SPECIFICATION

Device Name : Current Mode PWM Controller

Type Name : F A 1 3 8 4 2 N

Spec. No. :

Fuji Electric Co., Ltd.
Matsumoto Factory

	DATE	NAME	APPROVED		Fuji Electric Co., Ltd.
DRAWN					
CHECKED				DWG.NO.	

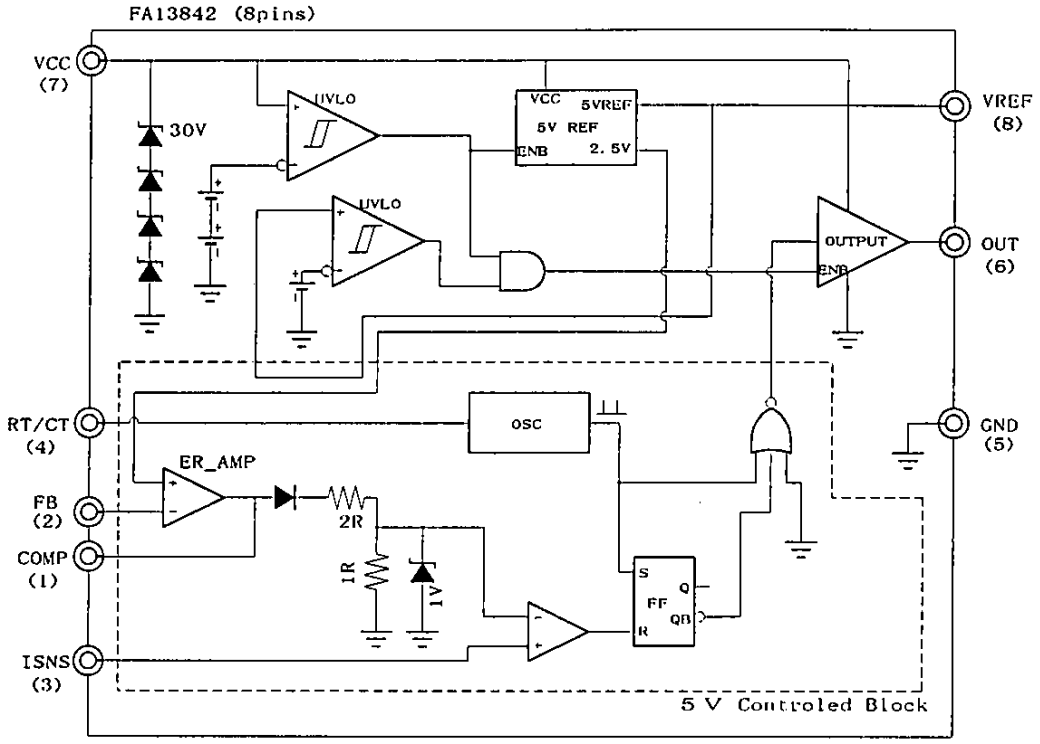
1. Type Name FA13842N

2. Function Current Mode PWM Controller

3. Process CMOS IC

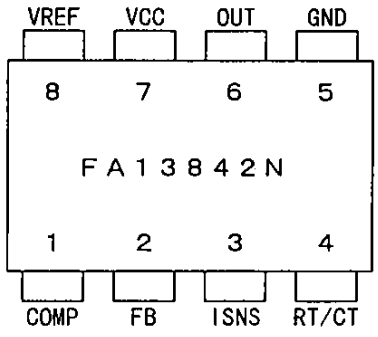
4. Outline SOP-8(8pin plastic mold small out-line package)

5. Block Diagram



6. Pin Assignment

Pin No.	Pin Name	Pin Function
1	COMP	Compensation
2	FB	Feedback (Input)
3	ISNS	Current Sense (Input)
4	RT/CT	Oscillator control
5	GND	Ground
6	OUT	Output
7	VCC	Power Supply
8	VREF	5V Reference Output



7. ABSOLUTE MAXIMUM RATINGS

Parameter	Conditions	Ratings	Units
Supply Voltage	Low Impedance Source	28	V
	Zener Clamp (at Icc < 10mA)	Self Limiting	V
Zener Current		10	mA
Output Peak Current	Pch Source Current	400	mA
	Nch Sink Current	1	A
Analog Input Voltage	FB,ISNS	-0.3 ~ 5.3	V
Error-amp Sink Current		10	mA
Power Dissipation	at Ta < 50°C (SOP-8)	400	mW
Package Thermal Resistance θ j-a	between Junction and Ambient	250	°C/W
Operating Junction Temperature		150	°C
Operating Ambient Temperature		-25 ~ 85	°C
Storage Temperature		-40 ~ 150	°C

8. RECOMMENDED OPERATING CONDITIONS

Parameter	MIN.	MAX.	Units
Supply Voltage	10	25	V
RT Resistor	2.0	100	k Ω
CT Capacitor	0.47	10	nF
Operating Frequency	10	500	kHz

9. ELECTRICAL SPECIFICATIONS

(Unless otherwise standard, these specifications apply for VCC=15V, RT=10k, CT=3.3nF, Ta=25℃)

