



## Low power consumption, Low ESR Cap.Compatible ME6206 Series

### General Description

**ME6206** series are highly precise, low power consumption, high voltage, positive voltage regulators manufactured using CMOS and laser trimming technologies. The series provides large currents with a significantly small dropout voltage.

The series is compatible with low ESR ceramic capacitors. The current limiter's foldback circuit also operates as a short protect for the output current limiter and the output pin.

### Features

- Maximum Output Current: 300mA  
( $V_{IN}=4.3V, V_{OUT}=3.3V$ )
- Dropout Voltage: 200mV@  $I_{OUT}=100mA$
- Input Voltage Range: up to 6.0V
- Highly Accuracy:  $\pm 2\%$
- Low Power Consumption: 8uA (TYP.)
- Excellent Input Stability
- Be available to regulator and reference voltage

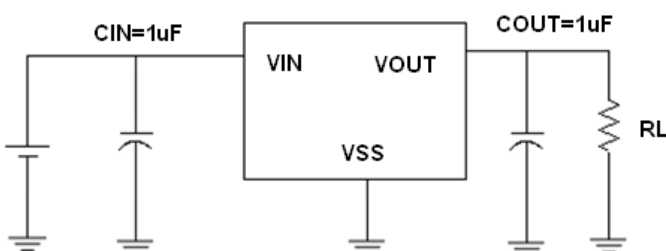
### Typical Application

- Mobile phones
- communication equipment
- Portable games
- Cameras, Video systems
- Reference voltage sources
- Battery powered equipment

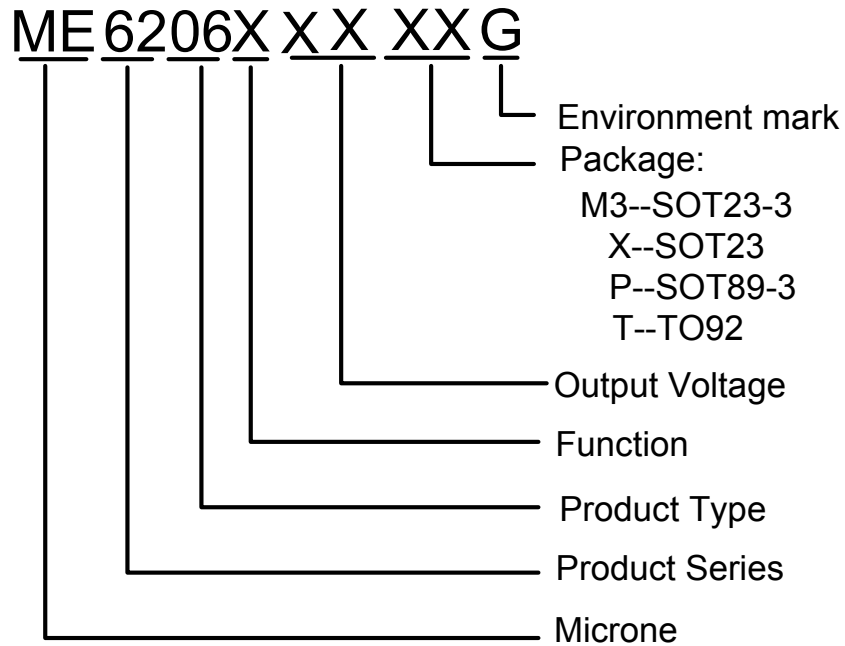
### Package

- 3-pin SOT89-3, SOT23-3, TO92, SOT23

### Typical Application Circuit



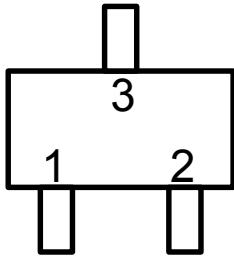
Selection Guide



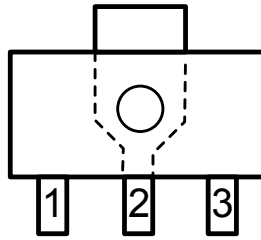
product series	Output voltage	Supply Current	Package
ME6206A15PG	1.5V	8uA	SOT89-3
ME6206A15M3G	1.5V	8uA	SOT23-3
ME6206A15XG	1.5V	8uA	SOT23
ME6206A33TG	3.3V	8uA	TO92
ME6206A33M3G	3.3V	8uA	SOT23-3
ME6206K33M3G	3.3V	180uA	SOT23-3

**NOTE:** At present ,there are ten kinds of voltage value:  
 1.5V、1.8V、2.0V、2.1V、2.5V、2.7V、2.8V、3.0V、3.3V、3.6V。  
 If you need other voltage and package, please contact our sales staff。

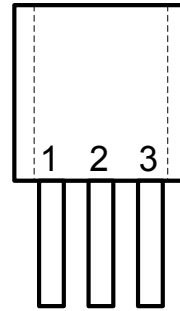
## Pin Configuration



SOT23/SOT23-3



SOT89-3





TO92

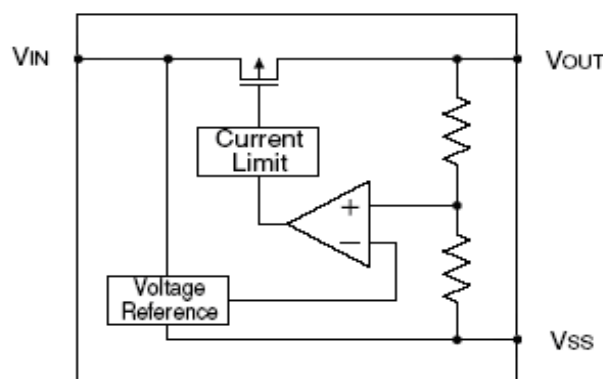
## Pin Assignment

ME6206Axx/ ME6206Kxx

Pin					Name	Function
M3	P	P1	X	T		
SOT23-3	SOT89-3	SOT89-3	SOT23	TO-92		
1	1	2	1	1	VSS	Ground
2	3	1	2	3	VOUT	Output
3	2	3	3	2	VIN	Input

The difference of printing on the chip between P and P1 is : P:  6206A , P1:  6206A1

## Block Diagram



## Absolute Maximum Ratings

Parameter	Symbol	Description	Units	
Input Voltage	$V_{IN}$	6.5	V	
Output Current	$I_{out}$	500	mA	
Output Voltage	$V_{out}$	$V_{ss}-0.3 \sim V_{out}+0.3$	V	
Power Dissipation	SOT23-3	$P_d$	300	mW
	SOT89-3	$P_d$	500	mW
	SOT23	$P_d$	300	mW
	TO-92	$P_d$	500	mW
Operating Ambient Temperature	$T_{Opr}$	-25 ~ +125	°C	
Storage Temperature	$T_{stg}$	-40 ~ +125	°C	

