1.Description

The HT73xx-A series is a set of three-terminal, low power, high voltage regulators implemented in CMOS technology. The series features extremely low quiescent current which is typically 2μA.They allow input voltages as high as 12V. The device provides large current with a significantly small dropout voltage.

The HT73xx-A consists of a high-precision voltage reference. They are available with several fixed output voltages ranging from 2.5V to 5.0V. CMOS technology ensures low dropout voltage and low current consumption. Although designed primarily as fixed voltage regulators, these devices can be used with external components to generate variable voltages and currents.

2.Features

- Ultra low quiescent current: 2.0μA (typ.)
- High input voltage (up to 12V)
- Output voltage accuracy: tolerance ±3%
- Low dropout voltage
- Package form:SOT-23,SOT-89,TO-92

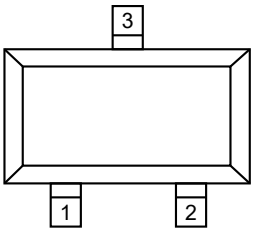
3.Applications

- Battery-powered equipment
- Voltage regulator for microprocessor
- Voltage regulator for LAN cards
- Wireless Communication equipment
- Audio/Video equipment

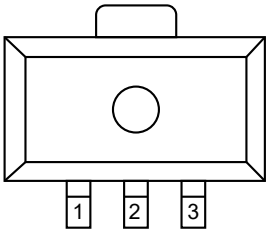
4.Device Information

Part Number	Input Voltage (MAX) (V)	OUTPUT (V)	Package
7325	12	2.5	SOT-23, SOT-89, TO-92
7327	12	2.7	
7330	12	3	
7333	12	3.3	
7336	12	3.6	
7340	12	4	
7344	12	4.4	
7350	12	5	

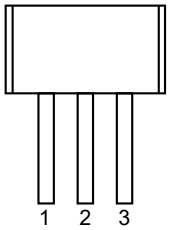
5.Pinning Information



SOT-23



SOT-89



TO-92

Pin Functions

PIN No.			Name	Description
SOT-23	SOT-89	TO-92		
1	1	1	GND	Ground
3	2	2	VIN	Supply Voltage
2	3	3	VOUT	Output

6.Functional Block Diagram

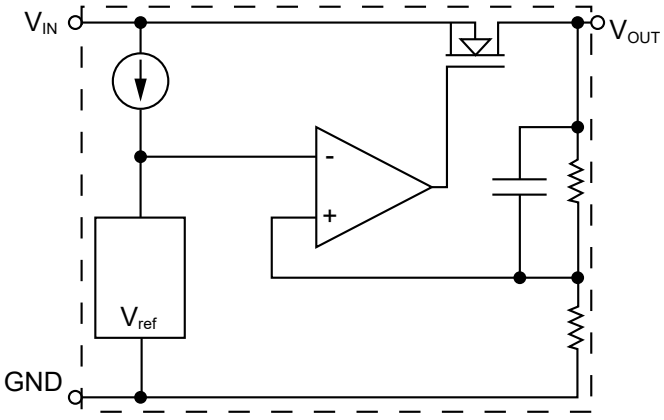


Figure 1. 73xx Functional Block Diagram

7.Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage Range	V_{IN}	-0.5	15	V
Consumption power	P_D	-	400	mW
Junction Temperature	T_J	-50	125	°C
Operating Temperature	T_{OP}	-25	70	°C

Absolute maximum ratings are those values beyond which the device could be permanently damaged,These are stress ratings only,which do not imply functional operation of the device at these or any other conditions beyond those indicated under Recommended Operating Conditions.

