

General Description

HAP2204K series are a set of Low Dropout Linear Regulator ICs implemented in CMOS technology. They can withstand voltage 22V. And they are available with lowvoltage drop and low quiescent current, widely used in audio, video and communication appliances.

Features

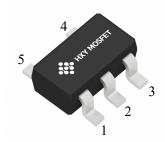
- Low Power Consumption
- Low Voltage Drop
- Low Temperature Coefficient
- Withstanding Voltage 22V
- Quiescent Current 1.5μA
- Output Voltage Accuracy: tolerance ±2%
- High output current: 300mA

Application

- Battery-powered Equipments
- Communication Equipments
- Audio/Video Equipments

Pin Configuration And Descriptions

SOT-23-5L



PIN No.	Nama	Functions Description	
SOT-23-5L	Name	Functions Description	
1	Vin	Input	
2	GND	Ground	
3	CE	ON/OFF Control	
4 NC		No Connect	
5	Vоит	Output	

Order Information

Orderable Device	Package	Output Voltage	Packing Option
HAP2204K-3.0TRG1	SOT-23-5L	3.0V	3000/Reel
HAP2204K-3.3TRG1	SOT-23-5L	3.3V	3000/Reel
HAP2204K-5.0TRG1	SOT-23-5L	5.0V	3000/Reel



Absolute Maximum Ratings

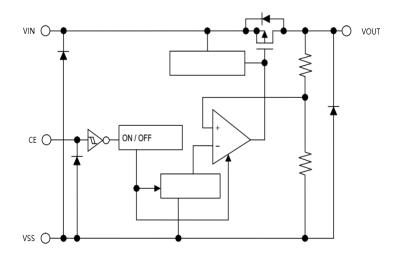
Description	Symbol	Value Range	Unit
Limit Power Voltage	Vin	-0.3∼ + 25	V
Storage Temperature Range	Тѕтс	-50∼+125	°C
Operating Free-air Temperature Range	TA	-40∼ + 85	°C

Note:Stresses greater than those listed under "Absolute Maximum Ratingsmay" 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 Conditionsis" not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

Heat Dissipation

Description	Symbol	Package	Value Range	Unit
Thermal resistance	JA	SOT-23-5L	500	°C/W
Power dissipation	Pw	SOT-23-5L	200	mW

Block Diagram





DC Characteristics (unless otherwise noted T_A= 25°C)

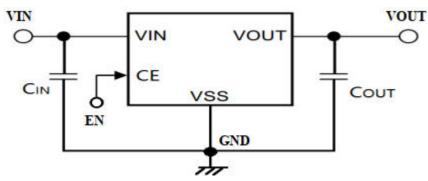
Parameter	Symbol	Test Condition	Min	Тур	Max	Unit
Input Voltage	Vin				22	V
Output Voltage	Vouт		3.0		5.0	V
Voltage Accuracy		Іоит=1mA	-2		+2	%
Output Current	louт	VIN=VOUT+2.0V		300		mA
Load Regulation	∆Vоит	V _{IN} =V _{OUT} +2.0V 1mA≤I _{OUT} ≤150mA		37		mV
Line Regulation	△Vout/ Vout*△Vin	Vout+1.0V≤Vin≤18V Iout=10mA		0.015	0.02	%/V
Voltage Drop	V _{DIF} ¹	louт=100mA,Vouт=3.3V		210		mV
Quiescent Current	Iss	Vce=Vin		1.5	3.0	μΑ
Standby Current	ISTANDBY	Vce=Vss			0.2	μΑ
	Vсен	Vin =Vout+2.0V	1.1			V
	Vcel	Vin =Vout+2.0V			0.4	V
Short-circuit current	Ishort	VIN=VOUT+2.0V		400		mA
Temperature Coefficient	△Vоит/ △Та* Vouт	Vin=Vout+2.0V Iout=10mA 1mA≤Iout≤150mA		±100		ppm/°C
Discharge Resistor	R _{DIS} ²	VCE =0.5V		400		

Note: 1.WhenVIN=VOUT+2.0V,as the output voltage declined 2%,the VDIF=VIN-VOUT.

2.Output active discharge resistor RDIS, As the input voltage increases, it decreases.

Application Circuit

Basic Circuits



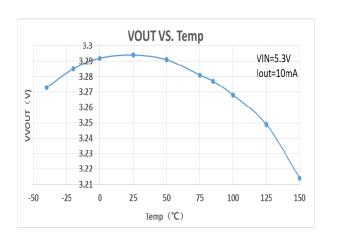
- 1. C_{IN} is used to stabilize the input capacitor.
- 2. CIN eramic capacitors greater than or equal to 1pF can be used for COUT.

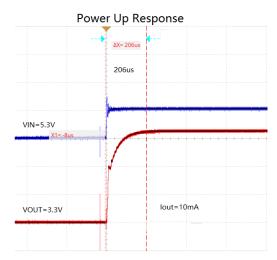


Function Description

HAP2204K series are linear voltage regulator ICs withstanding 22V voltage. The series IC consists of a voltage reference, an error amplifier, a current limiter and a phase compensation circuit plus a driver transistor. The output stabilization capacitor is also compatible with low ESR ceramic capacitors. The over current protection circuit and the over voltage protection circuit are built-in. The protection circuit will operate wheb the output current or input voltage reaches limit level.

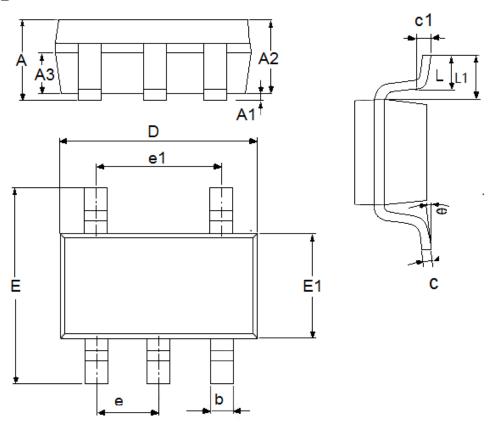
Typical Characteristics







Package Outline Dimensions SOT-23-5L



Symbol	Dimensions in Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
Α	1.05	1.45	0.0413	0.0571
A1	0	0.15	0.0000	0.0059
A2	0.9	1.3	0.0354	0.0512
A3	0.6	0.7	0.0236	0.0276
b	0.25	0.5	0.0098	0.0197
С	0.1	0.23	0.0039	0.0091
D	2.82	3.05	0.1110	0.1201
e1	1.9(TYP)		0.0748(TYP)	
E	2.6	3.05	0.1024	0.1201
E1	1.5	1.75	0.0512	0.0689
е	0.95(TYP)		0.0374(TYP)	
L	0.25	0.6	0.0098	0.0236
L1	0.59(TYP)		0.0232(TYP)	
θ	0	8°	0.0000	8°
c1	0.2(TYP)		0.0079((TYP)



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