



FEATURES

- 4%/ 2% Accuracy Output Voltage.
- Low Dropout Voltage
- Guaranteed 50mA Output Current.
- Internal P-MOSFET Draws no Base Current.
- Low Ground Current.
- Output Voltage of 3.0V/ 3.3V/ 3.6V/ 4.5V/ 5.0V Available.
- Input Voltage Range up to 13V.
- Needs only 1 μ F for Stability.

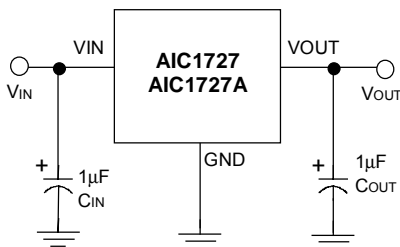
APPLICATIONS

- Toys.
- Battery Powered Systems.
- Audio/Video System
- Wireless Communication Systems.

DESCRIPTION

The AIC1727/AIC1727A is a 3-pin low dropout linear regulator. The superior characteristics of the AIC1727/AIC1727A include zero base current loss, low dropout voltage and accurate output voltage ($\pm 4\%$ for AIC1727, $\pm 2\%$ for AIC1727A). Typical ground current remains approximately 4 μ A, from no load to maximum loading conditions. The AIC1727/AIC1727A comes in the popular 3-pin SOT-23, SOT-89, TO-92 packages.

TYPICAL APPLICATION CIRCUIT



Low Dropout Linear Regulator



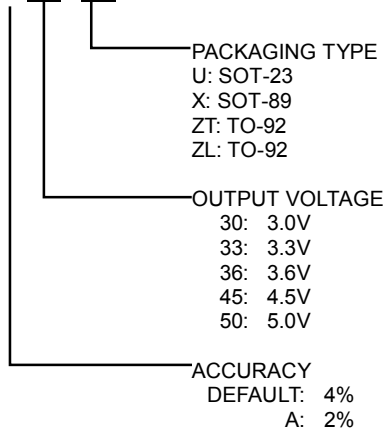
AIC1727/AIC1727A

50mA LOW DROPOUT LINEAR REGULATOR

SPEC NO: DS-1727-00 7/13/00

ORDERING INFORMATION

AIC1727X-XXCXX



ORDER NUMBER	PIN CONFIGURATION
AIC1727(A)-30CU AIC1727(A)-33CU AIC1727(A)-36CU AIC1727(A)-45CU AIC1727(A)-50CU (SOT-23)	FRONT VIEW 1: GND 2: VOUT 3: VIN
AIC1727(A)-30CX AIC1727(A)-33CX AIC1727(A)-36CX AIC1727(A)-45CX AIC1727(A)-50CX (SOT-89)	FRONT VIEW 1: GND 2: VIN 3: VOUT
AIC1727(A)-30CZL AIC1727(A)-33CZL AIC1727(A)-36CZL AIC1727(A)-45CZL AIC1727(A)-50CZL (TO-92 L Type)	TOP VIEW 1: GND 2: VIN 3: VOUT
AIC1727(A)-30CZT AIC1727(A)-33CZT AIC1727(A)-36CZT AIC1727(A)-45CZT AIC1727(A)-50CZT (TO-92 T Type)	TOP VIEW 1: VOUT 2: GND 3: VIN

ABSOLUTE MAXIMUM RATINGS

Input Supply Voltage.....	-0.3~13V
Operating Junction Temperature Range.....	-40°C~ 85°C
Storage Temperature Range	-65°C~150°C
Power Dissipation	SOT-89 Package 0.5W
	TO-92 Package 0.5W

TEST CIRCUIT

Refer to the TYPICAL APPLICATION CIRCUIT



ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$, $C_{IN}=1\mu\text{F}$, $C_{OUT}=1\mu\text{F}$, unless otherwise specified.)

