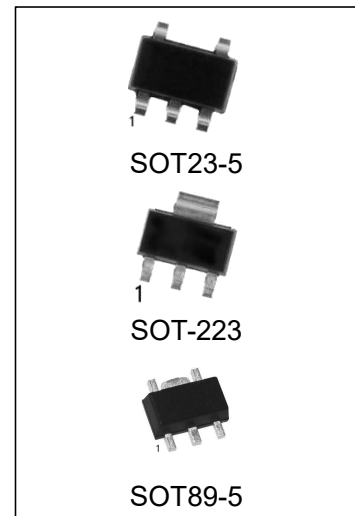


## 600mA LOW DROPOUT CMOS VOLTAGE REGULATORS

### FEATURES

- Maximum output current 600mA
- Highly accurate output voltage: +/-1.5%
- Low power consumption
- On-chip protections: thermal, short-circuit
- Small input/output differential: 600mV at 600mA
- Adjustable version



### ORDERING INFORMATION

DEVICE	Package Type	MARKING	Packing	Packing Qty
HG8805M5/TR	SOT23-5L	8805	REEL	3000pcs/reel
HG8805M5-1.2/TR		8805-12	REEL	3000pcs/reel
HG8805M5-1.8/TR		8805-18	REEL	3000pcs/reel
HG8805M5-2.5/TR		8805-25	REEL	3000pcs/reel
HG8805M5-2.6/TR		8805-26	REEL	3000pcs/reel
HG8805M5-3.3/TR		8805-33	REEL	3000pcs/reel
HG8805MP-1.2/TR	SOT-223	8805-12	REEL	1000pcs/reel
HG8805MP-1.8/TR		8805-18	REEL	1000pcs/reel
HG8805MP-2.5/TR		8805-25	REEL	1000pcs/reel
HG8805MP-2.6/TR		8805-26	REEL	1000pcs/reel
HG8805MP-3.3/TR		8805-33	REEL	1000pcs/reel
HG8805MK-1.2/TR	SOT89-5	8805-12	REEL	2000pcs/reel
HG8805MK-1.8/TR		8805-18	REEL	2000pcs/reel
HG8805MK-2.5/TR		8805-25	REEL	2000pcs/reel
HG8805MK-2.6/TR		8805-26	REEL	2000pcs/reel
HG8805MK-3.3/TR		8805-33	REEL	2000pcs/reel

## PRODUCT DESCRIPTION

The HG805 series is a low-dropout linear regulator. This device is designed specifically for battery-operated systems. Its ground current is very small - 50  $\mu$ A (typ.) that significantly extends the battery life. The low power consumption and high accuracy are achieved through CMOS and programmable fuse technologies. Its versions are HG8805-adj (Vref=1.27V), HG8805 -1.2, HG8805 -1.8, HG8805 -2.5, HG8805 -2.6, HG8805 -3.3. It is possible to extend the output voltage range from 1.2V to 6.0V. The AME8805 consists of a high-precision voltage reference, an error-correction circuit, and a current-limited output driver. With good transient responses the device output remains stable even when the load changes. The EN (Shutdown) input enables the output to be turned off resulting in reduced power consumption.

The HG8805 can stably work with cheap MLCC output capacitors.

Owing to high ripple rejection ratios, the AME8805 series can be used in the case of a power supply with noise. A 470pF capacitor from the BP (bypass) input to the ground reduces the noise, which is present on the internal reference, and that, in turn, significantly reduces the output noise. If that noise is not a concern, the said input may be left unconnected. Larger CBP capacitor values may be used, but that extends a time period until the rated output voltage is reached after the power has been initially applied.

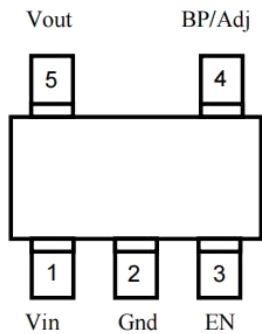
The HG8805 incorporates both over-temperature and over-current protections.

The small packages - SOT23-5 (300mW) and SOT-89 (500mW) - are usable too.

