

1A 1.2V Low Dropout Voltage Regulator

The KIA1112 series is low drop voltage regulator able to provide up to 1A of output current. The device has been optimized for low output voltage (1.2V). Dropout is guaranteed at a maximum 1.4V at the maximum output current, decreasing at lower loads.

The device is supplied in SOT-223, DPAK.

FEATURES

- Low Dropout Voltage
- Very Low Quiescent Current : 2.5 mA/Typ.
- Output Current up to 1A
- Internal Current and Thermal Limit
- Output Voltage tolerance of $\pm 2\%$ at 25°C
- Operating Junction Temperature Range : -40 ~ 150
- A Minimum of 10 μ F for stability

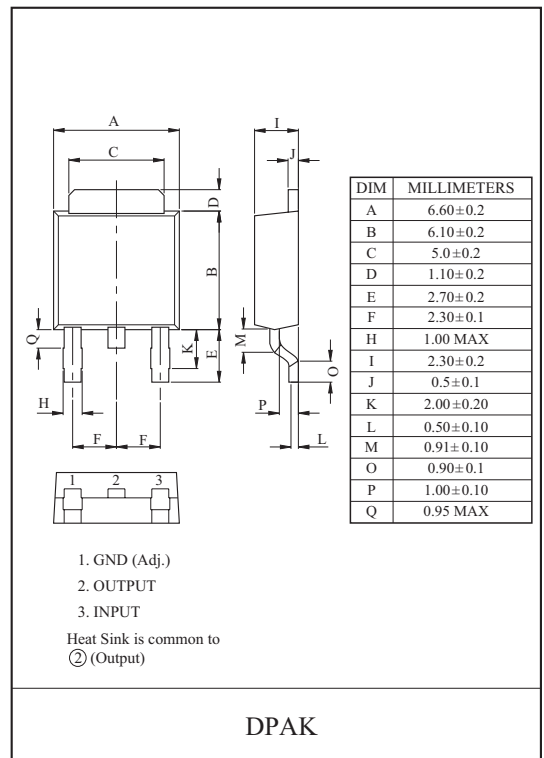
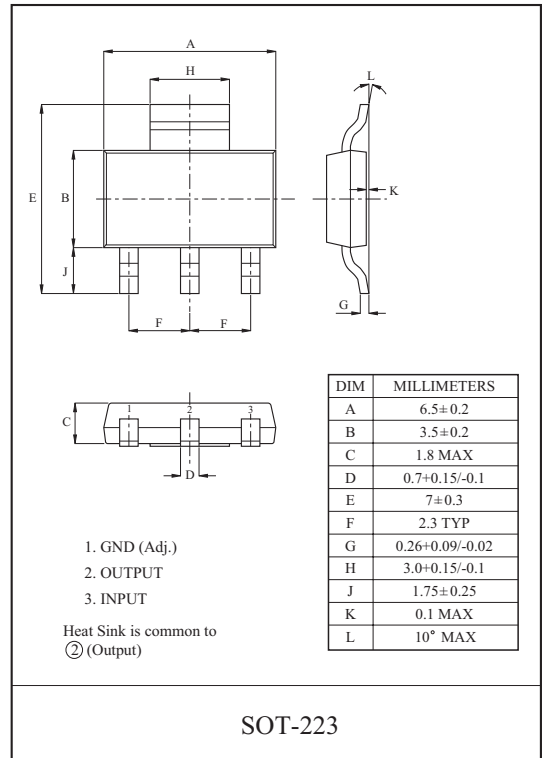
LINE UP

ITEM	OUTPUT VOLTAGE (V)	PACKAGE
KIA1112S	1.2	SOT-223
KIA1112F		DPAK

MAXIMUM RATINGS (Ta=25 °C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Input Voltage	V _{IN}	10	V
Output Current	I _{OUT}	1	A
Power Dissipation 1 (No Heatsink)	S (Note)	1.0	W
	F	1.3	
Power Dissipation 2 (Infinite Heatsink)	S	8.3	W
	F	13	
Operating Junction Temperature	T _{opr}	-40 ~ 150	°C
Storage Temperature	T _{stg}	-65 ~ 150	°C

