN} \leq 10V$	1.470	1.5	1.530	V
	KIA1117-18	V_{OUT1}	$V_{IN}=3.8V$, $I_{OUT}=10mA$	1.773	1.8	1.827	V
		V_{OUT2}	$0mA \leq I_{OUT} \leq 1A$, $3.2V \leq V_{IN} \leq 10V$	1.746	1.8	1.854	V
	KIA1117-25	V_{OUT1}	$V_{IN}=4.5V$, $I_{OUT}=10mA$	2.462	2.5	2.538	V
		V_{OUT2}	$0mA \leq I_{OUT} \leq 1A$, $3.9V \leq V_{IN} \leq 10V$	2.450	2.5	2.550	V
	KIA1117-33	V_{OUT1}	$V_{IN}=5.0V$, $I_{OUT}=10mA$	3.250	3.3	3.349	V
		V_{OUT2}	$0mA \leq I_{OUT} \leq 1A$, $4.75V \leq V_{IN} \leq 10V$	3.235	3.3	3.365	V
	KIA1117-50	V_{OUT1}	$V_{IN}=7.0V$, $I_{OUT}=10mA$	4.925	5.0	5.075	V
		V_{OUT2}	$0mA \leq I_{OUT} \leq 1A$, $6.5V \leq V_{IN} \leq 12V$	4.900	5.0	5.100	V
Line Regulation	-	Reg Line	$V_{OUT}+1.5V \leq V_{IN} \leq 12V$, $I_{OUT}=10mA$	-	9	18	mV
Load Regulation	-	Reg Load	$10mA \leq I_{OUT} \leq 1A$	-	0.5	1.0	%
Adjustable Pin Current	KIA1117-Adj	I_{ADJ}	-	-	60	120	μA
		ΔI_{ADJ}	$0mA \leq I_{OUT} \leq 1A$, $1.4V \leq V_{IN}-V_{OUT} \leq 10V$	-	0.2	5	
Quiescent Current	-	I_B	$4.25V \leq V_{IN} \leq 6.5V$	-	5	10	mA
Output Noise Voltage	-	V_{NO}	% of V_{OUT}, $0Hz \leq f \leq 10kHz$	-	0.003	-	%
Current Limiting	-	I_{LMIT}	-	1.1	-	-	A
Ripple Rejection	-	R · R	f=120Hz, Vripple=1Vp-p, $V_{IN}=V_{OUT}+3V$	-	60	-	dB
Dropout Voltage	-	V_D	$I_{OUT}=1A$, $\Delta V_{OUT}=1\%V_{OUT}$	-	1.30	1.40	V
Temperature Stability	-	TCV_O	-	-	0.5	-	%
Thermal Shutdown	-	TSD	-	-	150	-	℃
Long Term Stability	-	TCV_O-long	-	-	0.3	-	%

Typical Application Circuit

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

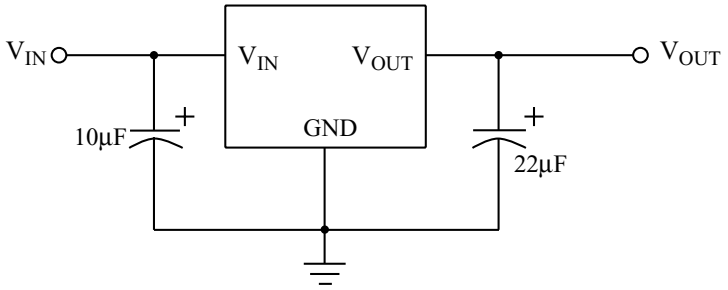
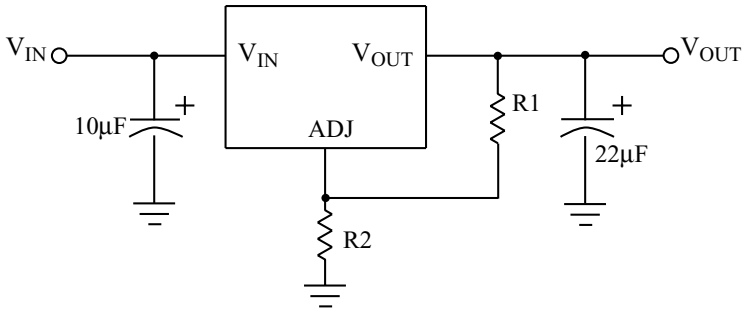


Fig.2 Application Circuit-2 (Adjustable-Type)



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

Note) The circuit and parameters are reference only,
Please set the parameters of the real application circuit based on the real test.

