

250mA, Low Consumption, Wide Input Voltage Linear Regulator

UM1450S-xx SOT23-3

UM1450Y-xx SOT89-3

UM1450B-xx SOT89-3

General Description

The UM1450 series are a group of positive voltage output, high precise and low power consumption voltage regulators. The maximum input voltage is 16V. The output voltages are selectable in 100mV steps within a range of 2.5V to 5V. It can also be customized on command.

The UM1450 series have very low power consumption ($I_Q=2\mu A$) which can greatly improve natural life of batteries.

The UM1450 series are available in a low profile SOT23-3 & SOT89-3 packages, which are lead (Pb)-free.

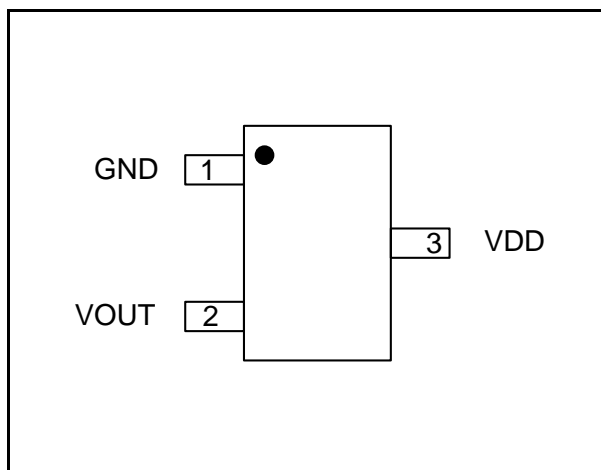
Applications

- Battery-Powered Equipment
- Power Management of MP3, PDA, DSC, Mouse, PS2 Games
- Reference Voltage Source
- Hand-Hold Equipment

