

## 50mA Low Dropout Linear Regulator

### ■ FEATURES

- 4% 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 $\mu$ F for Stability.

### ■ APPLICATIONS

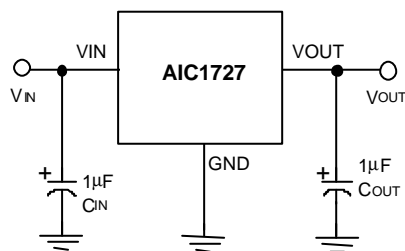
- Toys.
- Battery Powered Systems.
- Audio/Video System
- Wireless Communication Systems.

### ■ DESCRIPTION

The AIC1727 is a 3-pin low dropout linear regulator. The superior characteristics of the AIC1727 include zero base current loss, low dropout voltage and accurate output voltage. Typical ground current remains approximately 4  $\mu$ A, from no load to maximum loading conditions.

The AIC1727 comes in the popular 3-pin SOT-23, SOT-89, TO-92 packages.

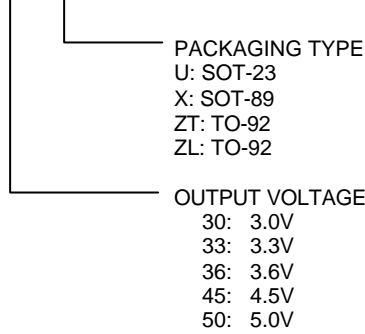
### ■ TYPICAL APPLICATION CIRCUIT

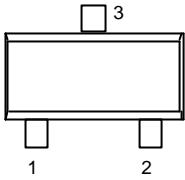
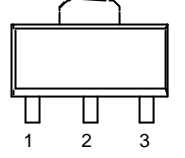
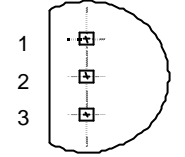
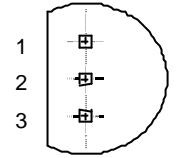


**Low Dropout Linear Regulator**

## ORDERING INFORMATION

AIC1727-XXCXX



ORDER NUMBER	PIN CONFIGURATION
AIC1727-30CU AIC1727-33CU AIC1727-36CU AIC1727-45CU AIC1727-50CU (SOT-23)	FRONT VIEW 1: GND 2: VOUT 3: VIN 
AIC1727-30CX AIC1727-33CX AIC1727-36CX AIC1727-45CX AIC1727-50CX (SOT-89)	FRONT VIEW 1: GND 2: VIN 3: VOUT 
AIC1727-30CZL AIC1727-33CZL AIC1727-36CZL AIC1727-45CZL AIC1727-50CZL (TO-92 L Type)	TOP VIEW 1: GND 2: VIN 3: VOUT 
AIC1727-30CZT AIC1727-33CZT AIC1727-36CZT AIC1727-45CZT AIC1727-50CZT (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
SOT-23 Package .....	0.35W

