

Features

- Low voltage drop: 0.26V@100mA
&VOUT=3.3V
- High input voltage: 15V
- Low temperature coefficient
- Large Output Current: 500mA
- Low Quiescent Current: 2.0uA
- Output voltage accuracy: tolerance $\pm 2\%$
- Built-in current limiter
- SOT89, SOT89-5, SOT23-3 and SOT23-5 packages

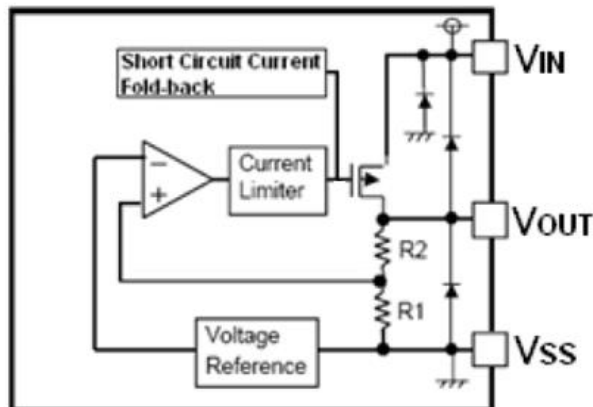
General Description

The ASPL72XX series is a group of positive voltage output, three-pin regulators, it 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 ASPL72XX consists of a high-precision voltage reference, an error amplification circuit, and a current limited output driver. Load Transient response has improved in comparison to the existing series. SOT89, SOT89-5, SOT23-3 and SOT23-5 packages are available.

Applications

- Battery-powered equipment
- Hand-Hold Equipment
- GPS Receivers
- Wireless LAN

Block Diagram





Pin Assignment

SOT23-3 (Top View)

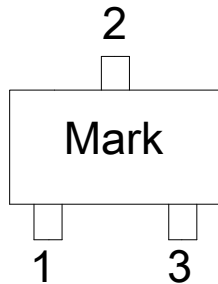


Table1: ASPL72XX series (SOT23-3 PKG)

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

SOT23-5 (Top View)

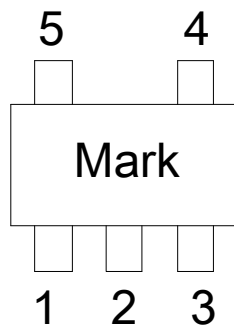


Table2: ASPL72XX series (SOT23-5 PKG)

PIN NO.		PIN NAME	FUNCTION
SOT23-5	Sot23-5B		
1	2	VIN	Input voltage pin
2	1	GND	GND pin
3	3	CE	Enable pin
4	4	NC	--
5	5	VOUT	Output voltage pin

SOT89 (Top View)

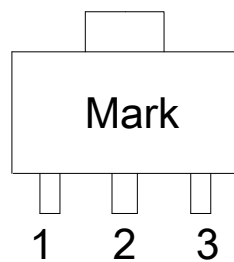


Table3: ASPL72XX series (SOT89 PKG)

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

SOT89-5 (Top View)

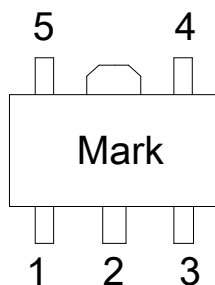


Table4: ASPL72XX series (SOT89-5 PKG)

PIN NO.	PIN NAME	FUNCTION
1	CE	Enable pin
2	VIN	Input voltage pin
3	NC	--
4	GND	GND pin
5	VOUT	Output voltage pin

**Absolute Maximum Ratings**

Supply Voltage3.5V to 18V

Storage Temperature-40℃ to 125℃

Operating Temperature-40℃ to 85℃

Note: These are stress ratings only. Stresses exceeding the range specified under "Absolute Maximum Ratings" may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