PARAMETER	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT	
Output Voltage	No Load				V	
	AIC1727-50	$V_{IN}=5.5\sim 13\text{V}$	4.800	5.0		5.200
	AIC1727-45	$V_{IN}=5.5\sim 13\text{V}$	4.320	4.5		4.680
	AIC1727-36	$V_{IN}=4.0\sim 13\text{V}$	3.455	3.6		3.745
	AIC1727-33	$V_{IN}=4.0\sim 13\text{V}$	3.170	3.3		3.430
	AIC1727-30	$V_{IN}=3.6\sim 13\text{V}$	2.880	3.0		3.120
Output Voltage	No Load				V	
	AIC1727A-50	$V_{IN}=5.5\sim 13\text{V}$	4.900	5.0		5.100
	AIC1727A-45	$V_{IN}=5.5\sim 13\text{V}$	4.410	4.5		4.590
	AIC1727A-36	$V_{IN}=4.0\sim 13\text{V}$	3.528	3.6		3.672
	AIC1727A-33	$V_{IN}=4.0\sim 13\text{V}$	3.234	3.3		3.366
	AIC1727A-30	$V_{IN}=3.6\sim 13\text{V}$	2.940	3.0		3.060
Output Voltage Temperature Coefficiency	(Note 1)		± 150		PPM/ $^\circ\text{C}$	
Line Regulation $\frac{\Delta V_{out}}{V_{out} \times \Delta V_{in}}$	$I_L=1\text{mA}$				%V	
	AIC1727/AIC1727A-50	$V_{IN}=5.5\sim 13\text{V}$	0.2	0.3		
	AIC1727/AIC1727A-45	$V_{IN}=5.0\sim 13\text{V}$	0.2	0.3		
	AIC1727/AIC1727A-36	$V_{IN}=4.1\sim 13\text{V}$	0.2	0.3		
	AIC1727/AIC1727A-33	$V_{IN}=3.8\sim 13\text{V}$	0.2	0.3		
	AIC1727/AIC1727A-30	$V_{IN}=3.5\sim 13\text{V}$	0.2	0.3		
Load Regulation (Note 2)	AIC1727/AIC1727A-50	$V_{IN}=7.0\text{V}$, $I_L=0.1\sim 50\text{mA}$	30	60	mV	
	AIC1727/AIC1727A-45	$V_{IN}=6.5\text{V}$, $I_L=0.1\sim 50\text{mA}$	30	60		
	AIC1727/AIC1727A-36	$V_{IN}=5.6\text{V}$, $I_L=0.1\sim 50\text{mA}$	30	60		
	AIC1727/AIC1727A-33	$V_{IN}=5.3\text{V}$, $I_L=0.1\sim 50\text{mA}$	30	60		
	AIC1727/AIC1727A-30	$V_{IN}=5.0\text{V}$, $I_L=0.1\sim 50\text{mA}$	30	60		
Dropout Voltage (Note 3)	$I_L=1\text{mA}$				mV	
	AIC1727/AIC1727A-50		24	36		
	AIC1727/AIC1727A-45		26	39		
	AIC1727/AIC1727A-36		33	50		
	AIC1727/AIC1727A-30		40	60		
Ground Current	$I_o=0.1\text{mA}\sim 50\text{mA}$		4	7	μA	

Note 1: Guaranteed by design.

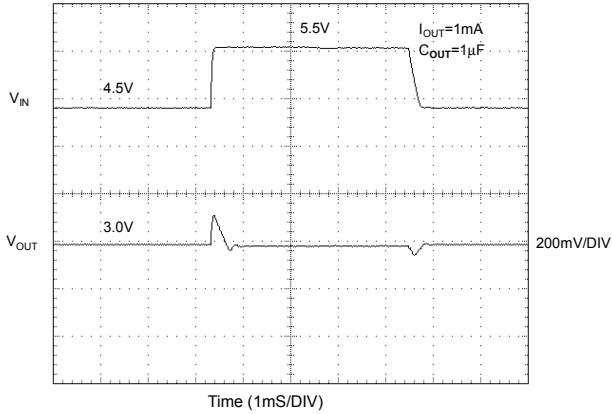
Note 2: Regulation is measured at constant junction temperature, using pulse testing with a low ON time.

Note 3: Dropout voltage is defined as the input to output differential at which the output voltage drops 100mV below the value measured with a 1V differential.

