300mA, Low Consumption, Wide Input Voltage Linear Regulator

UM142xxS *SOT23-3*
UM142xxY *SOT89-3*
UM142xxB *SOT89-3*

General Description

The UM142xx series are a group of positive voltage output, high precise, high PSRR and low power consumption voltage regulator. The output voltages are selectable in 100mV steps within a range of 2.5V to 5V. It also can be customized on command.
The UM142xx series have excellent load and line transient response and good temperature characteristics, which can assure the stability of chip and power system.
The UM142xx series are available in a low profile SOT23-3& SOT89-3 package, which are lead (Pb)-free.

Applications

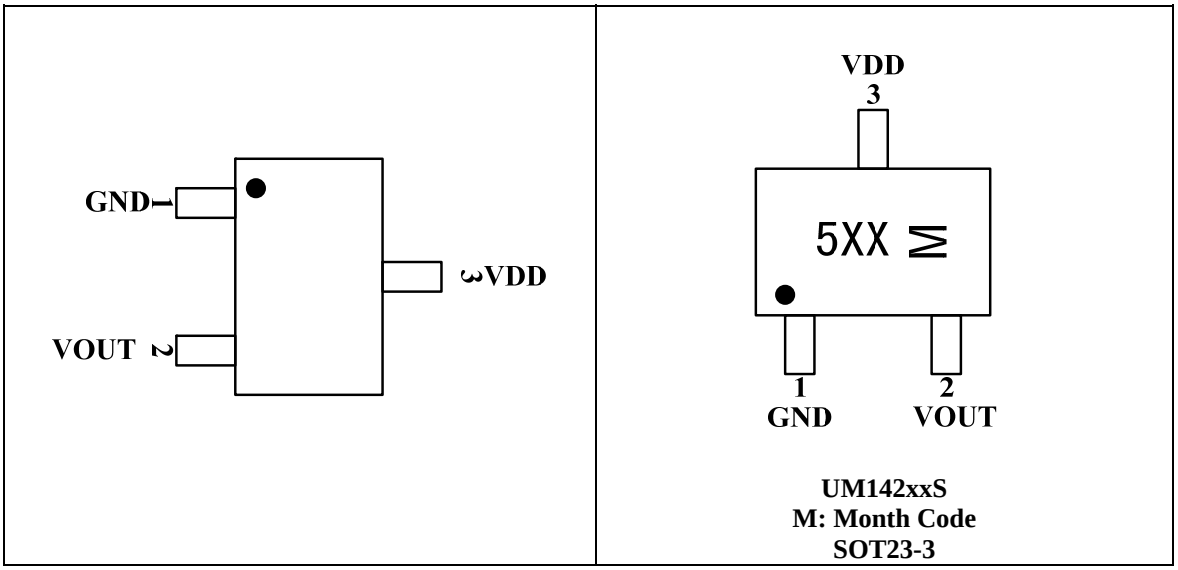
- Reference Voltage Source
- Battery Powered equipment
- Hand-Hold equipment
- Wireless LAN
- GPS Receivers

Features

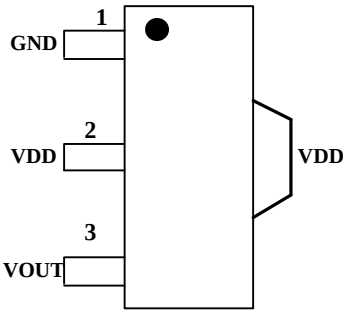
- Low Quiescent Current: 8μA at 5V
- High PSRR: 60dB range to 10KHz
- Low Output Noise: 44μV_{RMS}
- Low Dropout: 270mV at 150mA load
- Low Temperature Coefficient: ±100ppm/℃
- Excellent Line Regulation: 0.05%/V