Electrical Characteristics

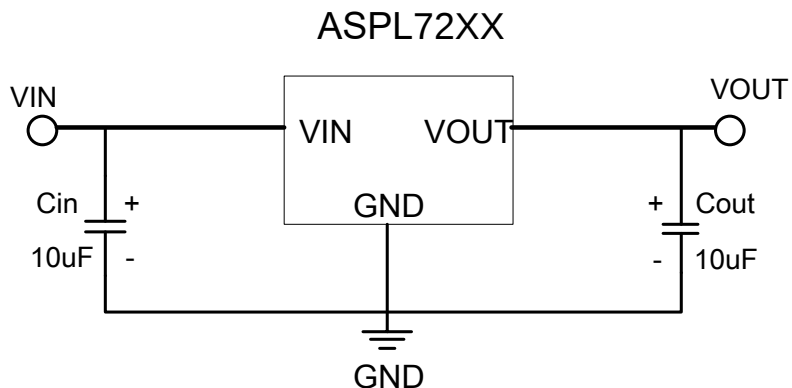
ASPL72XX for any output voltage

(Ta=25℃)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	V _{out}	V _{in} =V _{out} +1V 1.0mA≤I _{out} ≤30mA	V _{out} ×0.98	--	V _{out} ×1.02	V
Output Current*1	I _{out}	V _{in} -V _{out} =1.5V	--	500	--	mA
Low dropout*2	V _{drop}	Refer to the next table				
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	4.3V≤V _{in} ≤8V I _{out} =100mA	--	0.75	0.9	%/V
Load Regulation	ΔV _{out}	V _{in} = V _{out} +1V 1.0mA≤I _{out} ≤100mA	--	12	30	mV
Output voltage Temperature Coefficiency	$\frac{\Delta V_{OUT}}{\Delta Ta}$	I _{out} =30mA 0℃≤Ta≤70℃	--	±100	--	Ppm/℃
PSRR	PSRR	F=1KHz V _{in} =V _{out} +1V	--	40	--	dB
Supply Current	I _{ss1}	--	--	1	2	uA
Input Voltage	V _{in}	--	3.5	--	15	V

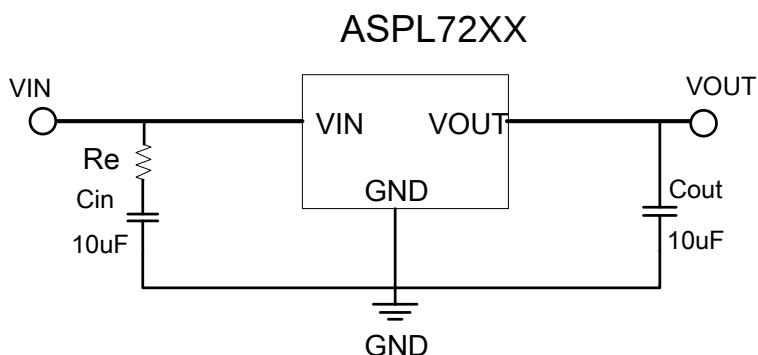
Electrical Characteristics by Output Voltage:

Output Voltage V _{out} (V)	Dropout Voltage V _{dif} (V)		
	Conditions	Typ.	Max.
2.0 < V _{out} ≤ 2.8	I _{out} =80 mA	0.4	0.6
2.8 < V _{out} ≤ 4.0	I _{out} =100 mA	0.26	0.46
4.0 < V _{out} ≤ 5.0		0.23	0.42
2.8 < V _{out} ≤ 4.0	I _{out} =200 mA	0.53	0.82
4.0 < V _{out} ≤ 5.0		0.42	0.76
3.0 < V _{out} ≤ 4.0	I _{out} =500 mA	1.5	1.8
4.0 < V _{out} ≤ 5.0		1.2	1.5

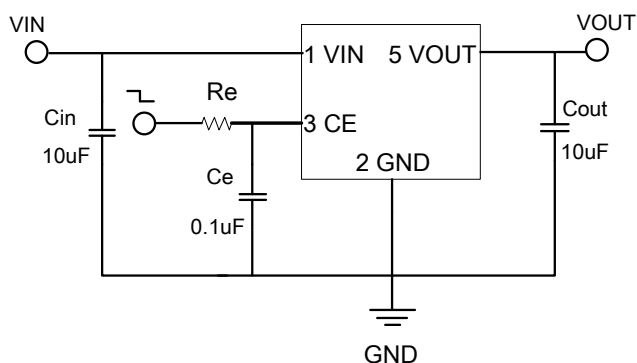
**Typical Application**

Note1: $C_{in}=C_{out}=10\mu F$. (10 μF Electrolytic capacitor is recommended).

