

# AT6211 Series

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## High Speed LDO Regulators, High PSRR, Low noise

### Product Summary

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The AT6211 series are highly accurate, low noise, CMOS LDO Voltage Regulators. Offering low output noise, high ripple rejection ratio, low dropout and very fast turn-on times, the AT6211 series is ideal for today's cutting edge mobile phone. Internally the AT6211 includes a reference voltage source, error amplifiers, driver transistors, current limiters and phase compensators. The AT6211's current limiters' foldback circuit also operates as a short protect for the output current limiter and the output pin. The AT6211 series is also fully compatible with low ESR ceramic capacitors, reducing cost and improving output stability. This high level of output stability is maintained even during frequent load fluctuations, due to the excellent transient response performance and high PSRR achieved across a broad range of frequencies. The CE function allows the output of regulator to be turned off, resulting in greatly reduced power consumption.

### Features

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- Maximum Output Current: 500mA  
( $V_{in}=4.3V, V_{out}=3.3V$ )
- Operating Voltage Range: 1.2V~6.0V
- Dropout Voltage: 100mV@ $I_{out}=100mA$
- High Accuracy:  $\pm 1\%$
- Low Power Consumption: 30uA (TYP.)
- Standby Current: 0.1uA (TYP.)
- High Ripple Rejection: 70dB@1KHz (AT6211C33)
- Low output noise: 50uVrms
- Line Regulation: 0.05% (TYP.)

### Applications

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- Mobile phones
- Cordless phones, radio communication equipment
- Portable games
- Cameras, Video cameras
- Reference voltage sources
- Battery-Powered Equipment

### Package

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- 3-pin SOT89-3, SOT23-3
- 5-pin SOT23-5

# AT6211 Series

## Typical Application Circuit

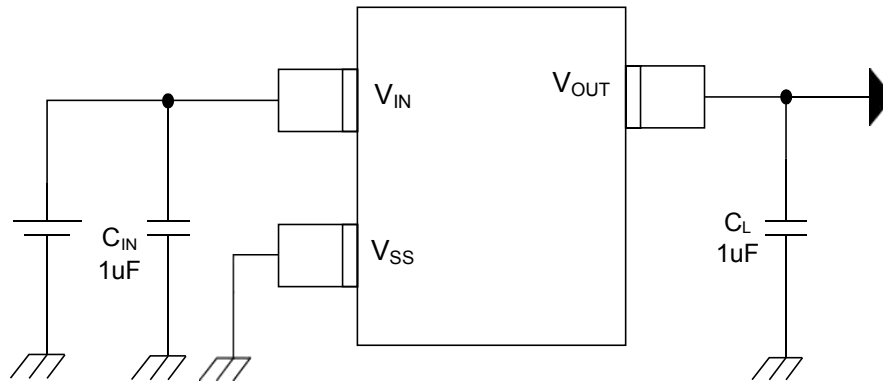


Fig1. AT6211A series

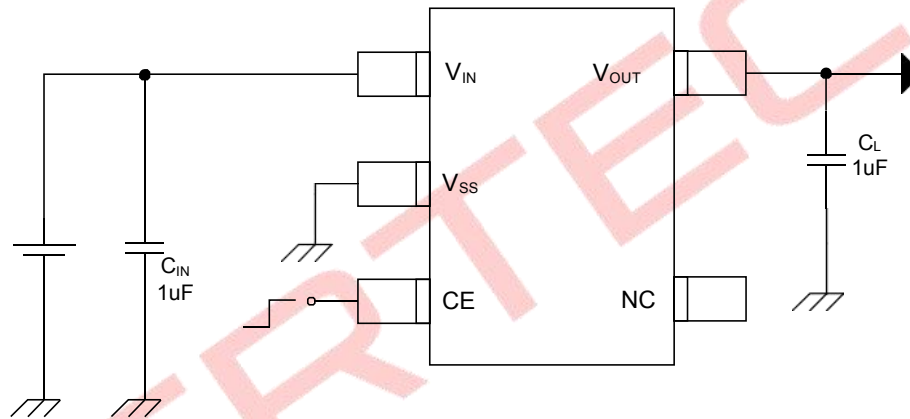


Fig2. AT6211C series

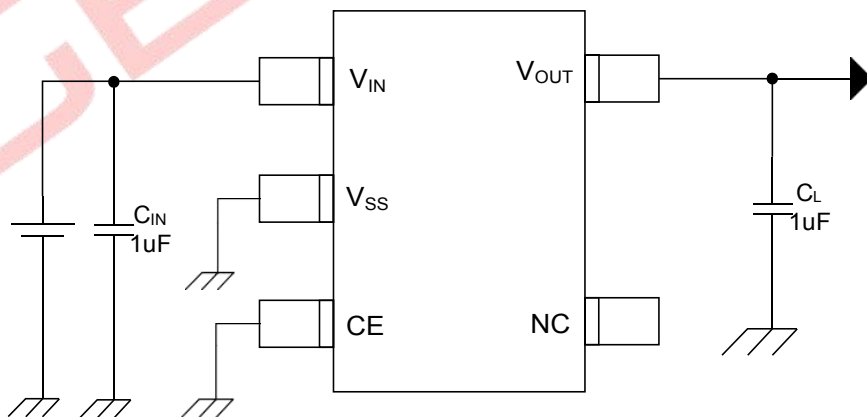
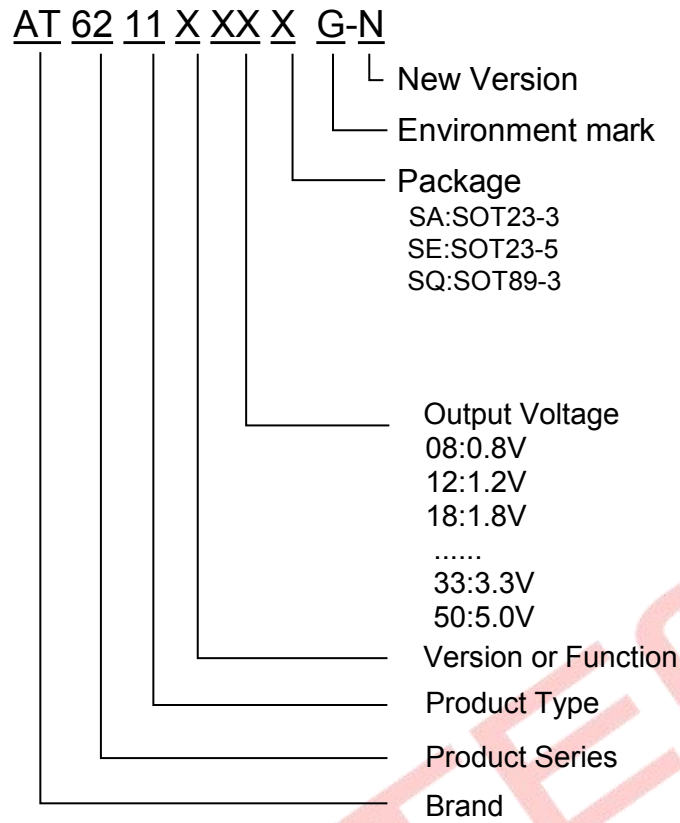


Fig3. AT6211H series

# AT6211 Series

## Selection Guide



product series	product function	Output voltage	Package
AT6211A12SQG-N	Enable the internal connection of high	1.2V	SOT89-3
AT6211C33SEG-N	Enable can be set	3.3V	SOT23-5
AT6211H15SEG-N	Enable connected to a low	1.5V	SOT23-5

