



## 300mA Low Power LDO

### General Description

KF8177A series are a highly precise, lower consumption, 3 terminal, positive voltage regulators manufactured using CMOS and laser trimming technologies. The series provides large currents with a significantly small dropout voltage. The KF8177A consists of a current limiter circuit, a driver transistor, a precision reference voltage and an error correction circuit. The series is compatible with low ESR ceramic capacitors. The current limiter's fold back circuit operates as a short circuit protection as well as the output current limiter for the output pin. Output voltages are internally by laser trimming technologies. It is selectable in 0.1V increments within a range of 1.2V to 3.6V. KF8177A series are available in SOT-23 and SOT-89 packages.

### Features

- Low power consumption
- Low voltage drop
- Low temperature coefficient
- Low Quiescent Current: 1uA at 6V
- Output voltage accuracy: tolerance  $\pm 2\%$

### Applications

- Battery-powered equipment
- Reference voltage sources
- Cameras, video cameras
- Portable AV systems
- Mobile phones
- Portable games

### Order Information KF8177A-①②③④

Designator	Symbol	Description
① ②	Integer	Output Voltage(1.2~3.6V)
③	N	Package:SOT23
	M	Package:SOT23-3
	P	Package:SOT89
④	R	RoHS / Pb Free
	G	Halogen Free

### Marking Information

Model	Marking
KF8177A-28	65XY
KF8177A-30	65ZY
KF8177A-33	662Y

### Pin Assignment

SOT23 and SOT23-3 (Top View)

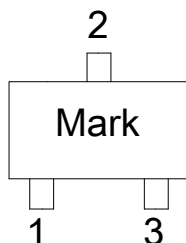


Table1: KF8177A-XXNR/KF8177A-XXMR series (SOT23/SOT23-3 PKG)

PIN NO.	PIN NAME	FUNCTION
1	GND	GND pin
2	VIN	Input voltage pin
3	VOUT	Output voltage pin

SOT89 (Top View)

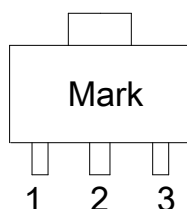
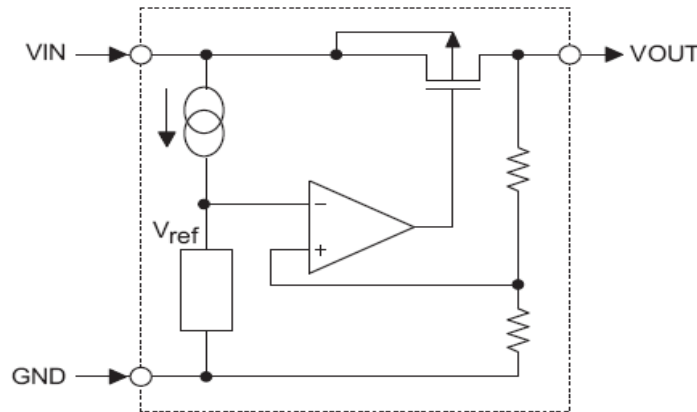


Table2: KF8177A-XXPR series (SOT89 PKG)

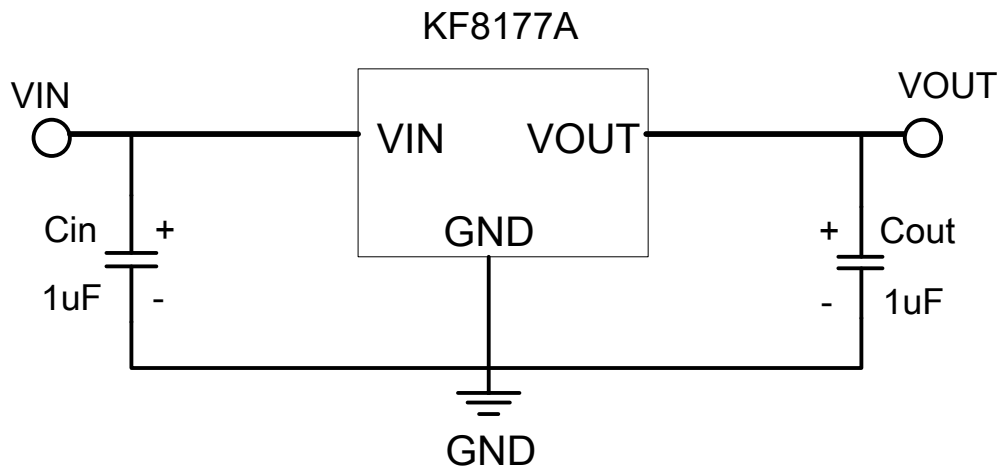
PIN NO.	PIN NAME	FUNCTION
1	GND	GND pin
2	VIN	Input voltage pin
3	VOUT	Output voltage pin