Pin Configurations

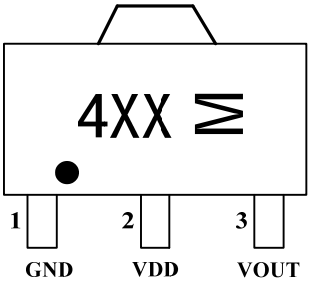
Top View



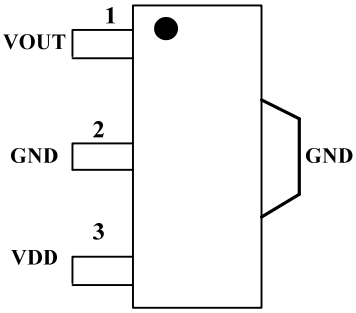
UM142xxS
M: Month Code
SOT23-3



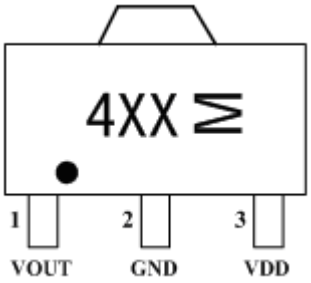
TAB connect to Pin2



UM142xxY
M: Month Code
SOT89-3

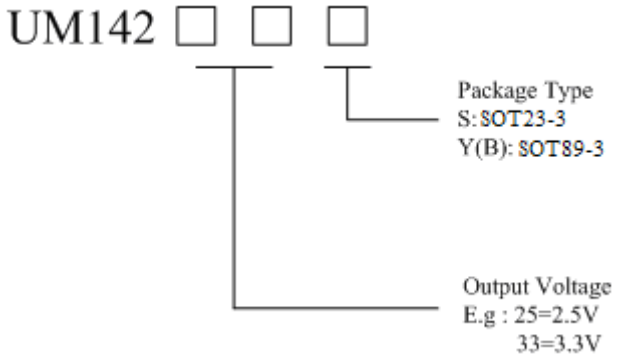


TAB connect to Pin2



UM142xxB
M: Month Code
SOT89-3

Ordering Information



Marking Information

Part Number	Output Voltage	Packaging Type	Marking Code	Shipping Qty
UM14225S	2.5V	SOT23-3	55A	3000pcs/7Inch Tape & Reel
UM14226S	2.6V		55B	
UM14227S	2.7V		55C	
UM14228S	2.8V		55D	
UM14229S	2.9V		55E	
UM14230S	3.0V		55F	
UM14231S	3.1V		55H	
UM14232S	3.2V		55L	
UM14233S	3.3V		55M	
UM14234S	3.4V		55J	
UM14235S	3.5V		55K	
UM14236S	3.6V		55N	
UM14237S	3.7V		55P	
UM14238S	3.8V		55Q	
UM14239S	3.9V		55R	
UM14240S	4.0V		55S	
UM14241S	4.1V		55T	
UM14242S	4.2V		55Y	
UM14243S	4.3V		55U	
UM14244S	4.4V		55Z	
UM14245S	4.5V		56A	
UM14246S	4.6V		56B	
UM14247S	4.7V		56C	
UM14248S	4.8V		56D	
UM14249S	4.9V		56E	
UM14250S	5.0V		53F	
UM14225Y	2.5V	SOT89-3	4AA	1000pcs/7Inch Tape & Reel
UM14226Y	2.6V		4AB	
UM14227Y	2.7V		4AC	
UM14228Y	2.8V		4AD	
UM14229Y	2.9V		4AE	
UM14230Y	3.0V		4AF	
UM14231Y	3.1V		4AH	
UM14232Y	3.2V		4AL	
UM14233Y	3.3V		4AM	
UM14234Y	3.4V		4AJ	
UM14235Y	3.5V		4AK	
UM14236Y	3.6V		4AN	
UM14237Y	3.7V		4AP	
UM14238Y	3.8V		4AQ	
UM14239Y	3.9V		4AR	
UM14240Y	4.0V		4AS	
UM14241Y	4.1V		4AT	
UM14242Y	4.2V		4AY	
UM14243Y	4.3V		4AU	
UM14244Y	4.4V		4AZ	
UM14245Y	4.5V		4BA	
UM14246Y	4.6V		4BB	
UM14247Y	4.7V		4BC	
UM14248Y	4.8V		4BD	
UM14249Y	4.9V		4BE	
UM14250Y	5.0V		4BF	

Marking Information (Continued)