### Marking:

**11X<sup>1</sup>XX**  
ATYWX

11:Product Type

X<sup>1</sup>:Version or Function

XX:Output Voltage

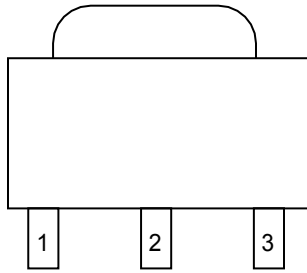
AT:Brand

YWX:Code

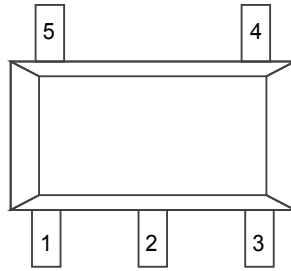


# AT6211 Series

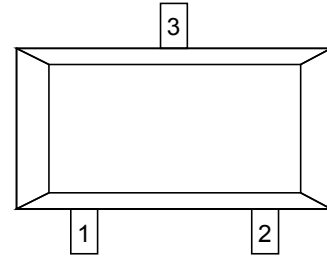
## Pin Configuration



SOT89-3



SOT23-5



SOT23-3

### AT6211AXXG

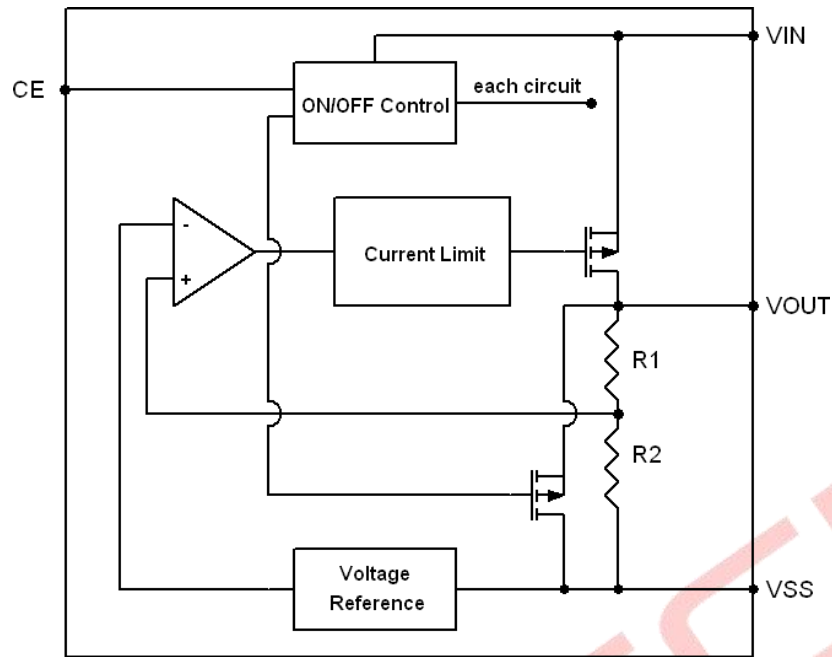
Pin Number		Pin Name	Functions
SA	SQ		
SOT23-3	SOT89-3		
1	1	$V_{SS}$	Ground
2	3	$V_{OUT}$	Output
3	2	$V_{IN}$	Power Input

### AT6211CXXG/ AT6211HXXG

Pin Number		Pin Name	Functions
SE	SOT23-5		
1		$V_{IN}$	Power Input
2		$V_{SS}$	Ground
3		CE	ON / OFF Control
4		NC	No Connect
5		$V_{OUT}$	Output

# AT6211 Series

## Block Diagram



### Absolute Maximum Ratings ( $T_a=25^{\circ}\text{C}$ , unless otherwise noted)

Parameter	Symbol	Ratings	Units
Input Voltage	$V_{IN}$	6.5	V
Output Current	$I_{OUT}$	600	mA
Output Voltage	$V_{OUT}$	$V_{SS}-0.3 \sim V_{IN} +0.3$	V
CE Pin Voltage	$V_{CE}$	$V_{SS}-0.3 \sim V_{IN} +0.3$	V
Power Dissipation	$P_D$	SOT23-3	0.54
		SOT23-5	0.60
		SOT89-3	1.25
Thermal resistance (Junction to air)	$\theta_{JA}$	SOT23-3	230
		SOT23-5	210
		SOT89-3	100
Operating Ambient Temperature Range	$T_{OPR}$	-40 ~ +85	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-55 ~ +150	$^{\circ}\text{C}$
Junction temperature	$T_J$	-40 ~ +150	$^{\circ}\text{C}$

# AT6211 Series

## Electrical Characteristics ( $V_{IN}=V_{OUT}+1V$ , $C_{IN}=C_{OUT}=1\mu F$ , $T_A=25^\circ C$ , unless otherwise specified)

### AT6211C08 ( $V_{IN}=V_{OUT}+1V$ , $V_{CE}=V_{IN}$ , $C_{IN}=C_L=1\mu F$ , $T_a=25^\circ C$ , unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=30mA$ , $V_{IN}=V_{OUT}+1V$	X 0.99	$V_{OUT(T)}$ (Note 1)	X 1.01	V
Maximum Output Current	$I_{OUTMAX}$	$V_{IN}=V_{OUT}+1V$		250		mA
Load Regulation	$\Delta V_{OUT}$	$V_{IN}=V_{OUT}+1V$ , $1mA \leq I_{OUT} \leq 100mA$		7		mV
Dropout Voltage (Note 3)	$V_{DIF1}$	$I_{OUT}=100mA$		600		mV
	$V_{DIF2}$	$I_{OUT}=200mA$		850		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{OUT}+1V$		30	60	$\mu A$
Stand-by Current	$I_{CEL}$	$V_{CE}=0V$		0.1	1.0	$\mu A$
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT}=30mA$ $V_{OUT}+1V \leq V_{IN} \leq 6.5V$		0.05		%/V
CE "High" Voltage	VCEH	Start up	1.0			V
CE "Low" Voltage	VCEL	Shut down			0.5	V
Output noise	EN	$I_{OUT}=40mA$ , 300Hz~50kHz		50		$\mu V_{rms}$
Ripple Rejection Rate	PSRR	$V_{IN}=[V_{OUT}+1]V$ $+1V_{p-pAC}$	$I_{OUT}=10mA$ , 1kHz	70		dB
			$I_{OUT}=100mA$ , 10kHz	62		

### AT6211C10 ( $V_{IN}=V_{OUT}+1V$ , $V_{CE}=V_{IN}$ , $C_{IN}=C_L=1\mu F$ , $T_a=25^\circ C$ , unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=30mA$ , $V_{IN}=V_{OUT}+1V$	X 0.99	$V_{OUT(T)}$ (Note 1)	X 1.01	V
Maximum Output Current	$I_{OUTMAX}$	$V_{IN}=V_{OUT}+1V$		300		mA
Load Regulation	$\Delta V_{OUT}$	$V_{IN}=V_{OUT}+1V$ , $1mA \leq I_{OUT} \leq 100mA$		5		mV
Dropout Voltage (Note 3)	$V_{DIF1}$	$I_{OUT}=100mA$		400		mV
	$V_{DIF2}$	$I_{OUT}=200mA$		650		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{OUT}+1V$		30	60	$\mu A$
Stand-by Current	$I_{CEL}$	$V_{CE}=0V$		0.1	1.0	$\mu A$
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT}=30mA$ $V_{OUT}+1V \leq V_{IN} \leq 6.5V$		0.035		%/V
CE "High" Voltage	VCEH	Start up	1.0			V
CE "Low" Voltage	VCEL	Shut down			0.5	V
Output noise	EN	$I_{OUT}=40mA$ , 300Hz~50kHz		50		$\mu V_{rms}$
Ripple Rejection Rate	PSRR	$V_{IN}=[V_{OUT}+1]V$ $+1V_{p-pAC}$	$I_{OUT}=10mA$ , 1kHz	70		dB
			$I_{OUT}=100mA$ , 10kHz	62		

# AT6211 Series

**AT6211C12** ( $V_{IN} = V_{OUT} + 1V$ ,  $V_{CE} = V_{IN}$ ,  $C_{IN} = C_L = 1\mu F$ ,  $T_a = 25^\circ C$ , unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT} = 30mA$ , $V_{IN} = V_{OUT} + 1V$	X 0.99	$V_{OUT(T)}$ (Note 1)	X 1.01	V
Maximum Output Current	$I_{OUTMAX}$	$V_{IN} = V_{OUT} + 1V$		300		mA
Load Regulation	$\Delta V_{OUT}$	$V_{IN} = V_{OUT} + 1V$ , $1mA \leq I_{OUT} \leq 100mA$		8		mV
Dropout Voltage (Note 3)	$V_{DIF1}$	$I_{OUT} = 100mA$		280		mV
	$V_{DIF2}$	$I_{OUT} = 200mA$		500		mV
Supply Current	$I_{SS}$	$V_{IN} = V_{OUT} + 1V$		30	60	$\mu A$
Stand-by Current	$I_{CEL}$	$V_{CE} = 0V$		0.1	1.0	$\mu A$
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT} = 30mA$ $V_{OUT} + 1V \leq V_{IN} \leq 6.5V$		0.03		%/V
CE "High" Voltage	VCEH	Start up	1.0			V
CE "Low" Voltage	VCEL	Shut down			0.5	V
Output noise	EN	$I_{OUT} = 40mA$ , 300Hz~50kHz		50		$\mu V_{rms}$
Ripple Rejection Rate	PSRR	$V_{IN} = [V_{OUT} + 1]V$ +1Vp-pAC	$I_{OUT} = 10mA$ , 1kHz	70		dB
			$I_{OUT} = 100mA$ , 10kHz	62		