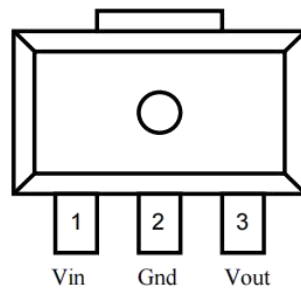
## APPLICATIONS

- Battery-operated systems
- Portable computers
- Portable cameras and video recorders
- Reference voltage sources
- Instrumentation
- Pagers

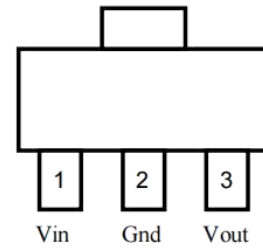
## PIN CONFIGURATION



SOT-23-5



SOT-89



SOT-223

## ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATING	UNIT
Input voltage		Vin	8	V
Output current		Iout	1	A
Output voltage		Vout	-0.3 to Vin+0.3	V
Continuous total powerdissipation	SOT-23-5	PD	300	mW
	SOT-89		500	
	SOT-223		625	
Operating ambient temperature		Topr	-40 to +125	°C
Storage temperature		TSTG	-40 to +125	°C

## ELECTRICAL CHARACTERISTICS

(At TA = 25°C, Vin = Vout (nominal)+1V, unless otherwise noted)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT	TEST CIRCUIT
Output voltage accuracy <b>Reference voltage</b> in Adj version	Iout = 1mA Iout = 1 to 600mA	-1.5 -3		+1.5 +2	%	
Line Regulation $\Delta V_{out}/\Delta V_{in}V_{out}$	Iout=1mA, (Vout+1V) < Vin < 6.5V	-0.3	0.05	0.3	%/V	Fig.1
<b>Load regulation</b> (Note1)	1mA ≤ Iout ≤ 600mA, Cout = 1μF		0.5	1.5	%	Fig.2
Dropout voltage for Vout > 2.8V 2.0V < Vout ≤ 2.8V Vout ≤ 2.0V	Iout = 600mA		600 800 1300	750 1000 1600	mV	
Maximum output current	Vout > 0.96*Vrating	600			mA	
Current limit			1300		mA	
EN exit delay	CBP = 0μF, Cout = 1 F Iout =100mA		600		μsec	
EN input bias current	VEN = Vin			100	nA	
EN input Low current	VEN = Gnd	-1	-0.3		μA	
EN supply current	VEN = Gnd		0.01	1	μA	
EN input threshold Low	Vin = 2.5 to 5.5V			0.4	V	
EN input threshold High	Vin = 2.5 to 5.5V	2			V	
Gnd (Ground) pin current	Iout = 0mA to 600mA		50	85	μA	Fig.3
Over-temperature shutdown	Iout = 10mA		155		°C	
Over-temperature hysteresis	Iout = 10mA		10		°C	
VOUT temperature coefficient	Iout = 10mA		30		ppm	
PSRR	Iout =100mA, Cout = 2.2μF, f = 100Hz		55		dB	
Output voltage noise	f = 20Hz to 100kHz Iout = 10mA		12		μVrms	

Note:

The Load regulation is measured by using pulse techniques with the duty cycle < 5%