## TEST CIRCUIT

Refer to the TYPICAL APPLICATION CIRCUIT

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

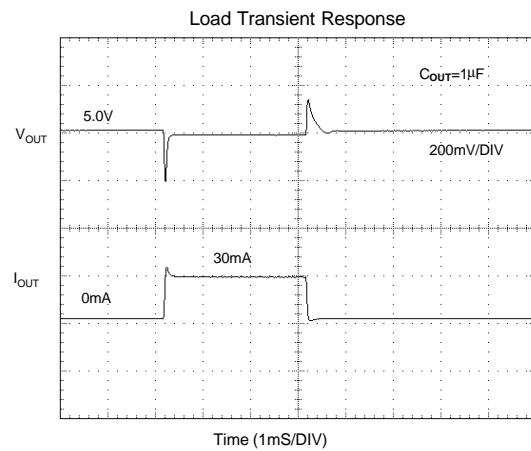
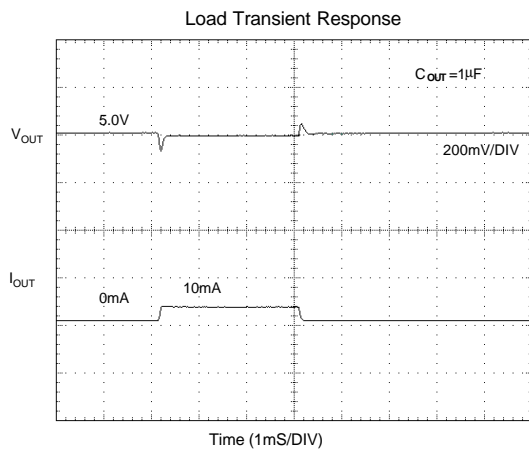
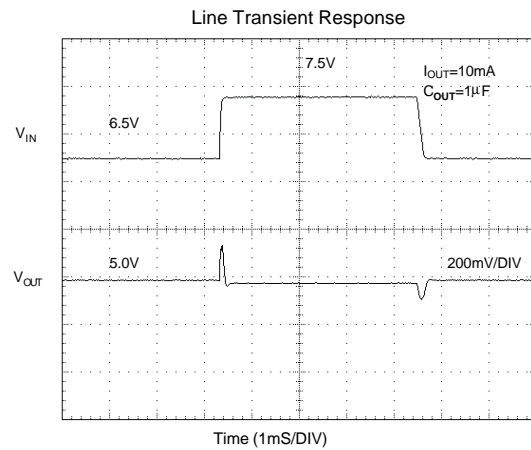
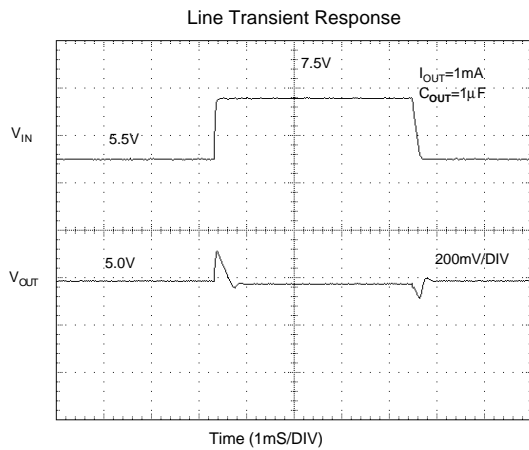
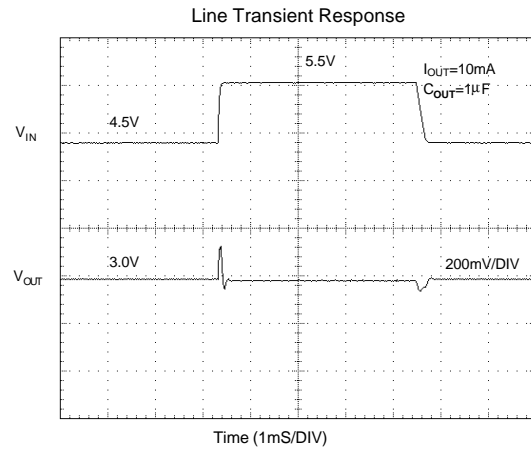
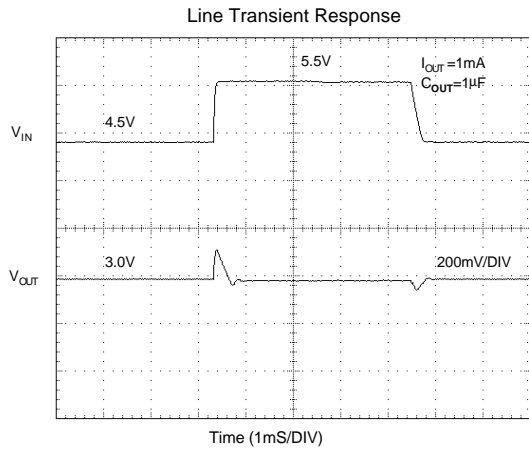
PARAMETER	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT	
Output Voltage	No Load				V	
	AIC1727-50	$V_{IN}=5.5\sim 13\text{V}$	4.800	5.0		5.200
	AIC1727-45	$V_{IN}=5.5\sim 13\text{V}$	4.320	4.5		4.680
	AIC1727-36	$V_{IN}=4.0\sim 13\text{V}$	3.455	3.6		3.745
	AIC1727-33	$V_{IN}=4.0\sim 13\text{V}$	3.170	3.3		3.430
AIC1727-30	$V_{IN}=3.6\sim 13\text{V}$	2.880	3.0	3.120		
Output Voltage Temperature Coefficiency	(Note 1)		$\pm 150$		PPM/ $^\circ\text{C}$	
Line Regulation $\frac{\Delta V_{out}}{V_{out} \times \Delta V_{in}}$	$I_L=1\text{mA}$				%/ $V$	
	AIC1727-50	$V_{IN}=5.5\sim 13\text{V}$		0.2		0.3
	AIC1727-45	$V_{IN}=5.0\sim 13\text{V}$		0.2		0.3
	AIC1727-36	$V_{IN}=4.1\sim 13\text{V}$		0.2		0.3
	AIC1727-33	$V_{IN}=3.8\sim 13\text{V}$		0.2		0.3
AIC1727-30	$V_{IN}=3.5\sim 13\text{V}$		0.2	0.3		
Load Regulation (Note 2)	AIC1727-50	$V_{IN}=7.0\text{V}$ , $I_L=0.1\sim 50\text{mA}$		30	60	mV
	AIC1727-45	$V_{IN}=6.5\text{V}$ , $I_L=0.1\sim 50\text{mA}$		30	60	
	AIC1727-36	$V_{IN}=5.6\text{V}$ , $I_L=0.1\sim 50\text{mA}$		30	60	
	AIC1727-33	$V_{IN}=5.3\text{V}$ , $I_L=0.1\sim 50\text{mA}$		30	60	
	AIC1727-30	$V_{IN}=5.0\text{V}$ , $I_L=0.1\sim 50\text{mA}$		30	60	
Dropout Voltage (Note 3)	$I_L=1\text{mA}$				mV	
	AIC1727-50			24		36
	AIC1727-45			26		39
	AIC1727-36			33		50
	AIC1727-33			36		54
AIC1727-30			40	60		
Ground Current	$I_o=0.1\text{mA}\sim 50\text{mA}$		4	7	$\mu\text{A}$	