**AT6211C15** ( $V_{IN} = V_{OUT} + 1V$ ,  $V_{CE} = V_{IN}$ ,  $C_{IN} = C_L = 1\mu F$ , unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT} = 30mA$ , $V_{IN} = V_{OUT} + 1V$	X 0.99	$V_{OUT(T)}$ (Note 1)	X 1.01	V
Maximum Output Current	$I_{OUTMAX}$	$V_{IN} = V_{OUT} + 1V$		300		mA
Load Regulation	$\Delta V_{OUT}$	$V_{IN} = V_{OUT} + 1V$ , $1mA \leq I_{OUT} \leq 100mA$		9		mV
Dropout Voltage (Note 3)	$V_{DIF1}$	$I_{OUT} = 100mA$		200		mV
	$V_{DIF2}$	$I_{OUT} = 200mA$		400		mV
Supply Current	$I_{SS}$	$V_{IN} = V_{OUT} + 1V$		30	60	$\mu A$
Stand-by Current	$I_{CEL}$	$V_{CE} = 0V$		0.1	1.0	$\mu A$
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT} = 30mA$ $V_{OUT} + 1V \leq V_{IN} \leq 6.5V$		0.05		%/V
CE "High" Voltage	VCEH	Shut up	1.0			V
CE "Low" Voltage	VCEL	Start down			0.5	V
Output noise	EN	$I_{OUT} = 40mA$ , 300Hz~50kHz		50		$\mu V_{rms}$
Ripple Rejection Rate	PSRR	$V_{IN} = [V_{OUT} + 1]V$ +1Vp-pAC	$I_{OUT} = 10mA$ , 1kHz	70		dB
			$I_{OUT} = 100mA$ , 10kHz	62		



# AT6211 Series

**AT6211C18** ( $V_{IN} = V_{OUT} + 1V$ ,  $V_{CE} = V_{IN}$ ,  $C_{IN} = C_L = 1\mu F$ ,  $T_a = 25^\circ C$ , unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT} = 30mA$ , $V_{IN} = V_{OUT} + 1V$	X 0.99	$V_{OUT(T)}$ (Note 1)	X 1.01	V
Maximum Output Current	$I_{OUTMAX}$	$V_{IN} = V_{OUT} + 1V$		300		mA
Load Regulation	$\Delta V_{OUT}$	$V_{IN} = V_{OUT} + 1V$ , $1mA \leq I_{OUT} \leq 100mA$		9		mV
Dropout Voltage (Note 3)	$V_{DIF1}$	$I_{OUT} = 100mA$		200		mV
	$V_{DIF2}$	$I_{OUT} = 200mA$		400		mV
Supply Current	$I_{SS}$	$V_{IN} = V_{OUT} + 1V$		30	60	$\mu A$
Stand-by Current	$I_{CEL}$	$V_{CE} = 0V$		0.1	1.0	$\mu A$
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT} = 30mA$ $V_{OUT} + 1V \leq V_{IN} \leq 6.5V$		0.05		%/V
CE "High" Voltage	VCEH	Start up	1.0			V
CE "Low" Voltage	VCEL	Shut down			0.5	V
Output noise	EN	$I_{OUT} = 40mA$ , 300Hz~50kHz		50		$\mu V_{rms}$
Ripple Rejection Rate	PSRR	$V_{IN} = [V_{OUT} + 1]V$ +1Vp-pAC	$I_{OUT} = 10mA$ , 1kHz	70		dB
			$I_{OUT} = 100mA$ , 10kHz	62		

**AT6211C25** ( $V_{IN} = V_{OUT} + 1V$ ,  $V_{CE} = V_{IN}$ ,  $C_{IN} = C_L = 1\mu F$ ,  $T_a = 25^\circ C$ , unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT} = 30mA$ , $V_{IN} = V_{OUT} + 1V$	X 0.99	$V_{OUT(T)}$ (Note 1)	X1.01	V
Maximum Output Current	$I_{OUTMAX}$	$V_{IN} = V_{OUT} + 1V$		400		mA
Load Regulation	$\Delta V_{OUT}$	$V_{IN} = V_{OUT} + 1V$ , $1mA \leq I_{OUT} \leq 100mA$		9		mV
Dropout Voltage (Note 3)	$V_{DIF1}$	$I_{OUT} = 100mA$		110		mV
	$V_{DIF2}$	$I_{OUT} = 200mA$		220		mV
Supply Current	$I_{SS}$	$V_{IN} = V_{OUT} + 1V$		30	60	$\mu A$
Stand-by Current	$I_{CEL}$	$V_{CE} = 0V$		0.1	1.0	$\mu A$
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT} = 30mA$ , $V_{OUT} + 1V$ $\leq V_{IN} \leq 6.5V$		0.04		%/V
CE "High" Voltage	VCEH	Start up	1.0			V
CE "Low" Voltage	VCEL	Shut down			0.5	V
Output noise	EN	$I_{OUT} = 40mA$ , 300Hz~50kHz		50		$\mu V_{rms}$
Ripple Rejection Rate	PSRR	$V_{IN} = [V_{OUT} + 1]V$ +1Vp-pAC	$I_{OUT} = 10mA$ , 1kHz	70		dB
			$I_{OUT} = 100mA$ , 10kHz	62		
			$I_{OUT} = 200mA$ , 10kHz	62		
Short-circuit Current	$I_{SHORT}$	$V_{IN} = V_{OUT} + 1V$ , $V_{CE} = V_{IN}$ , $V_{OUT} = 0V$		60		mA



# AT6211 Series

**AT6211C28** ( $V_{IN}=V_{OUT}+1V$ ,  $V_{CE}=V_{IN}$ ,  $C_{IN}=C_L=1\mu F$ ,  $T_a=25^\circ C$ , unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=30mA$ , $V_{IN}=V_{OUT}+1V$	X 0.99	$V_{OUT(T)}$ (Note 1)	X1.01	V
Maximum Outputcurrent	$I_{OUTMAX}$	$V_{IN}=V_{OUT}+1V$		450		mA
Load Regulation	$\Delta V_{OUT}$	$V_{IN}=V_{OUT}+1V$ , $1mA \leq I_{OUT} \leq 100mA$		7		mV
Dropout Voltage (Note 3)	$V_{DIF1}$	$I_{OUT}=100mA$		110		mV
	$V_{DIF2}$	$I_{OUT}=200mA$		220		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{OUT}+1V$		30	60	$\mu A$
Stand-by Current	$I_{CEL}$	$V_{CE}=0V$		0.1	1.0	$\mu A$
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT}=30mA$ $V_{OUT}+1V$ $\leq V_{IN} \leq 6.5V$		0.04		%/V
CE "High" Voltage	$V_{CEH}$	Start up	1.0			V
CE "Low" Voltage	$V_{CEL}$	Shut down			0.5	V
Output noise	EN	$I_{OUT}=40mA$ , 300Hz~50kHz		50		$\mu V_{rms}$
Ripple Rejection Rate	PSRR	$V_{IN}=[V_{OUT}+1]V+$ $1V_{p-pAC}$	$I_{OUT}=10mA, 1kHz$	70		dB
			$I_{OUT}=100mA, 10kHz$	62		
			$I_{OUT}=200mA, 10kHz$	62		
Short-circuit Current	$I_{SHORT}$	$V_{IN}=V_{OUT}+1V$ , $V_{CE}=V_{IN}$ , $V_{OUT}=0V$		65		mA