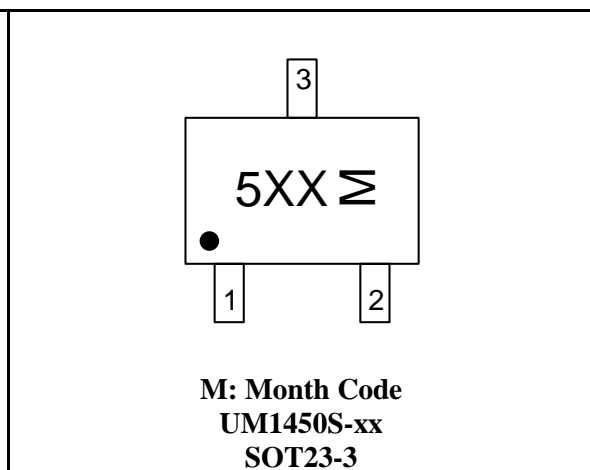
Features

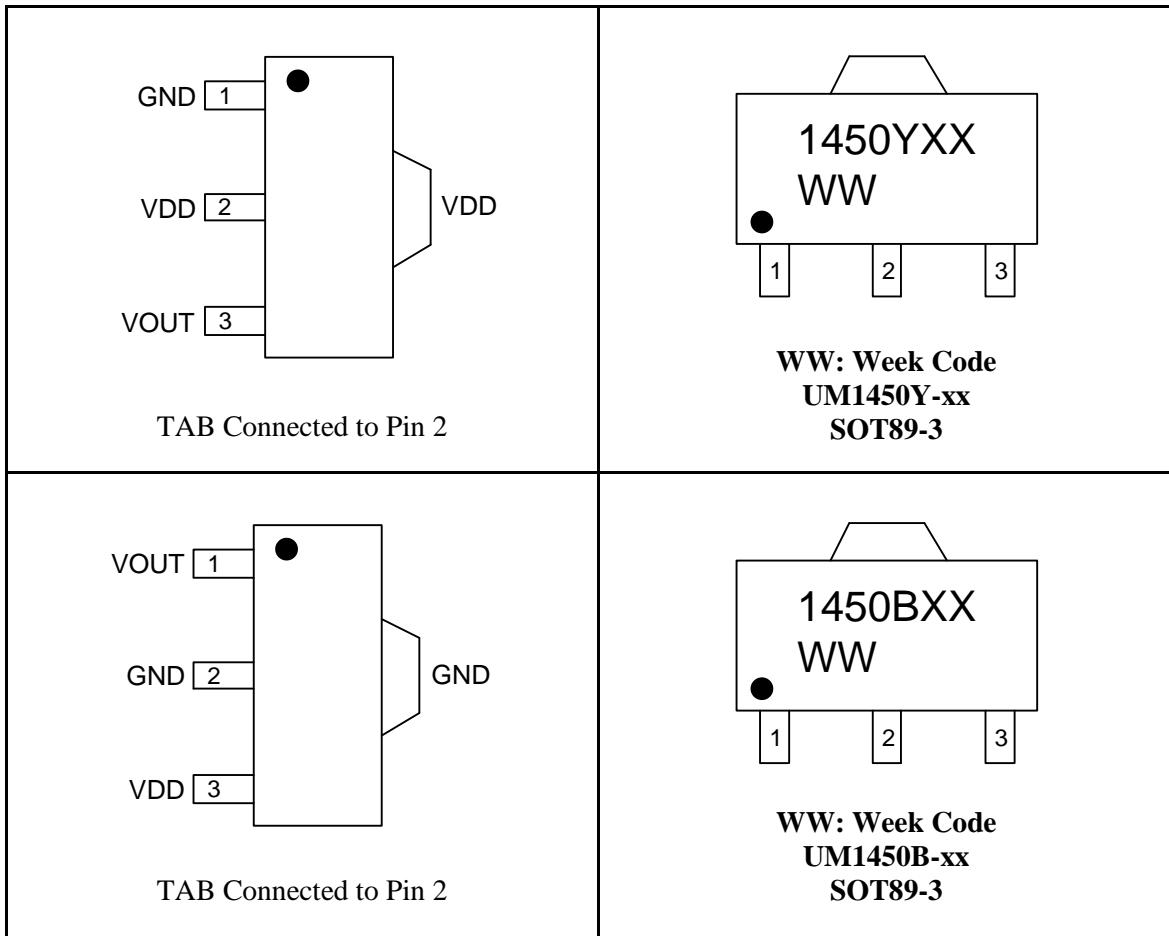
- Maximum Input Voltage: 16V
- Low Quiescent Current: 2 μA (Typ.)
- Maximum Output Current: 250mA
- Low Dropout:
 - 210mV@100mA ($V_{OUT}=3.3V$)
 - 420mV@200mA ($V_{OUT}=3.3V$)
- Low Temperature Coefficient: $\pm 150ppm/^{\circ}C$
- Output Current Limit: 330mA@ $V_{OUT}=3.3V$

