



# ACE555

## Low Consumption Current High PSRR 300mA CMOS Voltage Regulator

### Description

The ACE555 series are a group of positive voltage regulators manufactured by CMOS technologies with high ripple rejection, low power consumption and low dropout voltage, which can prolong battery life in portable electronics. The ACE555 series work with low-ESR ceramic capacitors, reducing the amount of board space necessary for power applications. The ACE555 series consume less than 0.1uA in shutdown mode and have fast turn-on time less than 50us. The series are very suitable for the battery-powered equipment, such as RF applications and other systems requiring a quiet voltage.

### Features

- Low Dropout Voltage : 150mV@150mA
- Low Quiescent Current : 5μA
- High Ripple Rejection : 65dB@1kHz
- Excellent Line and Load Transient Response
- Operating Voltage : 2.0V~7.0V
- Output Voltage : 1.2 ~ 5.0V
- High Accuracy : ±1%、±2%
- Built-in Current Limiter, Short-Circuit Protection
- TTL- Logic-Controlled Shutdown Input

### Application

- Cellular and Smart Phones
- Laptop, Palmtops and PDA
- Digital Still and Video Cameras
- MP3, MP4 Player
- Radio control systems
- Battery-Powered Equipment

### Absolute Maximum Ratings

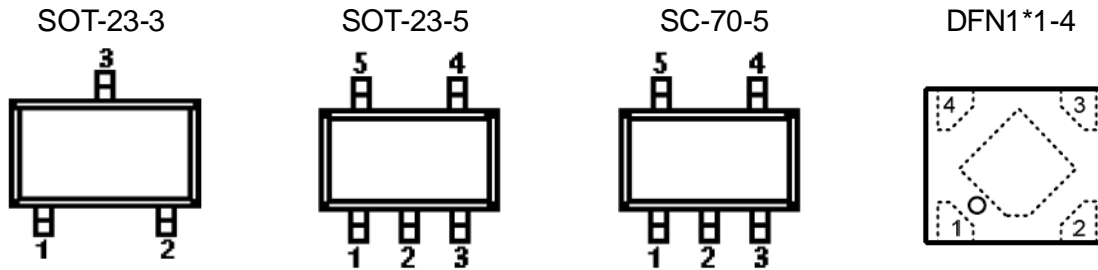
Parameter	Symbol	Ratings	Unit	
Input Voltage	$V_{IN}$	$V_{SS} - 0.3 \sim V_{SS} + 8$	V	
Output Current	$I_{OUT}$	600	mA	
Output Voltage	$V_{OUT}$	$V_{SS} - 0.3 \sim V_{IN} + 0.3$	V	
Power Dissipation	SOT-23-3	$P_d$	250	mW
	SOT-23-5	$P_d$	250	mW
	SC-70-5	$P_d$	250	mW
	DFN1*1-4	$P_d$	400	mW
Operating Temperature	$T_{opr}$	-40~85	°C	
Storage Temperature	$T_{stg}$	-40~125	°C	
Soldering Temperature & Time	$T_{solder}$	260°C, 10s		