Part Number	Output Voltage	Packaging Type	Marking Code	Shipping Qty
UM14225B	2.5V	SOT89-3	4CA	1000pcs/7Inch Tape & Reel
UM14226B	2.6V		4CB	
UM14227B	2.7V		4CC	
UM14228B	2.8V		4CD	
UM14229B	2.9V		4CE	
UM14230B	3.0V		4CF	
UM14231B	3.1V		4CH	
UM14232B	3.2V		4CL	
UM14233B	3.3V		4CM	
UM14234B	3.4V		4CJ	
UM14235B	3.5V		4CK	
UM14236B	3.6V		4CN	
UM14237B	3.7V		4CP	
UM14238B	3.8V		4CQ	
UM14239B	3.9V		4CR	
UM14240B	4.0V		4CS	
UM14241B	4.1V		4CT	
UM14242B	4.2V		4CY	
UM14243B	4.3V		4CU	
UM14244B	4.4V		4CZ	
UM14245B	4.5V		4DA	
UM14246B	4.6V		4DB	
UM14247B	4.7V		4DC	
UM14248B	4.8V		4DD	
UM14249B	4.9V		4DE	
UM14250B	5.0V		4DF	

Pin Description

Symbol	Function
GND	Ground
VOUT	Voltage Regulated Output
VDD	Supply Voltage Input

Absolute Maximum Ratings (Note 1)

Symbol	Parameter	Value	Unit
V_{IN}	Max Input Voltage	14	V
P_D	Power Dissipation	250	mW
T_J	Operating Junction Temperature	+125	°C
T_A	Ambient Temperature	-40 to +85	°C
T_{STG}	Storage Temperature Range	-40 to +150	°C
T_L	Lead Temperature for Soldering 10 seconds	+260	°C

Note 1: Exposure to absolute maximum rating conditions may affect device reliability.

Recommended Work Condition

Symbol	Parameter	Value	Unit
V_{IN}	Max Input Voltage	12	V

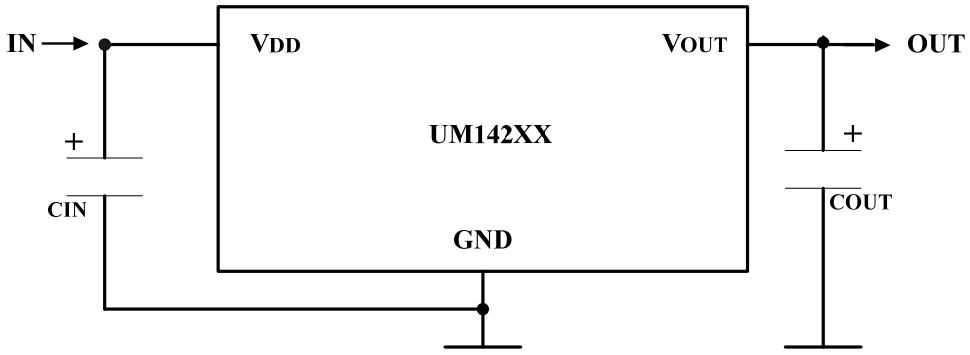
Electrical Characteristics

(Test conditions: C_{IN}=1.0μF, C_{OUT}=1.0μF, T_A=25°C, unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{IN}	Input Voltage				12	V
V_{OUT}	Output Voltage	V_{IN} =Set V_{OUT}+1V 1mA≤I_{OUT}≤10mA	V_{OUT} ×0.98	V_{OUT}× 1.0	V_{OUT} ×1.02	V
I_{OUT} (Max.) (Note 2)	Maximum Output Current	V_{IN} -V_{OUT}=1V	300			mA
V_{DROP}	Dropout Voltage	I_{OUT}=150mA		270		mV
	Output Voltage Accuracy	I_{OUT}=300mA	-3		+3	%
$\frac{\triangle V_{out}}{\triangle V_{in} \cdot V_{out}}$	Line Regulation	I_{OUT}=10mA 4V ≤ V_{DD}≤ 6V		0.05	0.2	%/V
$\triangle V_{out}$	Load Regulation	V_{IN}=Set V_{OUT}+1V 1mA≤I_{OUT}≤300mA		60		mV
I_S	Supply Current	V_{IN} =Set V_{OUT}+1V V_{OUT} Floating		8	15	μA
$\frac{\triangle V_{out}}{\triangle T \cdot V_{out}}$	Output Voltage Noise	I_{OUT}=10mA		±100		ppm/℃
PSRR	Power Supply Ripple Rejection	F=100Hz, Ripple=0.5Vp-p V_{IN}=Set V_{OUT}+1V		60		dB
	Output Noise	BW=10Hz~100KHz		44		uVrms