Pin Configurations

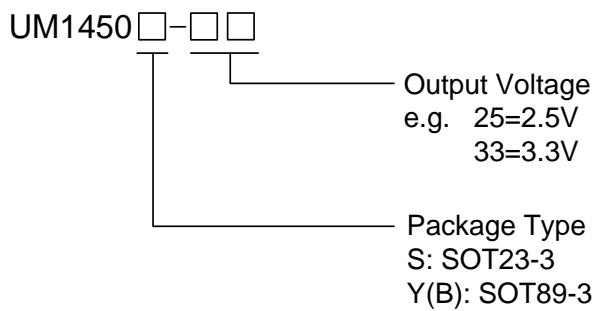


Top View





Ordering Information



Marking Information

Part Number	Output Voltage	Packaging Type	Marking Code	Shipping Qty
UM1450S-25	2.5V	SOT23-3	5LA	3000pcs/7Inch Tape & Reel
UM1450S-26	2.6V		5LB	
UM1450S-27	2.7V		5LC	
UM1450S-28	2.8V		5LD	
UM1450S-29	2.9V		5LE	
UM1450S-30	3.0V		5LF	
UM1450S-31	3.1V		5LH	
UM1450S-32	3.2V		5LL	
UM1450S-33	3.3V		5LM	
UM1450S-34	3.4V		5LJ	
UM1450S-35	3.5V		5LK	
UM1450S-36	3.6V		5LN	
UM1450S-37	3.7V		5LP	
UM1450S-38	3.8V		5LQ	
UM1450S-39	3.9V		5LR	
UM1450S-40	4.0V		5LS	
UM1450S-41	4.1V		5LT	
UM1450S-42	4.2V		5LY	
UM1450S-43	4.3V		5LU	
UM1450S-44	4.4V		5LZ	
UM1450S-45	4.5V		5M5	
UM1450S-46	4.6V		5M6	
UM1450S-47	4.7V		5M7	
UM1450S-48	4.8V		5M8	
UM1450S-49	4.9V		5M9	
UM1450S-50	5.0V	5MA		
UM1450Y-25	2.5V	SOT89-3 (Tab connected to VDD)	1450Y25	1000pcs/7Inch Tape & Reel
UM1450Y-26	2.6V		1450Y26	
UM1450Y-27	2.7V		1450Y27	
UM1450Y-28	2.8V		1450Y28	
UM1450Y-29	2.9V		1450Y29	
UM1450Y-30	3.0V		1450Y30	
UM1450Y-31	3.1V		1450Y31	
UM1450Y-32	3.2V		1450Y32	
UM1450Y-33	3.3V		1450Y33	
UM1450Y-34	3.4V		1450Y34	
UM1450Y-35	3.5V		1450Y35	
UM1450Y-36	3.6V		1450Y36	
UM1450Y-37	3.7V		1450Y37	
UM1450Y-38	3.8V		1450Y38	
UM1450Y-39	3.9V		1450Y39	
UM1450Y-40	4.0V		1450Y40	
UM1450Y-41	4.1V		1450Y41	
UM1450Y-42	4.2V		1450Y42	
UM1450Y-43	4.3V		1450Y43	
UM1450Y-44	4.4V		1450Y44	
UM1450Y-45	4.5V		1450Y45	
UM1450Y-46	4.6V		1450Y46	
UM1450Y-47	4.7V		1450Y47	
UM1450Y-48	4.8V		1450Y48	
UM1450Y-49	4.9V		1450Y49	
UM1450Y-50	5.0V	1450Y50		

Marking Information (Continued)

Part Number	Output Voltage	Packaging Type	Marking Code	Shipping Qty
UM1450B-25	2.5V	SOT89-3 (Tab connected to GND)	1450B25	1000pcs/7Inch Tape & Reel
UM1450B-26	2.6V		1450B26	
UM1450B-27	2.7V		1450B27	
UM1450B-28	2.8V		1450B28	
UM1450B-29	2.9V		1450B29	
UM1450B-30	3.0V		1450B30	
UM1450B-31	3.1V		1450B31	
UM1450B-32	3.2V		1450B32	
UM1450B-33	3.3V		1450B33	
UM1450B-34	3.4V		1450B34	
UM1450B-35	3.5V		1450B35	
UM1450B-36	3.6V		1450B36	
UM1450B-37	3.7V		1450B37	
UM1450B-38	3.8V		1450B38	
UM1450B-39	3.9V		1450B39	
UM1450B-40	4.0V		1450B40	
UM1450B-41	4.1V		1450B41	
UM1450B-42	4.2V		1450B42	
UM1450B-43	4.3V		1450B43	
UM1450B-44	4.4V		1450B44	
UM1450B-45	4.5V		1450B45	
UM1450B-46	4.6V		1450B46	
UM1450B-47	4.7V		1450B47	
UM1450B-48	4.8V		1450B48	
UM1450B-49	4.9V		1450B49	
UM1450B-50	5.0V		1450B50	

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	20	V
P _D	Power Dissipation	SOT23-3	250
		SOT89-3	500
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	16	V