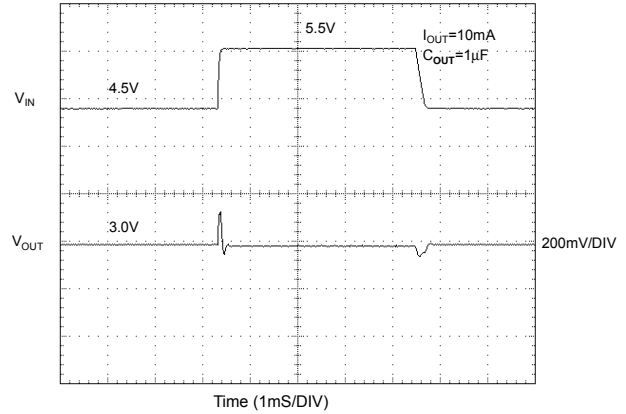


TYPICAL PERFORMANCE CHARACTERISTICS

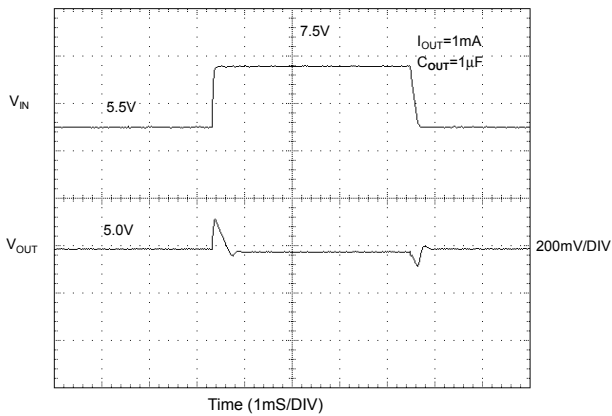
Line Transient Response



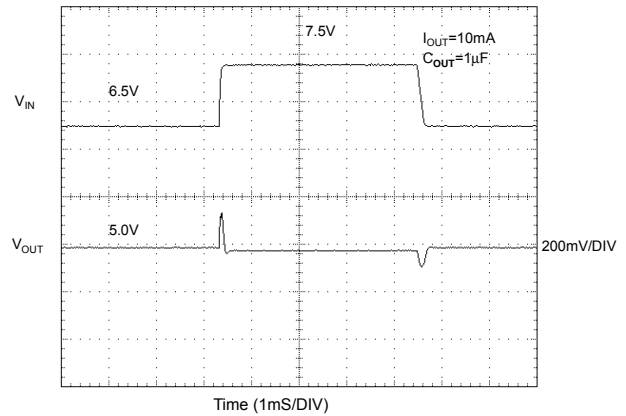
Line Transient Response



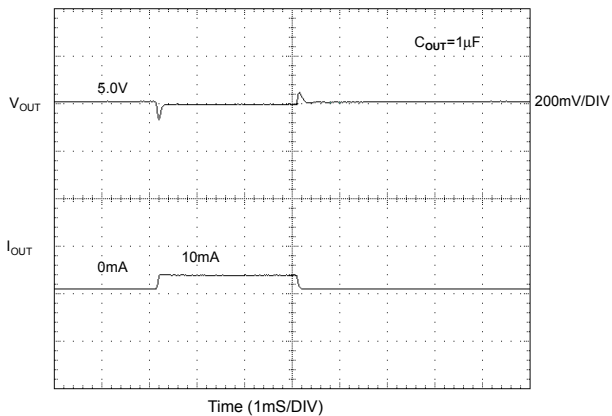
Line Transient Response



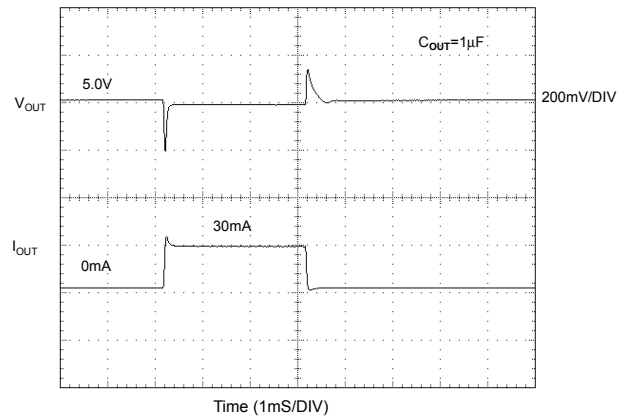