8.1 Electrical Characteristics (7325-A)

(T_A=25°C, voltages are referenced to GND, unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_{OUT}	V_{IN}=3.5V, I_{OUT}=40mA	2.425	2.5	2.575	V
Output Current	I_{OUT}	V_{IN}=3.5V, I_{OUT}≥2.25V	180			mA
Load Regulation	ΔV_{OUT}	V_{IN}=3.5V, 1mA≤I_{OUT}≤60mA		45	90	mV
Drop Voltage	V_{DIF}	I_{OUT}=40mA		110		mV
Quiescent Current	I_{SS}	V_{IN}=3.5V, No Load		2	3	μA
Line Regulation	$\Delta V_{OUT}/(\Delta V_{IN}*V_{OUT})$	3.5V≤V_{IN}≤12V, I_{OUT}=40mA		0.2	0.3	%/V
Input Voltage	V_{IN}				12	V
Temperature Coefficient	$\Delta V_{OUT}/\Delta T_A$	V_{IN}=3.5V,I_{OUT}=40mA,0°C≤T_A≤85°C		±0.7		mV/°C

8.2 Electrical Characteristics (7327-A)

(T_A=25°C, voltages are referenced to GND, unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_{OUT}	V_{IN}=3.7V, I_{OUT}=40mA	2.619	2.7	2.781	V
Output Current	I_{OUT}	V_{IN}=3.7V, I_{OUT}≥2.43V	200			mA
Load Regulation	ΔV_{OUT}	V_{IN}=3.7V, 1mA≤I_{OUT}≤60mA		45	90	mV
Drop Voltage	V_{DIF}	I_{OUT}=40mA		100		mV
Quiescent Current	I_{SS}	V_{IN}=3.7V, No Load		2	3	μA
Line Regulation	$\Delta V_{OUT}/(\Delta V_{IN}*V_{OUT})$	3.7V≤V_{IN}≤12V, I_{OUT}=40mA		0.2	0.3	%/V
Input Voltage	V_{IN}				12	V
Temperature Coefficient	$\Delta V_{OUT}/\Delta T_A$	V_{IN}=3.7V,I_{OUT}=40mA,0°C≤T_A≤85°C		±0.7		mV/°C

8.3 Electrical Characteristics (7330-A)

(T_A=25°C, voltages are referenced to GND, unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_{OUT}	V_{IN}=4V, I_{OUT}=40mA	2.91	3	3.09	V
Output Current	I_{OUT}	V_{IN}=4V, I_{OUT}≥2.7V	250			mA
Load Regulation	ΔV_{OUT}	V_{IN}=4V, 1mA≤I_{OUT}≤60mA		45	90	mV
Drop Voltage	V_{DIF}	I_{OUT}=40mA		95		mV
Quiescent Current	I_{SS}	V_{IN}=4V, No Load		2	3	μA
Line Regulation	$\Delta V_{OUT}/(\Delta V_{IN}*V_{OUT})$	4V≤V_{IN}≤12V, I_{OUT}=40mA		0.2	0.3	%/V
Input Voltage	V_{IN}				12	V
Temperature Coefficient	$\Delta V_{OUT}/\Delta T_A$	V_{IN}=4V, I_{OUT}=40mA, 0°C≤T_A≤85°C		±0.7		mV/°C

8.4 Electrical Characteristics (7333-A)

(T_A=25°C, voltages are referenced to GND, unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_{OUT}	V_{IN}=4.3V, I_{OUT}=40mA	3.201	3.3	3.399	V
Output Current	I_{OUT}	V_{IN}=4.3V, I_{OUT}≥2.97V	250			mA
Load Regulation	ΔV_{OUT}	V_{IN}=4.3V, 1mA≤I_{OUT}≤60mA		45	90	mV
Drop Voltage	V_{DIF}	I_{OUT}=40mA		90		mV
Quiescent Current	I_{SS}	V_{IN}=4.3V, No Load		2	3	μA
Line Regulation	$\Delta V_{OUT}/(\Delta V_{IN}*V_{OUT})$	4.3V≤V_{IN}≤12V, I_{OUT}=40mA		0.2	0.3	%/V
Input Voltage	V_{IN}				12	V
Temperature Coefficient	$\Delta V_{OUT}/\Delta T_A$	V_{IN}=4.3V,I_{OUT}=40mA,0°C≤T_A≤85°C		±0.7		mV/°C