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### Packaging Type

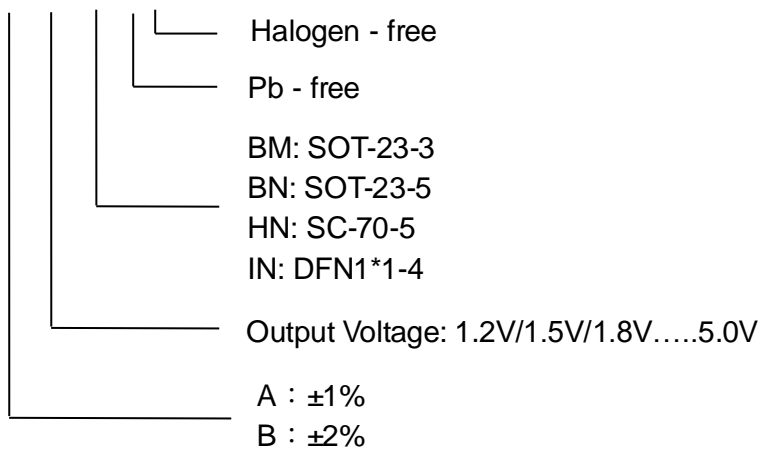


### Pin Configuration

SOT-23-3	SOT-23-5	SC-70-5	DFN1*1-4	Description	Function
2	5	5	1	$V_{OUT}$	Output pin
3	1	1	4	$V_{IN}$	Input pin
1	2	2	2	$V_{SS}$	Ground pin
	3	3	3	CE	Chip Enable pin
	4	4		NC	No Connection

### Ordering information

ACE555 X XX XX + H

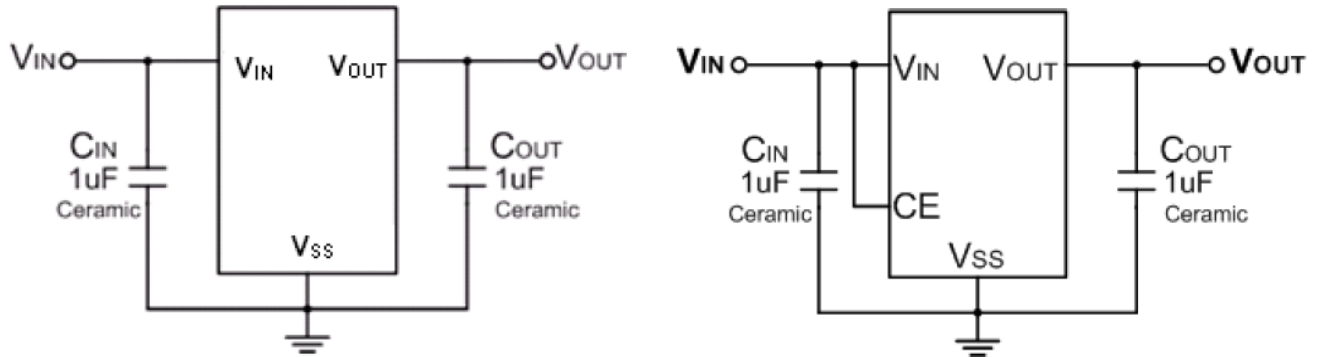




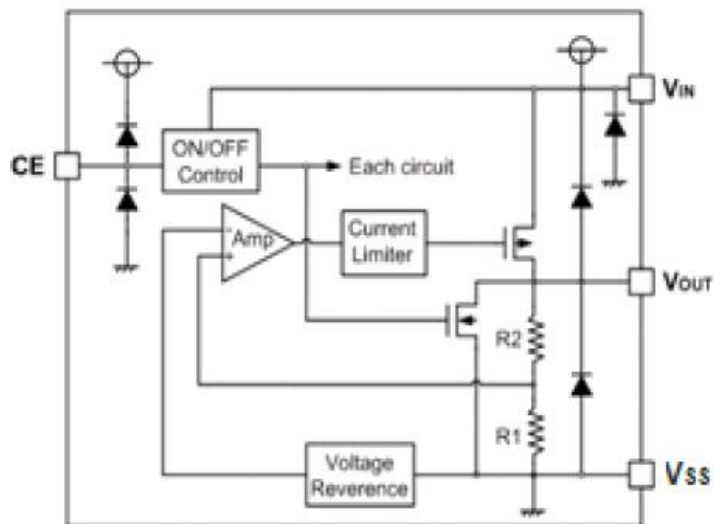
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### Typical Application