The Reference voltage nominal value of the adjustable version is 1.27V

**TEST CIRCUITS**

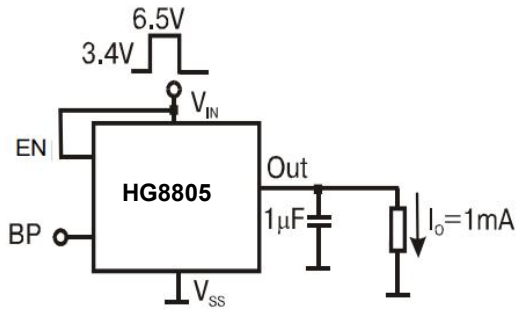


Fig.1. Line regulation

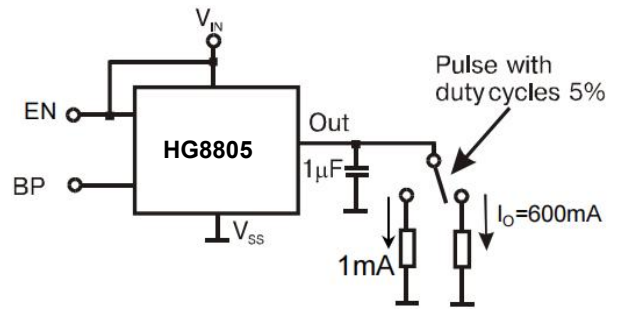


Fig.2. Load regulation

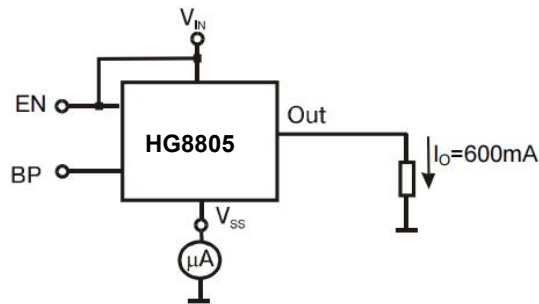
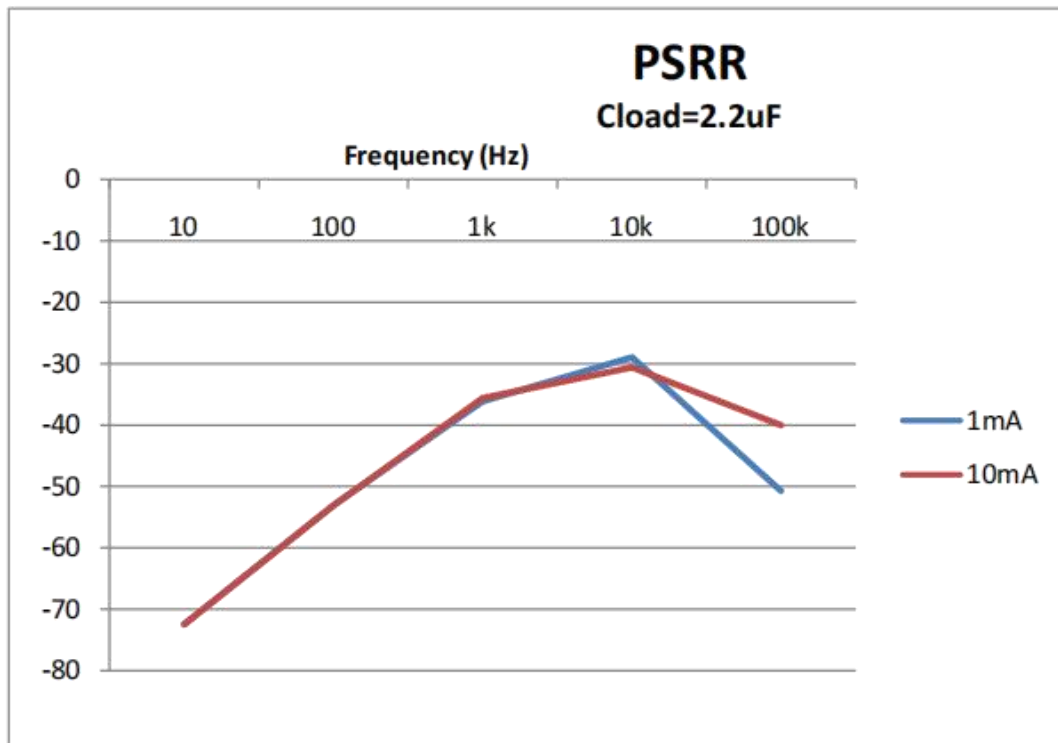
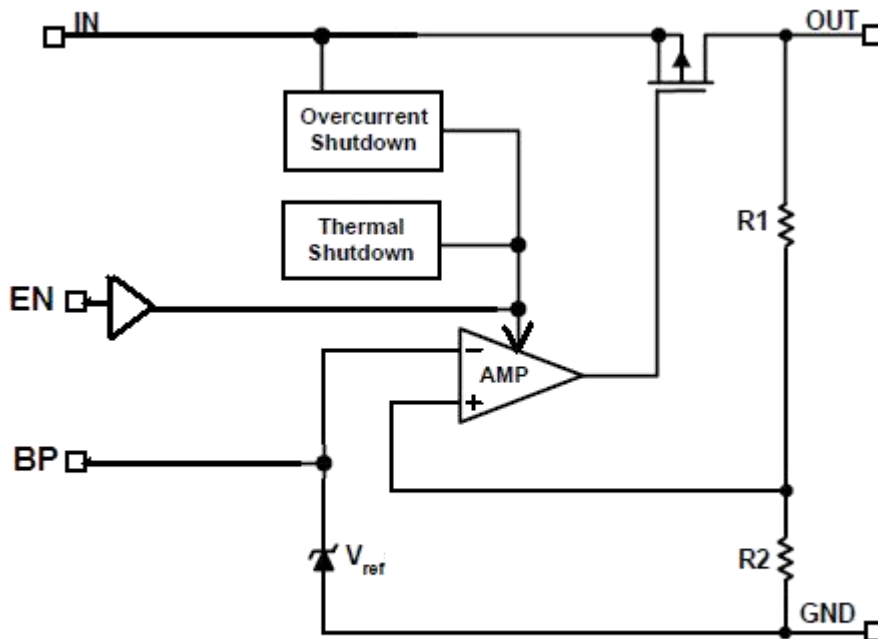