### ME6206A15

( $V_{IN}=V_{out}+1V, C_{in}=C_{out}=1\mu F, T_a=25^{\circ}C$  Unless otherwise stated)

PARAMETER	SYMBOL	CONDITION	MIX	TYP	MAX	UNIT
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=10mA,$ $V_{IN}=V_{out}+1V$	X 0.98	$V_{OUT(T)}$ (Note 1)	X 1.02	V
Input Voltage	$V_{IN}$				6	V
Maximum Output Current	$I_{OUT} (max)$	$V_{IN}=V_{out}+1V$		100		mA
Load Regulation	$\Delta V_{OUT}$	$V_{IN}=V_{out}+1V,$ $1mA \leq I_{OUT} \leq 80mA$		10	20	mV
Dropout Voltage (Note 3)	$V_{dif1}$	$I_{OUT} = 20mA$		180	200	mV
	$V_{dif2}$	$I_{OUT} = 50mA$		360	380	mV
Supply Current	$I_{SS}$	$V_{IN}=V_{out}+1V$		7	15	$\mu A$
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT} = 10mA$ $V_{out}+1V \leq V_{IN} \leq 5V$		0.1	0.2	%/V
Power Supply Ripple Rejection Ratio	PSRR	$V_{in} = [V_{out}+1]V$ +1Vp-pAC $I_{OUT} = 10mA, f=1kHz$		45	47	dB
Short Circuit Current	$I_{short}$	$V_{in}=V_{out(T)}+1.5V$ $V_{out}=V_{ss}$		20	50	mA
Over Current Protection	$I_{limit}$			300		mA

## ME6206A18

(VIN=Vout+1V,Cin=Cout=1uF,Ta=25°C Unless otherwise stated)

PARAMETER	SYMBOL	CONDITION	MIX	TYP	MAX	UNIT
Output Voltage	V <sub>OUT(E)</sub> (Note 2)	I <sub>OUT</sub> =10mA, V <sub>IN</sub> =Vout+1V	X 0.98	V <sub>OUT(T)</sub> (Note 1)	X 1.02	V
Input Voltage	V <sub>IN</sub>				6	V
Maximum Output Current	I <sub>OUT</sub> (max)	V <sub>IN</sub> =Vout+1V		120		mA
Load Regulation	ΔV <sub>OUT</sub>	V <sub>IN</sub> =Vout+1V, 1mA≤I <sub>OUT</sub> ≤80mA		12	27	mV
Dropout Voltage (Note 3)	V <sub>dif1</sub>	I <sub>OUT</sub> =20mA		180	200	mV
	V <sub>dif2</sub>	I <sub>OUT</sub> =50mA		360	380	mV
Supply Current	I <sub>SS</sub>	V <sub>IN</sub> =Vout+1V		7	15	μA
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	I <sub>OUT</sub> =10mA Vout+1V ≤V <sub>IN</sub> ≤5V		0.1	0.2	%/V
Power Supply Ripple Rejection Ratio	PSRR	Vin= [Vout+1]V +1Vp-pAC I <sub>OUT</sub> =10mA,f=1kHz		45	47	dB
Short Circuit Current	I <sub>short</sub>	Vin=Vout(T)+1.5V Vout=Vss		25	50	mA
Over Current Protection	I <sub>limit</sub>			400		mA

## ME6206A21

(VIN=Vout+1V,Cin=Cout=1uF,Ta=25°C Unless otherwise stated)

PARAMETER	SYMBOL	CONDITION	MIX	TYP	MAX	UNIT
Output Voltage	V <sub>OUT(E)</sub> (Note 2)	I <sub>OUT</sub> =10mA, V <sub>IN</sub> =Vout+1V	X 0.98	V <sub>OUT(T)</sub> (Note 1)	X 1.02	V
Input Voltage	V <sub>IN</sub>				6	V
Maximum Output Current	I <sub>OUT</sub> (max)	V <sub>IN</sub> =Vout+1V		200		mA
Load Regulation	ΔV <sub>OUT</sub>	V <sub>IN</sub> =Vout+1V, 1mA≤I <sub>OUT</sub> ≤80mA		10	20	mV
Dropout Voltage (Note 3)	V <sub>dif1</sub>	I <sub>OUT</sub> =50mA		100	130	mV
	V <sub>dif2</sub>	I <sub>OUT</sub> =100mA		200	230	mV
Supply Current	I <sub>SS</sub>	V <sub>IN</sub> =Vout+1V		7	15	μA
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	I <sub>OUT</sub> =10mA Vout+1V ≤V <sub>IN</sub> ≤5V		0.1	0.2	%/V
Power Supply Ripple Rejection Ratio	PSRR	Vin= [Vout+1]V +1Vp-pAC I <sub>OUT</sub> =10mA,f=1kHz		45	47	dB
Short Circuit Current	I <sub>short</sub>	Vin=Vout(T)+1.5V Vout=Vss		20	50	mA
Over Current Protection	I <sub>limit</sub>			450		mA

## ME6206A28

(VIN=Vout+1V,Cin=Cout=1uF,Ta=25°C Unless otherwise stated)

PARAMETER	SYMBOL	CONDITION	MIX	TYP	MAX	UNIT
Output Voltage	V <sub>OUT(E)</sub> (Note 2)	I <sub>OUT</sub> =10mA, V <sub>IN</sub> =Vout+1V	X 0.98	V <sub>OUT(T)</sub> (Note 1)	X 1.02	V
Input Voltage	V <sub>IN</sub>				6	V
Maximum Output Current	I <sub>OUT</sub> (max)	V <sub>IN</sub> =Vout+1V		300		mA
Load Regulation	ΔV <sub>OUT</sub>	V <sub>IN</sub> =Vout+1V 1mA≤I <sub>OUT</sub> ≤100mA		14	28	mV
Dropout Voltage (Note 3)	V <sub>dif1</sub>	I <sub>OUT</sub> =80mA		180	200	mV
	V <sub>dif2</sub>	I <sub>OUT</sub> =200mA		380	400	mV
Supply Current	I <sub>SS</sub>	V <sub>IN</sub> =Vout+1V		8	15	μA
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	I <sub>OUT</sub> =10mA Vout+1V ≤V <sub>IN</sub> ≤6V		0.03	0.2	%/V
Power Supply Ripple Rejection Ratio	PSRR	Vin= [Vout+1]V +1Vp-pAC I <sub>OUT</sub> =10mA,f=1kHz		50	52	dB
Short Circuit Current	I <sub>short</sub>	Vin=Vout(T)+1.5V Vout=Vss		30	60	mA
Over Current Protection	I <sub>limit</sub>			500		mA