Note 1: Guaranteed by design.

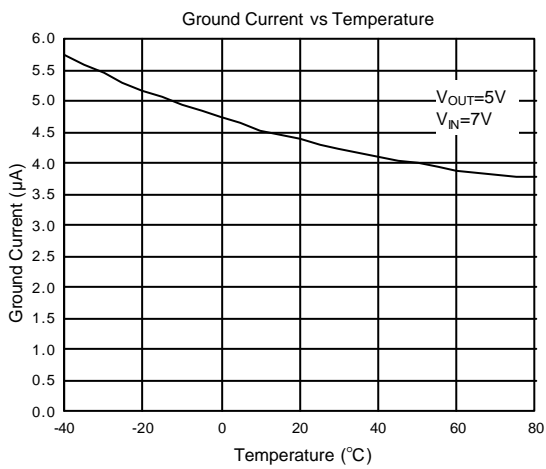
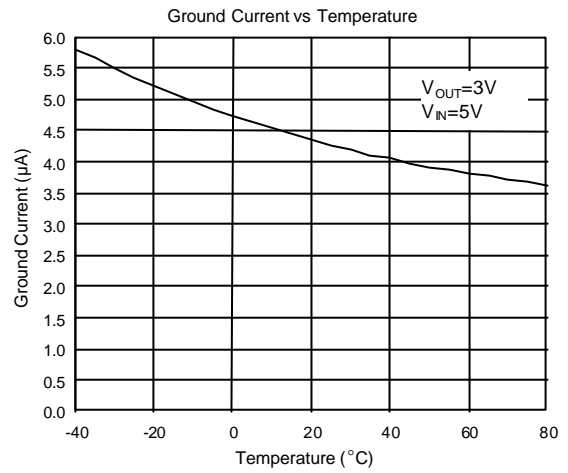
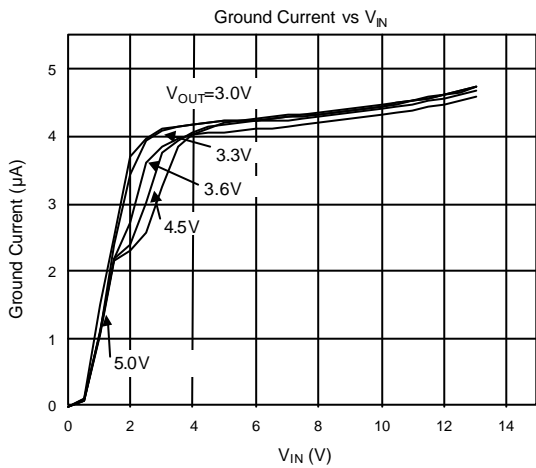
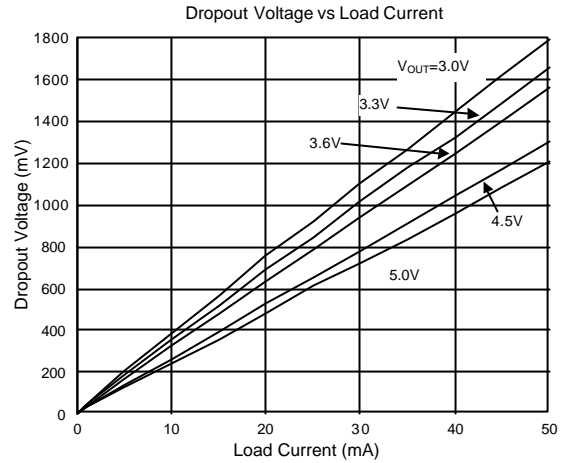
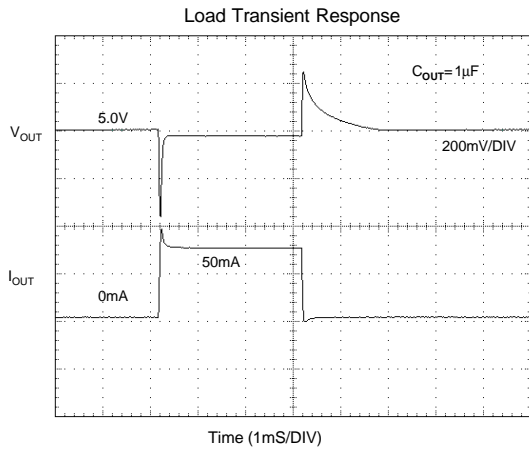
Note 2: Regulation is measured at constant junction temperature, using pulse testing with a low ON time.