Note2: If the input and output capacitors are ceramic, add a resistor at the input, as follows.



Note: $R_e = (1.2 \sim 1.8) \Omega$.



Note1: Input capacitor $C_{IN}=10\mu F$.

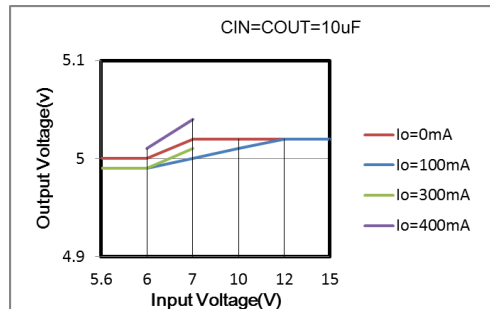
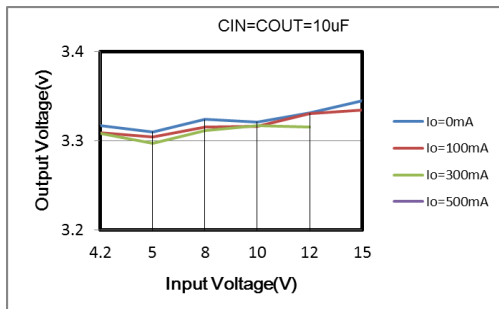
Note2: Output capacitor $C_{OUT}=10\mu F/6.8\mu F$ (1 μF Tantalum capacitor or 6.8 μF ceramic capacitor is recommended).

Note3: The CE port is recommended to connect the current limiting resistor R_e . The recommended resistance is 10K~47K. When the input voltage is larger than or equal to 12V, it is recommended to add a 0.01 μF capacitor C_e .

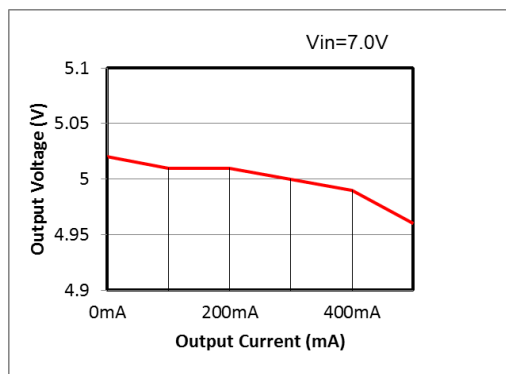
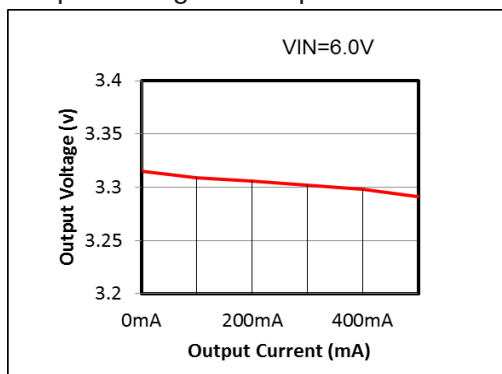


Typical Performance Characteristics

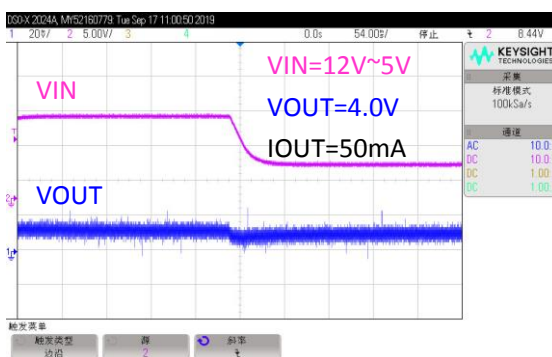
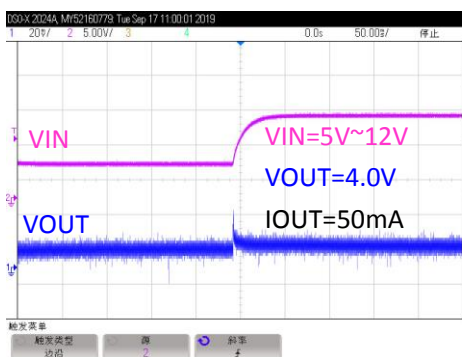
(1) Output Voltage vs Input voltage