**AT6211C30** ( $V_{IN}=V_{OUT}+1V$ ,  $V_{CE}=V_{IN}$ ,  $C_{IN}=C_L=1\mu F$ ,  $T_a=25^\circ C$ , unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=30mA$ , $V_{IN}=V_{OUT}+1V$	X 0.99	$V_{OUT(T)}$ (Note 1)	X 1.01	V
Maximum Output Current	$I_{OUTMAX}$	$V_{IN}=V_{OUT}+1V$		500		mA
Load Regulation	$\Delta V_{OUT}$	$V_{IN}=V_{OUT}+1V$ , $1mA \leq I_{OUT} \leq 100mA$		8		mV
Dropout Voltage (Note 3)	$V_{DIF1}$	$I_{OUT}=100mA$		100		mV
	$V_{DIF2}$	$I_{OUT}=200mA$		210		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{OUT}+1V$		30	60	$\mu A$
Stand-by Current	$I_{CEL}$	$V_{CE}=0V$		0.1	1.0	$\mu A$
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT}=30mA$ $V_{OUT}+1V \leq V_{IN} \leq 6.5V$		0.05		%/V
CE "High" Voltage	$V_{CEH}$	Start up	1.0			V
CE "Low" Voltage	$V_{CEL}$	Shut down			0.5	V
Output noise	EN	$I_{OUT}=40mA$ , 300Hz~50kHz		50		$\mu V_{rms}$
Ripple Rejection Rate	PSRR	$V_{IN}=[V_{OUT}+1]V+$ $+1V_{p-pAC}$	$I_{OUT}=10mA, 1kHz$	70		dB
			$I_{OUT}=100mA, 10kHz$	62		
			$I_{OUT}=200mA, 10kHz$	62		
Short-circuit Current	$I_{SHORT}$	$V_{IN}=V_{OUT}+1V$ , $V_{CE}=V_{IN}$ , $V_{OU}=0V$		65		mA

# AT6211 Series

**AT6211C33** ( $V_{IN}=V_{OUT}+1V$ ,  $V_{CE}=V_{IN}$ ,  $C_{IN}=C_L=1\mu F$ ,  $T_a=25^\circ C$ , unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=30mA$ , $V_{IN}=V_{OUT}+1V$	X 0.99	$V_{OUT(T)}$ (Note 1)	X 1.01	V
Maximum Output Current	$I_{OUTMAX}$	$V_{IN}=V_{OUT}+1V$		500		mA
Load Regulation	$\Delta V_{OUT}$	$V_{IN}=V_{OUT}+1V$ , $1mA \leq I_{OUT} \leq 100mA$		9		mV
Dropout Voltage (Note 3)	$V_{DIF1}$	$I_{OUT}=100mA$		120		mV
	$V_{DIF2}$	$I_{OUT}=200mA$		260		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{OUT}+1V$		30	60	$\mu A$
Stand-byCurrent	$I_{CEL}$	$V_{CE}=0V$		0.1	1.0	$\mu A$
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT}=30mA$ $V_{OUT}+1V \leq V_{IN} \leq 6.5V$		0.05		%/V
CE "High" Voltage	VCEH	Start up	1.0			V
CE "Low" Voltage	VCEL	Shut down			0.5	V
Output noise	EN	$I_{OUT}=40mA$ , 300Hz~50kHz		50		$\mu V_{rms}$
Ripple Rejection Rate	PSRR	$V_{IN}=[V_{OUT}+1]V$ $+1Vp-pAC$	$I_{OUT}=10mA, 1kHz$	70		dB
			$I_{OUT}=100mA, 10kHz$	62		
			$I_{OUT}=200mA, 10kHz$	62		
Short-circuit Current	$I_{SHORT}$	$V_{IN}=V_{OUT}+1V$ , $V_{CE}=V_{IN}$ , $V_{OUT}=0V$		70		mA

**AT6211C33 (SOT343R, FBP1\*1-4L, SOT353)**

( $V_{IN}=V_{OUT}+1V$ ,  $V_{CE}=V_{IN}$ ,  $C_{IN}=C_L=1\mu F$ ,  $T_a=25^\circ C$ , unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=30mA$ , $V_{IN}=V_{OUT}+1V$	X 0.99	$V_{OUT(T)}$ (Note 1)	X 1.01	V
Maximum Output Current	$I_{OUTMAX}$	$V_{IN}=V_{OUT}+1V$		400		mA
Load Regulation	$\Delta V_{OUT}$	$V_{IN}=V_{OUT}+1V$ , $1mA \leq I_{OUT} \leq 100mA$		9		mV
Dropout Voltage (Note 3)	$V_{DIF1}$	$I_{OUT}=100mA$		120		mV
	$V_{DIF2}$	$I_{OUT}=200mA$		260		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{OUT}+1V$		30	60	$\mu A$
Stand-byCurrent	$I_{CEL}$	$V_{CE}=0V$		0.1	1.0	$\mu A$
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT}=30mA$ $V_{OUT}+1V \leq V_{IN} \leq 6.5V$		0.05		%/V
CE "High" Voltage	VCEH	Start up	1.0			V
CE "Low" Voltage	VCEL	Shut down			0.5	V
Output noise	EN	$I_{OUT}=40mA$ , 300Hz~50kHz		50		$\mu V_{rms}$
Ripple Rejection Rate	PSRR	$V_{IN}=[V_{OUT}+1]V$ $+1Vp-pAC$	$I_{OUT}=10mA, 1kHz$	70		dB
			$I_{OUT}=100mA, 10kHz$	62		
			$I_{OUT}=200mA, 10kHz$	62		
Short-circuit Current	$I_{SHORT}$	$V_{IN}=V_{OUT}+1V$ , $V_{CE}=V_{IN}$ , $V_{OUT}=0V$		70		mA

# AT6211 Series

**AT6211C36** ( $V_{IN}=V_{OUT}+1V, V_{CE}=V_{IN}, C_{IN}=C_L=1\mu F, T_a=25^\circ C$ , unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=30mA,$ $V_{IN}=V_{OUT}+1V$	X 0.99	$V_{OUT(T)}$ (Note 1)	X1.01	V
Maximum Output Current	$I_{OUTMAX}$	$V_{IN}=V_{OUT}+1V$		400		mA
Load Regulation	$\Delta V_{OUT}$	$V_{IN}=V_{OUT}+1V,$ $1mA \leq I_{OUT} \leq 100mA$		8		mV
Dropout Voltage (Note 3)	$V_{DIF1}$	$I_{OUT}=100mA$		100		mV
	$V_{DIF2}$	$I_{OUT}=200mA$		200		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{OUT}+1V$		40	60	$\mu A$
Stand-by Current	$I_{CEL}$	$V_{CE}=0V$		0.1	1.0	$\mu A$
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT}=30mA$ $V_{OUT}+1V \leq V_{IN} \leq 6.5V$		0.05		%/V
CE "High" Voltage	VCEH	Start up	1.0			V
CE "Low" Voltage	VCEL	Shut down			0.5	V
Output noise	EN	$I_{OUT}=40mA, 300Hz \sim 50kHz$		50		$\mu V_{rms}$
Ripple Rejection Rate	PSRR	$V_{IN} = [V_{OUT} + 1]V$ $+1V_{p-pAC}$	$I_{OUT}=10mA, 1kHz$	70		dB
			$I_{OUT}=100mA, 10kHz$	62		
			$I_{OUT}=200mA, 10kHz$	62		
Short-circuit Current	$I_{SHORT}$	$V_{IN}=V_{OUT}+1V, V_{CE}=V_{IN}, V_{OUT}=0V$		100		mA

**AT6211C50** ( $V_{IN}=V_{OUT}+1V, V_{CE}=V_{IN}, C_{IN}=C_L=1\mu F, T_a=25^\circ C$ , unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=30mA,$ $V_{IN}=V_{OUT}+1V$	X 0.99	$V_{OUT(T)}$ (Note 1)	X 1.01	V
Maximum Output Current	$I_{OUTMAX}$	$V_{IN}=V_{OUT}+1V$		500		mA
Load Regulation	$\Delta V_{OUT}$	$V_{IN}=V_{OUT}+1V,$ $1mA \leq I_{OUT} \leq 100mA$		8		mV
Dropout Voltage (Note 3)	$V_{DIF1}$	$I_{OUT}=100mA$		100		mV
	$V_{DIF2}$	$I_{OUT}=200mA$		200		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{OUT}+1V$		40	60	$\mu A$
Stand-by Current	$I_{CEL}$	$V_{CE}=0V$		0.1	1.0	$\mu A$
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT}=30mA$ $V_{OUT}+1V \leq V_{IN} \leq 6.5V$		0.05		%/V
CE "High" Voltage	VCEH	Start up	1.0			V
CE "Low" Voltage	VCEL	Shut down			0.7	V
Output noise	EN	$I_{OUT}=40mA, 300Hz \sim 50kHz$		50		$\mu V_{rms}$
Ripple Rejection Rate	PSRR	$V_{IN} = [V_{OUT} + 1]V$ $+1V_{p-pAC}$	$I_{OUT}=10mA, 1kHz$	70		dB
			$I_{OUT}=100mA, 10kHz$	62		
			$I_{OUT}=200mA, 10kHz$	62		
Short-circuit Current	$I_{SHORT}$	$V_{IN}=V_{OUT}+1V, V_{CE}=V_{IN}, V_{OUT}=0V$		100		mA

