



ACE518C

1A Ultra-Low Vin Low Dropout Voltage Linear Regulator

Description

ACE518C series are a group of positive voltage output, high precise and low power consumption voltage regulator. Voltages are selectable in 100mV steps within a range of 1.2V to 5.0V. It also can be customized on command.

ACE518C series have excellent load and line transient response and good temperature characteristics, which can assure the stability of chip and power system. And it uses trimming technique to guarantee output voltage accuracy within $\pm 2\%$.

ACE518C series are available in SOT-23-5 package, which is lead (Pb)- free.

Features

- Low Quiescent Current: 100uA at 5V
- High PSRR: 65dB range to 1KHz
- Low Output Noise: 44uVRMS
- Low Dropout: 200mV@Iout=0.8A, Vout=3.3V
- Maximum output current: 1A
- Highly Accurate: $\pm 2\%$
- Low ESR Ceramic Capacitor Compatible

Application

- Reference Voltage Source
- Battery Powered Equipment
- PC Peripherals
- Wireless Devices
- Instrumentation

Absolute Maximum Ratings

Parameter	Value
Max Input Voltage	8V
Max Operating Junction Temperature (TJ)	145°C
Ambient Temperature (TA)	-40°C ~85°C
Power Dissipation	250mW
Storage Temperature (TS)	-40°C ~150°C
Lead Temperature & Time	260°C, 10 Sec



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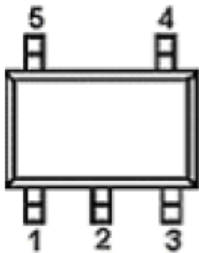
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Recommended Work Conditions

Parameter	Value
Input Voltage Range	Max. 6V
Ambient Temperature	-40°C~85°C
Operating Junction Temperature (TJ)	125°C

Packaging Type

SOT-23-5

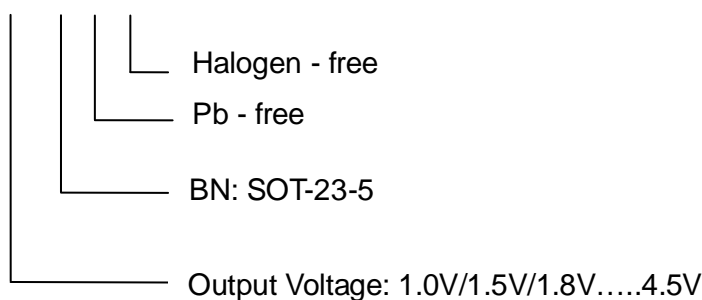


Pin Configuration

Pin	Symbol	Description
1	VDD	Supply Voltage Input
2	GND	Ground Pin
3	EN	Chip Enable
4	NC	No Connection
5	VOUT	Output Voltage

