FUDAN MICROELECTRONICS

复旦微电子

FM484 Magnetic Pickup Ignition Controller

Specification

May. 2008

Product Overview

Description

The FM484 is an integrated circuit designed for use with an NPN darlington in breakerless ignition systems with magnetic pickup sensors and high energy ignition coils. For the special design which has two input pins from the pickup, it can be used with a wide variety of magnetic 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 darlington**
- **Operates with a wide range of magnetic pickup types**
- **Charging angle (dwell) control**
- **Coil current peak limitation**
- **Continuous coil current protection**
- **Tachometer signal output**
- **External darlington overvoltage protection**
- **Load dump and reverse battery protection**
- **Possibility of spark point delaying antiknock system**
- **High quality and stability for using advanced 3μm bipolar process**

Pin Functions

Pin	Functions	Pin	Functions
1	Current Sensing	9	Power-on Input
2	Pickup Input	10	Signal GND
3	Permanent Conduct Protection Timer	11	Power Supply
4	Permanent Conduct Protection Inhibit	12	Dump Protection
5	RPM Output	13	GND
6	Dwell Time Adjust	14	Driver Collector Input
7	Dwell Timer	15	Overvoltage Limit
8	Zero Crossing Input	16	Driving Stage Output

Table 1-1 FM484 Pin Functions

Characteristics

Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_R	Reverse Battery Voltage	-14	V
T_{stg}	Storage Temperature Range	-55~+150	°C
P_{tot}	Power Dissipation (T_{amb}=+90°C)	0.75	W

Table 2-1 FM484 Absolute Maximum Ratings

Electrical Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_S	Operating Supply Voltage	-	6	-	28	V
V_{IS}	Input Stage Voltage (pin 2 with 10KΩ resistor)	-	160	200	240	mV
V_{ZC}	Zero Crossing Thresh. Voltage (pin 8)	-	3	20	60	mV
V_{CEsat}	Series Darlington Driver Saturation Voltage ($V_{pin\ 14\text{-}16}$)	I14=50mA I14=180mA	- -	- 0.4	0.6 1.0	V V
I_{7C}	Cdwell Charge Current	At Low RPM Vin=0.5V	0.7	-	3	μA
I_{7D}	Cdwell Discharge Current	At Low RPM Vin=0.5V	7	-	30	μA
I_{7C}	Cdwell Charge Current	At High RPM Vin=9V	8	-	33	μA
I_{7D}	Cdwell Discharge Current	At High RPM Vin=9V	13	-	44	μA
V_{CH}	Tachometer Signal Output Low Voltage. (pin5)	ON: I_{sink} =0.5mA	-	-	0.7	V
I_{CH}	Output Leakage (pin5)	OFF: V_{pin5}=5V	-	-	10	μA
V_{OVZ}	External Darlington Overvoltage Protection Zener Voltage	T_{amb}=+25°C I_{pin15}=5~15mA	25 -	- -	35 -	V
V_Z	Zener Volt. (pin 11)	I_{pin11}=140mA	6.5	-	8.8	V
V_{pin3} I_3	Threshold Voltage Output Current	T_{amb}=+25°C	0.84 -	-	4 3	V μA