## ME6206A30

(VIN=Vout+1V,Cin=Cout=1uF,Ta=25°C Unless otherwise stated)

PARAMETER	SYMBOL	CONDITION	MIX	TYP	MAX	UNIT
Output Voltage	V <sub>OUT(E)</sub> (Note 2)	I <sub>OUT</sub> =10mA, V <sub>IN</sub> =Vout+1V	X 0.98	V <sub>OUT(T)</sub> (Note 1)	X 1.02	V
Input Voltage	V <sub>IN</sub>				6	V
Maximum Output Current	I <sub>OUT</sub> (max)	V <sub>IN</sub> =Vout+1V		300		mA
Load Regulation	ΔV <sub>OUT</sub>	V <sub>IN</sub> =Vout+1V 1mA≤I <sub>OUT</sub> ≤100mA		14	28	mV
Dropout Voltage (Note 3)	V <sub>dif1</sub>	I <sub>OUT</sub> =80mA		180		mV
	V <sub>dif2</sub>	I <sub>OUT</sub> =200mA		380		mV
Supply Current	I <sub>SS</sub>	V <sub>IN</sub> =Vout+1V		8	15	μA
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	I <sub>OUT</sub> =10mA Vout+1V ≤V <sub>IN</sub> ≤6V		0.03	0.2	%/V
Power Supply Ripple Rejection Ratio	PSRR	Vin= [Vout+1]V +1Vp-pAC I <sub>OUT</sub> =10mA,f=1kHz		50	52	dB
Short Circuit Current	I <sub>short</sub>	Vin=Vout(T)+1.5V Vout=Vss		30	60	mA
Over Current Protection	I <sub>limit</sub>			500		mA

## ME6206A33

(VIN=Vout+1V,Cin=Cout=1uF,Ta=25°C Unless otherwise stated)

PARAMETER	SYMBOL	CONDITION	MIX	TYP	MAX	UNIT
Output Voltage	V <sub>OUT(E)</sub> (Note 2)	I <sub>OUT</sub> =10mA, V <sub>IN</sub> =Vout+1V	X 0.98	V <sub>OUT(T)</sub> (Note 1)	X 1.02	V
Input Voltage	V <sub>IN</sub>				6	V
Maximum Output Current	I <sub>OUT</sub> (max)	V <sub>IN</sub> =Vout+1V		300		mA
Load Regulation	ΔV <sub>OUT</sub>	V <sub>IN</sub> =Vout+1V 1mA≤I <sub>OUT</sub> ≤100mA		14	28	mV
Dropout Voltage (Note 3)	V <sub>dif1</sub>	I <sub>OUT</sub> =80mA		180	200	mV
	V <sub>dif2</sub>	I <sub>OUT</sub> =200mA		380	400	mV
Supply Current	I <sub>SS</sub>	V <sub>IN</sub> =Vout+1V		9	15	μA
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	I <sub>OUT</sub> =10mA Vout+1V ≤V <sub>IN</sub> ≤6V		0.03	0.2	%/V
Power Supply Ripple Rejection Ratio	PSRR	Vin= [Vout+1]V +1Vp-pAC I <sub>OUT</sub> =10mA,f=1kHz		50	52	dB
Short Circuit Current	I <sub>short</sub>	Vin=Vout(T)+1.5V Vout=Vss		30	60	mA
Over Current Protection	I <sub>limit</sub>			500		mA

## ME6206K33

(VIN=Vout+1V,Cin=Cout=1uF,Ta=25°C Unless otherwise stated)

PARAMETER	SYMBOL	CONDITION	MIX	TYP	MAX	UNIT
Output Voltage	V <sub>OUT(E)</sub> (Note 2)	I <sub>OUT</sub> =10mA, V <sub>IN</sub> =Vout+1V	X 0.98	V <sub>OUT(T)</sub> (Note 1)	X 1.02	V
Input Voltage	V <sub>IN</sub>				6	V
Maximum Output Current	I <sub>OUT</sub> (max)	V <sub>IN</sub> =Vout+1V		300		mA
Load Regulation	ΔV <sub>OUT</sub>	V <sub>IN</sub> =Vout+1V 1mA≤I <sub>OUT</sub> ≤100mA		14	28	mV
Dropout Voltage (Note 3)	V <sub>dif1</sub>	I <sub>OUT</sub> =80mA		180	200	mV
	V <sub>dif2</sub>	I <sub>OUT</sub> =200mA		380	400	mV
Supply Current	I <sub>SS</sub>	V <sub>IN</sub> =Vout+1V		180	500	μA
Line Regulations	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	I <sub>OUT</sub> =10mA Vout+1V ≤V <sub>IN</sub> ≤6V		0.03	0.2	%/V
Power Supply Ripple Rejection Ratio	PSRR	Vin= [Vout+1]V +1Vp-pAC I <sub>OUT</sub> =10mA,f=1kHz		50	52	dB
Short Circuit Current	I <sub>short</sub>	Vin=Vout(T)+1.5V Vout=Vss		30	60	mA
Over Current Protection	I <sub>limit</sub>			500		mA

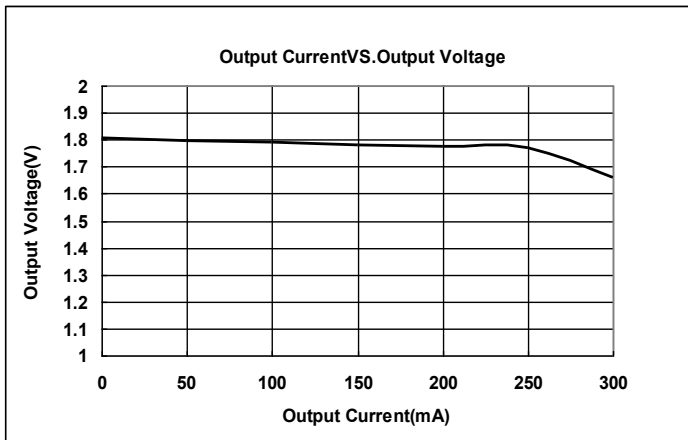
**Note :**

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.  $V_{dif}$  :  $V_{IN1} - V_{OUT}(E)'$   
 $V_{IN1}$  : The input voltage when  $V_{OUT}(E)'$  appears as input voltage is gradually decreased.  
 $V_{OUT}(E)'$  = A voltage equal to 98% of the output voltage whenever an amply stabilized  $I_{out}$  { $V_{OUT}(T)+1.0V$ } is input.