Fig.3. Ground current

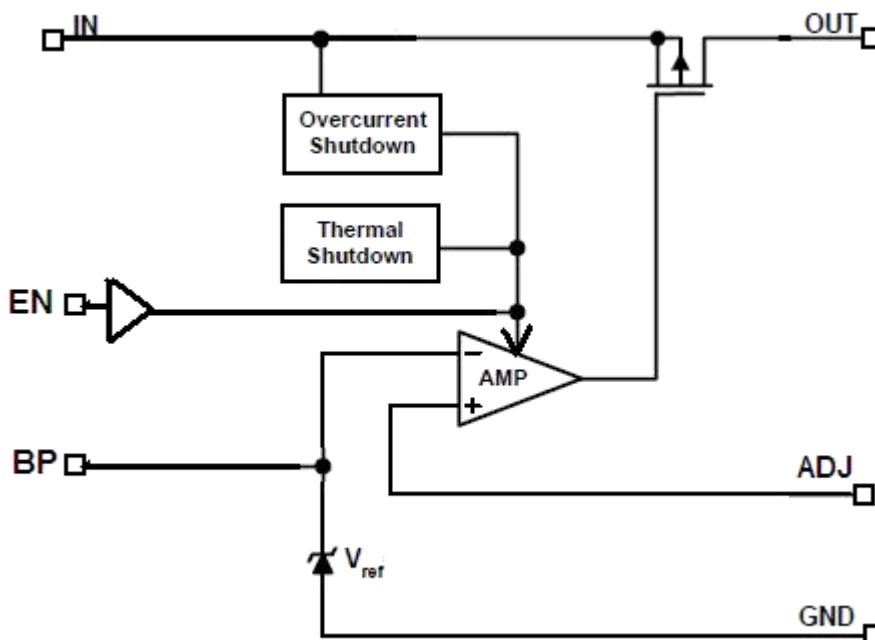
**TYPICAL CHARACTERISTICS**