# AT6211 Series

**AT6211A30** ( $V_{IN}=V_{OUT}+1V$ ,  $C_{IN}=C_L=1\mu F$ ,  $T_a=25^\circ C$ , unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=30mA$ , $V_{IN}=V_{OUT}+1V$	X 0.99	$V_{OUT(T)}$ (Note 1)	X 1.01	V
Maximum Output Current	$I_{OUTMAX}$	$V_{IN}=V_{OUT}+1V$		500		mA
Load Regulation	$\Delta V_{OUT}$	$V_{IN}=V_{OUT}+1V$ , $1mA \leq I_{OUT} \leq 100mA$		8		mV
Dropout Voltage (Note 3)	$V_{DIF1}$	$I_{OUT}=100mA$		100		mV
	$V_{DIF2}$	$I_{OUT}=200mA$		210		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{OUT}+1V$		30	60	$\mu A$
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT}=30mA$ $V_{OUT}+1V \leq V_{IN} \leq 6.5V$		0.05		%/V
Output noise	EN	$I_{OUT}=40mA$ , 300Hz~50kHz		50		$\mu V_{rms}$
Ripple Rejection Rate	PSRR	$V_{IN}=[V_{OUT}+1]V$ $+1Vp-pAC$	$I_{OUT}=10mA, 1kHz$	70		dB
			$I_{OUT}=100mA, 10kHz$	62		
			$I_{OUT}=200mA, 10kHz$	62		
Short-circuit Current	$I_{SHORT}$	$V_{IN}=V_{OUT}+1V$ , $V_{CE}=V_{IN}$ , $V_{OUT}=0V$		65		mA

**AT6211A33** ( $V_{IN}=V_{OUT}+1V$ ,  $C_{IN}=C_L=1\mu F$ ,  $T_a=25^\circ C$ , unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=30mA$ , $V_{IN}=V_{OUT}+1V$	X 0.99	$V_{OUT(T)}$ (Note 1)	X 1.01	V
Maximum Output Current	$I_{OUTMAX}$	$V_{IN}=V_{OUT}+1V$		500		mA
Load Regulation	$\Delta V_{OUT}$	$V_{IN}=V_{OUT}+1V$ , $1mA \leq I_{OUT} \leq 100mA$		9		mV
Dropout Voltage (Note 3)	$V_{DIF1}$	$I_{OUT}=100mA$		120		mV
	$V_{DIF2}$	$I_{OUT}=200mA$		260		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{OUT}+1V$		30	60	$\mu A$
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT}=30mA$ $V_{OUT}+1V \leq V_{IN} \leq 6.5V$		0.1	1.0	%/V
Output noise	EN	$I_{OUT}=40mA$ , 300Hz~50kHz		50		$\mu V_{rms}$
Ripple Rejection Rate	PSRR	$V_{IN}=[V_{OUT}+1]V$ $+1Vp-pAC$	$I_{OUT}=10mA, 1kHz$	70		dB
			$I_{OUT}=100mA, 10kHz$	62		
			$I_{OUT}=200mA, 10kHz$	62		
Short-circuit Current	$I_{SHORT}$	$V_{IN}=V_{OUT}+1V$ , $V_{OUT}=0V$		70		mA

# AT6211 Series

**AT6211A25** ( $V_{IN}=V_{OUT}+1V$ ,  $C_{IN}=C_L=1\mu F$ ,  $T_a=25^\circ C$ , unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=30mA$ , $V_{IN}=V_{OUT}+1V$	X 0.99	$V_{OUT(T)}$ (Note 1)	X 1.01	V
Maximum Output current	$I_{OUTMAX}$	$V_{IN}=V_{OUT}+1V$		400		mA
Load Regulation	$\Delta V_{OUT}$	$V_{IN}=V_{OUT}+1V$ , $1mA \leq I_{OUT} \leq 100mA$		9		mV
Dropout Voltage (Note 3)	$V_{DIF1}$	$I_{OUT}=100mA$		80		mV
	$V_{DIF2}$	$I_{OUT}=200mA$		180		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{OUT}+1V$		30	60	$\mu A$
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT}=30mA$ $V_{OUT}+1V \leq V_{IN} \leq 6.5V$		0.1	1.0	%/V
Output noise	EN	$I_{OUT}=40mA$ , 300Hz~50kHz		50		$\mu V_{rms}$
Ripple Rejection Rate	PSRR	$V_{IN}=[V_{OUT}+1]V$ $+1Vp-pAC$	$I_{OUT}=10mA, 1kHz$	70		dB
			$I_{OUT}=100mA, 10kHz$	62		
			$I_{OUT}=200mA, 10kHz$	62		
Short-circuit Current	$I_{SHORT}$	$V_{IN}=V_{OUT}+1V$ , $V_{OUT}=0V$		60		mA

**AT6211H15** ( $V_{IN}=V_{OUT}+1V$ ,  $V_{CE}=GND$ ,  $C_{IN}=C_L=1\mu F$ ,  $T_a=25^\circ C$ , unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Output Voltage	$V_{OUT(E)}$ (Note 2)	$I_{OUT}=30mA$ , $V_{IN}=V_{OUT}+1V$	X 0.98	$V_{OUT(T)}$ (Note 1)	X 1.02	V
Maximum Output Current	$I_{OUTMAX}$	$V_{IN}=V_{OUT}+1V$		300		mA
Load Regulation	$\Delta V_{OUT}$	$V_{IN}=V_{OUT}+1V$ , $1mA \leq I_{OUT} \leq 100mA$		9		mV
Dropout Voltage (Note 3)	$V_{DIF1}$	$I_{OUT}=100mA$		200		mV
	$V_{DIF2}$	$I_{OUT}=200mA$		400		mV
Supply Current	$I_{SS}$	$V_{IN}=V_{OUT}+1V$		30	60	$\mu A$
Stand-by Current	$I_{CEL}$	$V_{CE}=V_{IN}$		0.1	1.0	$\mu A$
Line Regulation	$\frac{\Delta V_{OUT}}{\Delta V_{IN} \cdot V_{OUT}}$	$I_{OUT}=30mA$ $V_{OUT}+1V \leq V_{IN} \leq 6.5V$		0.05		%/V
CE "High" Voltage	VCEH	Shut down	1.0			V
CE "Low" Voltage	VCEL	Start up			0.4	V
Output noise	EN	$I_{OUT}=40mA$ , 300Hz~50kHz		50		$\mu V_{rms}$
Ripple Rejection Rate	PSRR	$V_{IN}=[V_{OUT}+1]V+1Vp-pAC$		70		dB

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 Vin 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.