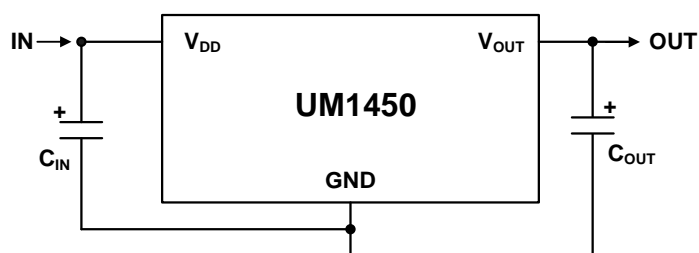
Electrical Characteristics

(Test conditions: $C_{IN}=1.0\mu F$, $C_{OUT}=1.0\mu F$, $T_A=25^\circ C$, unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{IN}	Input Voltage				16	V
V_{OUT}	Output Voltage	$V_{IN}=\text{Set } V_{OUT}+1V$ $1mA \leq I_{OUT} \leq 10mA$	$V_{OUT} \times 0.98$	$V_{OUT} \times 1.0$	$V_{OUT} \times 1.02$	V
$I_{OUT}(\text{Max})$ (Note 2)	Maximum Output Current	$V_{IN}-V_{OUT}=1V$	250			mA
V_{DROP}	Dropout Voltage	$I_{OUT}=150mA$		300		mV
	Output Voltage Accuracy	$I_{OUT}=250mA$	-3		+3	%
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	Line Regulation	$I_{OUT}=10mA$ $4V \leq V_{DD} \leq 6V$		0.05	0.2	%/V