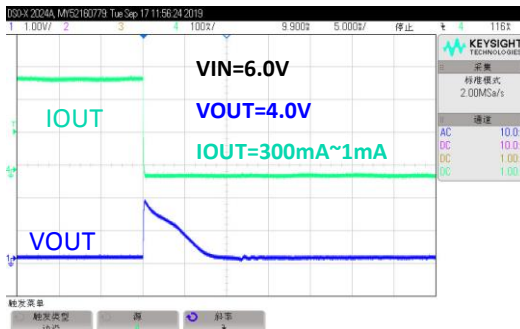
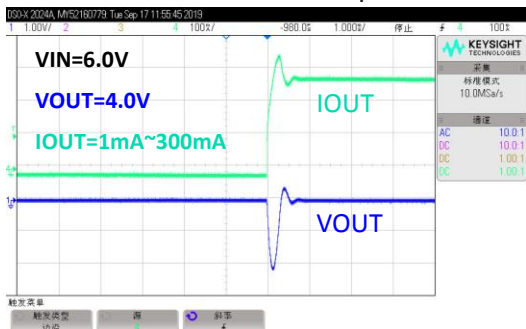
(2) Output Voltage vs. Output Current



(3) Input Transient Response

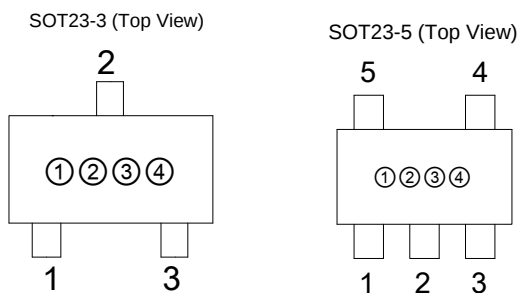


(4) Load Transient Response



Marking Rule

(1) SOT23-3 and SOT23-5



List of Product Name vs. Product Code

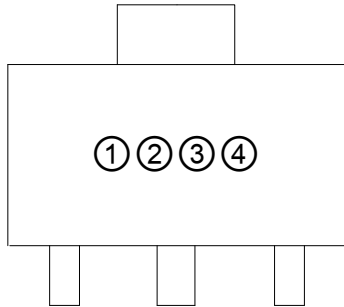
Product Name	Product Code		
	(1)	(2)	(3)
ASPL7212	S	A	A
ASPL7213	S	A	B
ASPL7214	S	A	C
ASPL7215	S	A	D
ASPL7216	S	A	E
ASPL7217	S	A	F
ASPL7218	S	A	G
ASPL7219	S	A	I
ASPL7220	S	A	J
ASPL7221	S	A	K
ASPL7222	S	A	L
ASPL7223	S	A	M
ASPL7224	S	A	N
ASPL7225	S	A	O
ASPL7226	S	A	P
ASPL7227	S	A	Q
ASPL7228	S	A	R
ASPL7229	S	A	T
ASPL7230	S	A	U
ASPL7231	S	A	V

Product Name	Product Code		
	(1)	(2)	(3)
ASPL7232	S	A	W
ASPL7233	S	A	X
ASPL7234	S	A	Y
ASPL7235	S	A	Z
ASPL7236	S	B	A
ASPL7237	S	B	B
ASPL7238	S	B	C
ASPL7239	S	B	D
ASPL7240	S	B	E
ASPL7241	S	B	F
ASPL7242	S	B	J
ASPL7243	S	B	H
ASPL7244	S	B	I
ASPL7245	S	B	J
ASPL7246	S	B	K
ASPL7247	S	B	L
ASPL7248	S	B	M
ASPL7249	S	B	N
ASPL7250	S	B	O

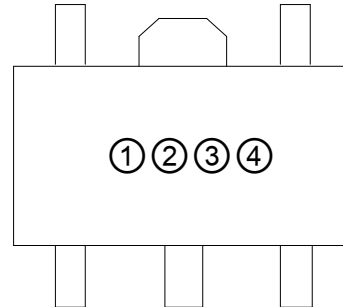
NOTE: SOT23-5,the last is Z SOT23-5B,the last is Y

**(2) SOT89 and SOT89-5**

SOT89 (Top View)



SOT89-5 (Top View)



Product Code: E

Output Voltage Code:

Vout	Code	Vout	Code	Vout	Code
1.5V	1	2.7V	C	3.9V	O
1.6V	2	2.8V	D	4.0V	P
1.7V	3	2.9V	E	4.1V	Q
1.8V	4	3.0V	F	4.2V	R
1.9V	5	3.1V	G	4.3V	S
2.0V	6	3.2V	H	4.4V	T
2.1V	7	3.3V	I	4.5V	U
2.2V	8	3.4V	J	4.6V	V
2.3V	9	3.5V	K	4.7V	W
2.4V	0	3.6V	L	4.8V	X
2.5V	A	3.7V	M	4.9V	Y
2.6V	B	3.8V	N	5.0V	Z

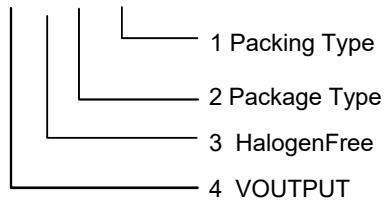
Data Code: XX

Note: The last two of them are based on the time of this product which is the first time into production, and the third is the launch of this product ,it can be in 1 ~ 9 , which is expressed in "0" in October, in November with an "A", in December with "B"; the fourth is of the launch of the product, such as expressed in "0" in 2010, in "3" in 2013. For example: EZ81 represents ASPL7250PR product is first put into production in August in 2011.