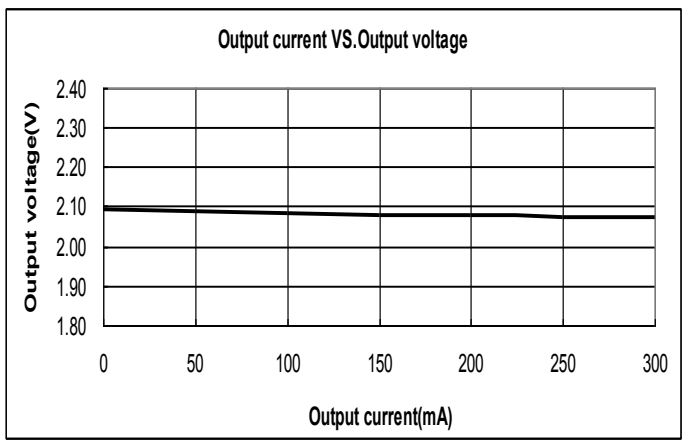
**Type Characteristics**

(1) Output Current VS. Output Voltage (VIN=Vout+1, Ta = 25 °C)

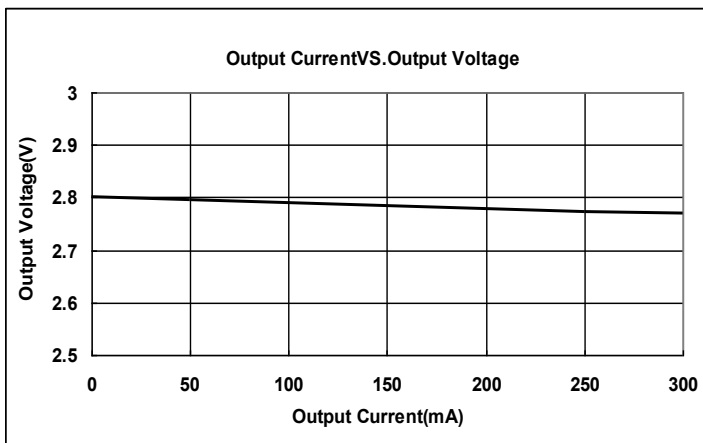
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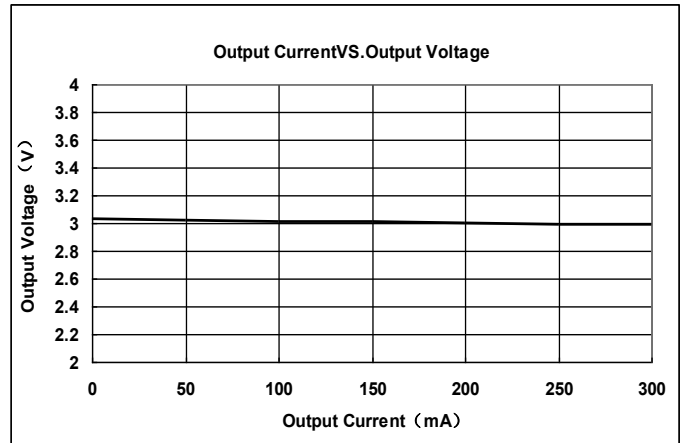
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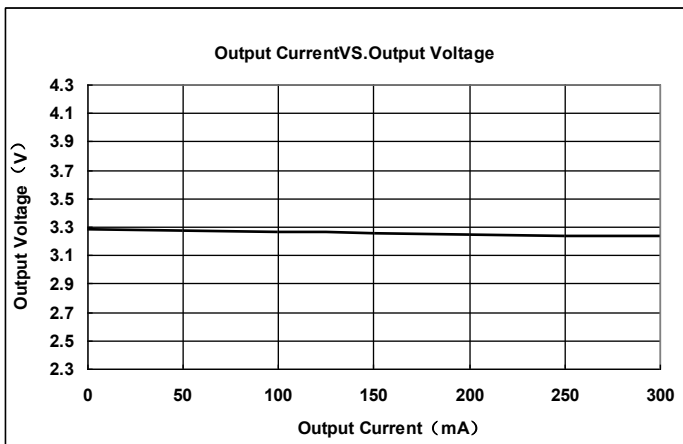
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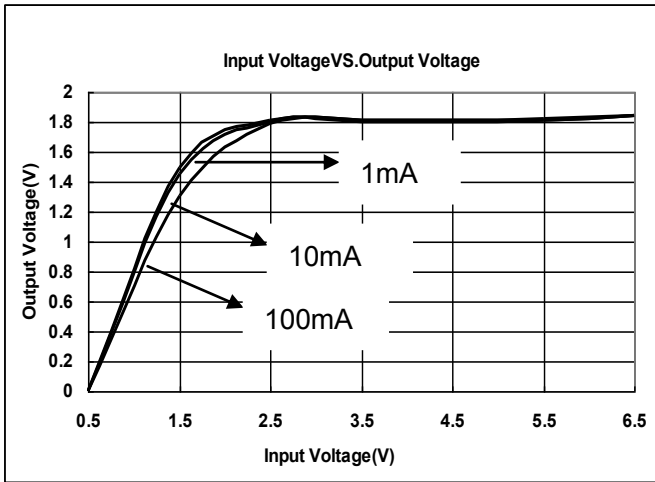
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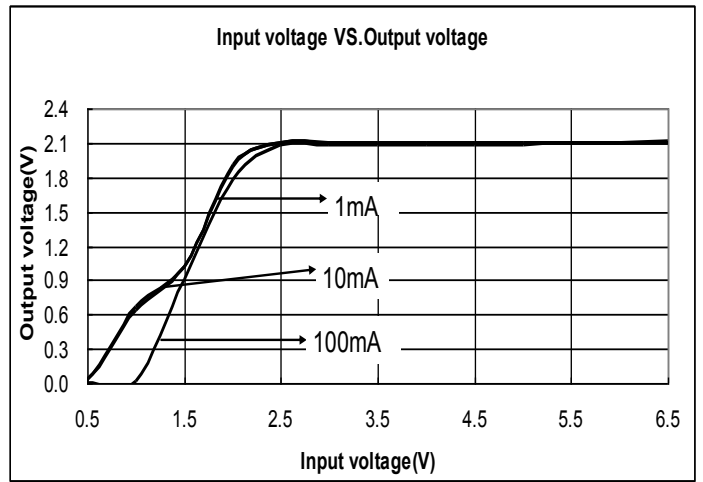


(2) Input Voltage VS. Output Voltage (Ta = 25 °C)