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



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Fig.1 Application Circuit-1

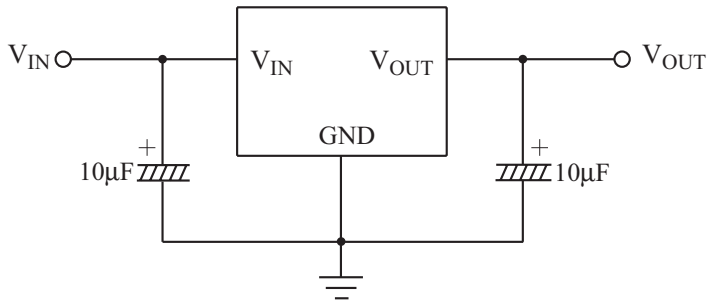
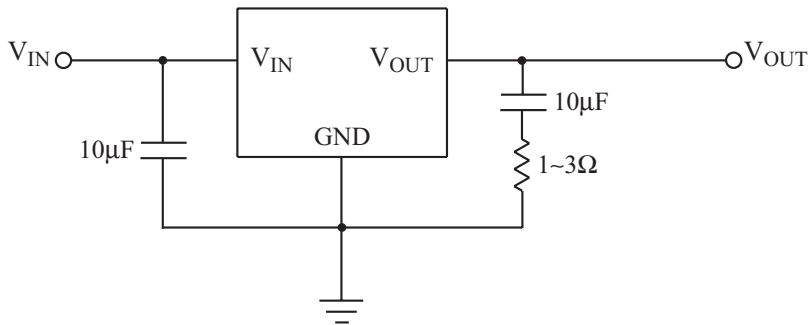


Fig.2 Application Circuit-2 (With MLCC)

- When using a ceramic capacitor, set an additional series resistor 1~3Ω for stability.



ELECTRICAL CHARACTERISTICS

KIA1112S/F (Unless other wise noted, $T_j = -40 \sim 150 \text{ } ^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT1}	$V_{IN} = V_{OUT} + 1.5V$, $I_{OUT} = 10mA$, $T_j = 25 \text{ } ^\circ\text{C}$	1.176	1.2	1.224	V
	V_{OUT2}	$10mA \leq I_{OUT} \leq 1A$, $V_{OUT} + 1.5V \leq V_{IN} \leq 10V$	1.164	1.2	1.236	
Line Regulation	Reg Line	$V_{OUT} + 1.5V < V_{IN} < 10V$, $I_{OUT} = 10mA$	-	1	10	mV
Load Regulation	Reg Load	$10mA < I_{OUT} < 1A$, $V_{IN} = V_{OUT} + 2V$	-	0.5	1	%
Quiescent Current	I_{B1}	$V_{IN} = V_{OUT} + 1.25V$, $I_{OUT} = 0A$	-	2.5	5	mA
	I_{B2}	$V_{IN} = 10V$, $I_{OUT} = 0A$	-	2.5	5	
Minimum Load Current	I_{MIN}	$V_{IN} = V_{OUT} + 1.5V$	10	-	-	mA
Output Noise Voltage	V_{NO}	$V_{IN} = V_{OUT} + 1.25V$, $I_{OUT} = 40mA$, $10Hz \leq f \leq 10kHz$	-	100	-	μV_{rms}
Short Circuit Current Limit	I_{SC}	$V_{IN} - V_{OUT} = 2V$	1.1	1.8	-	A
Ripple Rejection	R · R	$V_{IN} = V_{OUT} + 3V$, $f = 120Hz$, $I_{OUT} = 40mA$	60	80	-	dB
Dropout Voltage	V_D	$I_{OUT} = 1A$, $V_{IN} = 0.95V_{OUT}$	-	1.1	1.4	V
Temperature Stability	TCV_O	$V_{IN} = V_{OUT} + 1.5V$, $I_{OUT} = 10mA$	-	0.5	-	%