Line Transient Response



Load Transient Response



Load Transient Response



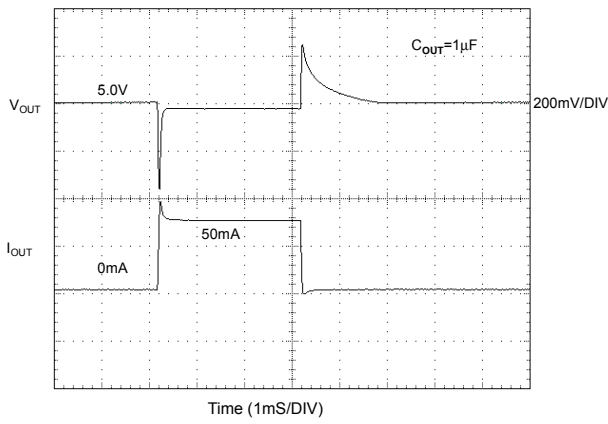


AIC1727/AIC1727A

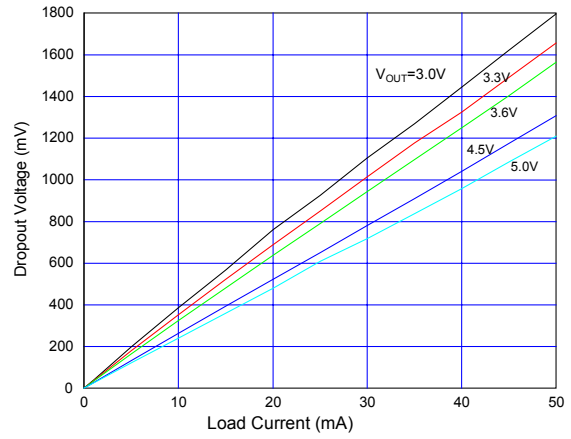
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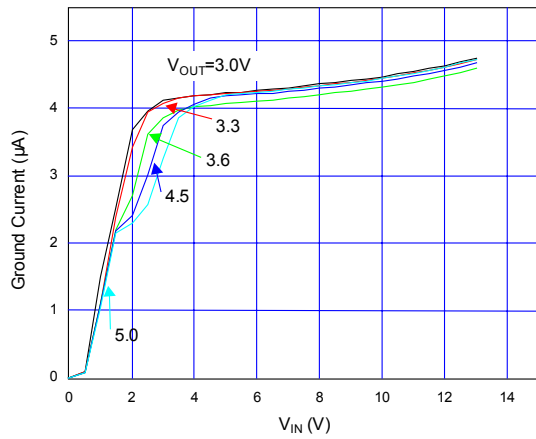
Load Transient Response