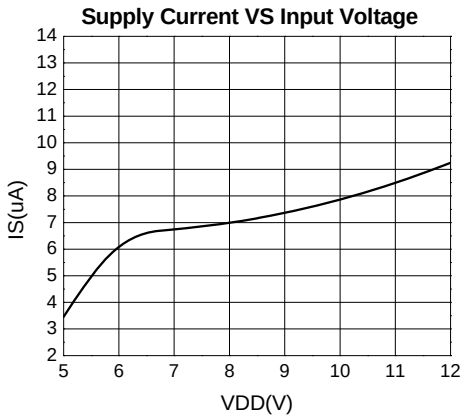
Note 2: The maximum power rating of each package is constant, so along with the change of I_{LOAD}, the V_{IN}-V_{OUT} should be controlled to a certain range to ensure the normal operation.

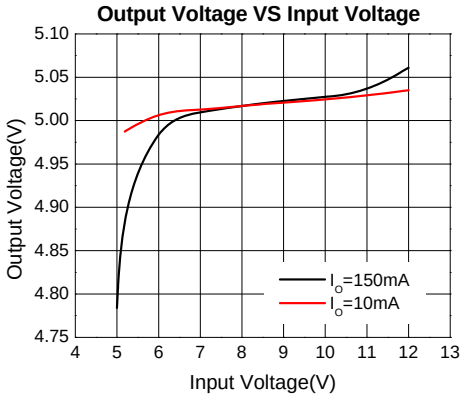
Typical Application Circuit

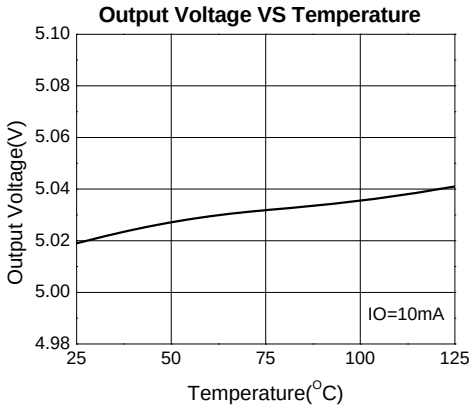


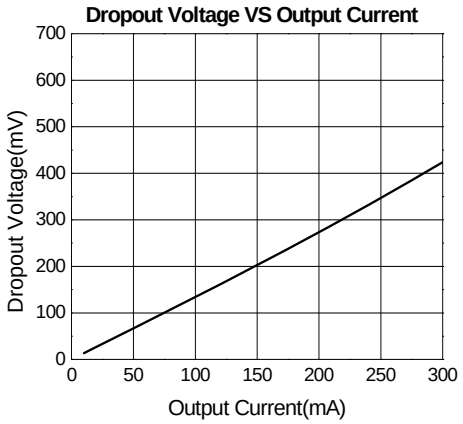
Note 3: Input Capacitor (C_{IN}=1uF) is recommended in all applications.
Note 4: Output Capacitor (C_{OUT}=1uF/6.8uF) is recommended in all applications to assure the stability of circuit. 1uF Tantalum capacitor or 6.8uF ceramic capacitor is recommended.