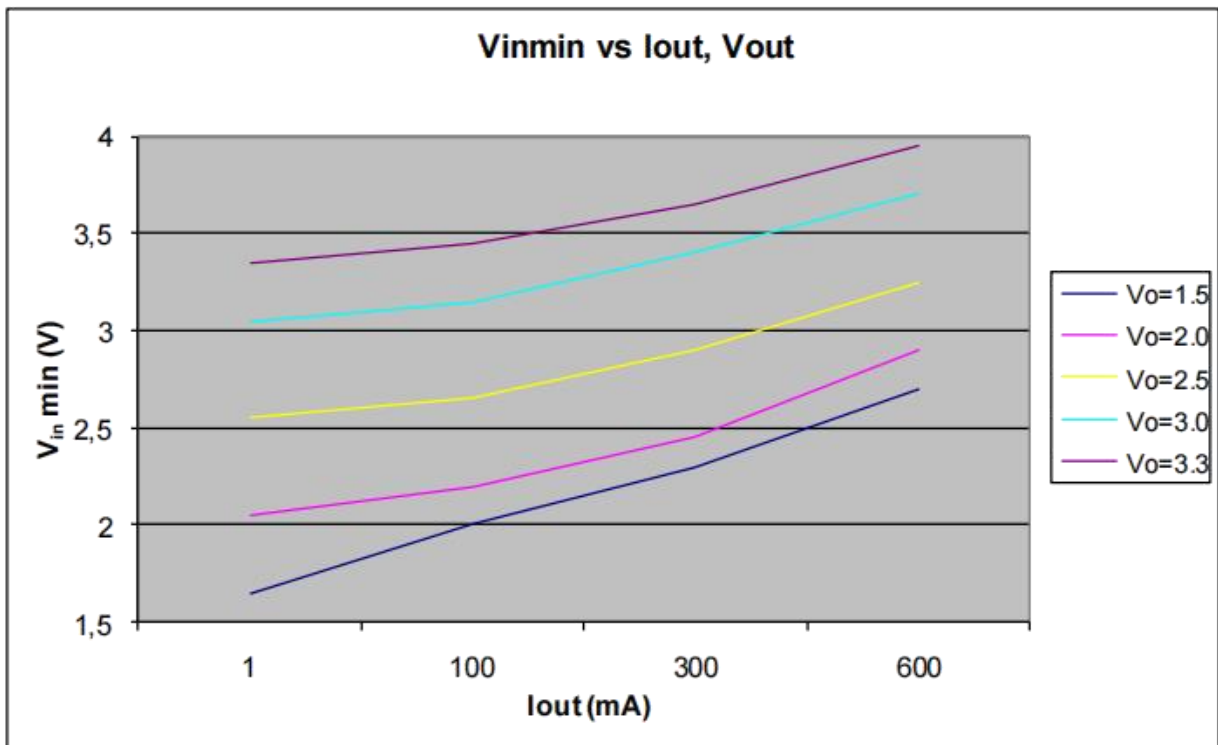
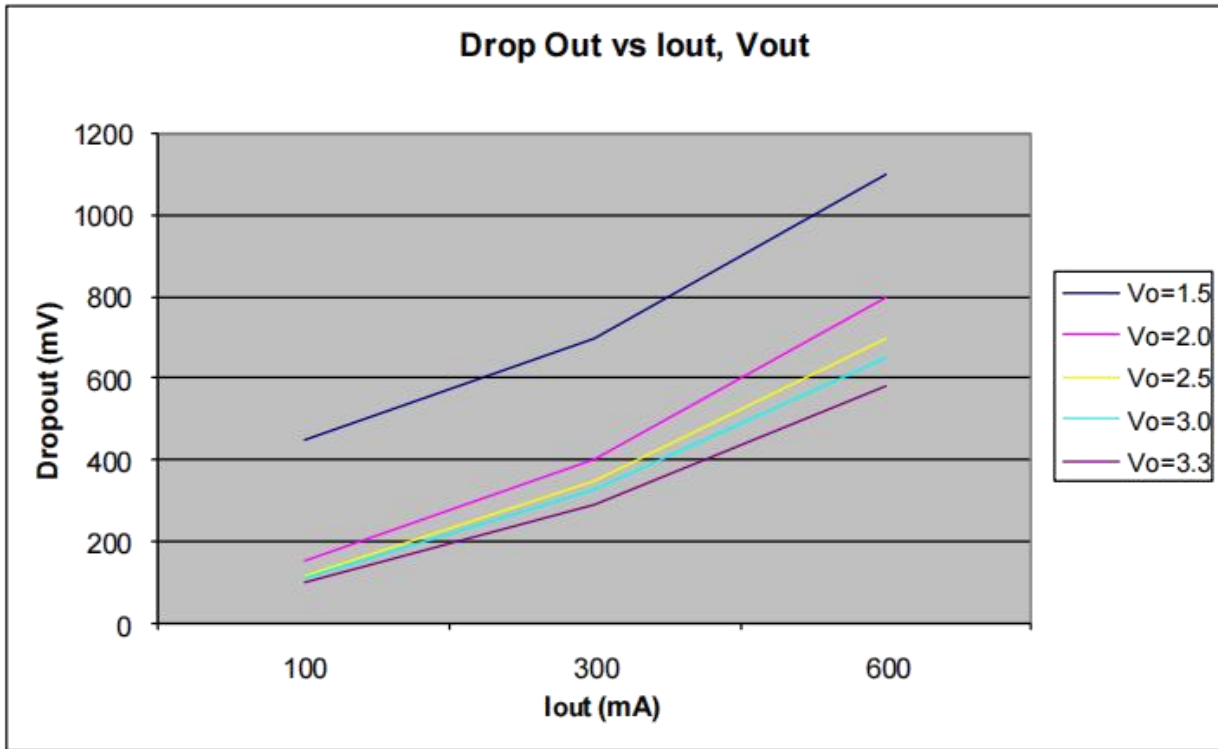
**Functional Block Diagram**