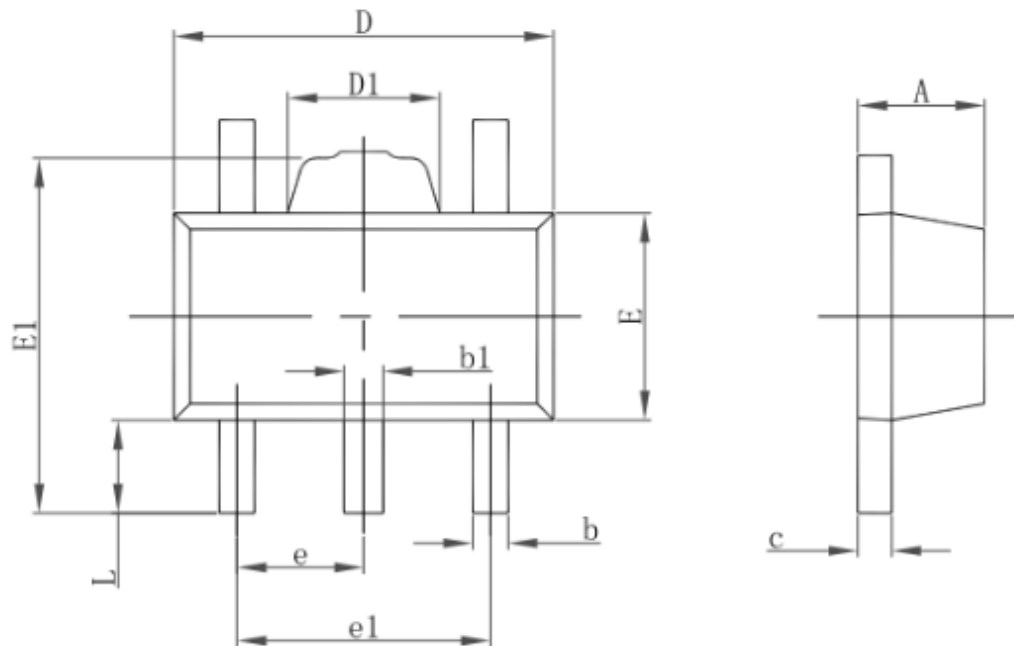


Ordering Information

ASPL72XXG-ZD-R

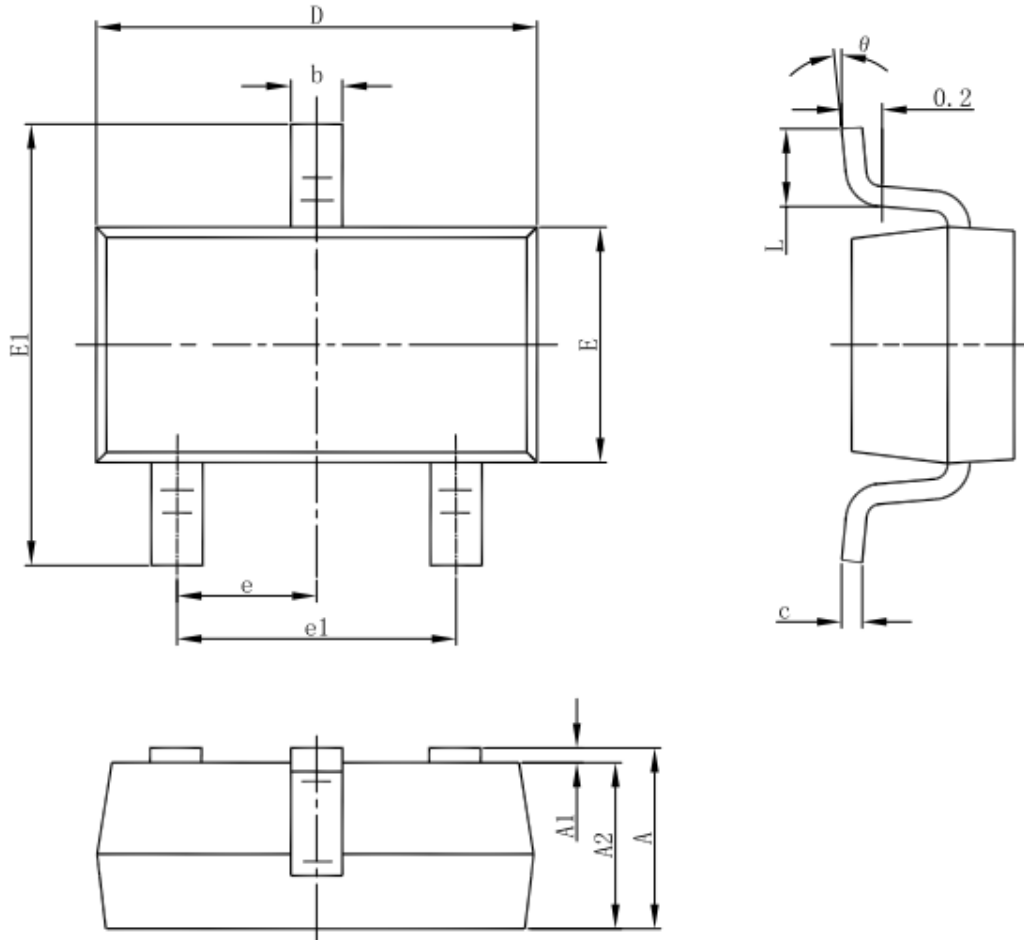


- 1 T:Tube,R:Tape Reel
- 2 ZD: SOT23-5 ZDB:SOT23-5B
ZB: SOT23-3 DI:SOT89-3 DP:SOT89-5
- 3 blank : Lead Free
G:Halogen Free
- 4 XX:VOUTPUT