### Block diagram





### Electrical Characteristics:

$V_{IN}=V_{OUT}+1V$ ,  $C_{IN}=C_{OUT}=1\mu F$ ,  $T_A=25^\circ C$ , unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Output Voltage	$V_{OUT}(E)$ (Note 2)	$I_{OUT}=1mA$	$V_{OUT}*0.98$	$V_{OUT}$	$V_{OUT}*1.02$	V
Supply Current	$I_{SS}$	$I_{OUT}=0$		5	10	$\mu A$
Standby Current	$I_{STBY}$	$CE = V_{SS}$			0.2	$\mu A$
Output Current	$I_{OUT}$		300			mA
Dropout Voltage (Note 3)	$V_{dif}$	$I_{OUT} = 150mA$ $V_{OUT} \geq 3.0V$		150		mV
Load Regulation	$\Delta V_{OUT}$	$V_{IN} = V_{OUT} + 1V$ , $1mA \leq I_{OUT} \leq 100mA$		10		mV
Line Regulation	$\frac{\Delta V_{OUT}}{V_{OUT} \times \Delta V_{IN}}$	$I_{OUT} = 10mA$ $V_{OUT} + 1V \leq V_{IN} \leq 6V$		0.01	0.2	%/V
Output Voltage Temperature Characteristics	$\frac{\Delta V_{OUT}}{\Delta T \times V_{OUT}}$	$I_{OUT} = 10mA$ $-40 \leq T \leq +85$		100		ppm
Short Current	$I_{Short}$	$V_{OUT} = V_{SS}$		50		mA
Input Voltage	$V_{IN}$		2.0		7.0	V
Power Supply Rejection Rate	1kHz	PSRR	$I_{OUT}=50mA$		65	dB
	10kHz				50	
CE "High" Voltage	$V_{CE} "H"$		1.5		$V_{IN}$	V
CE "Low" Voltage	$V_{CE} "L"$				0.3	V

