

HN62FPXXXX

Low Dropout Voltage Regulators

DESCRIPTION

The HN62FP series is a group of positive voltage output, three-pin regulators, that provide a high current even when the input/output voltage differential is small. Low power consumption and high accuracy is achieved through CMOS and laser trimming technologies.

The HN62FP consists of a high-precision voltage reference, an error amplification circuit, and a current limited output driver. Transient response to load variations have improved in comparison to the existing series. SOT-23 (150mW), SOT-89 (500mW) and TO-92 (300mW) packages are available.

FEATURES

- Maximum output current: 250mA
- Highly accurate: Output voltage $\pm 0.2\%$
- CMOS low power consumption.
- Small input/output differential: 0.4V at 160mA
- **Output Voltage Range**
: 2.0V ~ 6.0V in 0.1V increments

APPLICATIONS

- Battery Powered Equipment
- Palmtops
- Portable Cameras and Video Recorders
- Reference Voltage Sources

ORDERING INFORMATION



HN62FPXXXX
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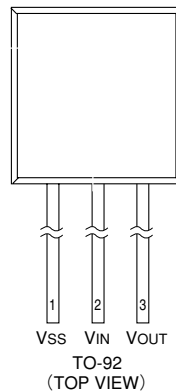
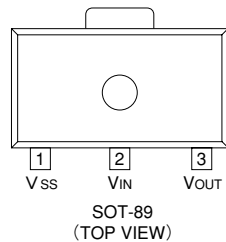
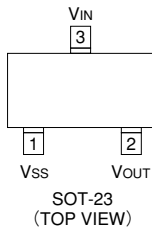
a: Output Voltage: 30=3.0V, 50=5.0V

b: Package Type: M= SOT-23

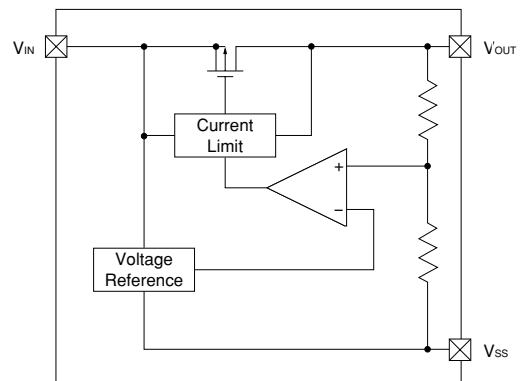
P= SOT-89

T= TO-92

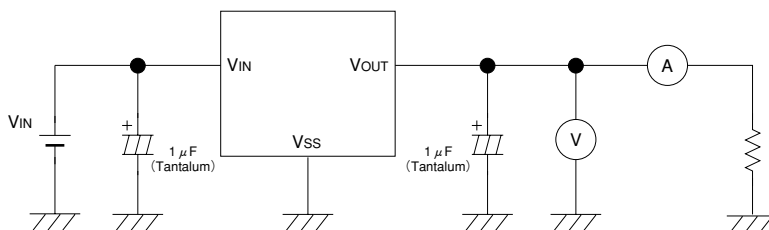
PIN CONNECTION



BLOCK DIAGRAM



TYPICAL APPLICATION



ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNITS
Input Voltage	V _{IN}	12	V
Output Current	I _{OUT}	500	mA
Output Voltage	V _{OUT}	V _{SS} -0.3 — V _{IN} +0.3	V
Continuous Total Power Dissipation	P _D	150 500 300	mW
Operating Ambient Temperature	T _{OPR}	-40 — +85	°C
Storage Temperature	T _{STG}	-40 — +125	°C

ELECTRICAL CHARACTERISTICS

 HN62FP50 V_{OUT(T)}=5.0V (Note1)

Parameter	Symbol	Conditions	MIN	TPY	MAX	UNITS	CIRC.
Output Voltage	V _{OUT(E)} (Note2)	I _{OUT} =40mA, V _{IN} =6.0V	4.900	5.000	5.100	V	1
Maximum Output Current	I _{OUT max}	V _{IN} =6.0V V _{OUT} ≥4.5V	250			mA	1
Load Stability	ΔV _{OUT}	1mA ≤ I _{OUT} ≤ 100mA V _{IN} =6.0V		40	80	mV	1
Input-Output Voltage Differential (Note3)	V _{dif}	I _{OUT} =200mA		380	600	mV	1
Supply Current	I _{SS}	V _{IN} =6.0V		2.0	4.5	μA	2
Input Stability	ΔV _{OUT} /ΔV _{IN} *V _{OUT}	I _{OUT} =40mA 6.0V ≤ V _{IN} ≤ 10.0V		0.2	0.3	%/V	1
Input Voltage	V _{IN}				10	V	

 HN62FP40 V_{OUT(T)}=4.0V (Note1)