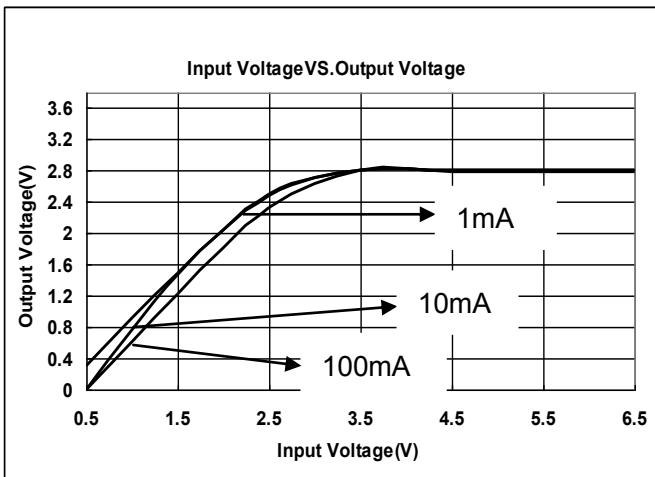
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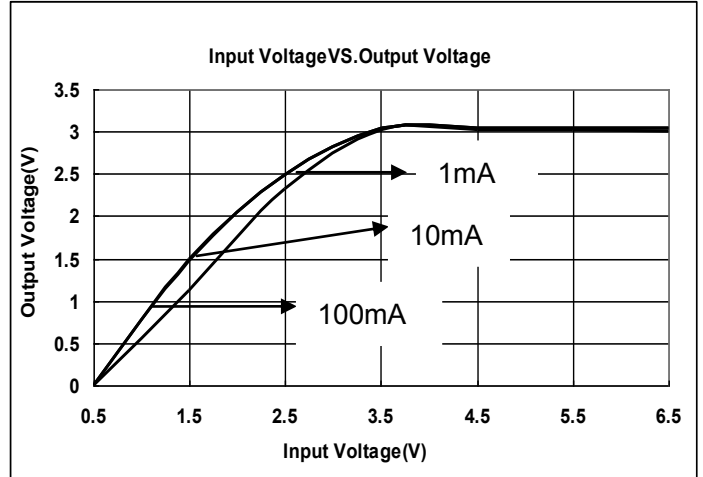
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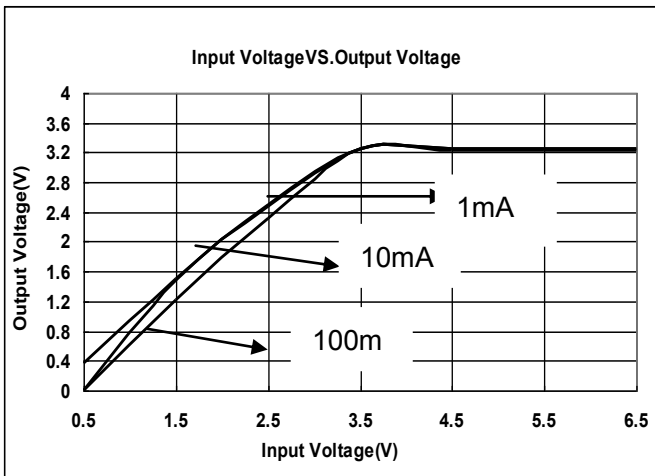
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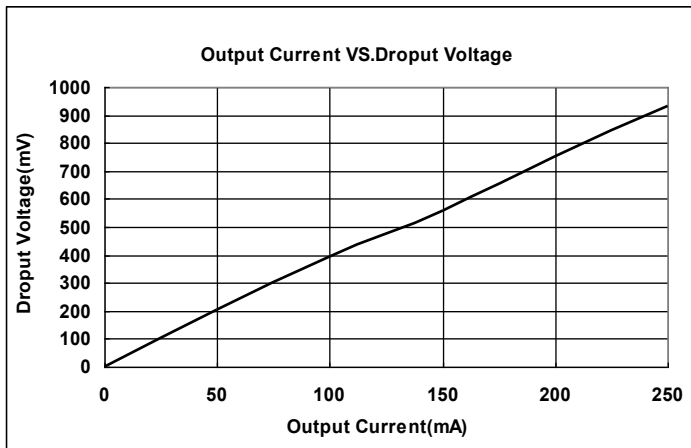


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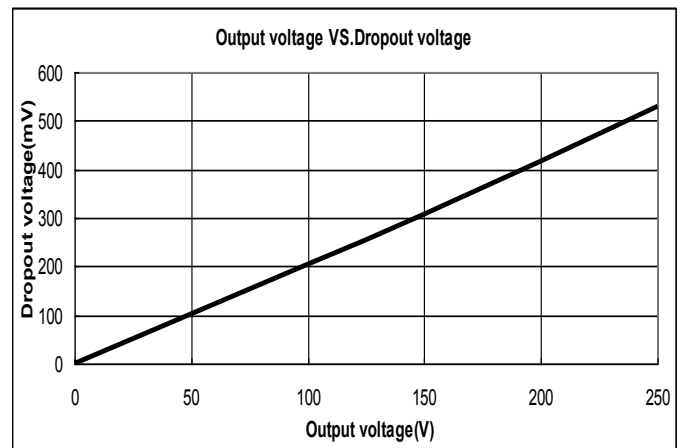


(3) Output Current VS. Dropout Voltage ( $V_{IN}=V_{out}+1V, T_a = 25^\circ C$ )