8.5 Electrical Characteristics (7336-A)

(T_A=25°C, voltages are referenced to GND, unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_{OUT}	V_{IN}=4.5V, I_{OUT}=40mA	3.492	3.6	3.708	V
Output Current	I_{OUT}	V_{IN}=4.5V, I_{OUT}≥3.15V	250			mA
Load Regulation	ΔV_{OUT}	V_{IN}=4.5V, 1mA≤I_{OUT}≤60mA		45	90	mV
Drop Voltage	V_{DIF}	I_{OUT}=40mA		80		mV
Quiescent Current	I_{SS}	V_{IN}=4.5V, No Load		2	3	μA
Line Regulation	$\Delta V_{OUT}/(\Delta V_{IN}*V_{OUT})$	4.5V≤V_{IN}≤12V, I_{OUT}=40mA		0.2	0.3	%/V
Input Voltage	V_{IN}				12	V
Temperature Coefficient	$\Delta V_{OUT}/\Delta T_A$	V_{IN}=4.5V,I_{OUT}=40mA,0°C≤T_A≤85°C		±0.7		mV/°C

8.6 Electrical Characteristics (7340-A)

(T_A=25°C, voltages are referenced to GND, unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_{OUT}	V_{IN}=5.0V, I_{OUT}=1mA	3.88	4	4.12	V
Output Current	I_{OUT}	V_{IN}=5.0V, I_{OUT}≥3.6V	250			mA
Load Regulation	ΔV_{OUT}	V_{IN}=5.0V, 1mA≤I_{OUT}≤80mA		10	90	mV
Drop Voltage	V_{DIF}	I_{OUT}=40mA		100		mV
Quiescent Current	I_{SS}	V_{IN}=5.0V, No Load		2	3	μA
Line Regulation	$\Delta V_{OUT}/(\Delta V_{IN}*V_{OUT})$	5.0V≤V_{IN}≤12V, I_{OUT}=10mA		0.5		%/V
Input Voltage	V_{IN}				12	V
Temperature Coefficient	$\Delta V_{OUT}/\Delta T_A$	V_{IN}=5.0V,I_{OUT}=1mA,-40°C≤T_A≤85°C		±0.7		mV/°C

8.7 Electrical Characteristics (7344-A)

(T_A=25°C, voltages are referenced to GND, unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_{OUT}	V_{IN}=5.4V, I_{OUT}=1mA	4.268	4.4	4.532	V
Output Current	I_{OUT}	V_{IN}=5.4V, I_{OUT}≥3.96V	250			mA
Load Regulation	ΔV_{OUT}	V_{IN}=5.4V, 1mA≤I_{OUT}≤100mA		30	90	mV
Drop Voltage	V_{DIF}	I_{OUT}=40mA		90		mV
Quiescent Current	I_{SS}	V_{IN}=5.4V, No Load		2	3	μA
Line Regulation	$\Delta V_{OUT}/(\Delta V_{IN}*V_{OUT})$	5.4V≤V_{IN}≤12V, I_{OUT}=40mA		0.2	0.3	%/V
Input Voltage	V_{IN}				12	V
Temperature Coefficient	$\Delta V_{OUT}/\Delta T_A$	V_{IN}=5.4V,I_{OUT}=10mA,0°C≤T_A≤85°C		±0.7		mV/°C

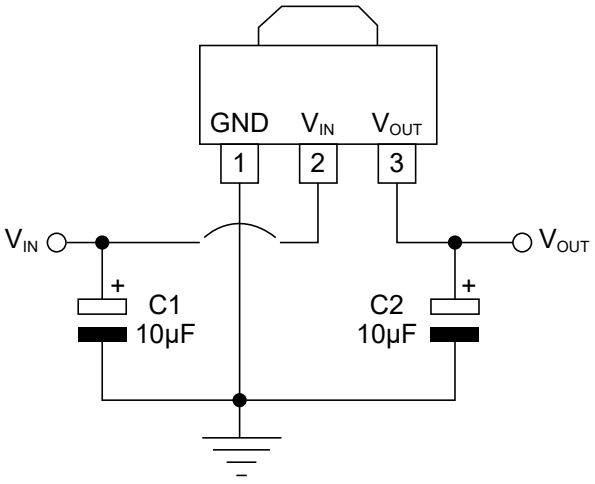
8.8 Electrical Characteristics (7350-A)

