FEATURES

- Compatible with HIP6021.
- Provides 4 Regulated Voltages for Microprocessor Core, AGP Bus, Memory and GTL Bus Power.
- TTL Compatible 5-bit Digital-to-Analog Core Output Voltage Selection. Range from 1.3V to 3.5V.
  0.1V Steps from 2.1V to 3.5V.
  0.05V Steps from 1.3V to 2.05V.
- ±1.0% Output Voltage for VCORE, ±3.0% accuracy for linear controller output voltage.
- Simple Voltage-Mode PWM Control.
- N-Channel MOSFET Driver.
- Operates from +3.3V, +5V and +12V Inputs.
- Fast Transient Response.
- Full 0% to 100% Duty Ratios.
- Adjustable Current Limit without External Sense Resistor.
- Microprocessor Core Voltage Protection against Shorted MOSFET.
- Power Good Output Voltage Monitor.
- Over-Voltage and Over-Current Fault Monitors.
- 200KHz Free-Running Oscillator Programmable up to 500KHz.

APPLICATIONS

- Full Motherboard Power Regulation for Computers.

DESCRIPTION

The AIC1574 combines a synchronous voltage mode controller with three linear controller as well as the monitoring and protection functions in this chip. The PWM controller regulates the microprocessor core voltage with a synchronous rectified buck converter. The three linear controllers regulate power for the 1.5V or 3.3V AGP bus power, the 1.5V GTL bus and the 1.8V power for the chip set core voltage and/or cache memory circuits.

An integrated 5 bit D/A converter that adjusts the core PWM output voltage from 2.1V to 3.5V in 0.1V increments and from 1.3V to 2.05V in 0.05V increments. The linear controller for AGP bus power is selectable by TTL-compatible SELECT pin status for 1.5V or 3.3V with ±3% accuracy. The other two linear controller provide 1.5V±3% and 1.8V±3% or adjustable output voltage by means of external divided resistor based on FIX pin status.

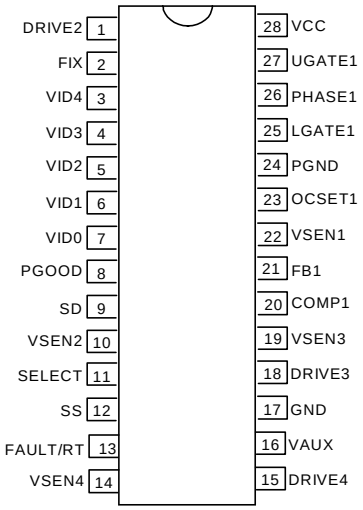
This chip monitors all the output voltages. Power Good signal is issued when the core voltage is within ±10% of the DAC setting and the other levels are above their under-voltage levels. Over-voltage protection for the core output uses the lower N-channel MOSFET to prevent output voltage above 115% of the DAC setting.

The PWM over-current function monitors the output current by using the voltage drop across the upper MOSFET's $R_{DS(on)}$, eliminating the need for a current sensing resistor.

■ ORDERING INFORMATION

AIC1574-XX

- PACKAGING TYPE
  S: SMALL OUTLINE
- TEMPERATURE RANGE
  C: 0°C~+70°C

ORDER NUMBER	PIN CONFIGURATION
AIC1574CS (SO28)	

■ ABSOLUTE MAXIMUM RATINGS

Supply Voltage, V_{CC} ..... +15V

PGOOD, FAULT and GATE Voltage ..... GND -0.3V to V_{CC} +0.3V

Input, Output , or I/O Voltage ..... GND -0.3V to 7V

Recommended Operating Conditions

- Supply Voltage; VCC ..... +12V±10%
- Ambient temperature Range ..... 0°C~70°C
- Junction Temperature Range ..... 0°C~125°C