Table 2-2 FM484 Electrical Characteristics

Application Circuit

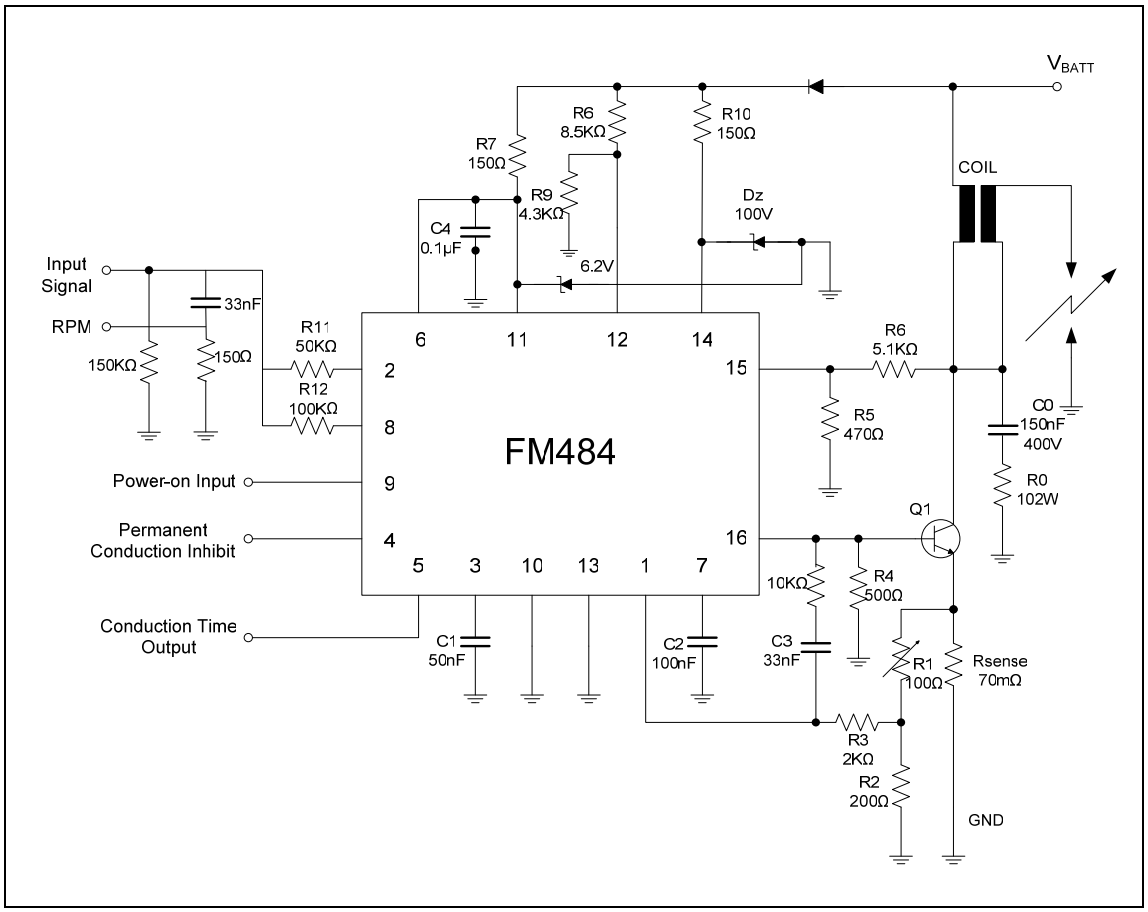

Figure 3-1 FM484 Application Circuit

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.

Sales and Service

Shanghai Fudan Microelectronics Co., Ltd.
Address: Bldg No.4, 127 Guotai Rd,
Shanghai City China.
Postcode: 200433
Tel: (86-21) 6565 5050
Fax: (86-21) 6565 9115

Shanghai Fudan Microelectronics (HK) Co., Ltd.
Address: Unit 506, 5/F., East Ocean Centre, 98 Granville Road,
Tsimshatsui East, Kowloon, Hong Kong
Tel: (852) 2116 3288　2116 3338
Fax: (852) 2116 0882

Beijing Office
Address: Room.1208, Bldg C,
Zhongguancun Science and Technology Development Edifice,
34 zhongguancun Street (South)
Haidian District, Beijing City, China.
Tel: (86-10) 6212 0682　6213 9558
Fax: (86-10) 6212 0681

Shenzhen Office
Address: Room.1301, Century Bldg, Shengtingyuan Hotel,
Huaqiang Rd (North)
Tel: (86-755) 8335 1011　8335 0911
Fax: (86-755) 8335 9011

Web Site：http://www.fmsh.com/