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# KA3501

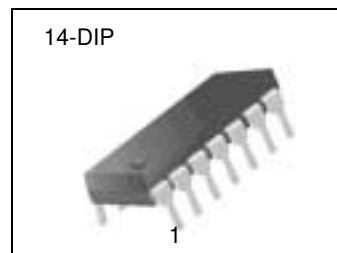
## PC SMPS Supervisory IC

### Features

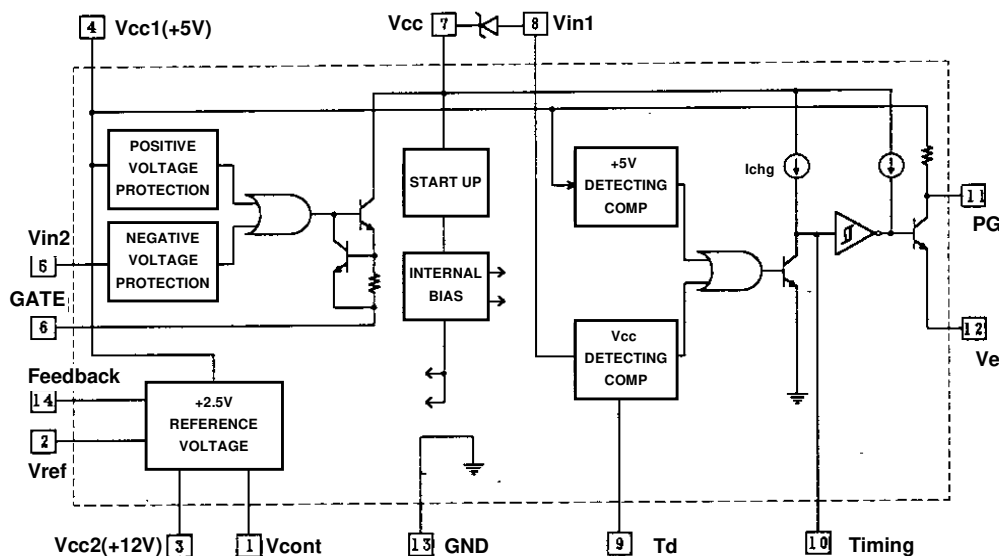
- Complete House Keeping Circuit
- Few External Components
- Positive Voltage Protection
- Negative Voltage Protection
- High Current Drive Output for SCR
- Precision Voltage Reference for 5V/12V Outputs
- Power Good Signal Generator with Hysteresis

### Description

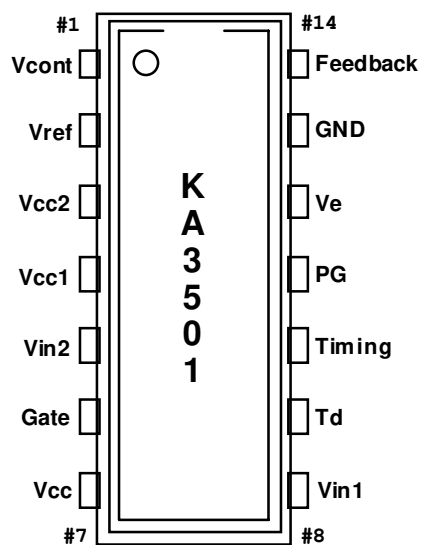
The KA3501 is complete housekeeping circuits for use in the secondary side of SMPS(Switched Mode Power Supply). This IC(Integrated Circuit) contains a precision voltage reference, protection circuits and a power good signal generator. It also has a high current drive output for use in conjunction with an external "crowbar" SCR. The reference voltage is trimmed to  $\pm 2\%$  for correct output voltages(+5V/+12V) and power good signal generator is to monitor the voltage level of power good supply for safe operation in a microprocessor circuit. Using the KA3501 requires few external components to accomplish a complete housekeeping circuit for SMPS(Switched Mode Power Supply). The KA3501 is available in an 14-pin DIP.