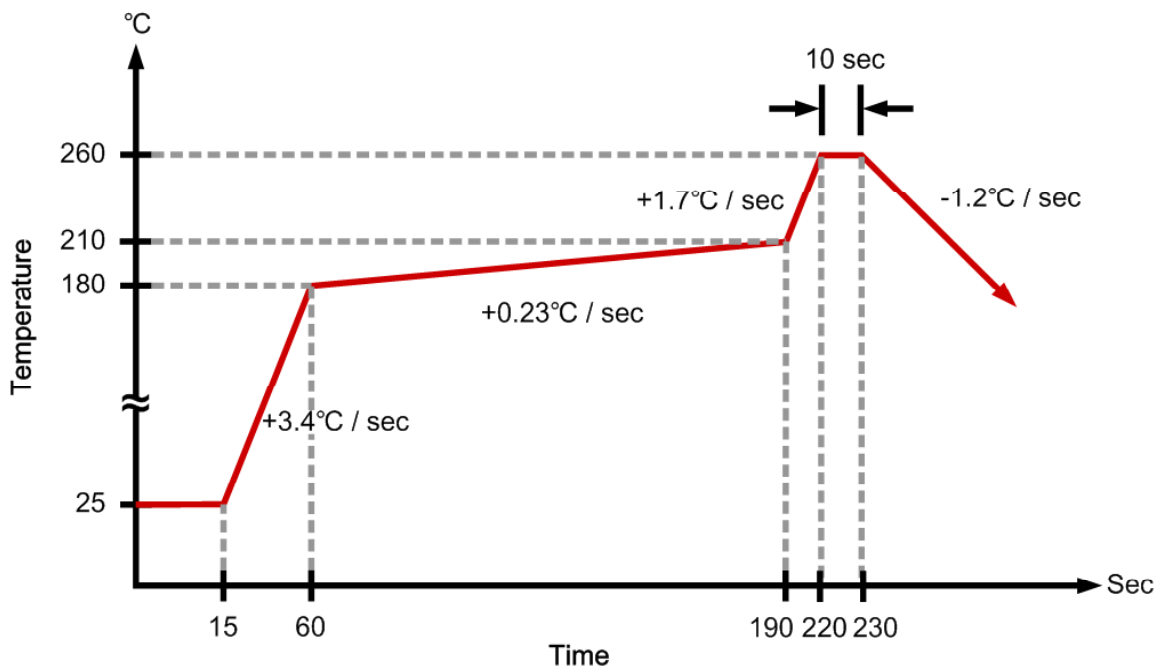
## Block Diagram



## Typical Application



## IR Re-flow Soldering Curve





**Absolute Maximum Ratings**

Parameter	Symbol	Ratings	Units
Input Voltage	V <sub>IN</sub>	10	V
Output Current	I <sub>OUT</sub>	300 <sup>*</sup>	mA
Output Voltage	V <sub>OUT</sub>	V <sub>SS</sub> -0.3~V <sub>IN</sub> +0.3	V
Power Dissipation	SOT-23	P <sub>d</sub>	0.20
	SOT-89		0.50
Operating Temperature Range	T <sub>opr</sub>	-40~+85	
Storage Temperature Range	T <sub>stg</sub>	-55~+125	

\*I<sub>OUT</sub>=P<sub>d</sub>/(V<sub>IN</sub>-V<sub>OUT</sub>)

