



# ACE5024D

## Ultra Fast High PSRR Low Noise CMOS Voltage Regulator

### Description

The ACE5024D series are a group of positive voltage regulators manufactured by CMOS technologies with high ripple rejection, ultra low noise, low power consumption and low dropout voltage, which can prolong battery life in portable electronics. The ACE5024D series work with low-ESR ceramic capacitors, reducing the amount of board space necessary for power applications. The ACE5024D series consume less than 0.1 $\mu$ A in shutdown mode and have fast turn-on time less than 50 $\mu$ S. The series are very suitable for the battery-powered equipments, such as RF applications and other systems requiring a quiet voltage source.

### Features

- Low Output Noise : 40 $\mu$ V<sub>RMS</sub> (10Hz~100kHz)
- Low Dropout Voltage : 50mV@100mA , Vout=3.3V
- Low Dropout Voltage : 230mV@300mA , Vout=1.8V
- Low Dropout Voltage : 360mV@500mA , Vout=1.8V
- Low Quiescent Current : 50 $\mu$ A
- High Ripple Rejection : 80dB@10kHz
- Excellent Line and Load Transient Response
- Operating Voltage Range : 1.8V~6.0V
- Output Voltage Range : 1.05V ~ 5.0V
- High Accuracy :  $\pm$ 2% (Typ.)
- 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
- Portable Audio Video Equipments
- Radio control systems
- Battery-Powered Equipments



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### Absolute Maximum Ratings

Parameter		Symbol	Ratings	Unit
Input Voltage <sup>(2)</sup>		$V_{IN}$	-0.3~ 7	V
Output Voltage <sup>(2)</sup>		$V_{OUT}$	-0.3~ $V_{IN}+0.3$	V
Output Current		$I_{OUT}$	700	mA
Power Dissipation	SOT-23-3	$P_D$	0.25	W
	SOT-23-5		0.25	W
	DFN1X1-4		0.4	W
	SOT-89-3		0.6	W
	SOT-89-5		0.6	W
Operating free air temperature range		$T_A$	-40~85	°C
Operating Junction Temperature Range <sup>(3)</sup>		$T_j$	-40~125	°C
Storage Temperature		$T_{stg}$	-40~125	°C
Lead Temperature(Soldering, 10 sec)		$T_{solder}$	260	°C
ESD rating <sup>(4)</sup>	Human Body Model -(HBM)		4	kV
	Machine Model- (MM)		200	V

- Stresses beyond those listed under absolute maximum ratings may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under recommended operating conditions is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.
- All voltages are with respect to network ground terminal.
- This IC includes over temperature protection that is intended to protect the device during momentary overload. Junction temperature will exceed 125°C when over temperature protection is active. Continuous operation above the specified maximum operating junction temperature may impair device reliability.
- ESD testing is performed according to the respective JESD22 JEDEC standard.  
The human body model is a 100 pF capacitor discharged through a 1.5kΩ resistor into each pin. The machine model is a 200pF capacitor discharged directly into each pin.

### Recommended Operating Conditions

Parameter	Min.	Max.	Units
Supply voltage at $V_{IN}$	1.8	6	V
Operating junction temperature range, $T_j$	0	125	°C
Operating free air temperature range, $T_A$	0	85	°C

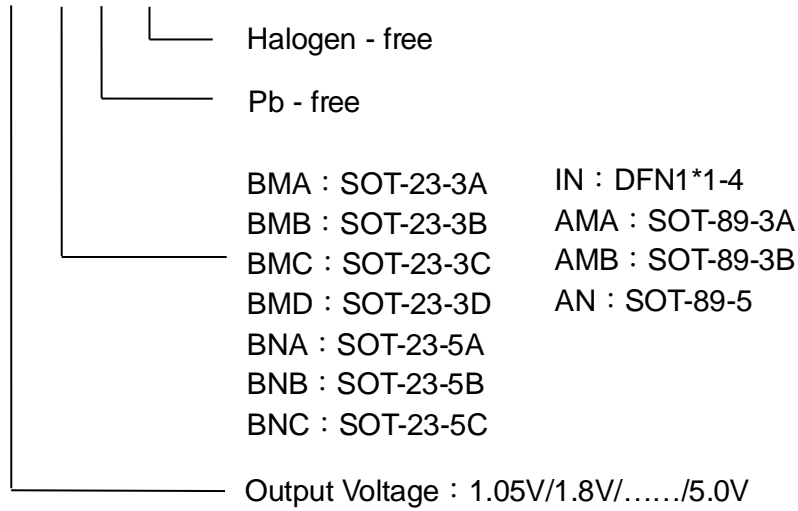


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## Ordering information

ACE5024D XX XX + H





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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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