### Internal Block Diagram



## Pin Assignments



Pin Number	Pin Name	Pin Function Description
1	Vcont	Reference Voltage Control
2	Vref	Precision Reference Voltage
3	Vcc2	+12V Output Voltage
4	Vcc1	+5V Output Voltage
5	Vin2	UVP Input (Negative)
6	Gate	Gate Drive Input for SCR
7	Vcc	Supply Voltage
8	Vin1	PG Input
9	Td	Reference Voltage Delay for PG
10	Timing	PG Delay
11	PG	PG Output
12	Ve	PG Ground (Open Emitter)
13	GND	Ground
14	Feedback	Feedback for Precision Reference

## Absolute Maximum Rating ( Ta = 25°C)

Parameter	Symbol	Value	Unit
Supply Minimum Voltage	V <sub>cc(min)</sub>	5	V
Supply Maximum Voltage	V <sub>cc(max)</sub>	32	V
UV Input Voltage	V <sub>uv</sub>	24	V
Minimum Gate Drive Current	I <sub>DR</sub>	-25	V
Operating Cathode Current	I <sub>K</sub>	1 to 30	A
Power Dissipation	P <sub>d</sub>	1	W
Operating Temperature Range	T <sub>opr</sub>	0 to 70	°C

## Electrical Characteristic

(Refer to the test circuit , V<sub>cc</sub>=20V, T<sub>a</sub>=25°C, unless otherwise stated)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Temperature Stability for V <sub>REF</sub>	ΔV <sub>REF</sub>	-	-	17	-	mV
<b>PROTECTION SECTION</b>						
Positive Protection Voltage	V <sub>POS1</sub>	-	5.7	6.0	6.4	V
Negative Protection Voltage	V <sub>NEGA</sub>	V <sub>cc1</sub> = 5V	-1.5	-2.5	-3.5	V
Negative Input Resistor	R <sub>NEGA</sub>	Pin 4 to Pin 5	8.5	10	11.5	KΩ
Gate Drive Current	I <sub>DR</sub>	V <sub>GATE</sub> = 0.7 V	-25	-50	-	V
<b>REFERENCE SECTION</b>						
Reference Input Voltage	V <sub>REF</sub>	I <sub>K</sub> = 10mA	2.44	2.50	2.56	V
Current Stability	ΔV <sub>REF</sub>	I <sub>K</sub> =1mA to 10mA	-	5	20	mV
Absolute Precision of Internal Three Resistors	R <sub>int</sub>	-	-	-	±15	%
Relative Deviation of Three Resistors	R <sub>rate</sub>	-	-	±0.5	±3	%
Temperature Stability (Note 1)	ΔV <sub>REF</sub>	T <sub>a</sub> = 0 to 70 °C	-	13	17	mV
Gain Bandwidth (Note 1)	GBW	GV = 1	-	1	-	MHz
<b>POWER GOOD SECTION</b>						
Detecting Input Voltage	V <sub>IN1</sub>	-	1.23	1.28	1.33	V
Detecting PG Voltage	V <sub>DET</sub>	-	4.1	4.3	4.5	V
Hysteresis Voltage 1	HY1	-	10	20	40	mV
Hysteresis Voltage 2	HY2	-	200	250	-	mV
Charging Current for PG Delay	I <sub>CHG</sub>	-	-8	-14	-20	uA
PG Output Resistor	R <sub>PG</sub>	-	7.7	9.0	10.3	KΩ
PG Output Saturation Voltage	V <sub>SAT</sub>	I <sub>SINK</sub> = 6mA	-	0.2	0.4	V
PG Output Leakage Current	I <sub>O(LKG)</sub>	-	-	0.01	1	uA
<b>TOTAL STANDBY CURRENT</b>						
Supply Current	I <sub>cc</sub>	V <sub>CC</sub> = 20V , V <sub>CC1</sub> = 5V	-	3	5	mA

### Notes:

1. These parameters, although guaranteed, are not 100% tested in production



## Ordering Information

Product Number	Package	Operating Temperature
KA3501	14-DIP	0°C ~ +70°C

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