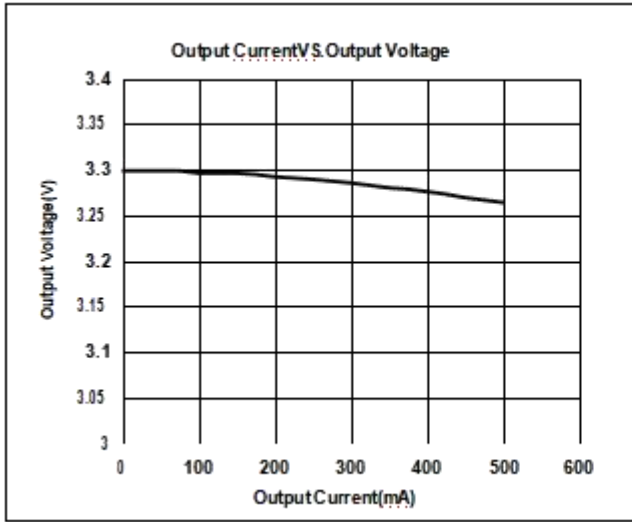


# AT6211 Series

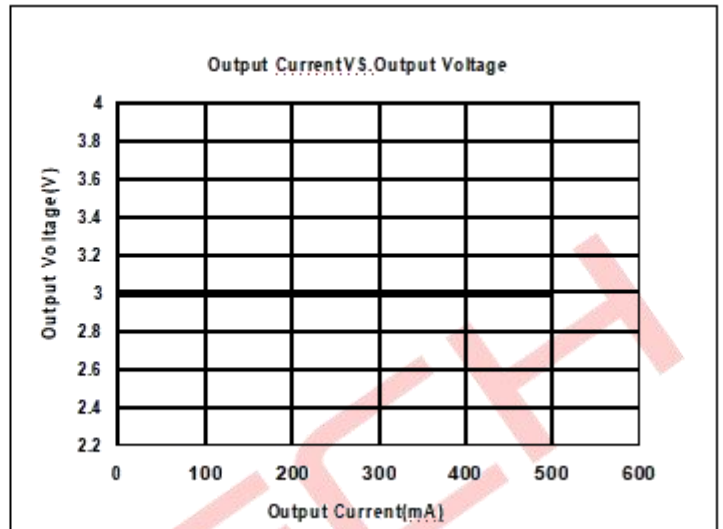
## Typical Characteristics

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

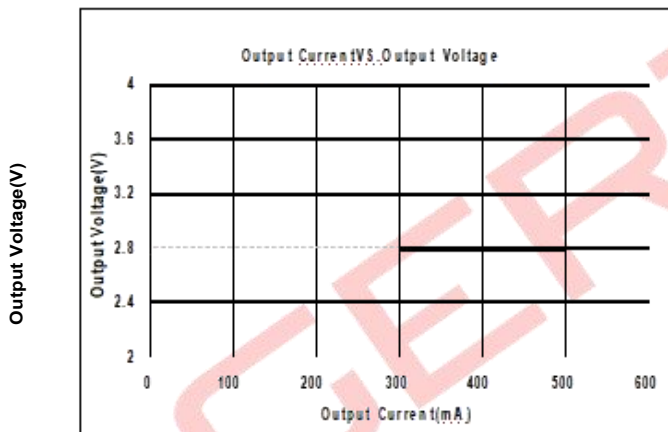
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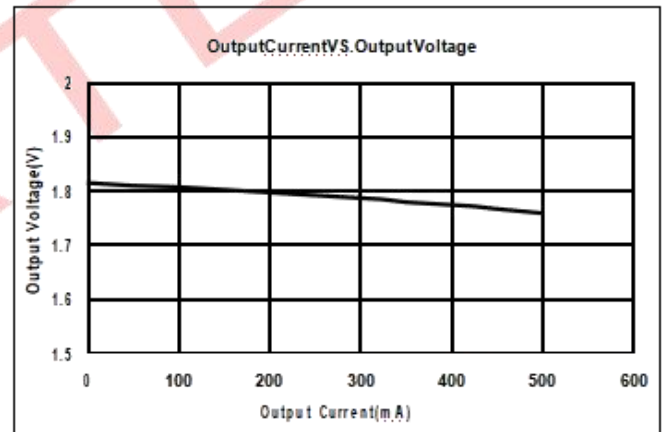
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AT6211C28SEG

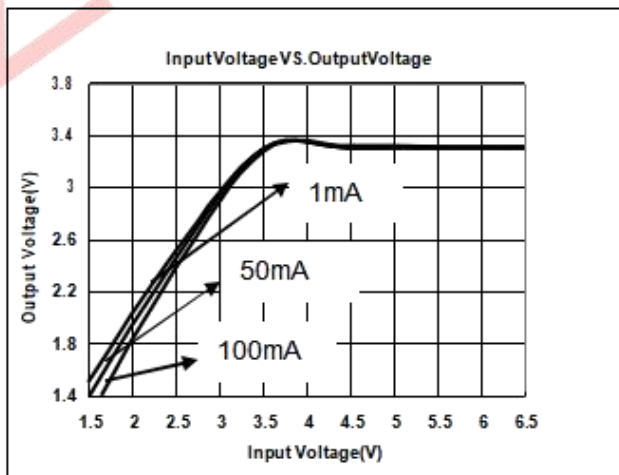


AT6211C18SEG

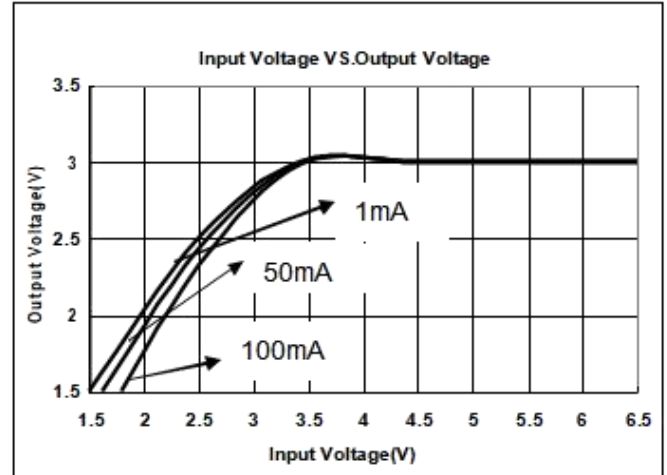


(2) Input Voltage VS. Output Voltage ( $T_a = 25^\circ\text{C}$ )

AT6211C33SEG

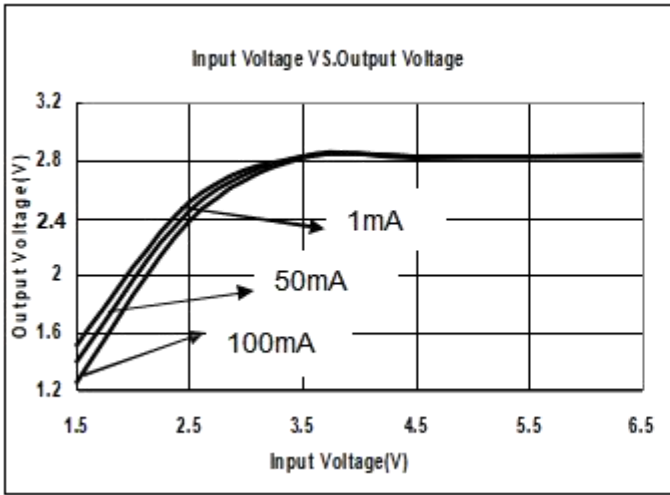


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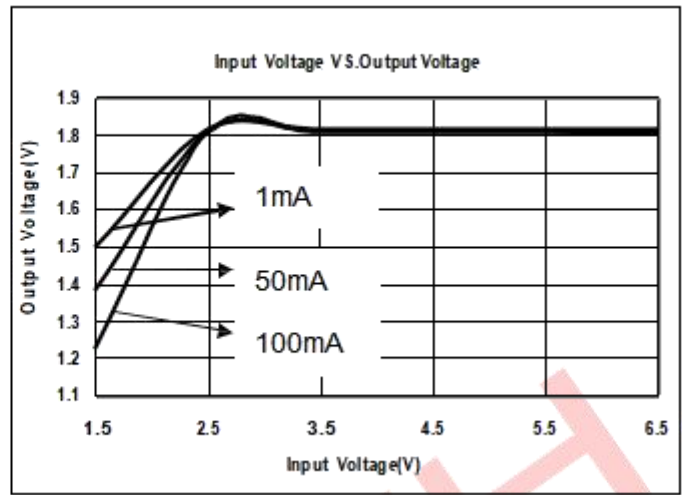


# AT6211 Series

AT6211C28SEG

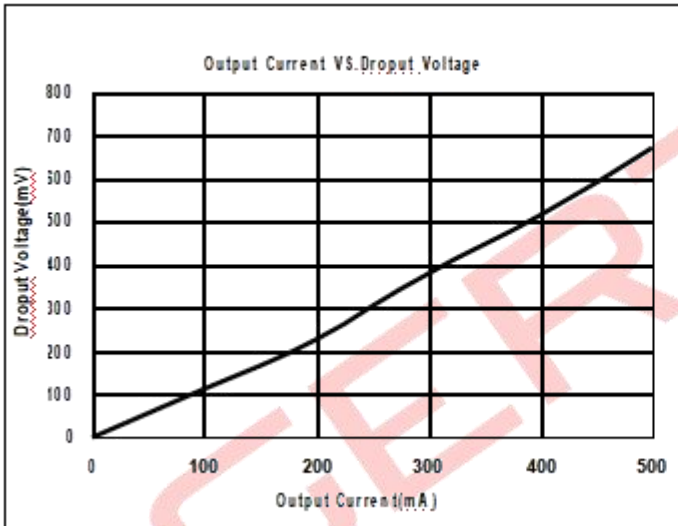


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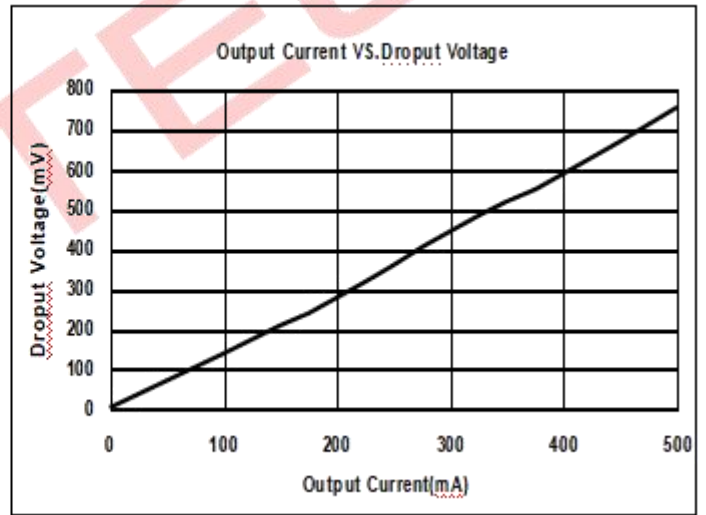


