



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 equipments, such as RF applications and other systems requiring a quiet voltage source.

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



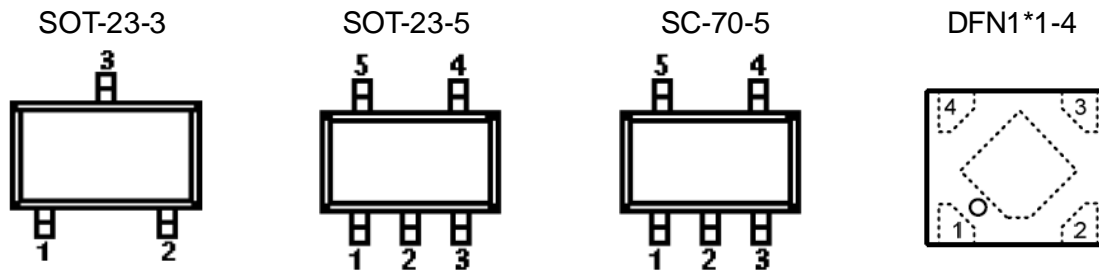
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Absolute Maximum Ratings

Parameter		Symbol	Ratings	Unit
Input Voltage		V_{IN}	$V_{SS} - 0.3 \sim V_{SS} + 8$	V
Output Current		I_{OUT}	500	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	

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



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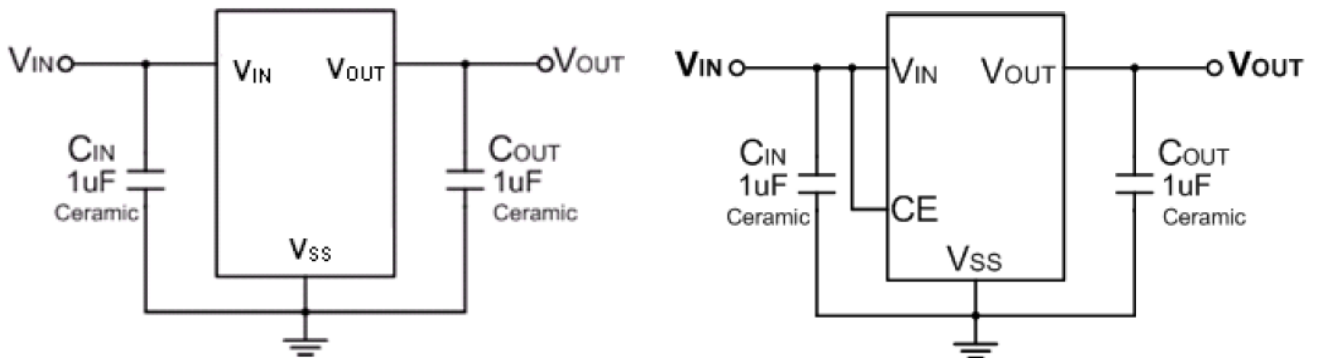
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Ordering information

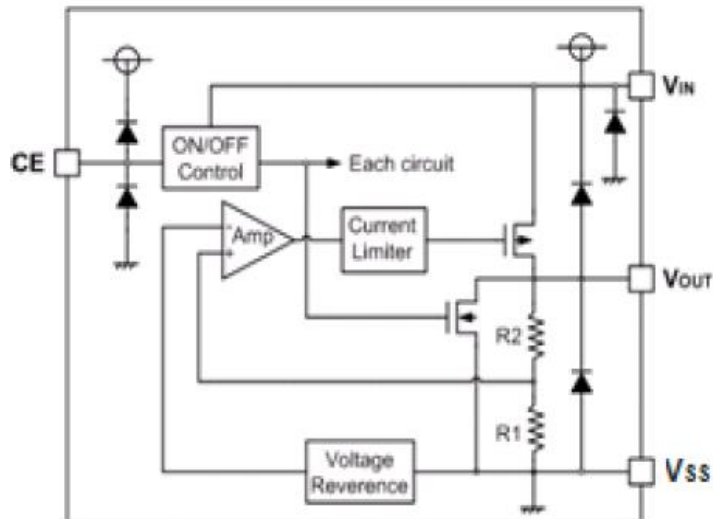
ACE555 X XX XX + H

- Halogen - free
- Pb - free
- BM: SOT-23-3
- BN: SOT-23-5
- HN: SC-70-5
- IN: DFN1*1-4
- Output Voltage: 1.2V/1.5V/1.8V.....5.0V
- A : $\pm 1\%$
- B : $\pm 2\%$