ΔV_{OUT}	Load Regulation	$V_{IN}=\text{Set } V_{OUT}+1V$ $1mA \leq I_{OUT} \leq 250mA$		20		mV
I_S	Supply Current	$V_{IN}=\text{Set } V_{OUT}+1V$ V_{OUT} Floating		2	5	μA
$\frac{\Delta V_{OUT}}{\Delta T \cdot V_{OUT}}$	Output Voltage Noise	$I_{OUT}=10mA$		± 150		ppm/ $^\circ C$
PSRR	Power Supply Ripple Rejection	$f=100Hz$, Ripple=0.5Vp-p $V_{IN}=\text{Set } V_{OUT}+1V$		40		dB
	Output Noise	BW=10Hz~100kHz		240		μV_{RMS}

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.

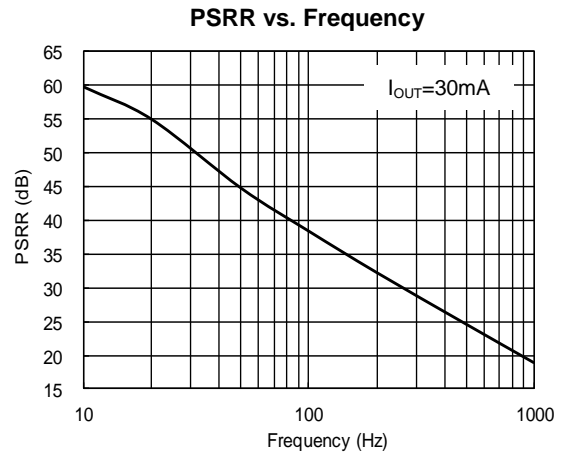
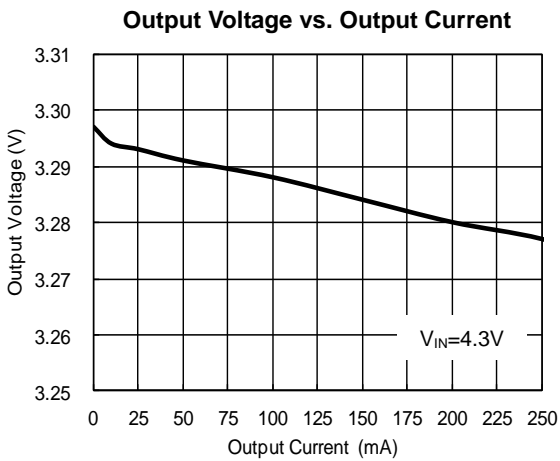
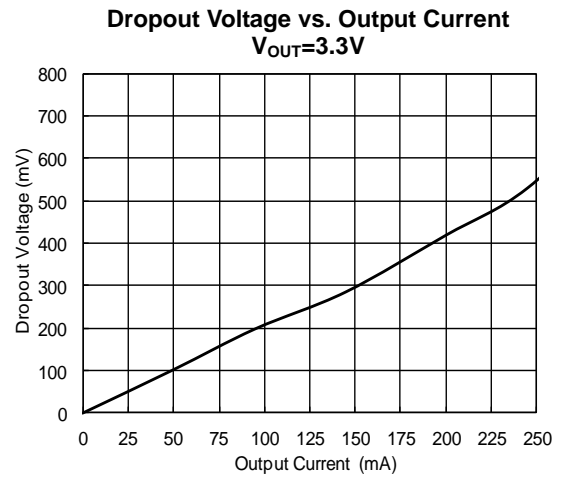
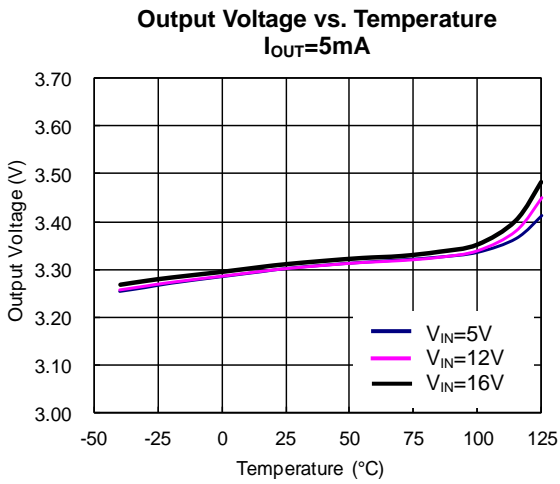
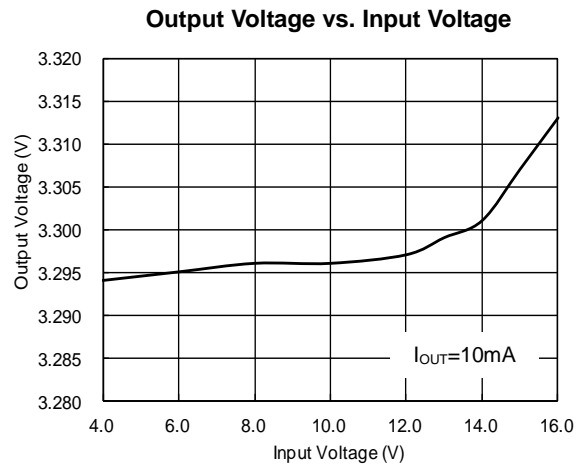
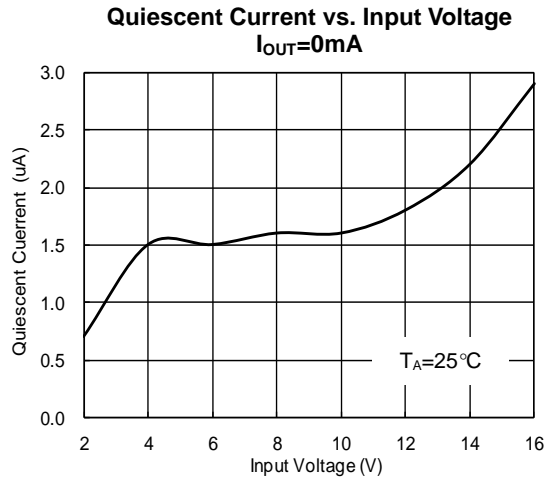
Typical Application Circuit