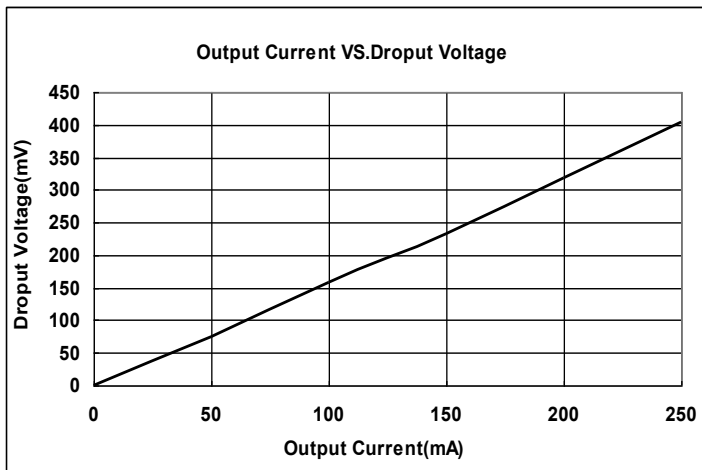
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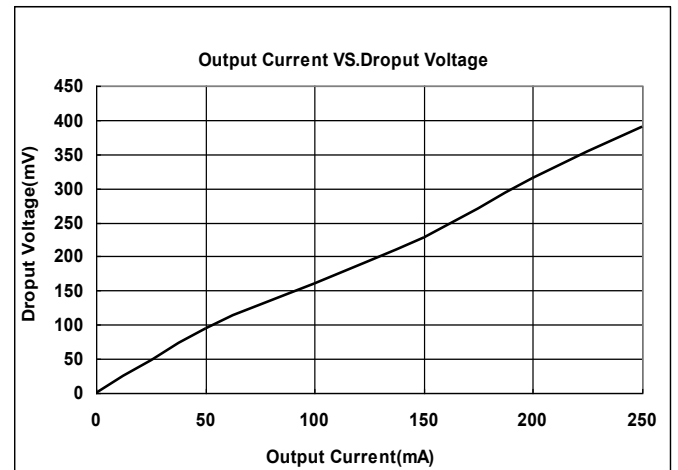
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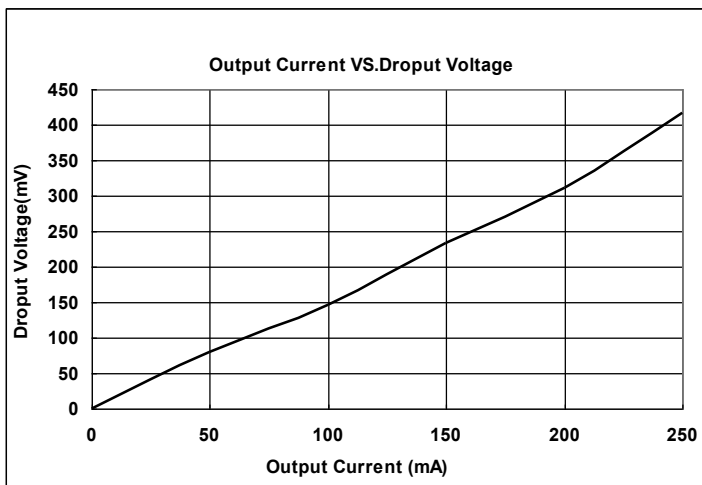
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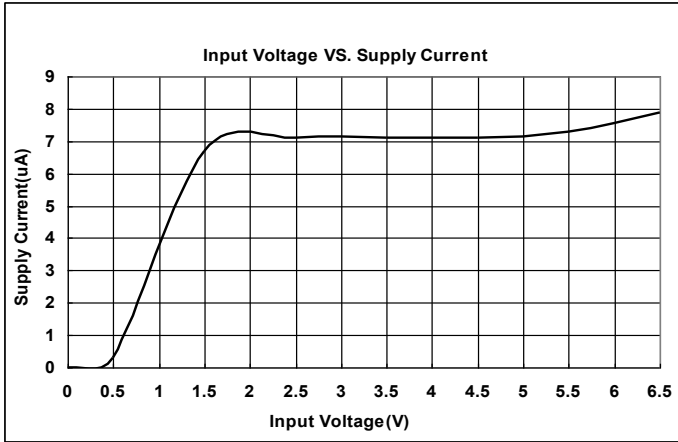


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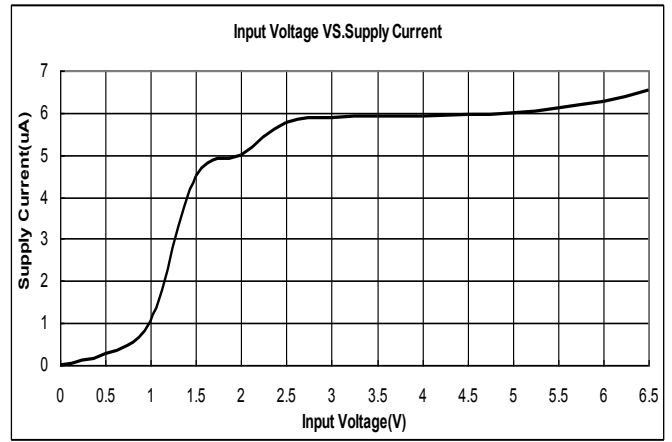


(4) Input Voltage VS. Supply Current (Ta = 25 °C)