(3) Output Current VS. Dropout Voltage ( $V_{IN} = V_{out} + 1V, T_a = 25^\circ C$ )

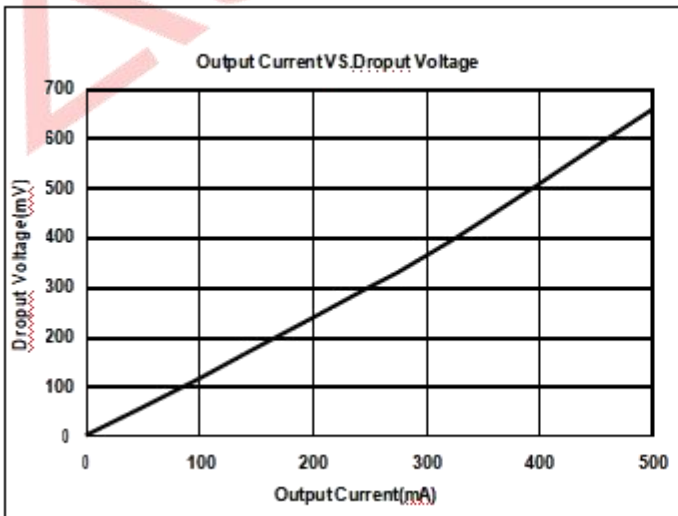
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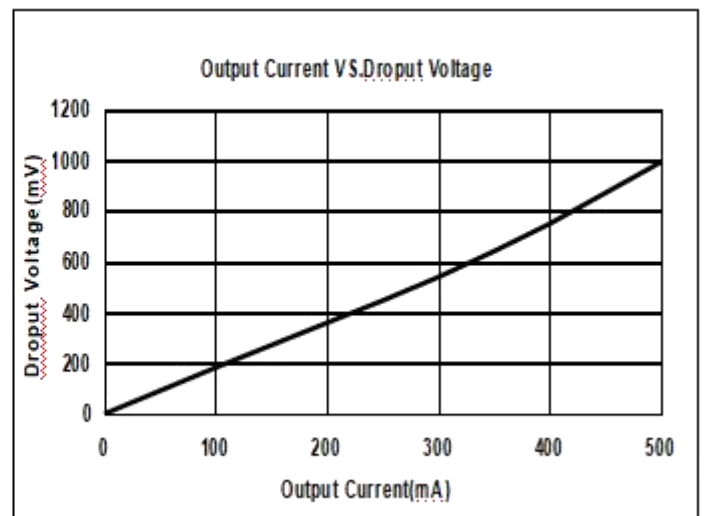
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AT6211C28SEG



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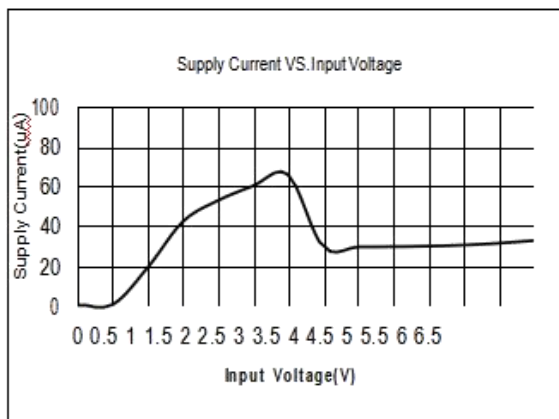




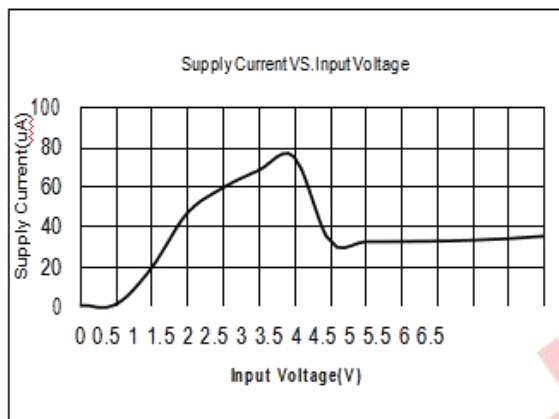
# AT6211 Series

## (4) Input Voltage VS. Supply Current ( $T_a = 25^\circ\text{C}$ )

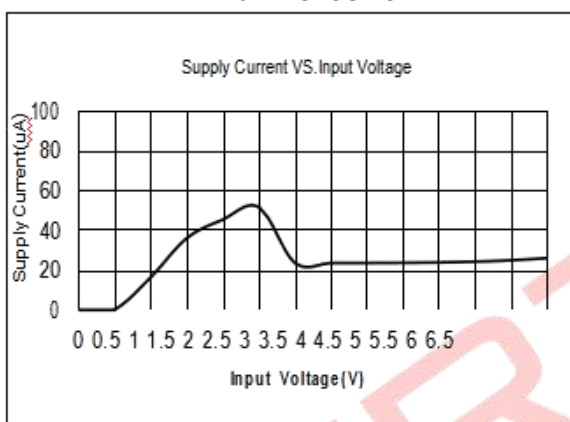
AT6211C33SEG



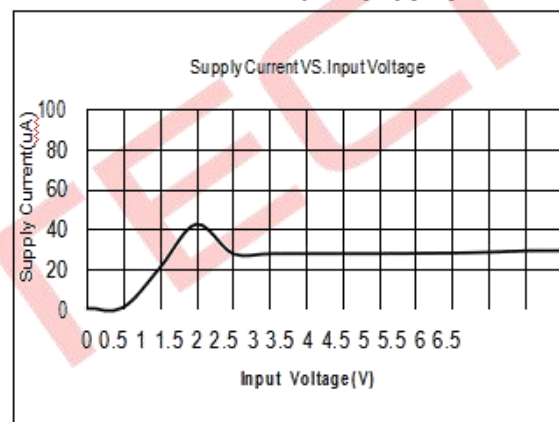
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AT6211C28SEG

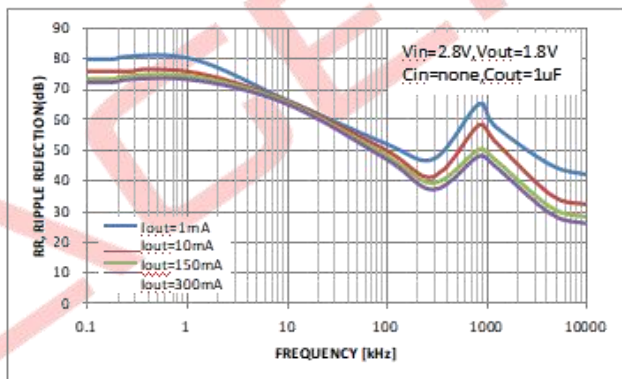


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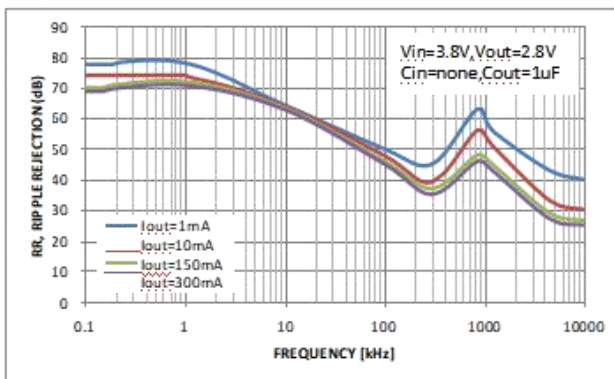