### NOTE:

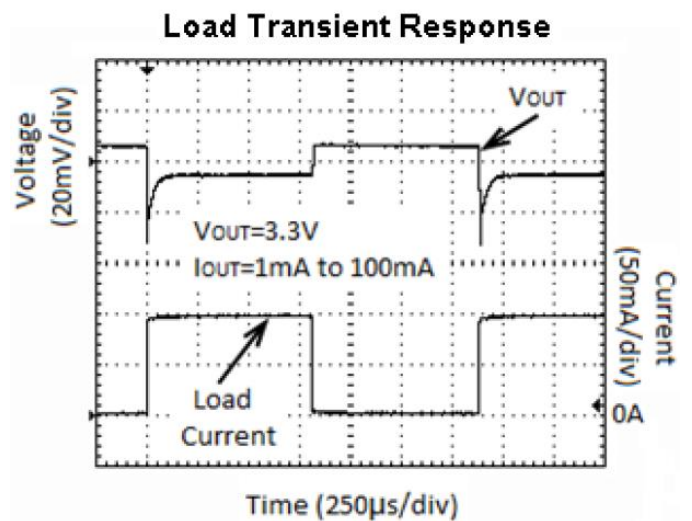
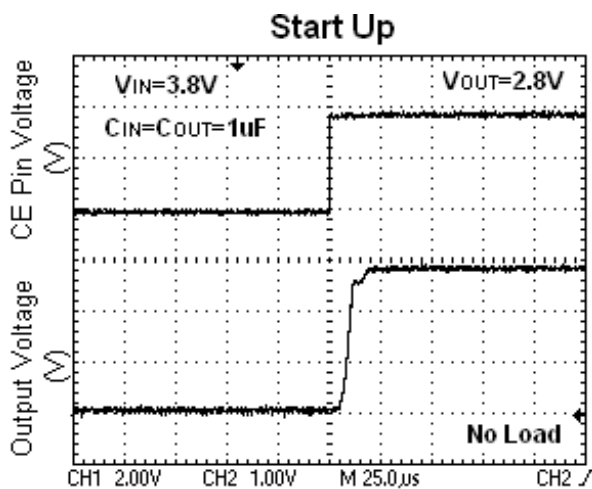
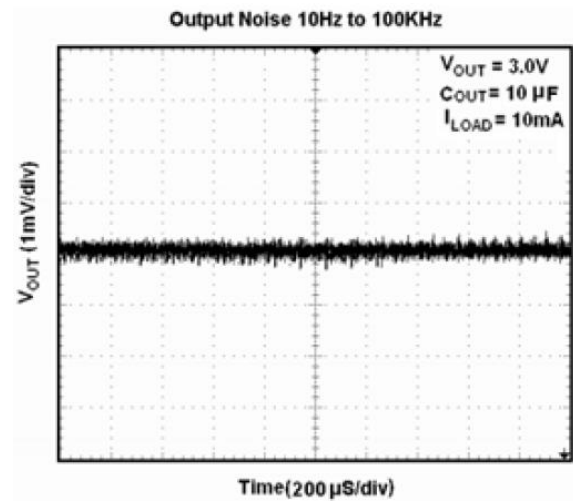
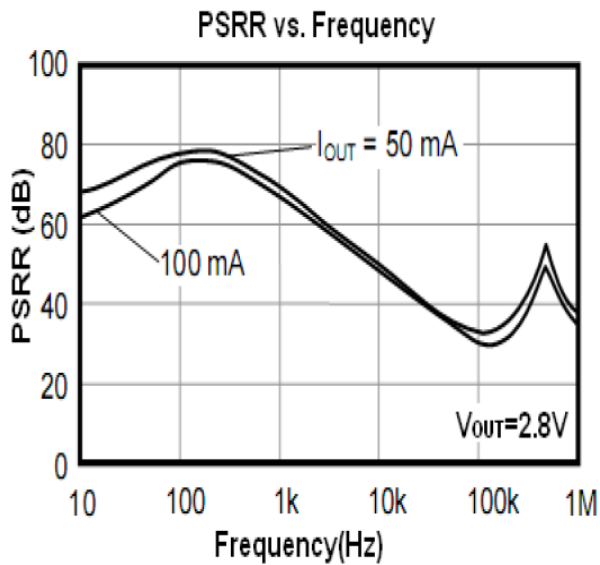
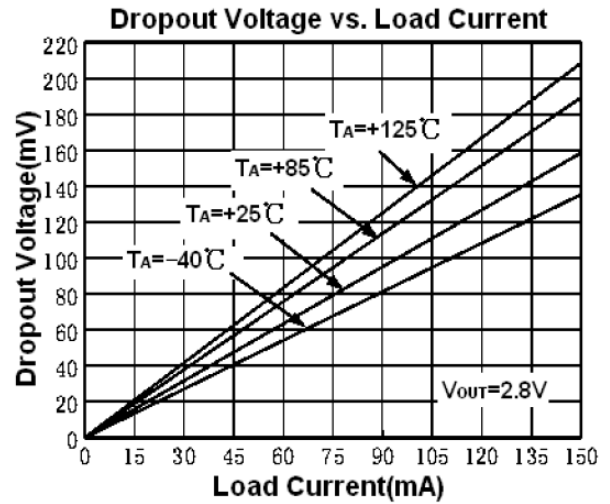
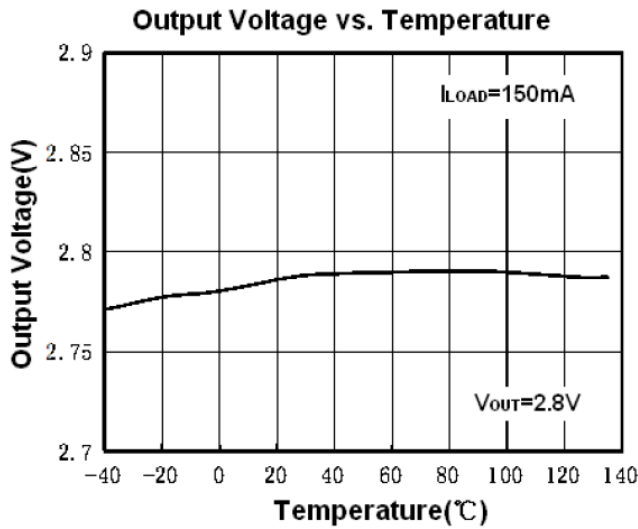
$V_{OUT}$  : Specified Output Voltage.