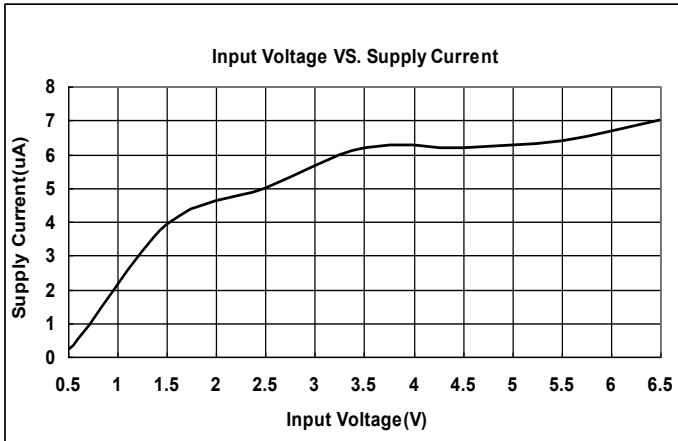
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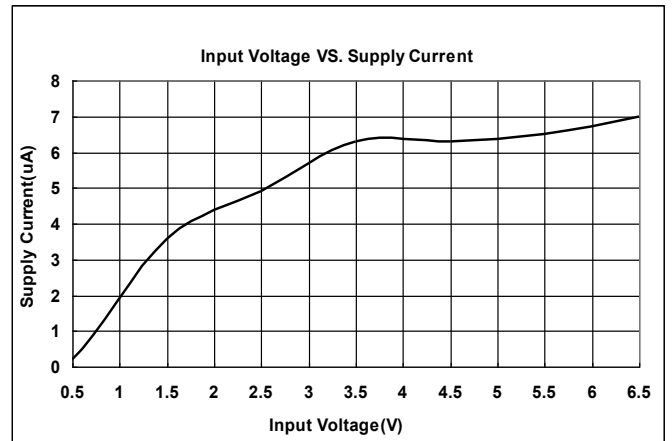
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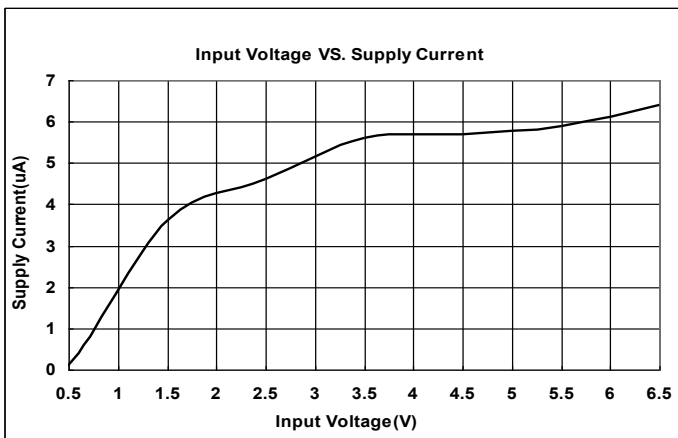
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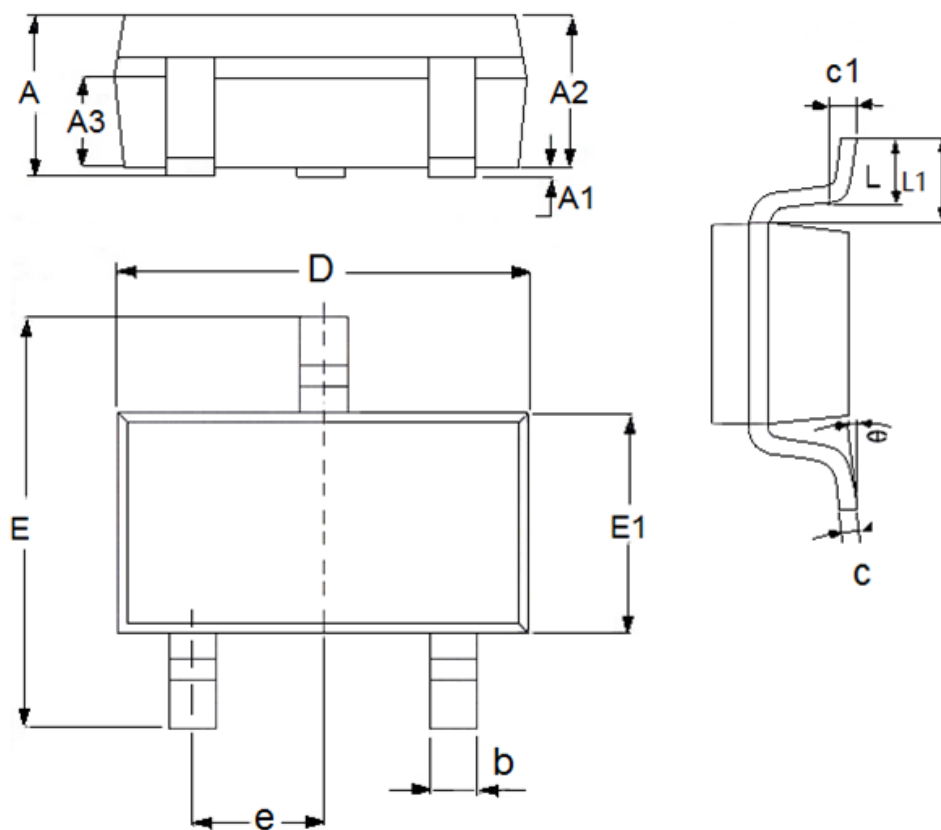


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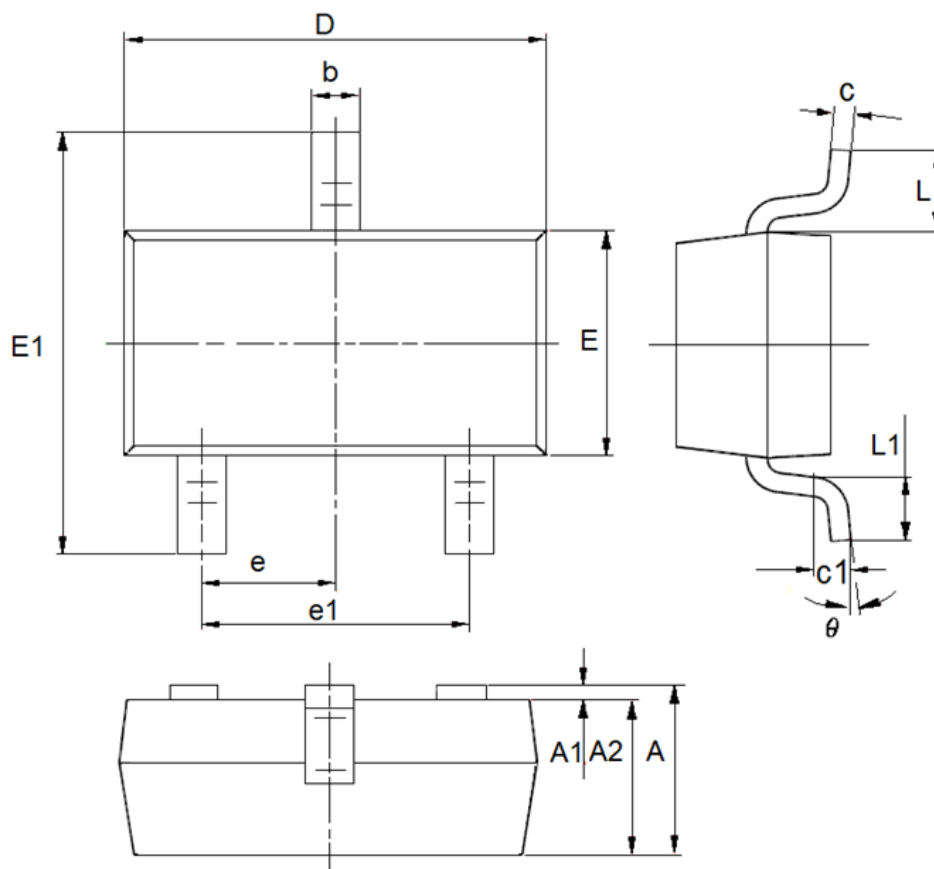
## Packaging Information