Thermal Information

Thermal Resistance, θ_{JA}

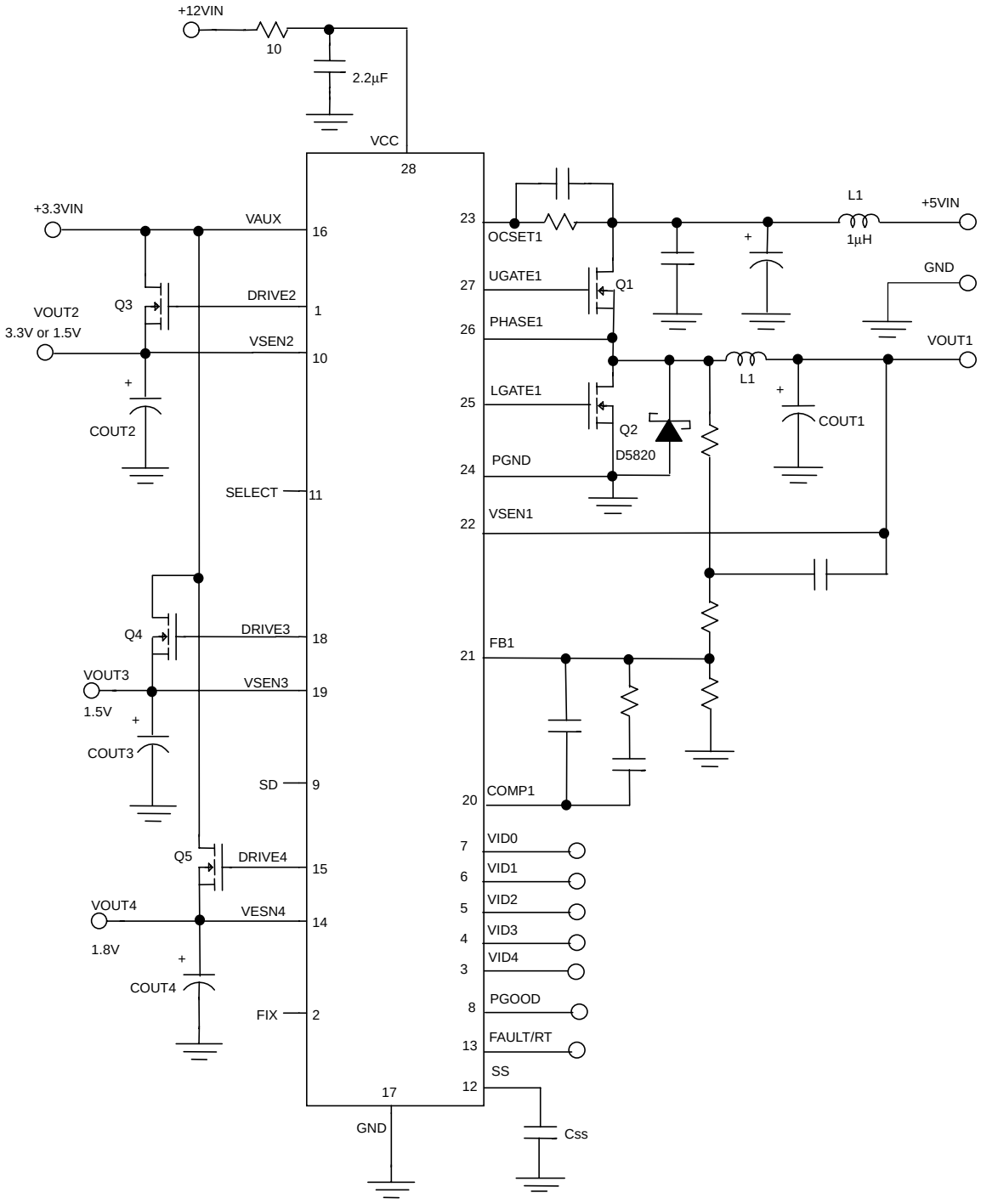
- SOIC package ..... 60°C/W
- SOIC package (with 3in^2 of copper) ..... 50°C/W

Maximum Junction Temperature (Plastic Package) ..... 150°C

Maximum Storage Temperature Range ..... -65°C ~ 150°C

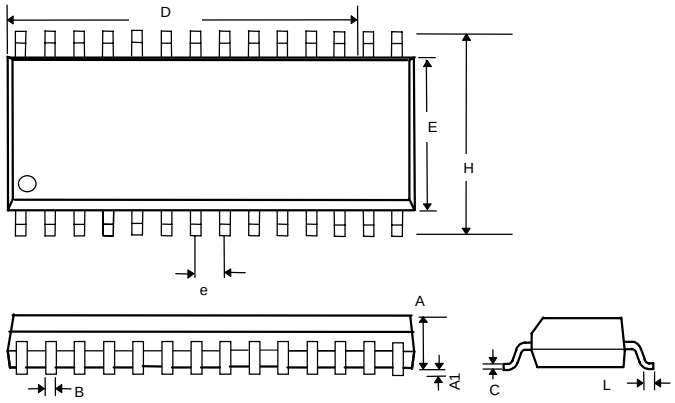
Maximum Lead Temperature (Soldering 10 sec) ..... 300°C

TYPICAL APPLICATION



PHYSICAL DIMENSIONS

- **28 LEAD PLASTIC SO (unit: mm)**



SYMBOL	MIN	MAX
A	2.35	2.65
A1	0.10	0.30
B	0.33	0.51
C	0.23	0.32
D	17.70	18.10
E	7.40	7.60
e	1.27 (TYP)	
H	10.00	10.65
L	0.40	1.27