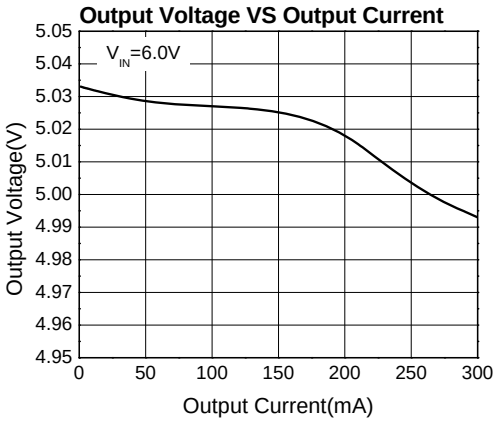
Typical Operating Characteristics

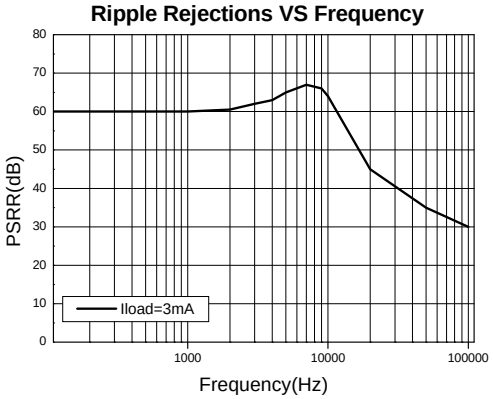








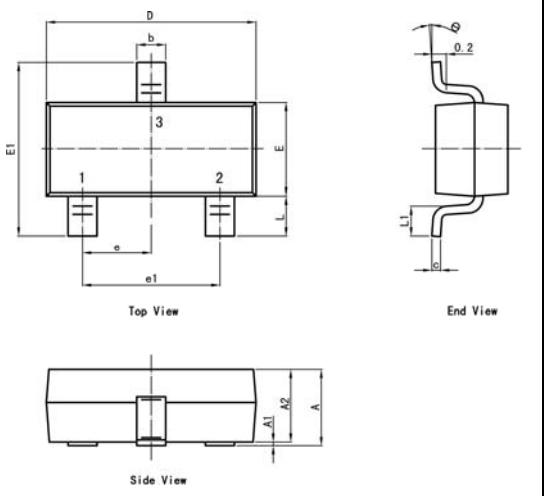




Package Information

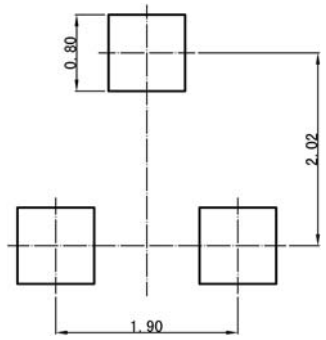
UM142xxS: SOT23-3

Outline Drawing



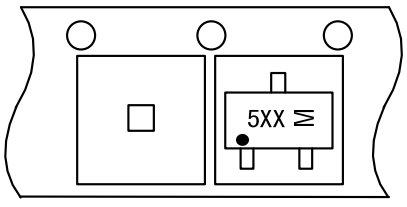
Symbol	DIMENSIONS			
	MILLIMETERS		INCHES	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950REF		0.037REF	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Land Pattern



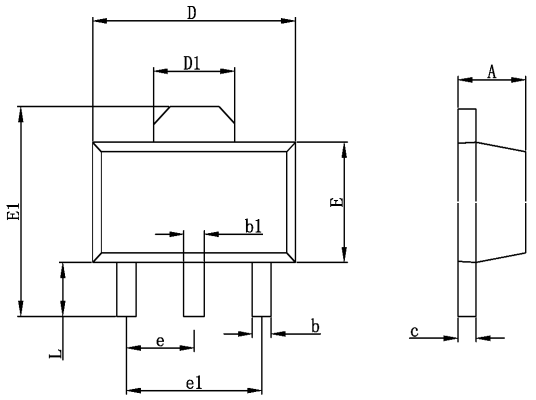
NOTES:
1. Compound dimension: 2.92×1.60；
2. Unit: mm;
3. General tolerance ±0.05mm unless otherwise specified;
4. The layout is just for reference.

Tape and Reel Orientation



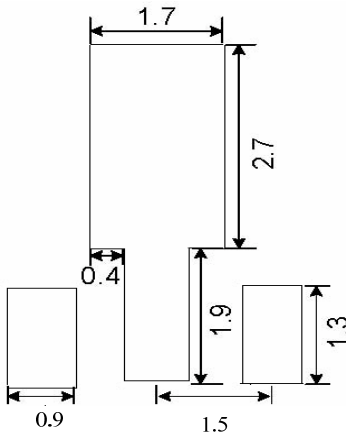
UM142xxY(B): SOT89-3

Outline Drawing



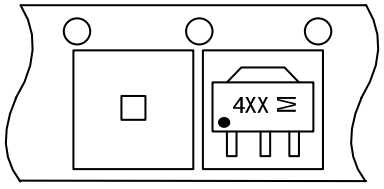
Symbol	DIMENSIONS			
	MILLIMETERS		INCHES	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.55REF		0.061REF	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.5TYP		0.06TYP	
e1	3 TYP		0.118 TYP	
L	0.900	1.200	0.035	0.047

Land Pattern



NOTES:
1. Compound dimension: 4.5×2.45；
2. Unit: mm;
3. General tolerance ±0.05mm unless otherwise specified;
4. The layout is just for reference.

Tape and Reel Orientation



IMPORTANT NOTICE

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