Electrical characteristics curves

Fig. 1 V_{OUT}(CHANGE) - T_j

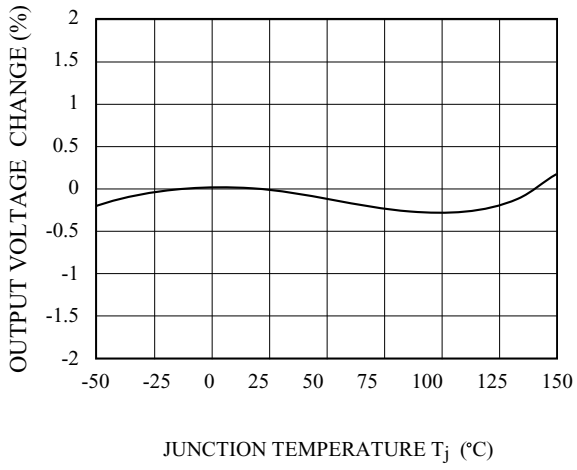


Fig. 2 I_{ADJ} - T_j

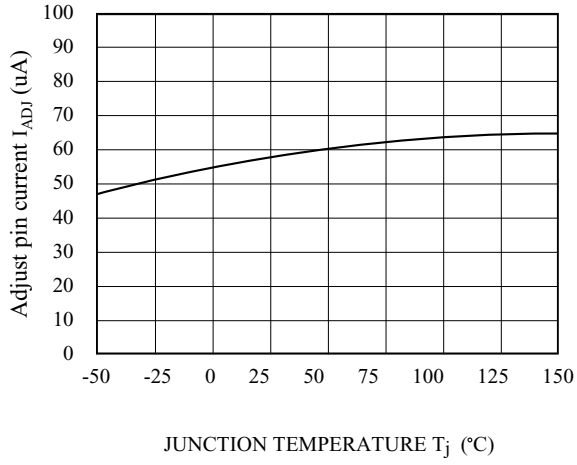


Fig. 3 LINE TRANSIENT RESPONE

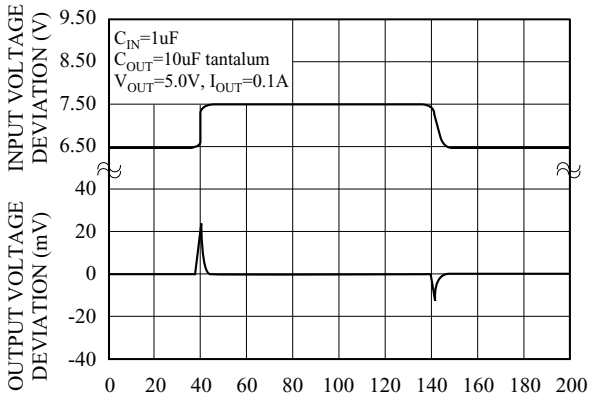


Fig. 4 LOAD TRANSIENT RESPONE

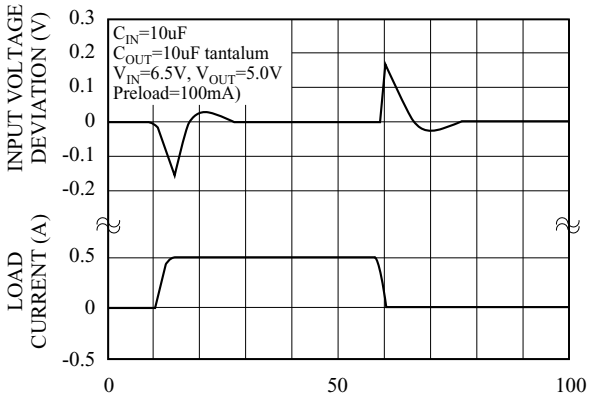


Fig.5 R.R - f