Note 3: Input Capacitor ($C_{IN}=1\mu F$) is recommended in all applications.

Note 4: Output Capacitor ($C_{OUT}=1\mu F/6.8\mu F$) is recommended in all applications to assure the stability of circuit. $1\mu F$ Tantalum capacitor or $6.8\mu F$ ceramic capacitor is recommended.

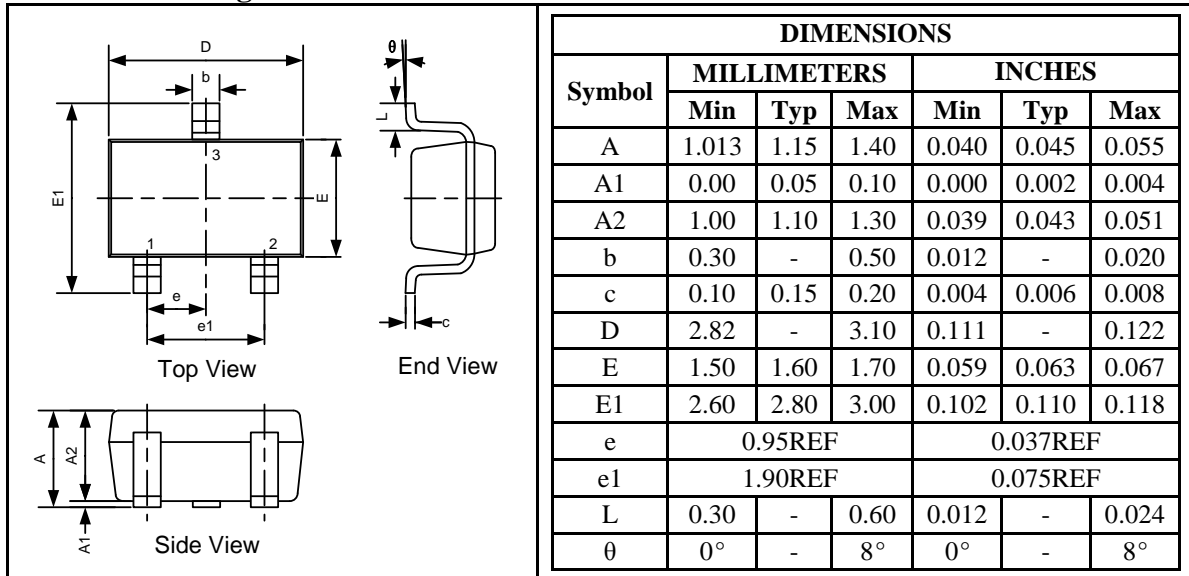
Typical Operating Characteristics