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	μA
Standby Current	I_{STBY}	$CE = V_{SS}$			0.1	μA
Output Current	I_{OUT}		300			mA
Dropout Voltage (Note 3)	V_{dif}	$I_{OUT} = 150mA$ $V_{OUT} \geq 3.0V$		150		mV
Load Regulation	ΔV_{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:

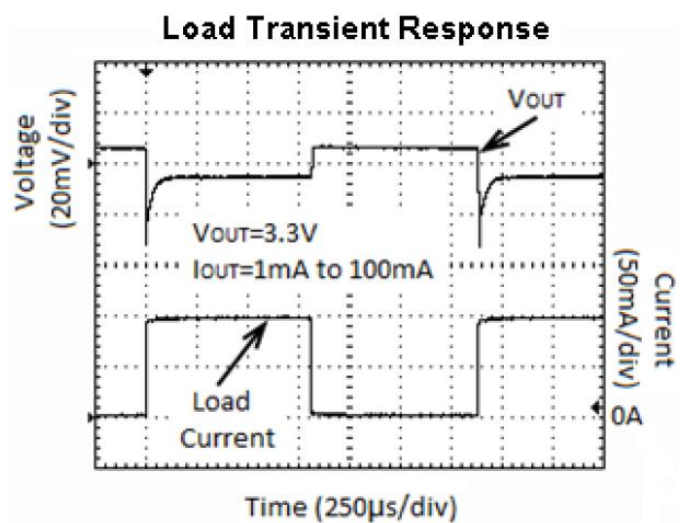
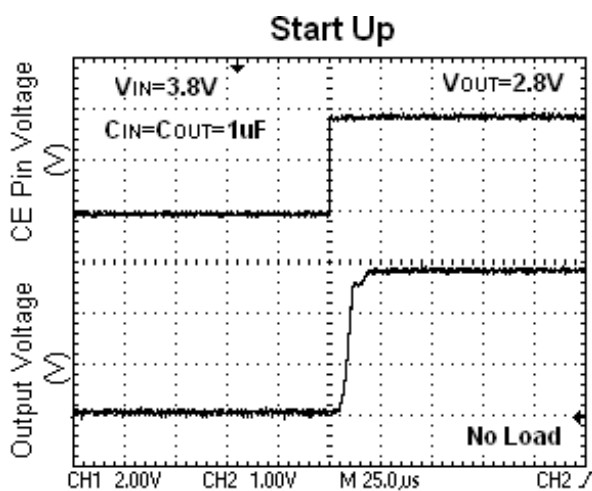
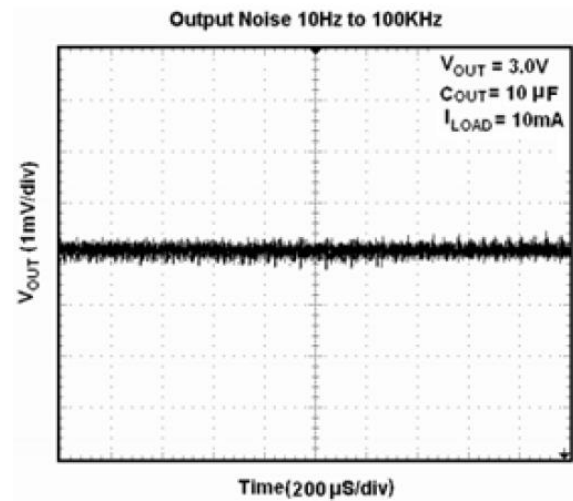
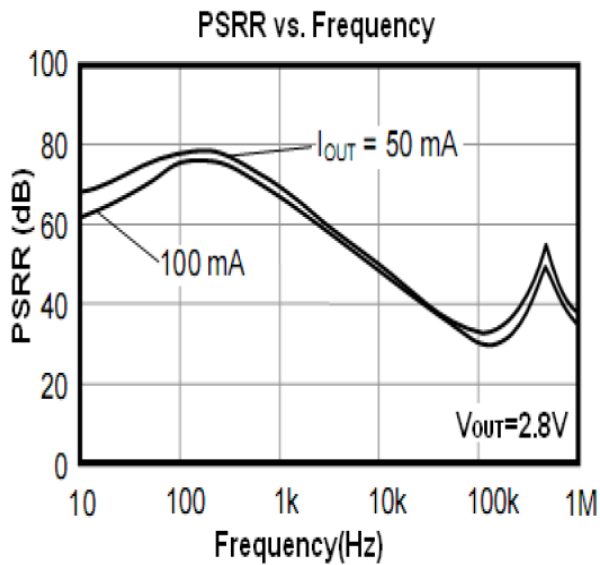
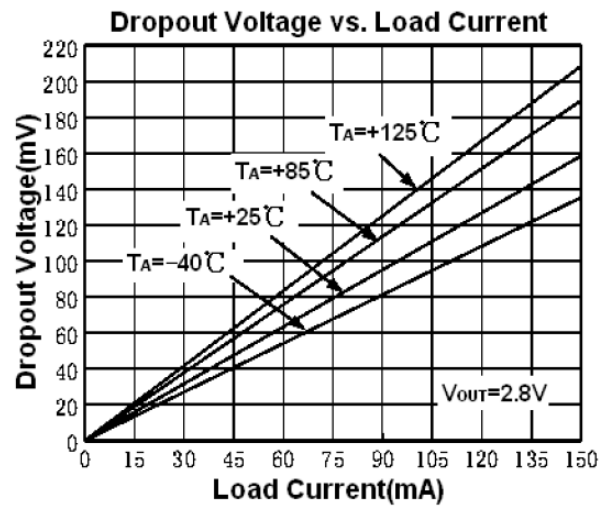
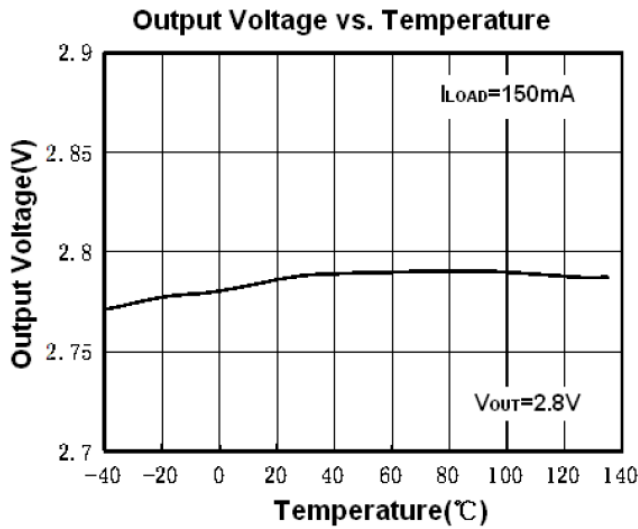
V_{OUT} : Specified Output Voltage.