● SOT23-3



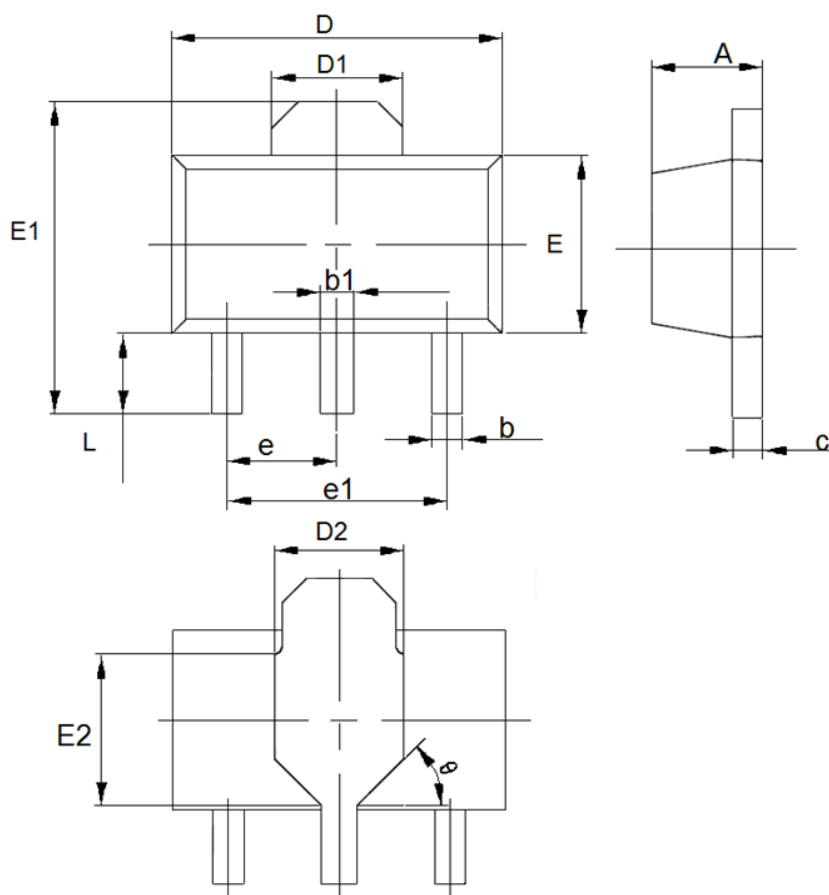
DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	1	1.5	0.0394	0.0591
A1	0	0.15	0	0.0059
A2	0.9	1.3	0.0354	0.0512
A3	0.6	0.7	0.0236	0.0276
b	0.25	0.5	0.0098	0.0197
c	0.1	0.25	0.0039	0.0098
D	2.8	3.1	0.1102	0.122
E	2.6	3.1	0.1023	0.122
E1	1.5	1.8	0.0591	0.0709
e	0.95(TYP)		0.0374(TYP)	
L	0.25	0.6	0.0098	0.0236
L1	0.59(TYP)		0.0232(TYP)	
θ	0	8°	0	8°
c1	0.2(TYP)		0.0079(TYP)	

● SOT23



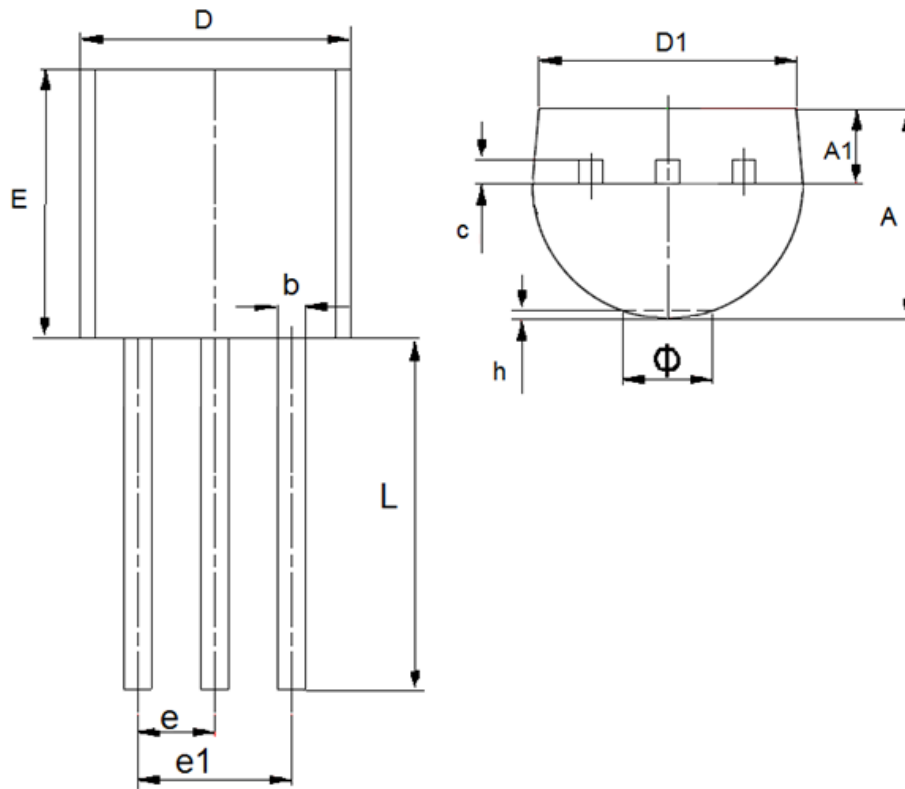
DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	0.9	1.15	0.0354	0.0453
A1	0	0.14	0	0.0055
A2	0.9	1.05	0.0354	0.0413
b	0.28	0.52	0.011	0.0205
c	0.07	0.23	0.0028	0.0091
D	2.8	3	0.1102	0.1181
e1	1.8	2	0.0709	0.0787
E	1.2	1.4	0.0472	0.0551
E1	2.25	2.55	0.0886	0.1004
e	0.95(TYP)		0.0374(TYP)	
L	0.55(TYP)		0.0217(TYP)	
L1	0.25	0.55	0.0098	0.0217
$\theta$	0	8°	0	8°
c1	0.25(TYP)		0.0098(TYP)	

● SOT89-3



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	1.4	1.6	0.0551	0.063
b	0.32	0.52	0.0126	0.0205
b1	0.4	0.58	0.0157	0.0228
c	0.35	0.45	0.0138	0.01772
D	4.4	4.6	0.1732	0.1811
D1	1.55(TYP)		0.061(TYP)	
D2	1.75(TYP)		0.0689(TYP)	
e1	3(TYP)		0.1181(TYP)	
E	2.3	2.6	0.0906	0.1023
E1	3.94	4.4	0.1551	0.1732
E2	1.9(TYP)		0.0748(TYP)	
e	1.5(TYP)		0.0591(TYP)	
L	0.8	1.2	0.0315	0.0472
θ	45°		45°	

● TO92



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	3.3	3.7	0.1299	0.1457
A1	1.1	1.4	0.0433	0.0551
b	0.38	0.55	0.015	0.0217
c	0.36	0.51	0.0142	0.0201
D	4.3	4.7	0.1693	0.185
D1	3.43	—	0.135	—
E	4.3	4.7	0.1693	0.185
e	1.27		0.05	
e1	2.44	2.64	0.0961	0.1039
L	14.1	14.5	0.5551	0.5709
h	0	0.38	0	0.015
Φ	—	1.6	—	0.063

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