Ordering information

ACE518C XX XX + H

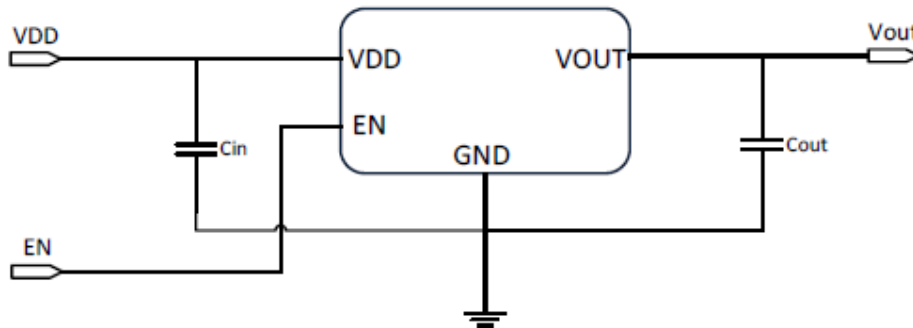




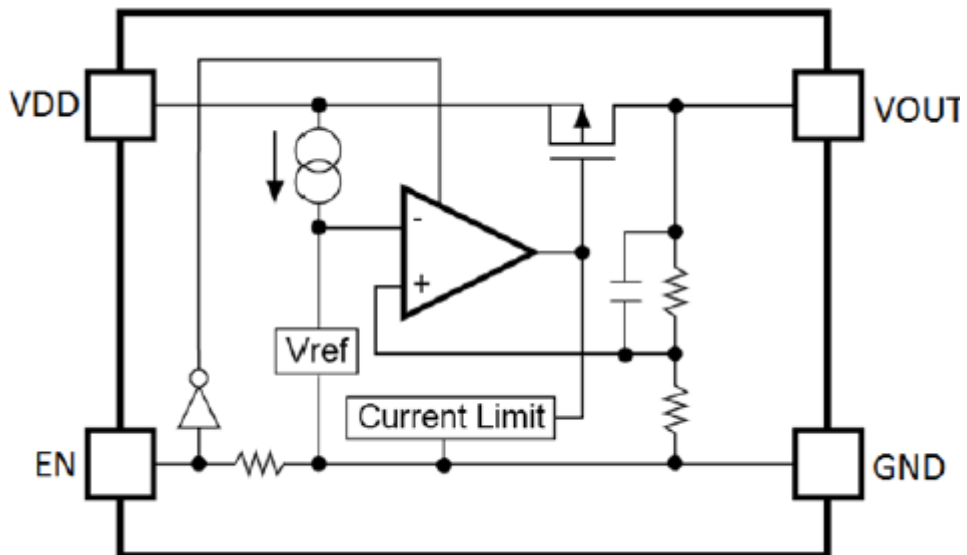
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Typical Application



Block Diagram





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Electrical Characteristics

Test Conditions: $C_{IN}=4.7\mu F, C_{OUT}=4.7\mu F, T_A=25^\circ C$, unless otherwise specified

Symbol	Parameter	Conditions	Min	Typ	Max	Units
V_{DD}	Input Voltage		1.5*		6	V
V_{OUT}	Output Voltage	$V_{DD}=\text{Set } V_{OUT}+1V$ $1mA \leq I_{OUT} \leq 10mA$	$V_{OUT} > 1.5$	V_{OUT}	$V_{OUT} \times 1.02$	V
			$V_{OUT} \leq 1.5$		$V_{OUT} - 0.03$	
$I_{OUT} (\text{Max.})^{**}$	Maximum Output Current	$V_{DD}-V_{OUT}=1V$	1			A
V_{DROP}	Dropout Voltage	$V_{OUT}=3.3V, I_{OUT}=1A$		300	500	mV
$\frac{\Delta V_{out}}{\Delta V_{in}-V_{out}}$	Line Regulation	$I_{OUT}=10mA, 4V \leq V_{DD} \leq 6V$		0.05	0.2	%/V
ΔV_{out}	Load Regulation	$V_{DD}=\text{Set } V_{OUT}+1V$ $1mA \leq I_{OUT} \leq 2.5A$		30	60	mV
I_s	Supply Current	$V_{DD}=\text{Set } V_{OUT}+1V, V_{OUT}$ Floating		100	150	μA
$\frac{\Delta V_{out}}{\Delta T \cdot V_{out}}$	Output Voltage Temperature Coefficient	$I_{OUT}=10mA$		± 100		ppm/ $^\circ C$
PSRR	Ripple Rejection	$f=100Hz, \text{Ripple}=0.5V_{p-p},$ $V_{PP}=\text{Set } V_{OUT}+1V$		65		dB
R_{pd}	EN Pull down Resistance			5		$M\Omega$
V_{enh}	EN Input Voltage "H"		0.95		V_{in}	V
V_{enl}	EN Input Voltage "L"		0		0.25	V
en	Output Noise	$BW=10Hz \sim 100kHz$		44		μV_{rms}

Note:

* $I_{out}=500mA @ V_{out}=1.2V$

**The maximum power rating of each package is a constant, so along with the change of I_{LOAD} , the $V_{DD}-V_{OUT}$ should be controlled to a certain range to ensure the normal operation.

