

# KA3501

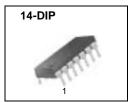
# PC SMPS Supervisory IC

## **Features**

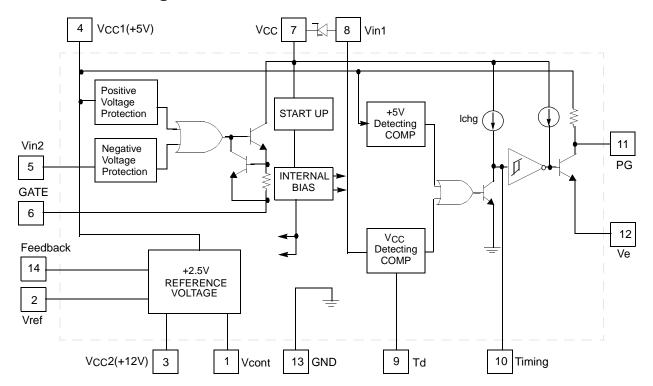
- · Complete House Keeping Circuit
- Few External Components
- Positive Voltage Protection
- Negative Voltage Protection
- High Current Drive Output for SCR
- Precision Voltage Reference for 5V/12V Outputs
- · Power Good Signal Generator with Hysteresis

## **Description**

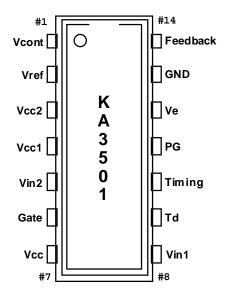
The KA3501 is complete housekeeping circuits for use in the secondary side of SMPS(Switched Mode Power Supply). This IC(Integrated Circuit) contains a precision voltage reference, protection circuits and a power good signal generator. It also has a high current drive output for use in conjunction with an external "crowbar" SCR. The reference voltage is trimmed to ±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	Vcc(min)	5	V	
Supply Maximum Voltage	Vcc(max)	35	V	
UV Input Voltage	Vuv	24	V	
Minimum Gate Drive Current	IDR	-25	V	
Operating Cathode Current	lκ	1 to 30	A	
Power Dissipation	Pd	1	W	
Operating Temperature Range	Topr	0 to 70	°C	

## **Electrical Characteristic**

(Refer to the test circuit , Vcc=20V, Ta=25°C, unless otherwise stated)

Parameter	Symbol	Conditions	Min.	Тур.	Max.	Unit	
Temperature Stability for VREF	$\Delta V_{REF}$	-	-	17	-	mV	
PROTECTION SECTION							
Positive Protection Voltage	VPOSI	-	5.7	6.0	6.4	V	
Negative Protection Voltage	VNEGA	Vcc1 = 5V	-1.5	-2.5	-3.5	V	
Negative Input Resistor	RNEGA	Pin 4 to Pin 5	8.5	10	11.5	kΩ	
Gate Drive Current	IDR	VGATE = 0.7 V	-25	-50	-	V	
REFERENCE SECTION							
Reference Input Voltage	VREF	Ι <sub>Κ</sub> = 10mA	2.44	2.50	2.56	V	
Current Stability	$\Delta V$ REF	IK=1mA to 10mA	-	5	20	mV	
Absolute Precision of Internal Three Resistors	Rint	-	-	-	±20	%	
Relative Deviation of Three Resistors	Rrate	-	-	±0.5	±3	%	
Temperature Stability (Note1)	$\Delta V_{REF}$	Ta = 0 to 70 °C	-	13	17	mV	
Gain Bandwidth (Note1)	GBW	GV = 1	-	1	-	MHz	
POWER GOOD SECTION							
Detecting Input Voltage	VIN1	-	1.23	1.28	1.33	V	
Detecting PG Voltage	VDET	-	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	ICHG	-	-8	-14	-20	uA	
PG Output Resistor	Rpg	-	7.7	9.0	10.3	kΩ	
PG Output Saturation Voltage	VSAT	ISINK = 6mA	-	0.2	0.4	V	
PG Output Leakage Current	IO(LKG)	-	-	0.01	1	uA	
TOTAL STANDBY CURRENT							
Supply Current	Icc	VCC = 20V , VCC1 = 5V	-	3	5	mΑ	

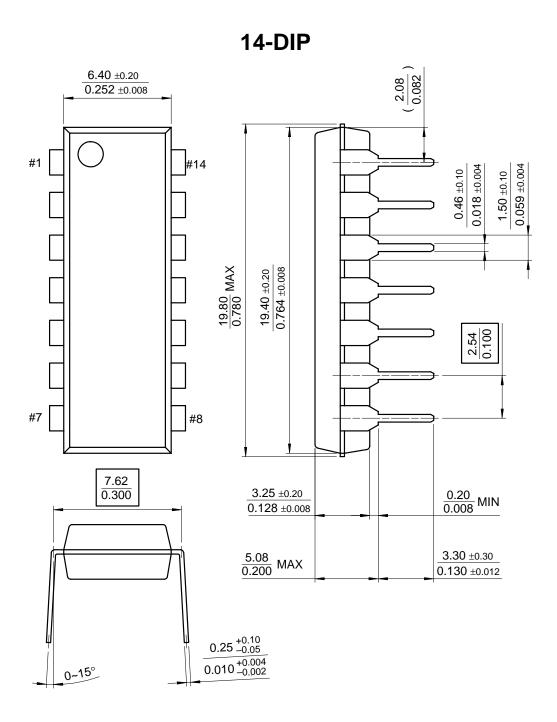
#### Note:

<sup>1.</sup> These parameters, although guaranteed, are not 100% tested in production

## **Mechanical Dimensions**

## **Package**

## **Dimensions in millimeters**



# **Ordering Information**

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

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