

# M62235P/FP

Switching power supply secondary side control

## Description

M62235 is a monolithic integrated circuit designed for switching power supply secondary side control.

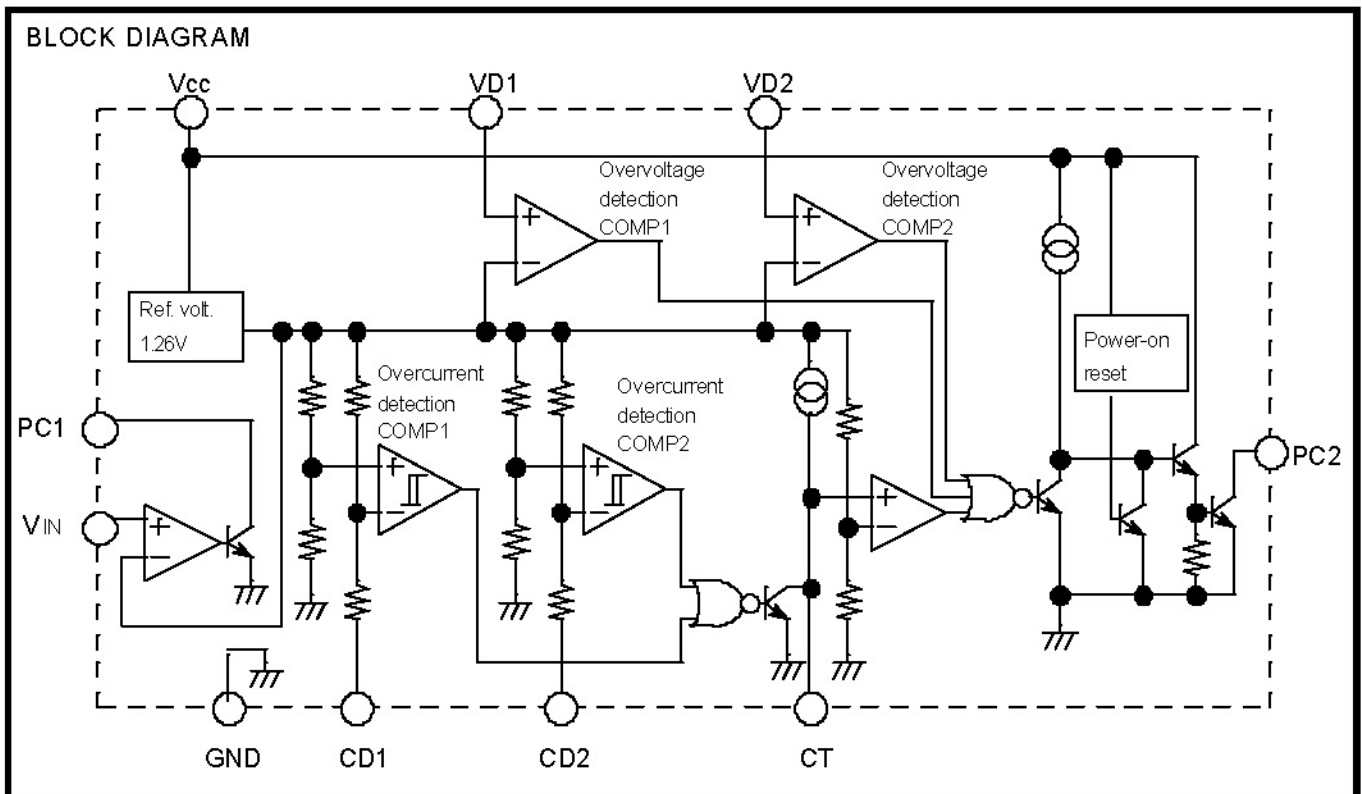
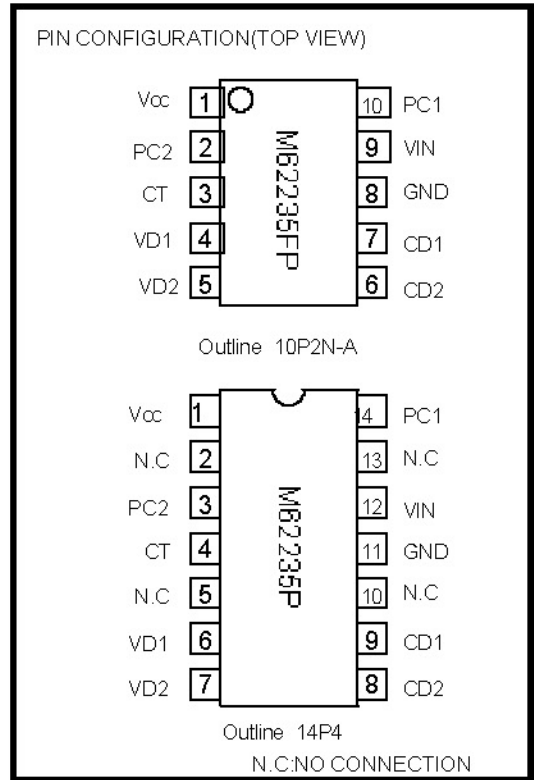
Having one detection circuit to monitor and feedback 1 system output voltage to the primary side and the other detection circuit to output abnormal signal by detecting 2 system output overvoltage and 2 system output overcurrent, the number of external components on the secondary side can be reduced. Overcurrent detection circuit has built-in delay circuit with external capacitor to prevent erroneous overcurrent detection by the instant output shortcircuit. Furthermore, compact design is made easy by 10 pin small SOP package.