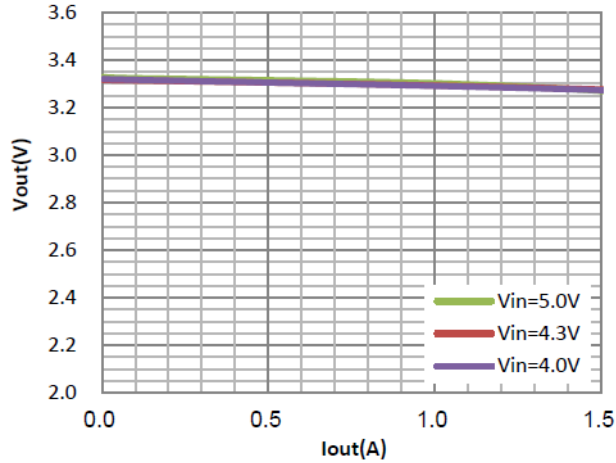


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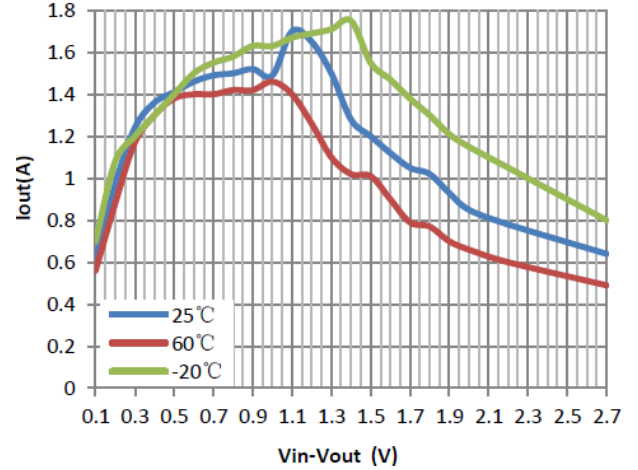
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Typical Performance Characteristics

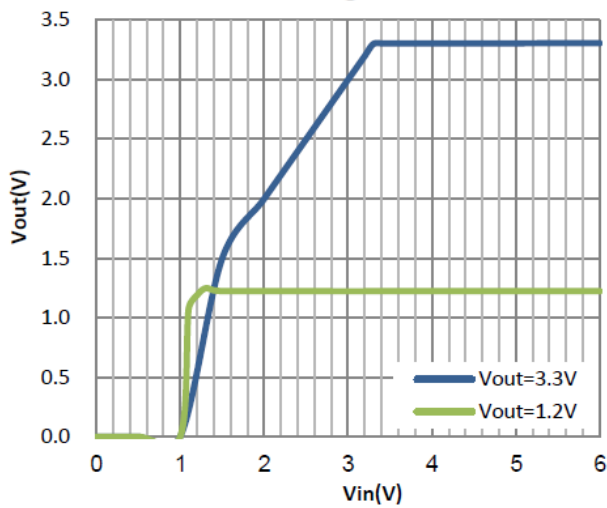
Load Regulation
(Vout=3.3V)



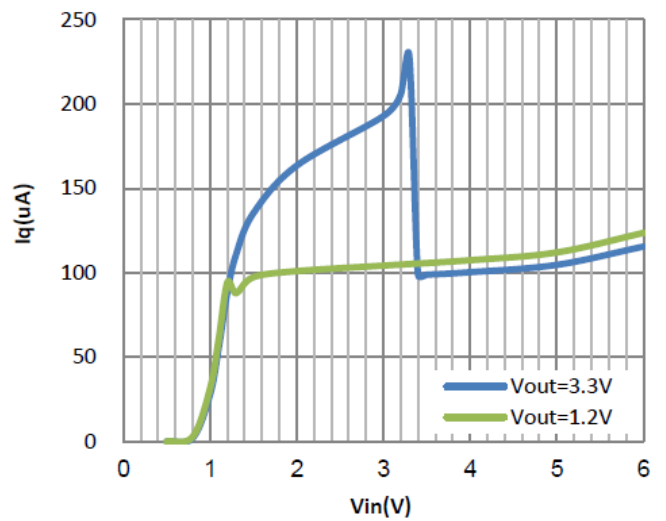
Safe Operation Area
(Vout=3.3V)



