FUDAN MICROELECTRONICS

复旦微电子

FM497 Hall Effect Pickup Ignition Controller

Specification

May. 2008

Product Overview

Description

The FM497 is an integrated electronic ignition controller for breakerless ignition systems using Hall effect sensors. The device drives an NPN external darlington to control the coil current providing the required stored energy with low dissipation. This circuit has many advantages: low power dissipation, stable, high ignition energy, self-protection, widely application conditions, long using life, etc. It's compatible for overseas products of the same class.

Features

- **Direct driving of the external power darlington**
- **Coil current charging angle (dwell) control**
- **Programme coil current peak limitation**
- **Programmable dwell recovery time when 94% nominal current not reached**
- **RPM output**
- **Permanent Conduction protection**
- **Overvoltage protection for external darlington**
- **Internal supply zener**
- **Reverse battery protection**

Pin Functions

Pin	Function	Pin	Function
1	GND	9	Max Condition Time
2	Signal GND	10	Dwell Control
3	Power Supply	11	Dwell Control
4	N.C	12	Bias Current
5	Hall Effect Input	13	Current Sensing
6	RPM Output	14	Driver Emitter Output
7	AUX Zener	15	Overvoltage Limit
8	Recovery Time	16	Driver Collector Input

Table 1-1 FM497 Pin Functions

Characteristics

Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
I_3	D.C. Supply current Transient Supply Current (fall time constant = 100ms)	200 800	mA
V_3	Supply Voltage	INt Limited to Vz3	
V_6	RPM Voltage	28	V
I_{16}	D.C. Driver Collector Current Pulse (t <= 3ms)	300 600	mA
I_7	Auxiliary Zener Current	40	mA
I_{15}	D.C. Overvoltage Zener Current Pulse	15 35	mA
V_R	Reverse Battery Voltage if Application Circuit of Fig. is used	-16	V
T_{stg}	Junction and Storage Temperature Range	-55~+150	°C
P_{tot}	Power Dissipation (T_{amb}=90°C)	0.65	W

Table 2-1 FM497 Absolute Maximum Ratings

Electrical Characteristic

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_3	Operating Supply voltage		3.5			V
I_3	Supply Current	V_3=6V V_3=4V	5 7	18	25 13	mA mA
V_S	Voltage Supply				28	V
V_5	Input Voltage	Low Status High Status	 2.5		0.6	V V
I_5	Input Current	V_5=Low	-400		-50	μA
V_{16-14}	Darlington Driver Sat. Current	I_{14}=50mA I_{14}=180mA			0.5 0.9	V V
I_{11C}	Cw Charge Current	Vs=5.3-16V V_{11}=0.5V T=10-33ms	-11.0	-9.3	-7.8	μA
I_{11D}	Cw Discharge Current	Vs=5.3-16V V_{11}=0.5V T=10-33ms	0.5	0.7	1.0	μA
V_{6SAT}	RPM Output	I_6=18.5mA I_6=25mA			0.5 0.8	V V
V_{12}	Reference Voltage		1.20	1.25	1.30	V

Table 2-2 FM497 Electrical Characteristics

Application Circuit

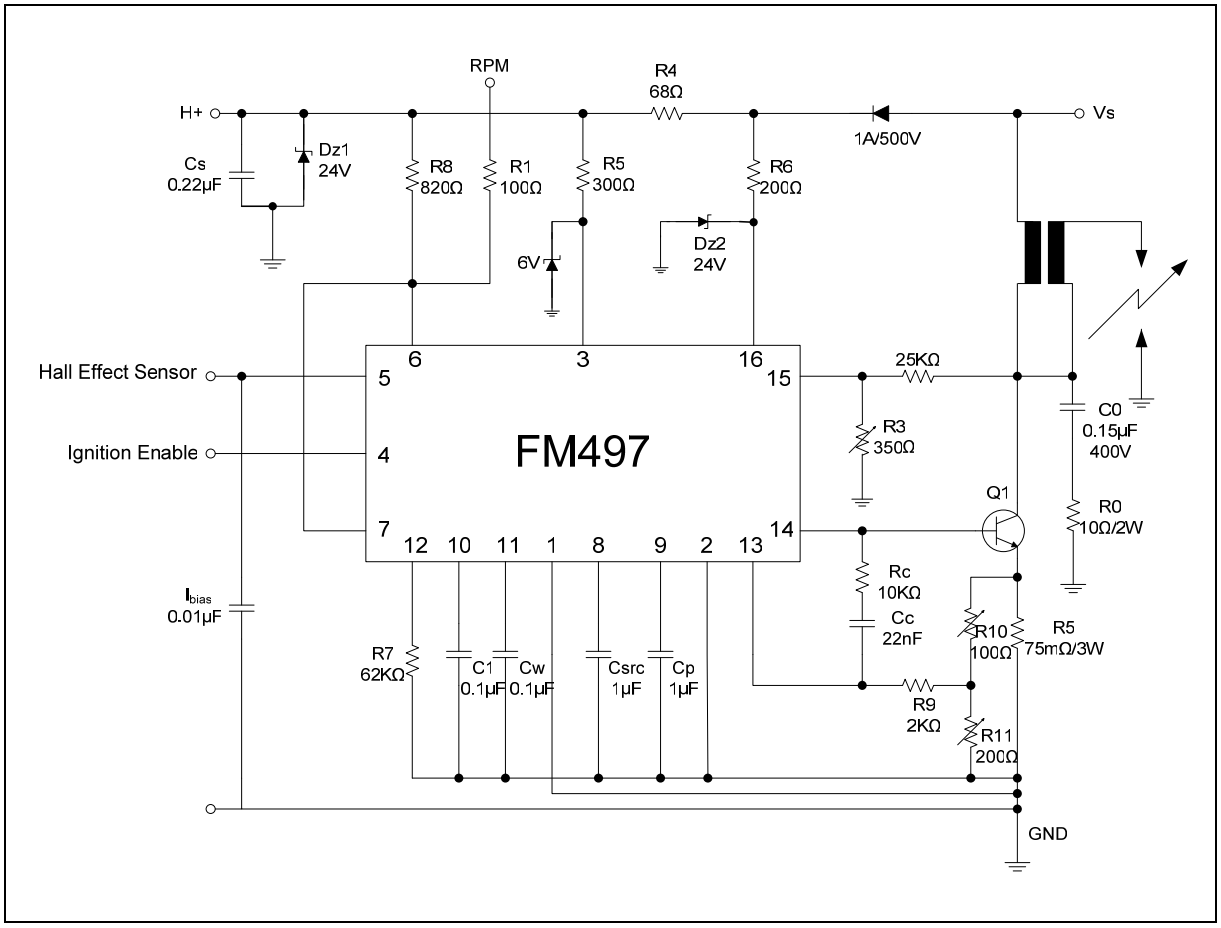

Figure 3-1 FM497 Application Circuit

Revision History

Version	Publication date	Pages	Paragraph or Illustration	Revise Description
1.0	Mar. 2001	2		Initial Release.
2.0	Oct. 2007	7		Updated Format.
2.1	May. 2008	7	Sales and service	Updated the address of HK office.

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