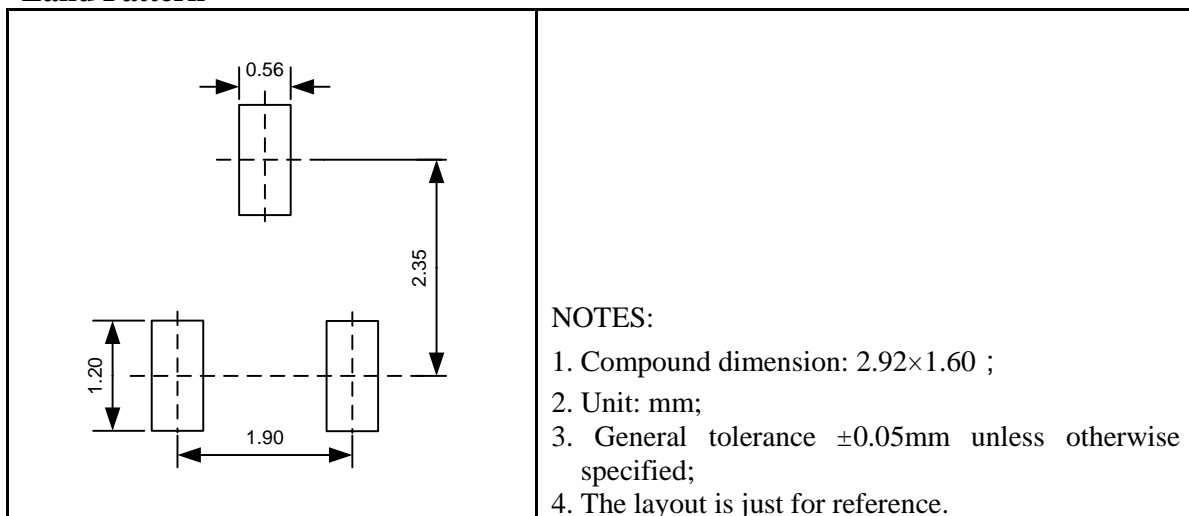
Package Information

UM1450S-xx: SOT23-3

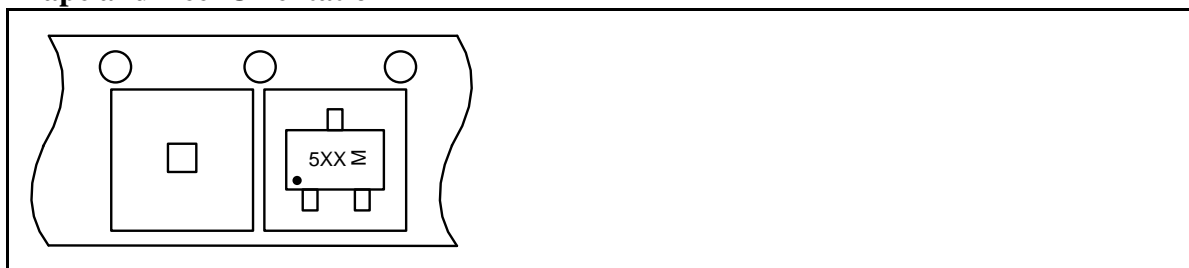
Outline Drawing



Land Pattern

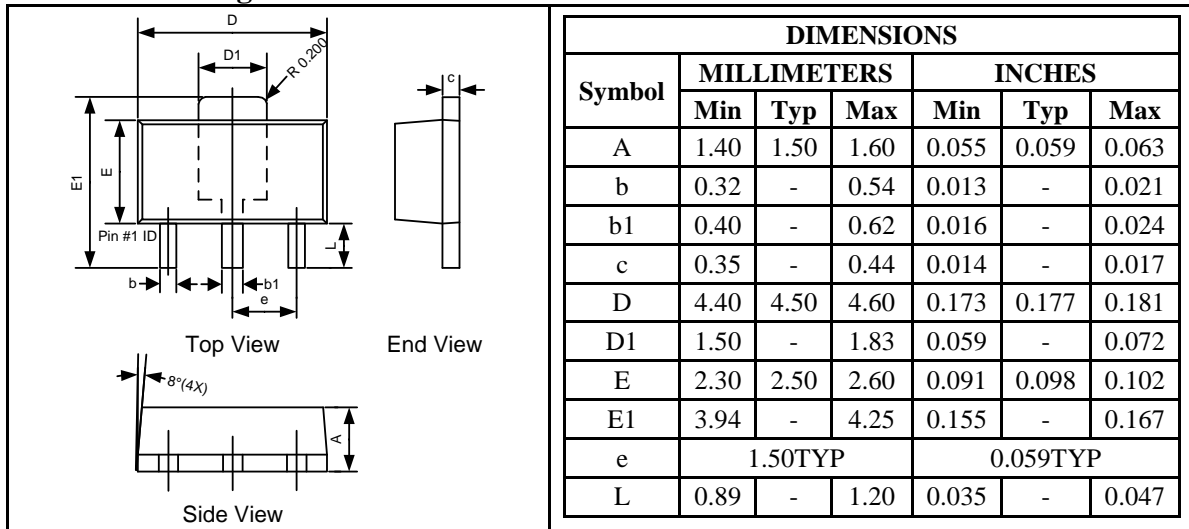


Tape and Reel Orientation

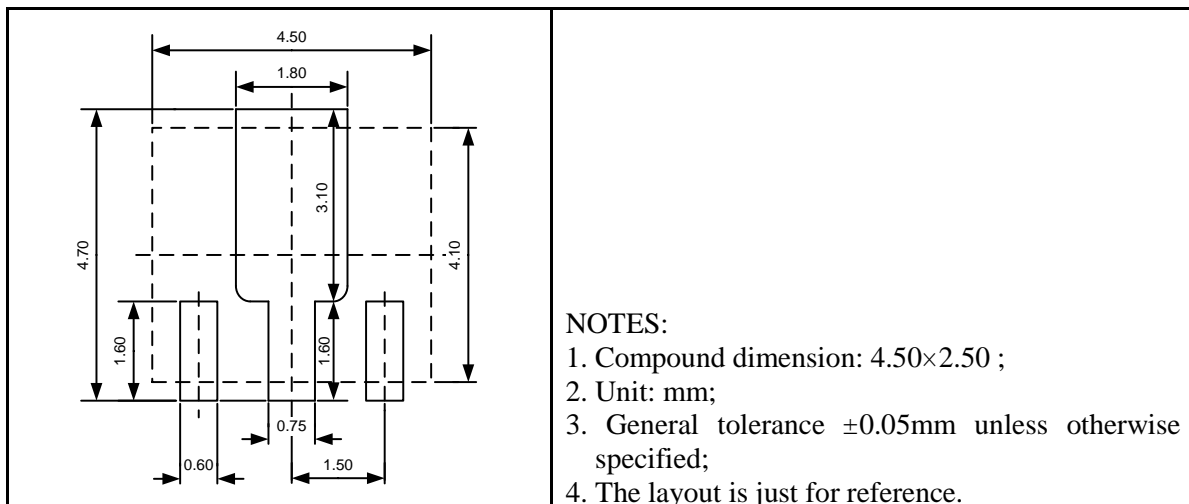


UM1450Y-xx: SOT89-3

Outline Drawing



Land Pattern