$V_{OUT}(E)$: 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 $V_{OUT}(E)$.



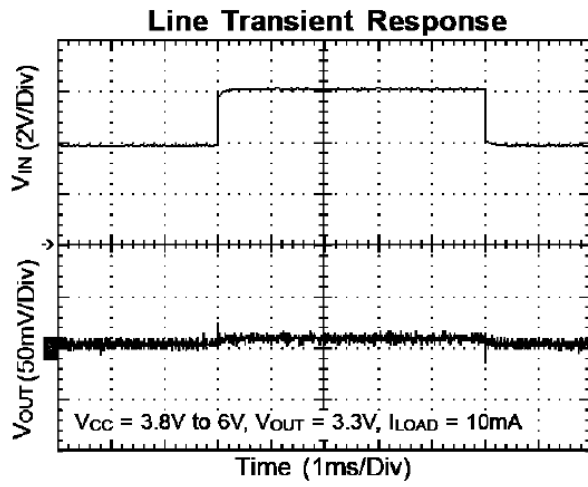
Typical Performance Characteristics





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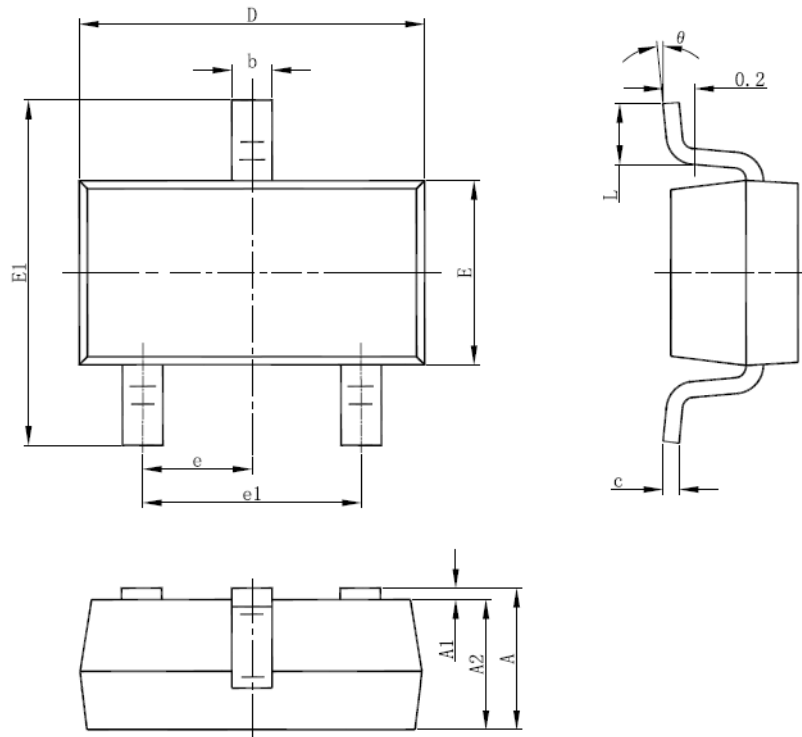