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Fig. 3 $V_D - I_{OUT}$

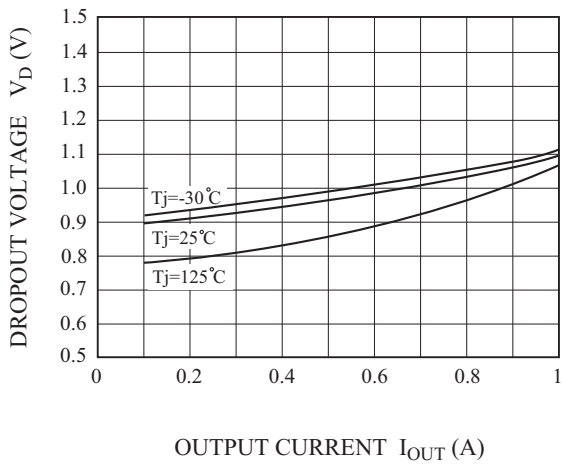


Fig. 4 $V_{OUT}(\text{CHANGE}) - T_j$

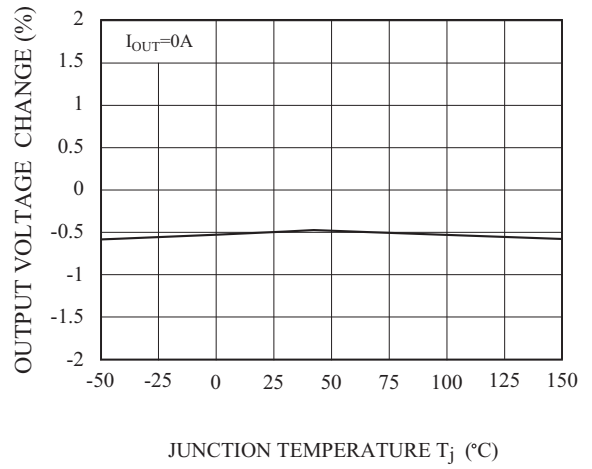


Fig. 5 LINE REGULATION

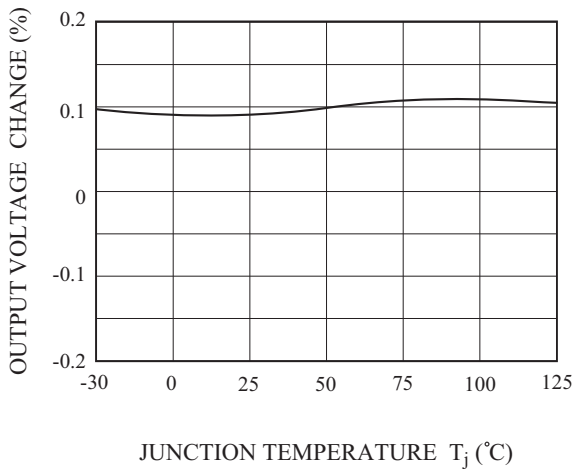


Fig. 4 LOAD REGULATION

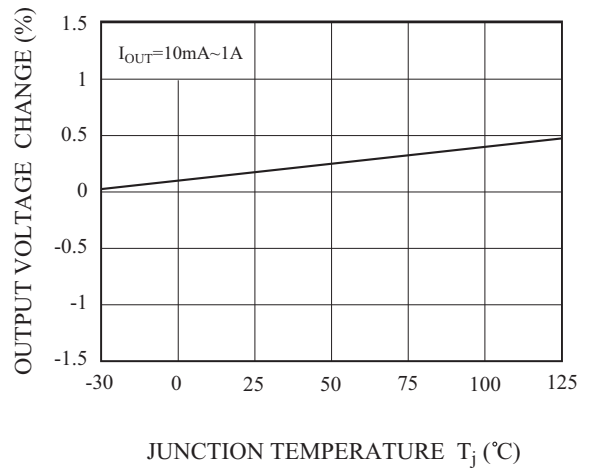


Fig.7 $I_Q - T_j$

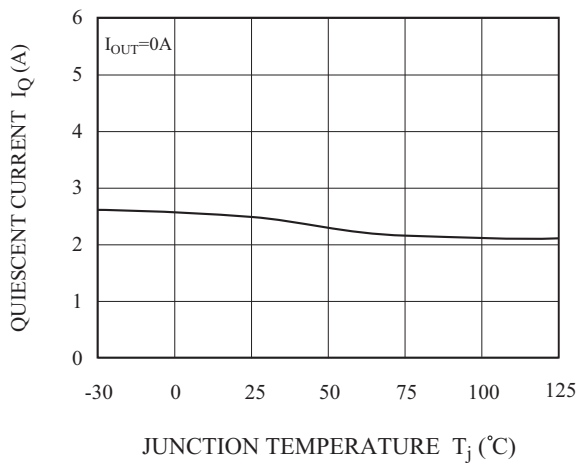
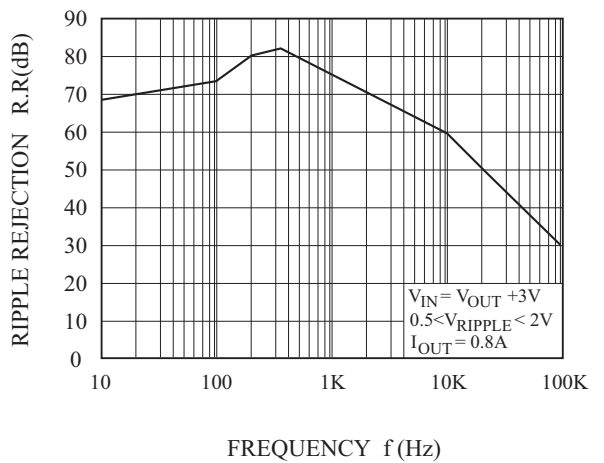


Fig.8 R.R - f



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Fig.9 P_D - T_a (AS-Type : SOT-223)

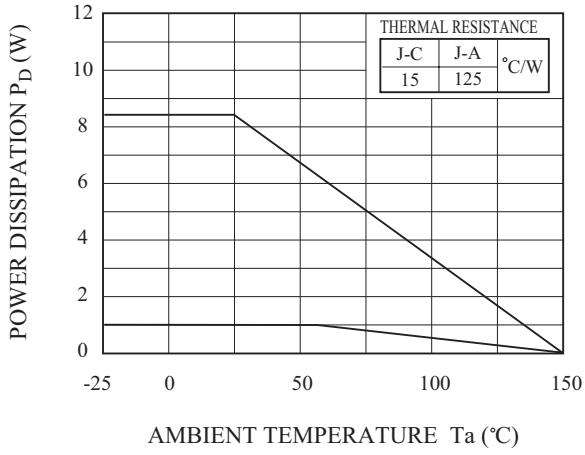


Fig.10 P_D - T_a (AF-Type : DPAK)