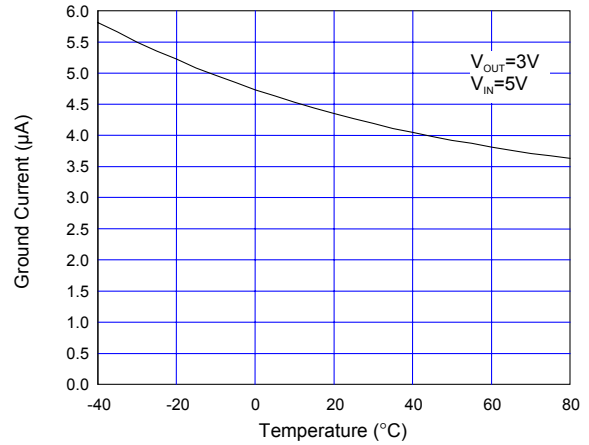
Dropout Voltage vs Load Current



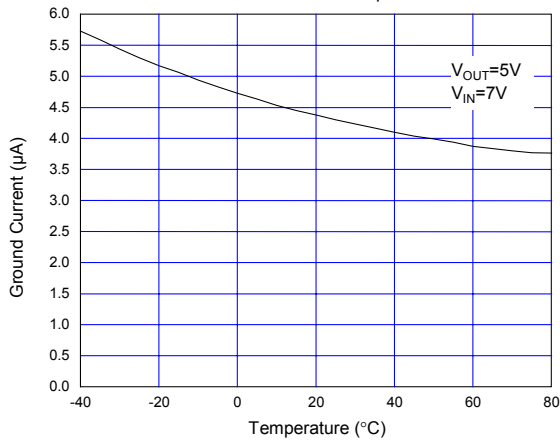
Ground Current vs V_{IN}



Ground Current vs Temperature

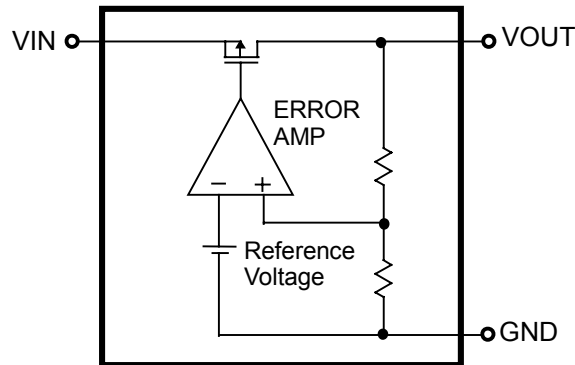


Ground Current vs Temperature



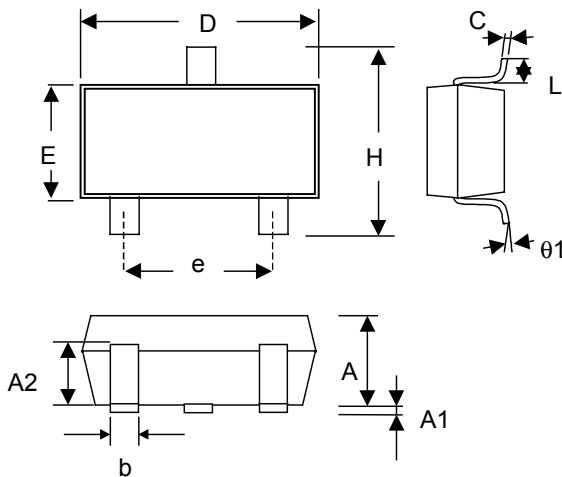


■ BLOCK DIAGRAM



■ PHYSICAL DIMENSIONS

● SOT-23 (unit: mm)



SYMBOL	MIN	MAX
A	1.00	1.30
A1	—	0.10
A2	0.70	0.90
b	0.35	0.50
C	0.10	0.25
D	2.70	3.10
E	1.40	1.80
e	1.90 (TYP)	
H	2.60	3.00
L	0.37	—
$\theta 1$	1°	9°

● SOT-23 Marking

Part No.	Marking	Part No.	Marking
AIC1727-30CU	BJ30	AIC1727A-30CU	BJA30
AIC1727-33CU	BJ33	AIC1727A-33CU	BJA33
AIC1727-36CU	BJ36	AIC1727A-36CU	BJA36
AIC1727-45CU	BJ45	AIC1727A-45CU	BJA45
AIC1727-50CU	BJ50	AIC1727A-50CU	BJA50

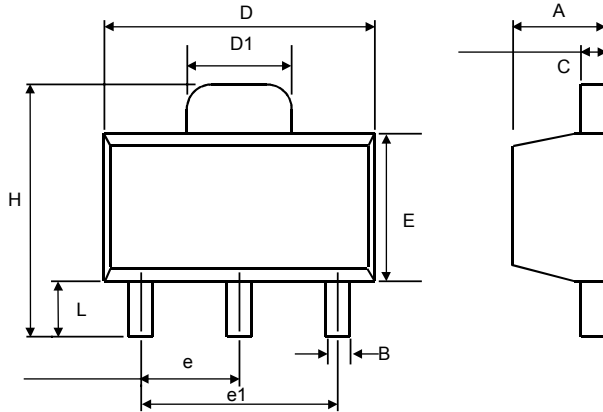


AIC1727/AIC1727A

50mA LOW DROPOUT LINEAR REGULATOR

SPEC NO: DS-1727-00 07/13/00

● SOT-89 (unit: mm)

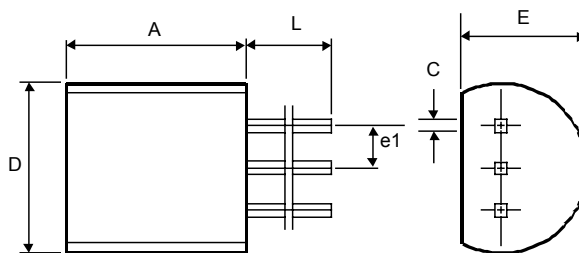


SYMBOL	MIN	MAX
A	1.40	1.60
B	0.36	0.48
C	0.35	0.44
D	4.40	4.60
D1	1.62	1.83
E	2.29	2.60
e	1.50 (TYP.)	
e1	3.00 (TYP.)	
H	3.94	4.25
L	0.89	1.20

● SOT-89 Marking

Part No.	Marking	Part No.	Marking
AIC1727-30CX	AW30	AIC1727A-30CX	AWA30
AIC1727-33CX	AW33	AIC1727A-33CX	AWA33
AIC1727-36CX	AW36	AIC1727A-36CX	AWA36
AIC1727-45CX	AW45	AIC1727A-45CX	AWA45
AIC1727-50CX	AW50	AIC1727A-50CX	AWA50

● TO-92 (unit: mm)



SYMBOL	MIN	MAX
A	4.32	5.33
C	0.38 (TYP.)	
D	4.40	5.20
E	3.17	4.20
e1	1.27 (TYP.)	
L	12.7	-