(T_A=25°C, voltages are referenced to GND, unless otherwise specified)

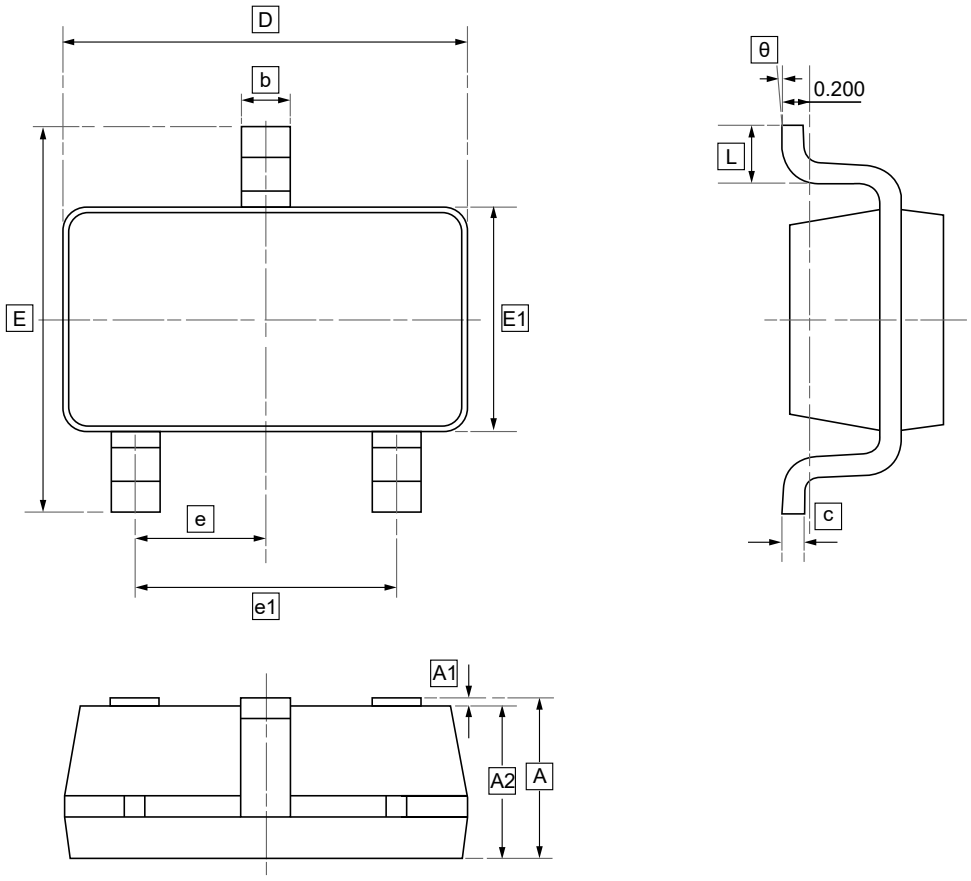
Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_{OUT}	V_{IN}=6V, I_{OUT}=40mA	4.85	5	5.15	V
Output Current	I_{OUT}	V_{IN}=6V, I_{OUT}≥4.5V	250			mA
Load Regulation	ΔV_{OUT}	V_{IN}=6V, 1mA≤I_{OUT}≤60mA		45	90	mV
Drop Voltage	V_{DIF}	I_{OUT}=40mA		60		mV
Quiescent Current	I_{SS}	V_{IN}=6V, No Load		2	3	μA
Line Regulation	$\Delta V_{OUT}/(\Delta V_{IN}*V_{OUT})$	6V≤V_{IN}≤12V, I_{OUT}=40mA		0.2	0.3	%/V
Input Voltage	V_{IN}				12	V
Temperature Coefficient	$\Delta V_{OUT}/\Delta T_A$	V_{IN}=6V, I_{OUT}=40mA, 0°C≤T_A≤85°C		±0.7		mV/°C