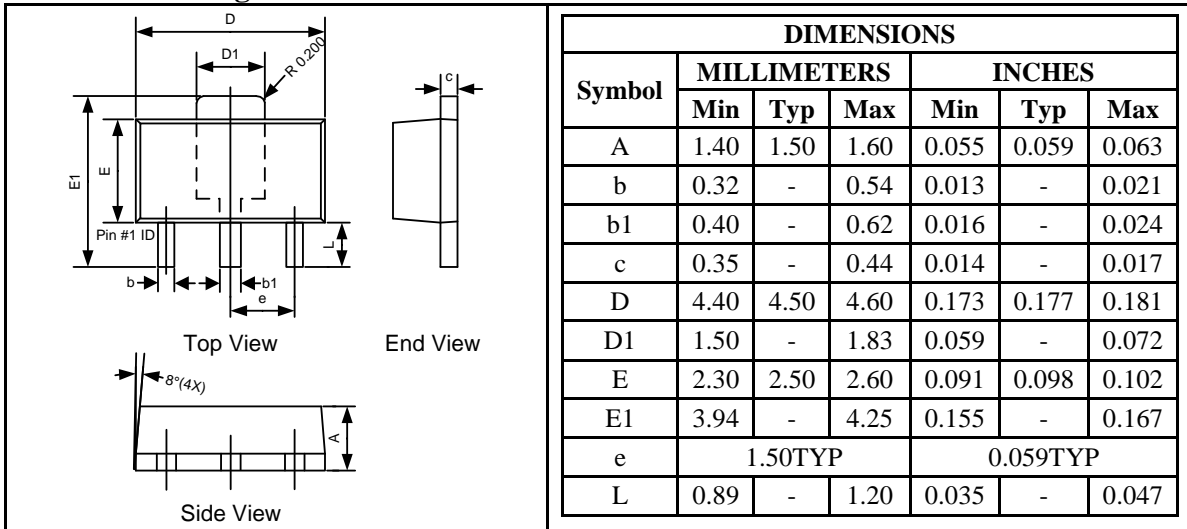


Tape and Reel Orientation

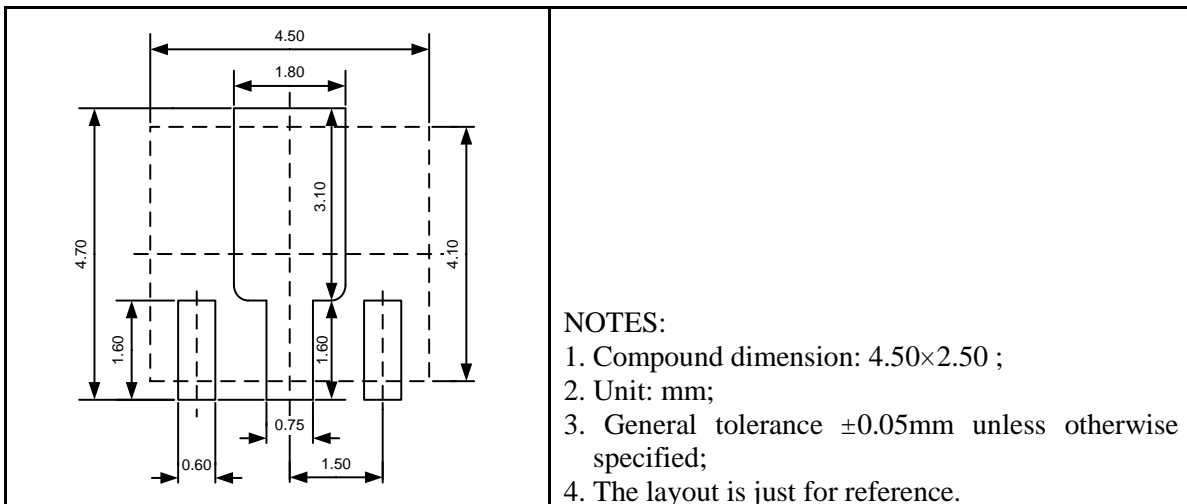


UM1450B-xx: SOT89-3

Outline Drawing



Land Pattern



Tape and Reel Orientation



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http://www.union-ic.com/index.aspx?cat_code=RoHSDeclaration

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