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Packing Information

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°

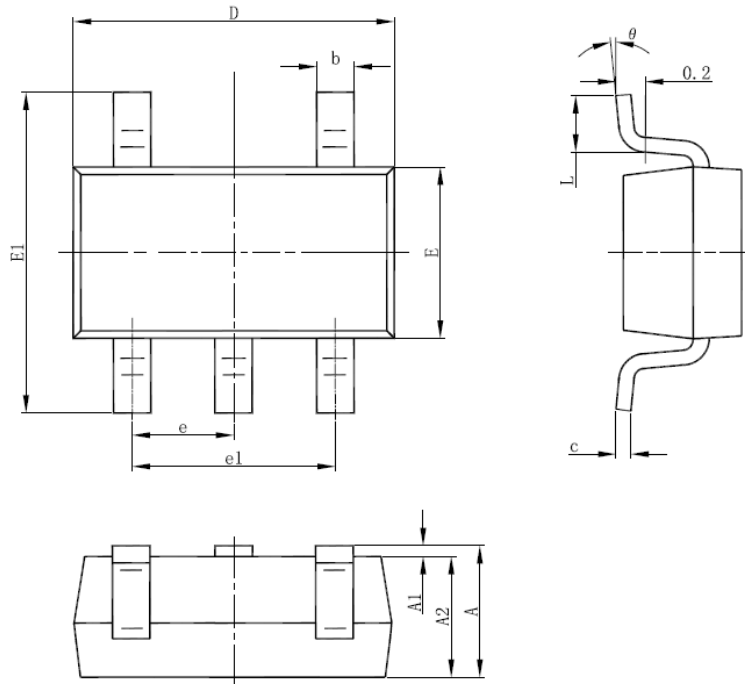


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Packing Information

SOT-23-5

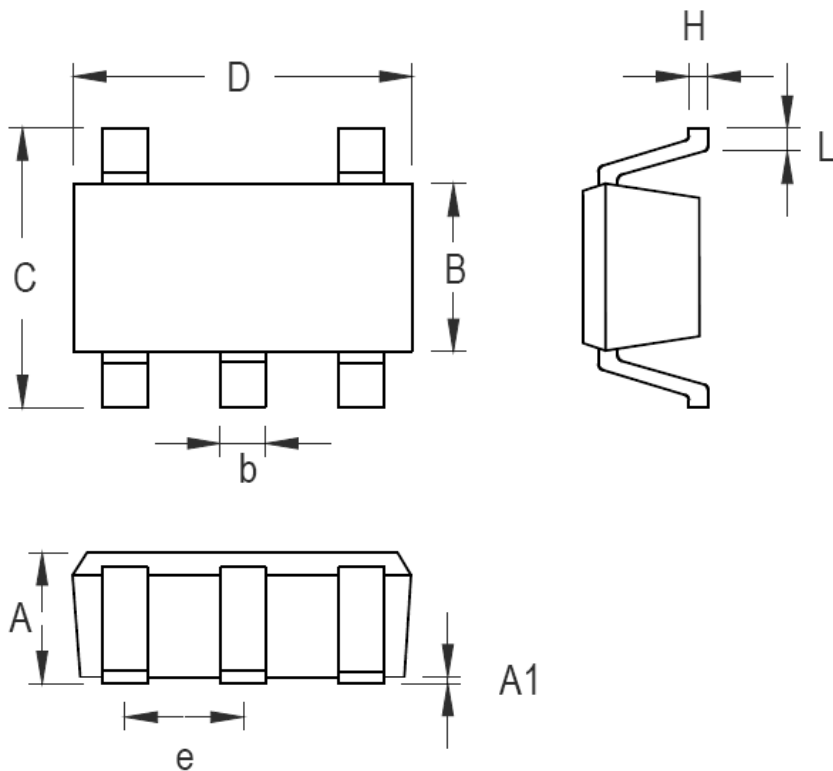


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)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

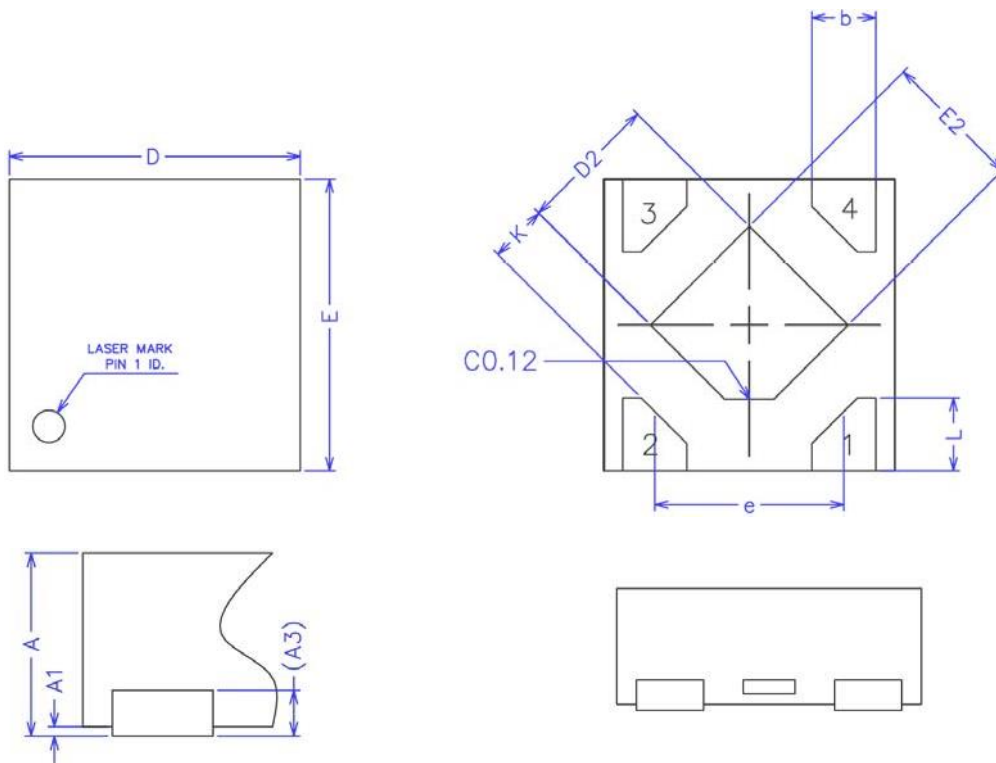


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.800	1.100	0.031	0.044
A1	0.000	0.100	0.000	0.004
B	1.150	1.350	0.045	0.054
b	0.150	0.400	0.006	0.016
C	1.800	2.450	0.071	0.096
D	1.800	2.250	0.071	0.089
e	0.650		0.026	
H	0.080	0.260	0.003	0.010
L	0.210	0.460	0.008	0.018



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 Electronics 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.