$V_{OUT}(E)$  : Effective Output Voltage ( i.e. The Output Voltage When  $V_{IN} = (V_{OUT} + 1.0V)$  and Maintain A Certain  $I_{OUT}$  Value).

$V_{dif}$  : The Difference Of Output Voltage And Input Voltage When Input Voltage Is Decreased Gradually Till Output Voltage Equals To 98% Of  $V_{OUT}(E)$ .



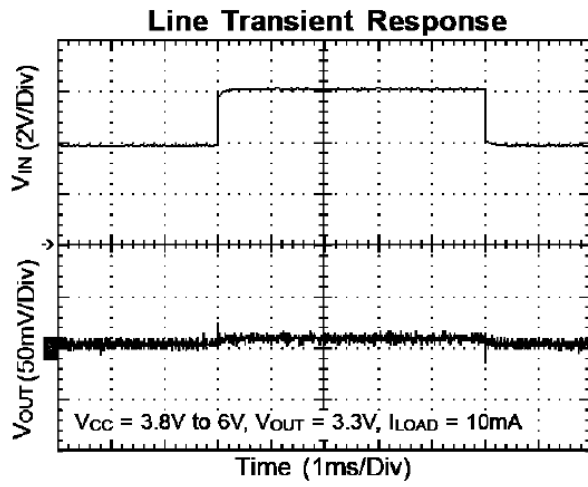
### Typical Performance Characteristics





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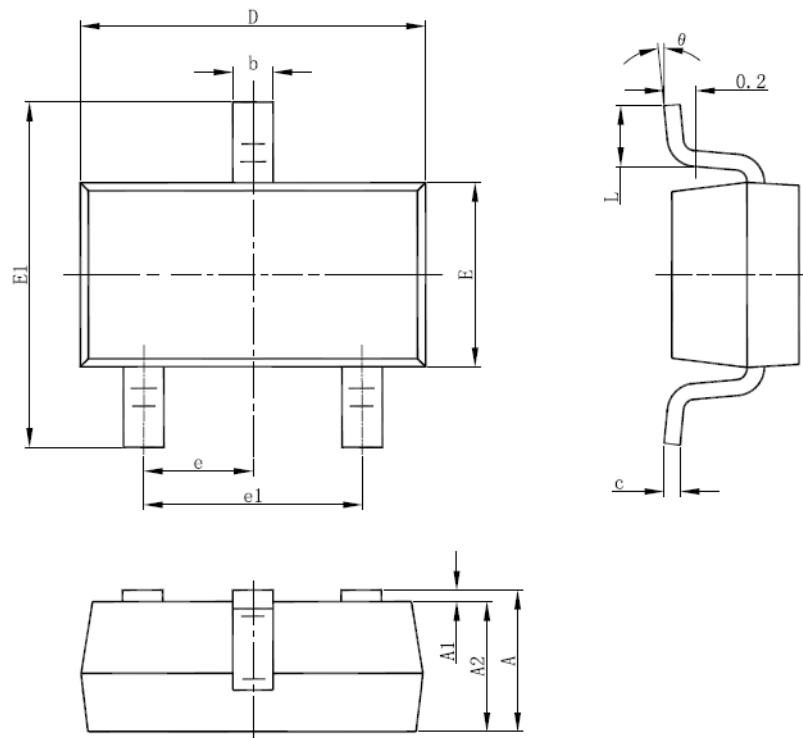