**Electrical Characteristics**

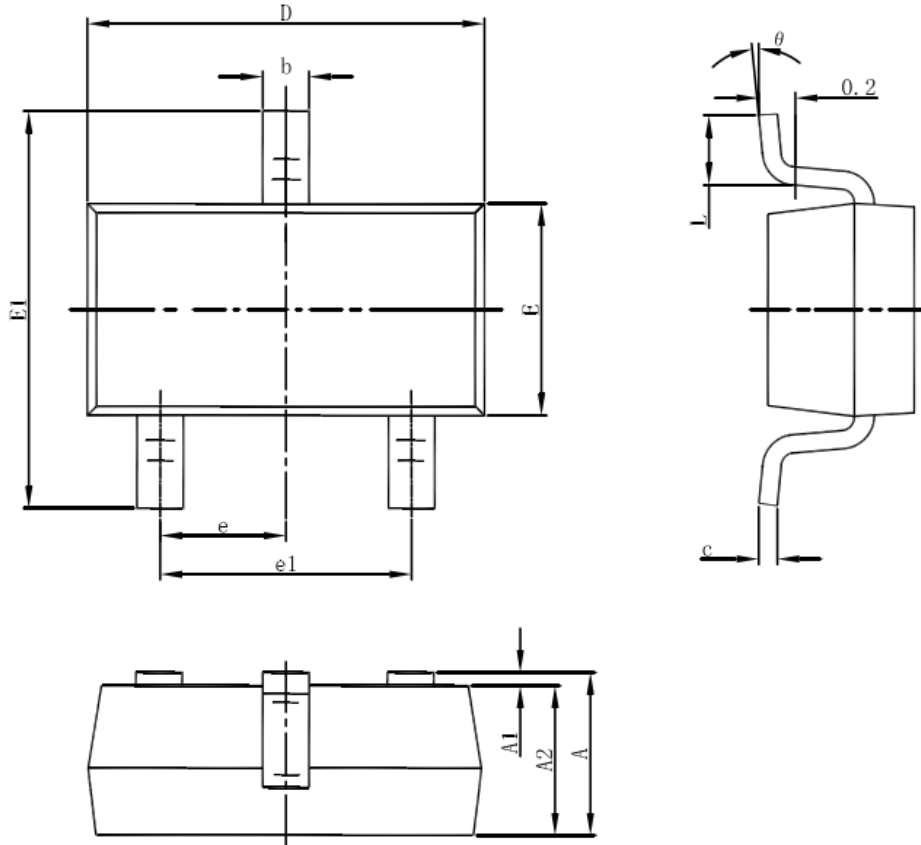
KF8177A for any output voltage

(T<sub>a</sub>=25 )

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	V <sub>out</sub>	V <sub>in</sub> =V <sub>out</sub> +1V 1.0mA≤I <sub>out</sub> ≤30mA	V <sub>out</sub> ×0.98	--	V <sub>out</sub> ×1.02	V
Output Current*1	I <sub>out</sub>	V <sub>in</sub> -V <sub>out</sub> =1V	--	300	--	mA
Low dropout*2	V <sub>drop</sub>	Refer to the next table				
Line Regulation	$\Delta V_{out1}/\Delta (V_{in}-V_{out})$	1.6V≤V <sub>in</sub> ≤6.5V I <sub>out</sub> =40mA	--	0.05	0.2	%/V
Load Regulation	$\Delta V_{out}/\Delta I_{out}$	V <sub>in</sub> =V <sub>out</sub> +1V 1.0mA≤I <sub>out</sub> ≤80mA	--	12	30	mV
Output voltage Temperature Coefficiency	$\Delta V_{out}/(T_a \cdot V_{out})$	I <sub>out</sub> =30mA 0°C≤T <sub>a</sub> ≤70°C	--	±75	--	Ppm/°C
Supply Current	I <sub>ss</sub>	--	--	1	2	uA
Input Voltage	V <sub>in</sub>	--	--	8	10	V

Electrical Characteristics by Output Voltage:

Output Voltage V <sub>out</sub> (V)	Dropout Voltage V <sub>dif</sub> (V)		
	Conditions	Typ.	Max.
V <sub>out</sub> ≤1.5V	I <sub>out</sub> =100 mA	0.39	0.66
V <sub>out</sub> =1.6V		0.35	0.57
V <sub>out</sub> =1.7V		0.32	0.50
1.8 ≤ V <sub>out</sub> ≤ 2		0.30	0.45
2.1 ≤ V <sub>out</sub> ≤ 2.7		0.28	0.42
2.8 ≤ V <sub>out</sub> ≤ 3.6		0.25	0.35

**3-pin SOT23-3 Outline Dimensions**


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°



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