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.

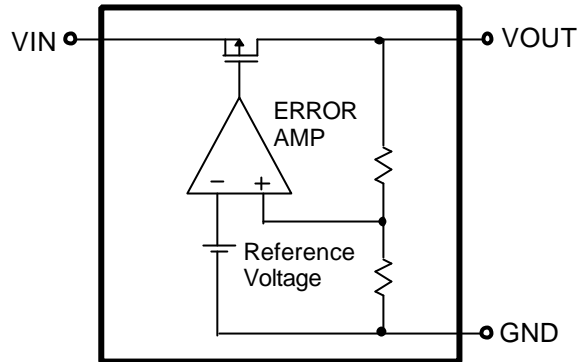
## TYPICAL PERFORMANCE CHARACTERISTICS



**TYPICAL PERFORMANCE CHARACTERISTICS (Continued)**

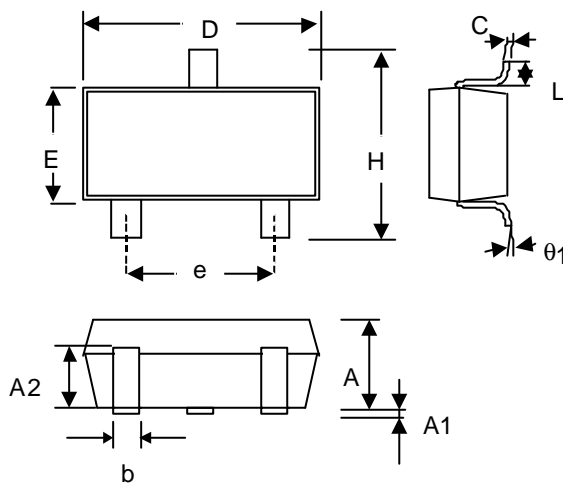


**■ BLOCK DIAGRAM**



**■ PHYSICAL DIMENSIONS**

- SOT-23 (unit: mm)

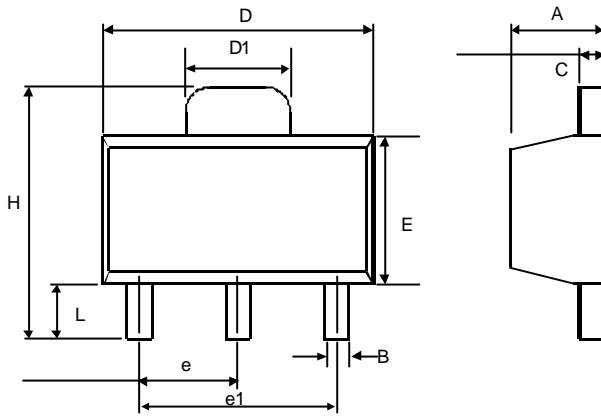


SYMBOL	MIN	MAX
A	1.00	1.30
A1	—	0.10
A2	0.70	0.90
b	0.35	0.50
C	0.10	0.25
D	2.70	3.10
E	1.40	1.80
e	1.90 (TYP)	
H	2.60	3.00
L	0.37	—
1	1°	9°

- SOT-23 Marking

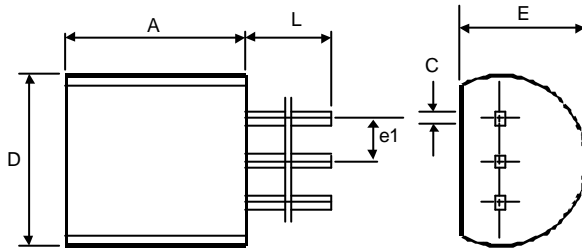
Part No.	Marking
AIC1727-30CU	BJ30
AIC1727-33CU	BJ33
AIC1727-36CU	BJ36
AIC1727-45CU	BJ45
AIC1727-50CU	BJ50

- **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

- **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	-