## (5) PSRR

AT6211C18SEG

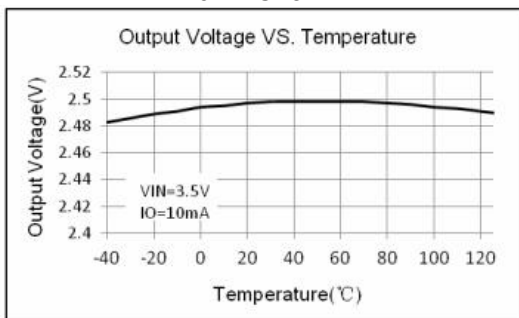


AT6211C28SEG



## (6) Temperature vs. Output Voltage

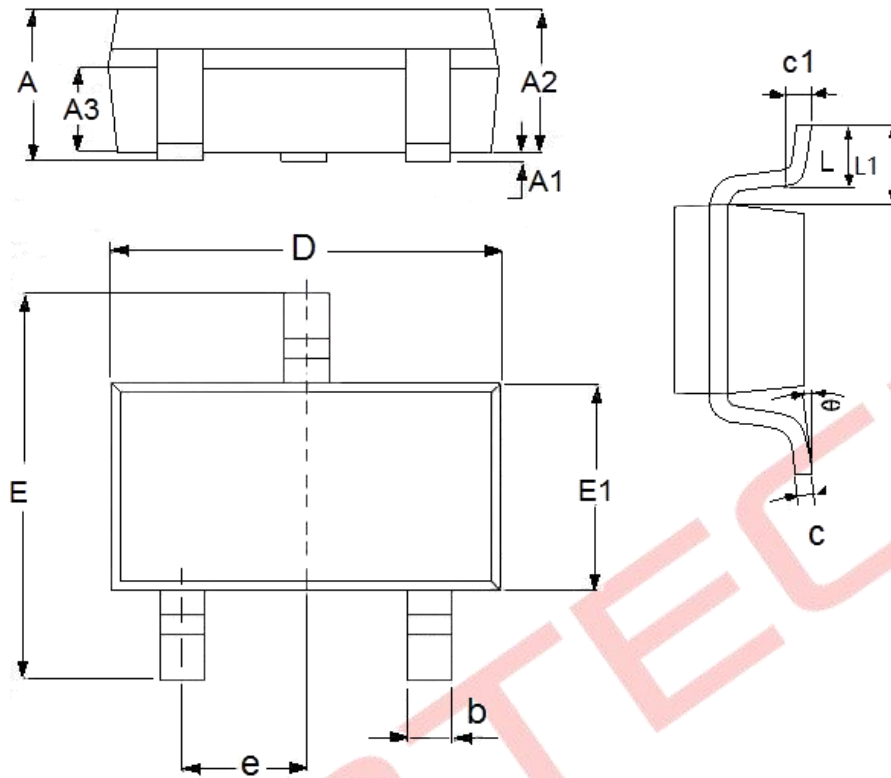
AT6211C25



# AT6211 Series

## Packaging Information

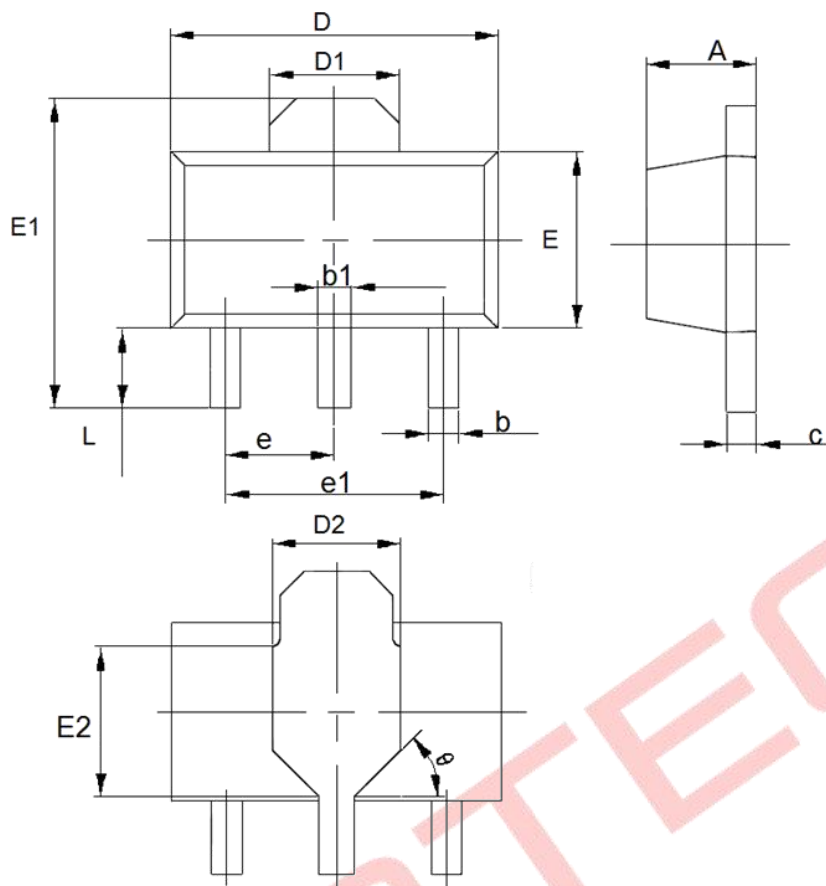
- Package Type: SOT23-3



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	1.05	1.45	0.0413	0.0571
A1	0	0.15	0.0000	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	0.1220
E	2.6	3.1	0.1023	0.1220
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°	0.0000	8°
c1	0.2(TYP)		0.0079(TYP)	

# AT6211 Series

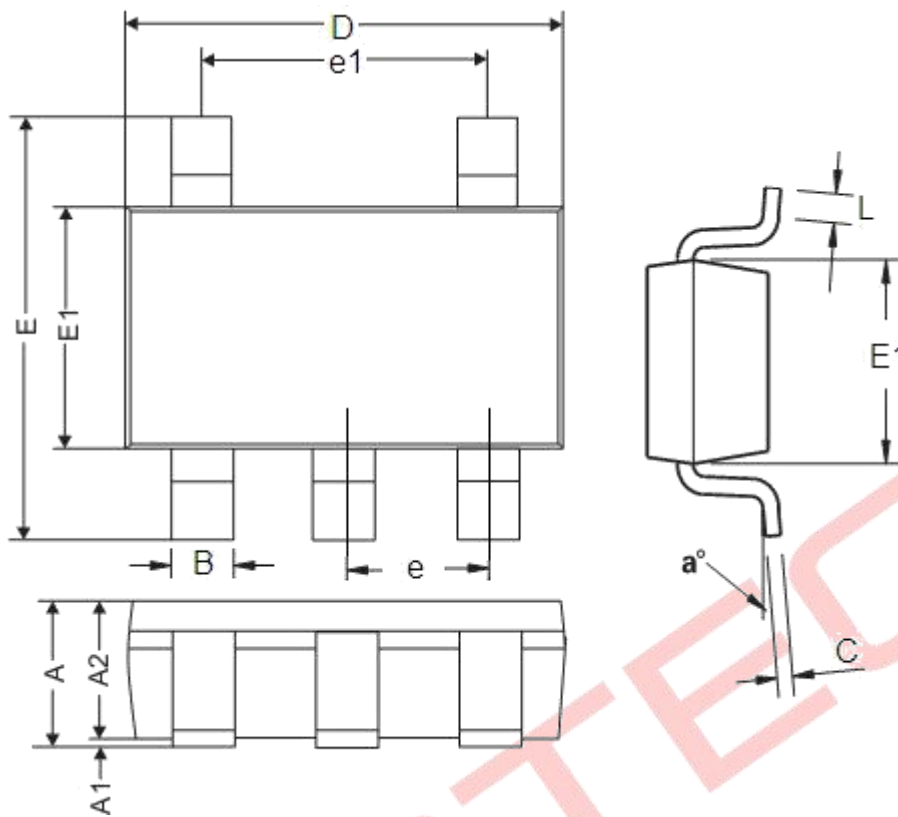
- Package Type: SOT89-3



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°	

# AT6211 Series

- Package Type: SOT23-5



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	1.05	1.45	0.0413	0.0570
A1	0	0.15	0	0.0059
A2	0.9	1.3	0.0354	0.0511
B	0.25	0.5	0.0098	0.0196
C	0.10	0.23	0.0039	0.0090
D	2.82	3.05	0.1110	0.1200
E	2.60	3.05	0.1023	0.1200
E1	1.50	1.75	0.0590	0.0688
e	0.95REF		0.0374REF	
e1	1.90REF		0.0748REF	
L	0.10	0.60	0.0039	0.0236
a°	0°	30°	0°	30°

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