Note: $V_{DIF}=V_{IN2}-V_{OUT2}$, $V_{IN2}=V_{IN}$@($V_{OUT}=V_{OUT2}$), $V_{OUT2}=V_{OUT1}$*97%, $V_{OUT1}=V_{OUT}$@($V_{IN1}=V_{OUT}$+1V,Load=I_{OUT})

9.Typical Application



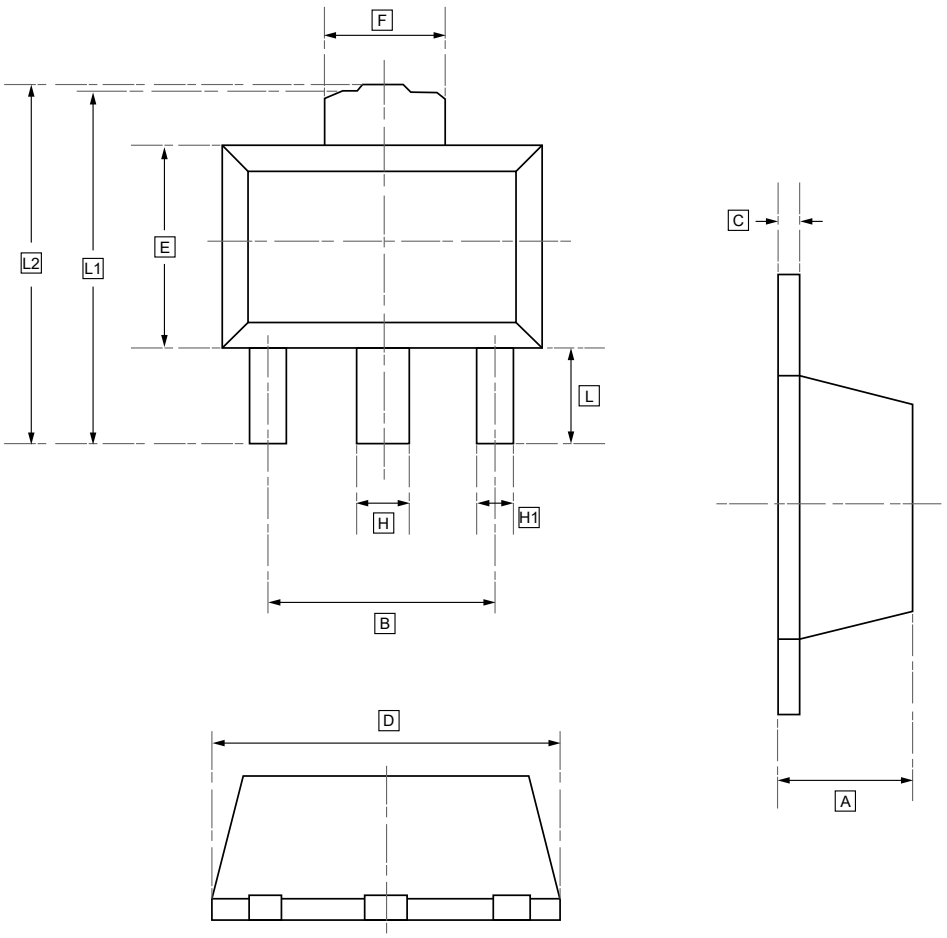
10.1 SOT-23 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	b	c	D	E1	E	e	e1	L	K
Min	1.050	0.000	1.050	0.300	0.100	2.820	1.500	2.650	0.950	1.800	0.300	0°
Max	1.250	0.100	1.150	0.500	0.200	3.020	1.700	2.950	BSC	2.000	0.600	8°