# ACE555

## Low Consumption Current High PSRR 300mA CMOS Voltage Regulator

### Packing Information

#### SOT-23-3



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°

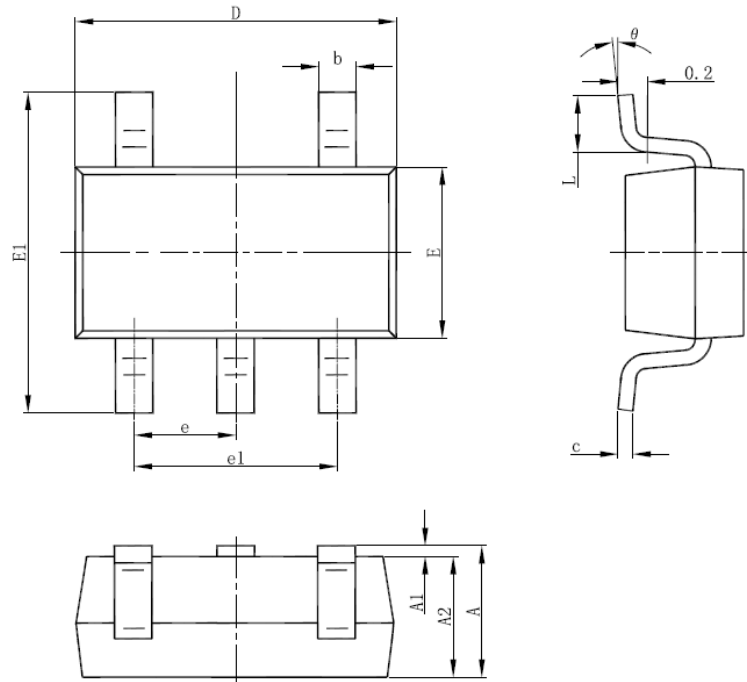


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## Low Consumption Current High PSRR 300mA CMOS Voltage Regulator

### Packing Information

#### SOT-23-5



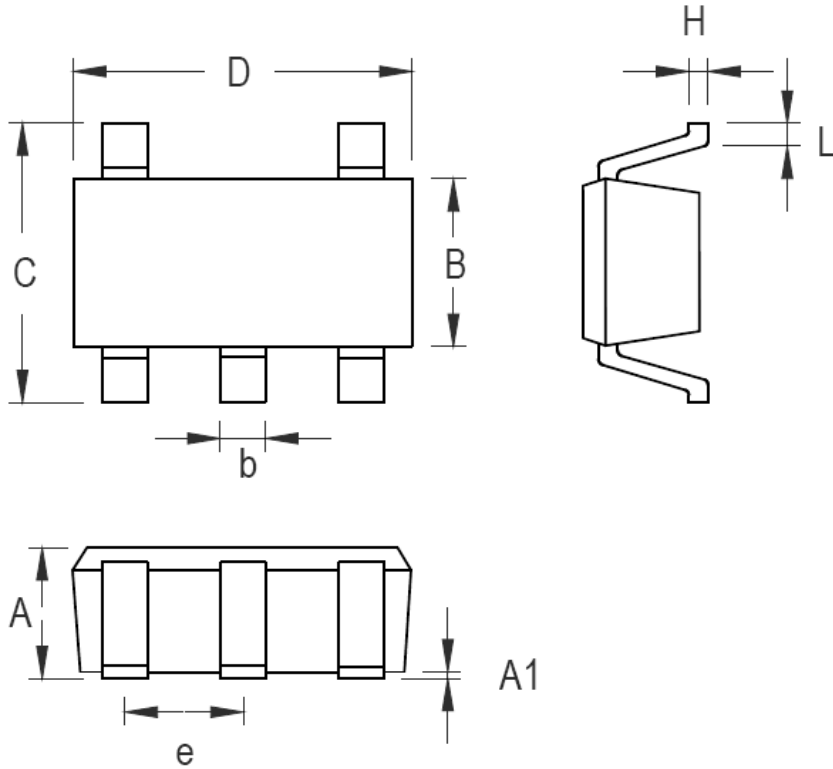
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°