## Features

- \*1 system output voltage detection circuit(output voltage can be set arbitrary.)
- \*2 system overvoltage detection circuit built-in(without delay circuit)
- \*2 system overcurrent detection circuit built-in(with delay circuit)
- \*PC output current——10mA(max.)

## Application

Flyback regulator



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**Terminal description**

terminal No.	symbol	Description on functions
1 (1)	Vcc	terminal for power supply
2 (3)	PC2	output terminal for overvoltage/overcurrent detection signal(open collector output)
3 (4)	CT	delay time setting terminal for overcurrent detection(tpd=400mS@47uF)
4 (6)	VD1	overvoltage detection terminal(detection vplage:1.26V)
5 (7)	VD2	overvoltage detection terminal(detection vplage:1.26V)
6 (8)	CD2	overcurrent detection terminal(detection vplage:-185mV)
7 (9)	CD1	overcurrent detection terminal(detection vplage:-155mV)
8 (11)	GND	GND terminal
9 (12)	VIN	input terminal for voltage control amp.
10 (14)	PC1	output terminal for voltage control amp.(open collector output)

**ABSOLUTE MAXIMUM RATINGS(Ta=25°C,unless otherwise noted.)**

Symbol	Parameter	Condition	Ratings	Unit	
Vcc	supply voltage		25	V	
IPC	PC1,2 terminal current		10	mA	
VPC	PC1,2 terminal voltage		25	V	
VVD	VD1,2 terminal voltage		25	V	
VCD	CD1,2 terminal voltage		-0.3 ~ 1.0	V	
Pd	power dissipation	10 pin SOP	440	mW	
		14 pin DIP	1100		
Kq	thermal derating ratio	Ta>25°C	10 pin SOP	4.4	mW/°C
			14 pin DIP	11.0	
Topr	operating temperature		-30 ~ +85	°C	
Tstg	storage temperature		-40 ~ +125	°C	

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**ELECTRICAL CHARACTERISTICS(Ta=25°C, Vcc=5V, unless otherwise noted.)**

BLOCK	Symbol	Parameter	Test conditions	Limits			Unit
				Min.	Typ.	Max.	
	Vcc	supply voltage range		5	12	24	V
	Icc	circuit current			5		mA
	VREF	reference voltage		1.20	1.26	1.32	V
	VREF/ΔT	ref. voltage temp. coefficient			0.01		%/°C
	Reg-in	ref. volt. fluctuation over Vcc	Vcc=5V~24V		5	12	mV
	IinVIN	control amp. input bias current		-1.0		1.0	μA
	VsatPC1	control amp.output sat. volt.	IP.C1=5mA		0.3		V
	VDET1	overvoltage detection volt.1	12V system	1.16	1.26	1.36	V
	IinVD1	input current1	12V system	-1.0		1.0	μA
	VDET2	overvoltage detection volt.2	3.3V system	1.16	1.26	1.36	V
	IinVD2	input current2	3.3V system	-1.0		1.0	μA
	IDET1	overcurrent detection volt.1	12V system	-163	-155	-147	mV
	IinCD1	input current1	12V VCD1=155mV		-100		μA
	IDET2	overcurrent detection volt.2	3.3V system	-195	-185	-175	mV
	IinCD2	input current2	3.3V VCD2=185mV		-100		μA
	tdCT	delay time	CT=47μF	300	400	500	msec
	VsatPC2	PC terminal output sat. volt.	IP.C2=5mA		0.3		V

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## APPLICATION CIRCUIT