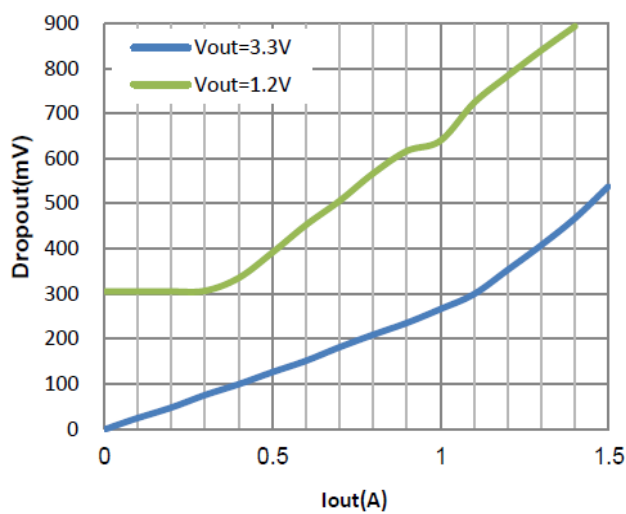
Line Regulation



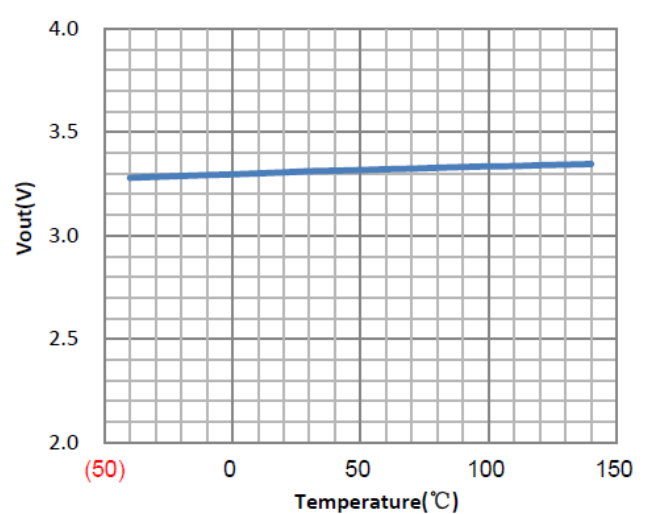
Iq



Dropout Voltage



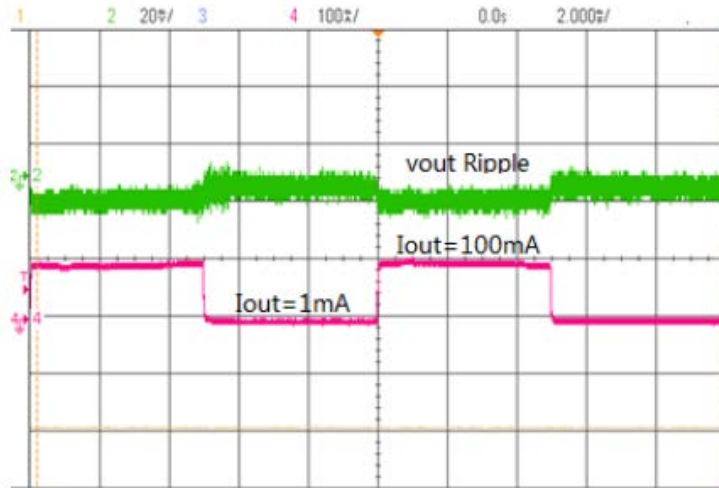
Vout vs. Temperature



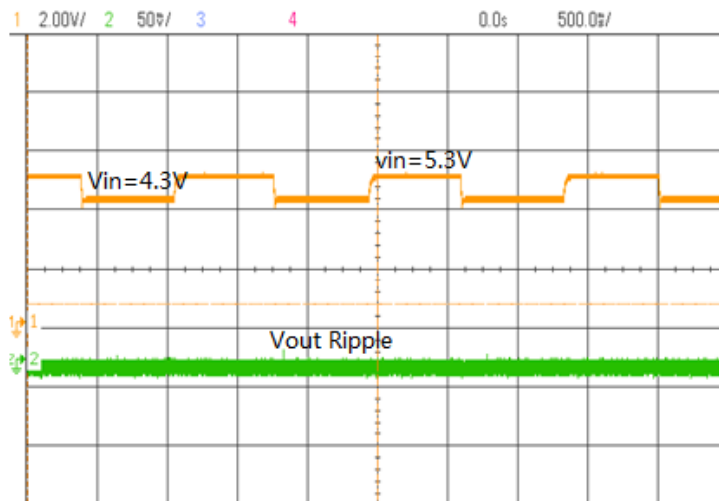


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Load Transient Response ($V_{in}=5V, V_{out}=3.3V$)
 $C_{in}=1\mu F, C_{out}=1\mu F, I_{out}=1mA-100mA$