**Packing Information**

**SC-70-5**

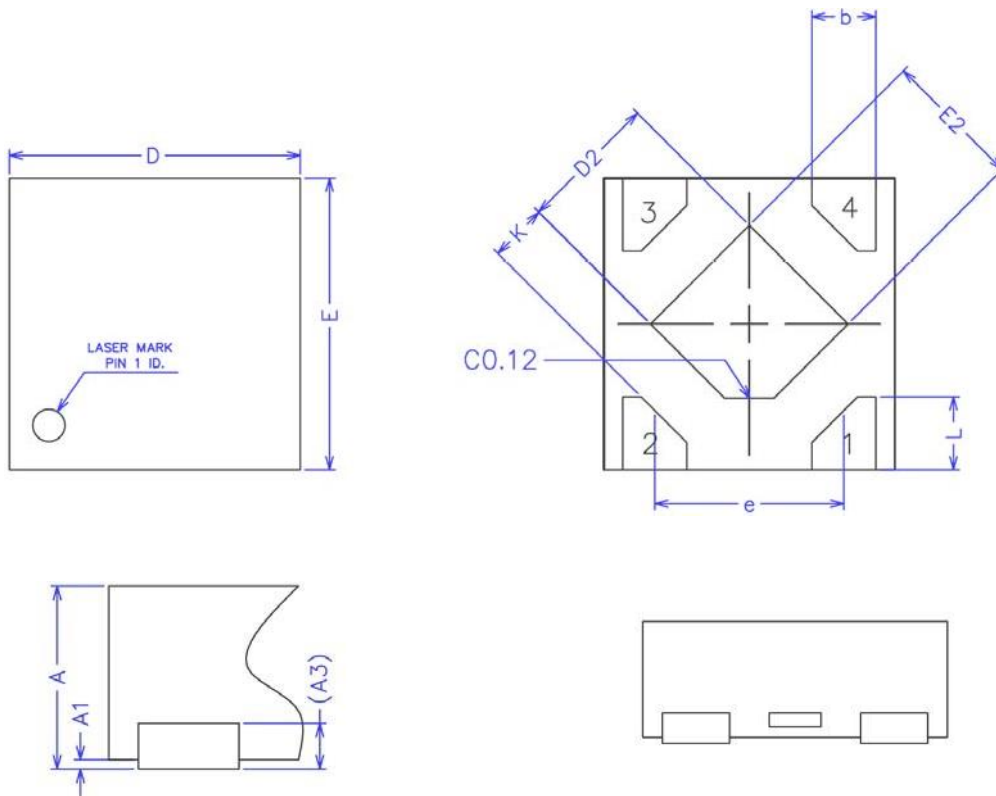


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.800	1.100	0.031	0.044
A1	0.000	0.100	0.000	0.004
B	1.150	1.350	0.045	0.054
b	0.150	0.400	0.006	0.016
C	1.800	2.450	0.071	0.096
D	1.800	2.250	0.071	0.089
e	0.650		0.026	
H	0.080	0.260	0.003	0.010
L	0.210	0.460	0.008	0.018



**Packing Information**

**DFN1\*1-4**



COMMON DIMENSIONS  
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	0.34	0.37	0.40
A1	0.00	0.02	0.05
A3	0.100REF		
b	0.17	0.22	0.27
D	0.95	1.00	1.05
E	0.95	1.00	1.05
D2	0.43	0.48	0.53
E2	0.43	0.48	0.53
L	0.20	0.25	0.30
e	—	0.65	—
K	0.15	—	—



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### Notes

ACE does not assume any responsibility for use as critical components in life support devices or systems without the express written approval of the president and general counsel of ACE Technology Co., LTD. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.