Parameter	Symbol	Conditions	MIN	TPY	MAX	UNITS	CIRC.
Output Voltage	V _{OUT} (Note2)	I _{OUT} =40mA, V _{IN} =5.0V	3.920	4.000	4.080	V	1
Maximum Output Current	I _{OUT max}	V _{IN} =5.0V V _{OUT} ≥3.6V	200			mA	1
Load Stability	ΔV _{OUT}	1mA ≤ I _{OUT} ≤ 100mA V _{IN} =5.0V		45	90	mV	1
Input-Output Voltage Differential (Note3)	V _{dif}	I _{OUT} =200mA		400	630	mV	1
Supply Current	I _{SS}	V _{IN} =5.0V		2.0	4.5	μA	2
Input Stability	ΔV _{OUT} /ΔV _{IN} *V _{OUT}	I _{OUT} =40mA 5.0V ≤ V _{IN} ≤ 10.0V		0.2	0.3	%/V	1
Input Voltage	V _{IN}				10	V	

 HN62FP33 V_{OUT(T)}=3.3V (Note1)

Parameter	Symbol	Conditions	MIN	TPY	MAX	UNITS	CIRC.
Output Voltage	V _{OUT} (Note2)	I _{OUT} =40mA, V _{IN} =4.3V	3.230	3.300	3.370	V	1
Maximum Output Current	I _{OUT max}	V _{IN} =4.3V V _{OUT} ≥3.0V	160			mA	1
Load Stability	ΔV _{OUT}	1mA ≤ I _{OUT} ≤ 80mA V _{IN} =4.3V		45	90	mV	1
Input-Output Voltage Differential (Note3)	V _{dif}	I _{OUT} =160mA		400	700	mV	1
Supply Current	I _{SS}	V _{IN} =4.3V		2.0	4.5	μA	2
Input Stability	ΔV _{OUT} /ΔV _{IN} *V _{OUT}	I _{OUT} =40mA 4.3V ≤ V _{IN} ≤ 10.0V		0.2	0.3	%/V	1
Input Voltage	V _{IN}				10	V	

HN62FP30 $V_{OUT}(T)=3.0V$ ^(Note1)

Parameter	Symbol	Conditions	MIN	TPY	MAX	UNITS	CIRC.
Output Voltage	V_{OUT} ^(Note2)	$I_{OUT}=40mA, V_{IN}=4.0V$	2.940	3.000	3.060	V	1
Maximum Output Current	$I_{OUT\ max}$	$V_{IN}=4.0V, V_{OUT} \geq 2.7V$	150			mA	1
Load Stability	ΔV_{OUT}	$1mA \leq I_{OUT} \leq 80mA$ $V_{IN}=4.0V$		45	90	mV	1
Input-Output Voltage Differential ^(Note3)	Vdif	$I_{OUT}=160mA$		400	700	mV	1
Supply Current	I _{ss}	$V_{IN}=4.0V$		2.0	4.5	μA	2
Input Stability	$\Delta V_{OUT}/\Delta V_{IN} * V_{OUT}$	$I_{OUT}=40mA$ $4.0V \leq V_{IN} \leq 10.0V$		0.2	0.3	%/V	1
Input Voltage	V_{IN}				10	V	

HN62FP20 $V_{OUT}(T)=2.0V$ ^(Note1)

Parameter	Symbol	Conditions	MIN	TPY	MAX	UNITS	CIRC.
Output Voltage	V_{OUT} ^(Note2)	$I_{OUT}=40mA, V_{IN}=3.0V$	1.960	2.000	2.040	V	1
Maximum Output Current	$I_{OUT\ max}$	$V_{IN}=3.0V, V_{OUT} \geq 1.8V$	100			mA	1
Load Stability	ΔV_{OUT}	$1mA \leq I_{OUT} \leq 60mA$ $V_{IN}=3.0V$		45	90	mV	1
Input-Output Voltage Differential ^(Note3)	Vdif	$I_{OUT}=120mA$		400	700	mV	1
Supply Current	I _{ss}	$V_{IN}=3.0V$		2.0	4.5	μA	2
Input Stability	$\Delta V_{OUT}/\Delta V_{IN} * V_{OUT}$	$I_{OUT}=40mA$ $3.0V \leq V_{IN} \leq 10.0V$		0.2	0.3	%/V	1
Input Voltage	V_{IN}				10	V	

Note : 1. $V_{OUT}(T)$ =Specified Output Voltage .

2. $V_{OUT}(E)$ =Effective Output Voltage (i.e. the output voltage when " $V_{OUT}(T)+1.0V$ " is provided at the V_{IN} pin while maintaining a certain I_{OUT} value).

3. Vdif= { V_{IN1} ^(Note4), $V_{OUT}(E)$ }

4. V_{IN1} = The input voltage at the time 98% of $V_{OUT}(E)$ is output (input voltage has been gradually reduced).