Line Transient Response ($V_{in}=5V, V_{out}=3.3V$)
 $C_{in}=1\mu F, C_{out}=1\mu F, I_{out}=10mA, V_{in}=4.3V-5.3V$



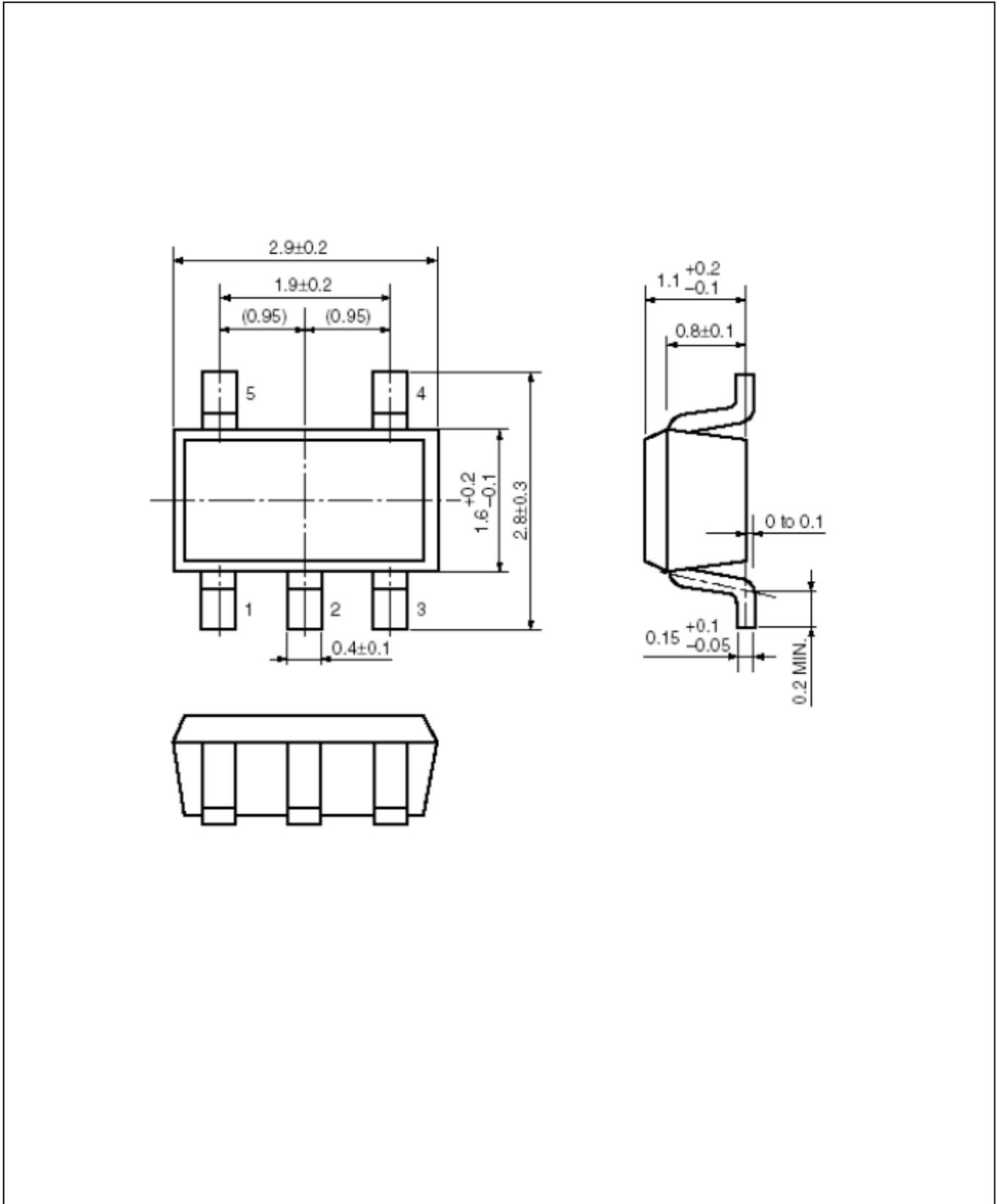


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Packing Information

SOT-23-5





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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.

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