**SOT89-5 Outline Dimensions**

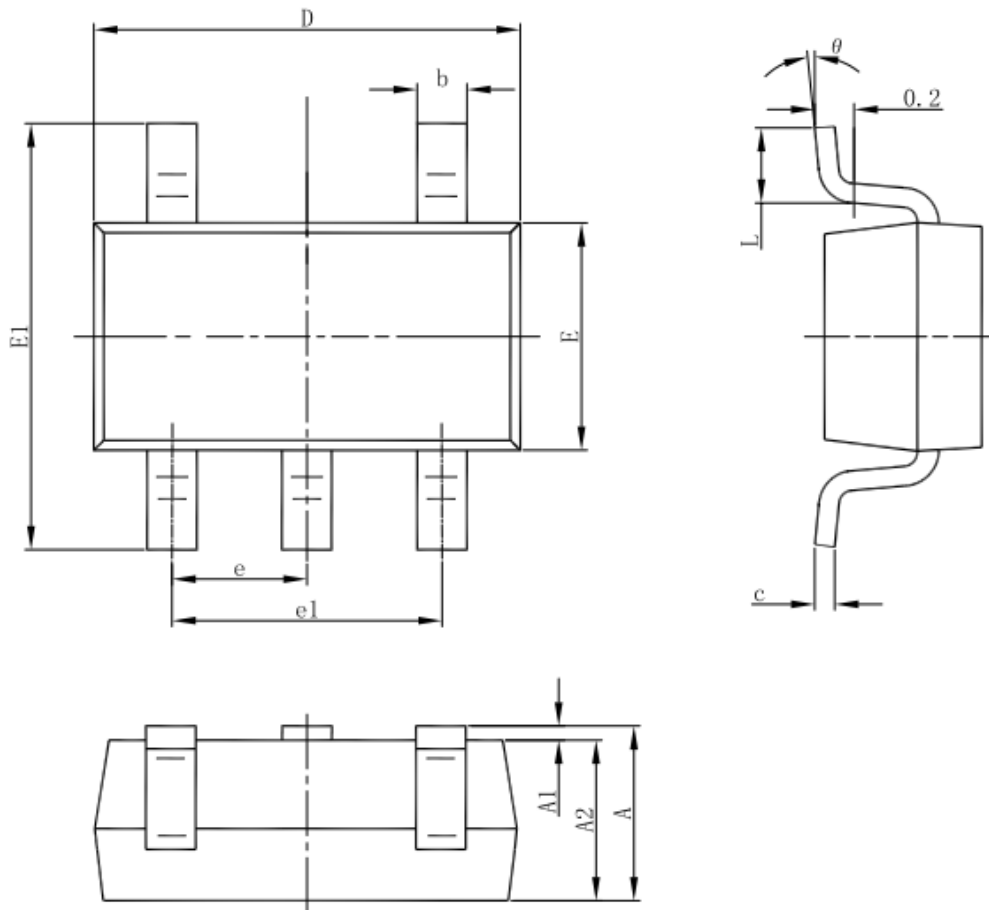
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.360	0.560	0.014	0.022
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.400	1.800	0.055	0.071
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500TYP.		0.060TYP.	
e1	2.900	3.100	0.114	0.122
L	0.900	1.100	0.035	0.043

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°

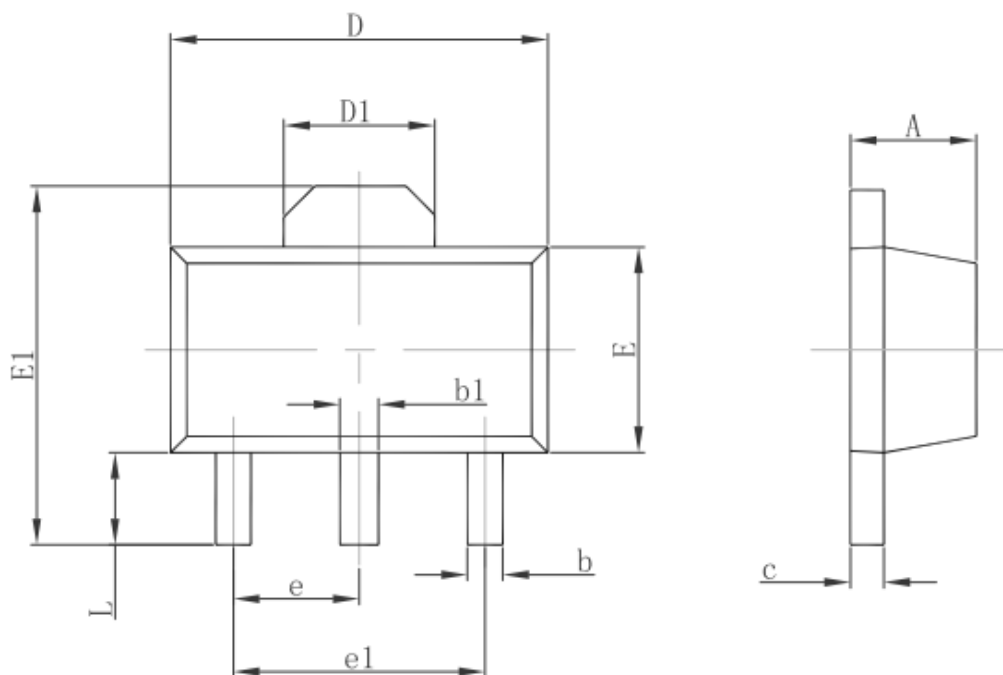
SOT23-5 Outline Dimensions



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°

Package Information

3-pin SOT89 Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In 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	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

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