**Fixed Version**

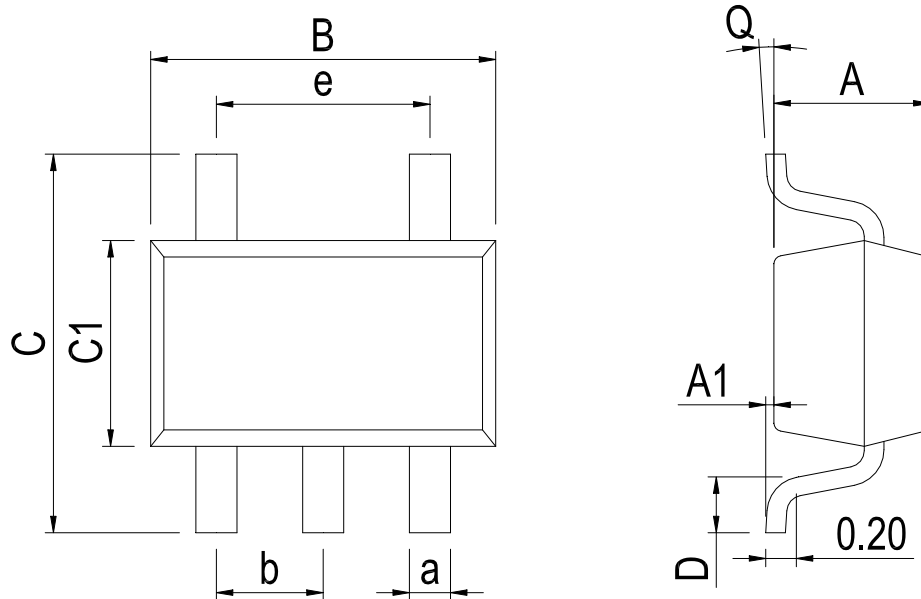


**Adjustable version**



## Physical Dimensions

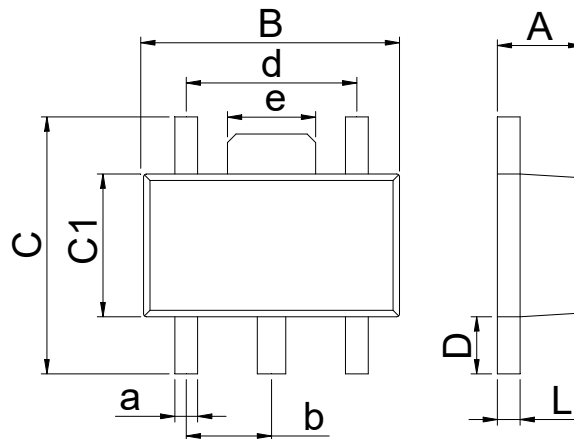
SOT23-5



Dimensions In Millimeters(SOT23-5)

Symbol:	A	A1	B	C	C1	D	Q	a	b	e
Min:	1.05	0.00	2.82	2.65	1.50	0.30	0°	0.30	0.95 BSC	1.90 BSC
Max:	1.15	0.15	3.02	2.95	1.70	0.60	8°	0.40		

SOT89-5

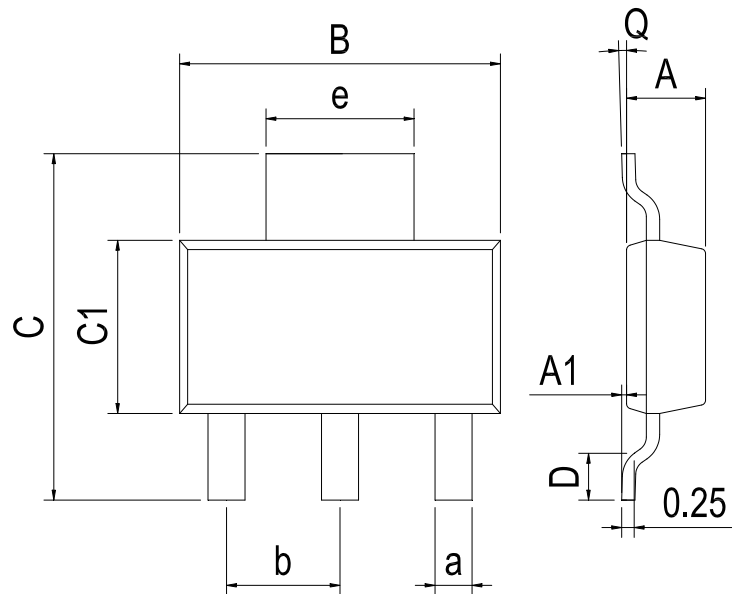


Dimensions In Millimeters(SOT89-5)

Symbol:	A	B	C	C1	D	L	a	b	d	e
Min:	1.40	4.40	4.25	2.30	0.90	0.35	0.40	1.50	3.0	1.55
Max:	1.60	4.60	4.65	2.60	1.20	0.44	0.55			

**Physical Dimensions**

SOT223



Dimensions In Millimeters(SOT223)										
Symbol:	A	A1	B	C	C1	D	Q	a	b	e
Min:	1.50	0.05	6.30	6.70	3.30	0.65	0°	0.66	2.30 BSC	3.00 BSC
Max:	1.70	0.20	6.70	7.30	3.70	1.10	8°	0.84		



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