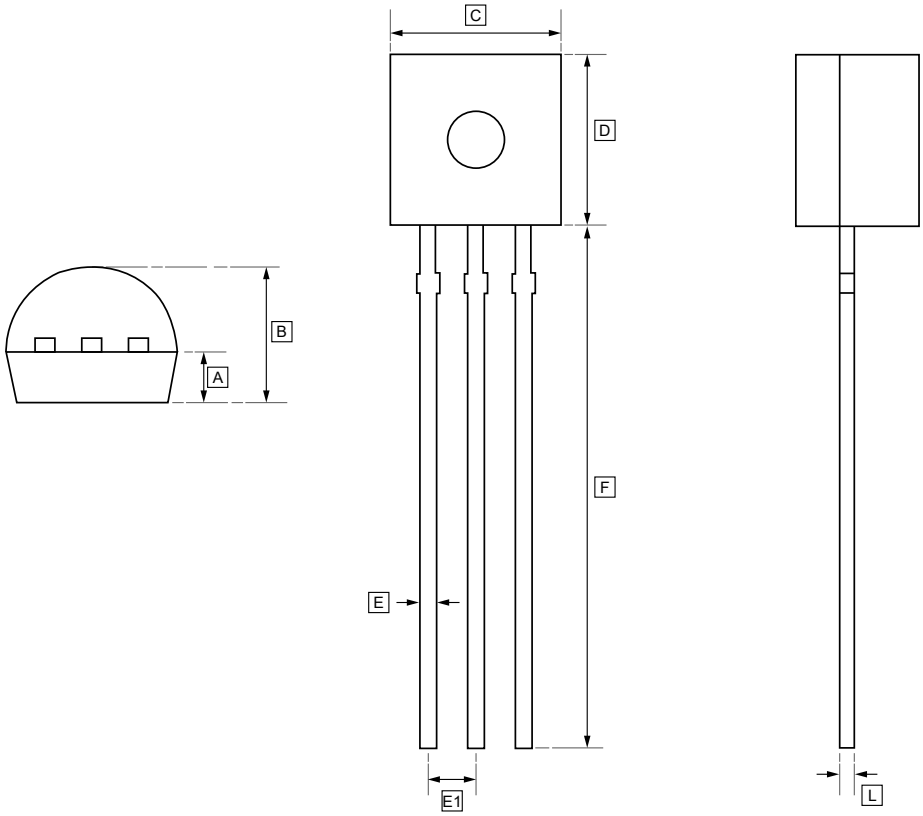
10.2 SOT-89 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	B	C	D	E	F	H	H1	L	L1	L2
Min	1.450	2.950	0.330	4.450	2.450	1.650	0.450	0.370	0.900	4.100	4.100
Max	1.550	3.050	0.430	4.550	2.550	1.750	0.580	0.480	1.000	4.300	4.350

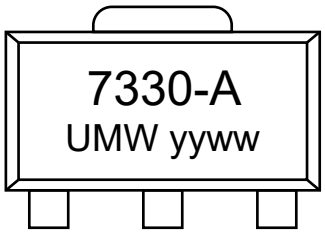
10.3 TO-92 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	B	C	D	E	E1	F	L
Min	1.10	3.50	4.50	4.40	0.35	1.27	13.50	0.35
Max	1.30	3.90	4.90	4.90	0.45	TYP	14.50	0.40

11.Ordering Information



yy: Year Code
ww: Week Code

Order Code	Marking	Package	Base QTY	Delivery Mode
UMW HT7325-A	HT7325-A	SOT-89	1000	Tape and reel
UMW HT7327-A	HT7327-A	SOT-89	1000	Tape and reel
UMW HT7330-A	HT7330-A	SOT-89	1000	Tape and reel
UMW HT7333-A	HT7333-A	SOT-89	1000	Tape and reel
UMW HT7336-A	HT7336-A	SOT-89	1000	Tape and reel
UMW HT7340-A	HT7340-A	SOT-89	1000	Tape and reel
UMW HT7344-A	HT7344-A	SOT-89	1000	Tape and reel
UMW HT7350-A	HT7350-A	SOT-89	1000	Tape and reel

12.Disclaimer

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