Reference Section

Parameter	Conditions	MIN.	TYP.	MAX.	Units
Output Voltage	Tj=25℃, IL=1mA	4.75	5.00	5.25	V
Line Regulation	VCC=10～25V		±3	±20	mV
Load Regulation	IL=0～20mA		±3	±25	mV
Temp. Stability	Ta=-25～85℃		±0.3		mV/℃
Output Short Current	Tj=25℃		60		mA

Oscillator Section

Parameter	Conditions	MIN.	TYP.	MAX.	Units
Frequency	Tj=25℃	49	52	55	kHz
	Tj=-25～85℃	47		57	kHz
Voltage Stability	VCC=10～25V		±0.25	±1	%
Temp. Stability	Ta=-25～85℃		-0.07		%/℃
Amplitude	Tj=25℃		1.6		V
Discharge Current	Tj=25℃		8.4		mA

Error Amp Section

Parameter	Conditions	MIN.	TYP.	MAX.	Units
Input Voltage	COMP=2.5V, Tj=25℃	2.4	2.5	2.6	V
Input Leak Current				±2	uA
Open-loop Gain		65	72		dB
Unity Gain Bandwidth		0.7	1		MHz
Output Source Current	FB=2.3V, COMP=0V	-0.8	-1.0		mA
Output Sink Current	FB=2.7V, COMP=1V	2	15		mA
Output Voltage	FB=2.3V RL=15k to GND	4.0	4.5		V
	FB=2.7V RL=15k to VREF		80	500	mV

Current Sense Section

Parameter	Conditions	MIN.	TYP.	MAX.	Units
Gain	Tj=25℃	2.85	3	3.15	V/V
Maximum Input Signal	FB=0V	0.9	1.0	1.1	V
Input Bias Current			-1	-5	uA
Delay to Output	Tj=25℃, ISNS→OUT		150	300	ns

Output Section

Parameter	Conditions	MIN.	TYP.	MAX.	Units
Output High Level	Isource=-20mA	14.5	14.75		V
	Isource=-100mA	12	13.5		V
Output Low Level	Isink=20mA		0.15	0.3	V
	Isink=200mA		1.5	3	V
Rise Time	CL=1nF, Tj=25°C		40	150	ns
Fall Time	CL=1nF, Tj=25°C		20	150	ns

Under-Voltage Lockout Section

Parameter	Conditions	MIN.	TYP.	MAX.	Units
Start Threshold		15.5	16.5	17.5	V
Min. Operating Voltage		8	9	10	V
Hysteresis			7.5		V

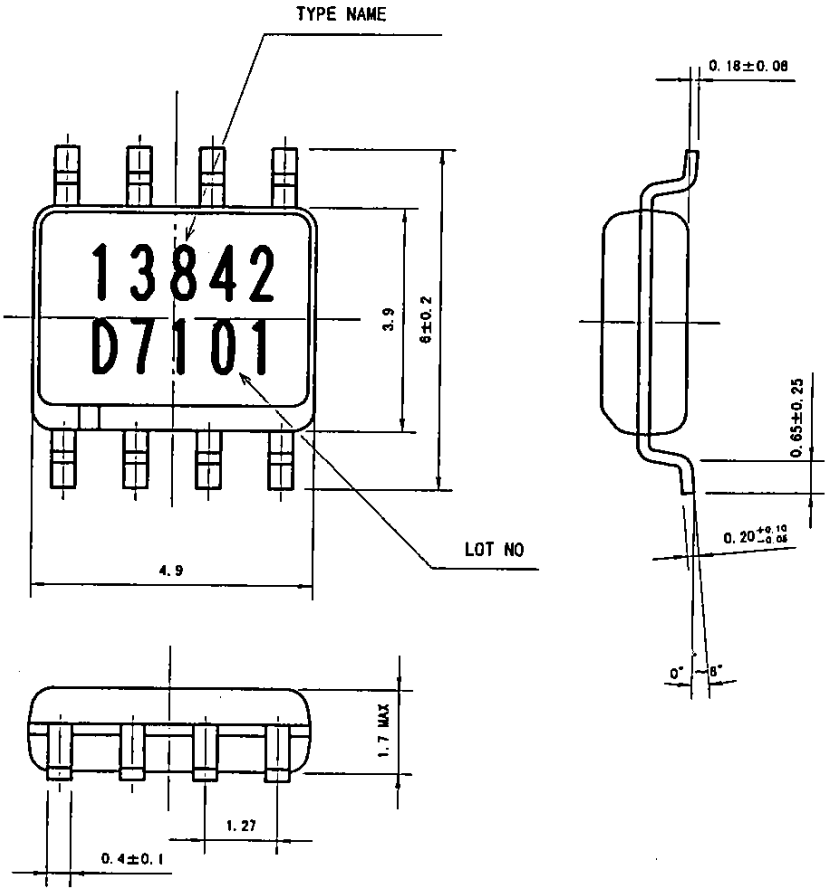
PWM Section

Parameter	Conditions	MIN.	TYP.	MAX.	Units
Maximum Duty Cycle		94	96	98	%
Minimum Duty Cycle	FB=5V, COMP=open			0	%

Overall Section

Parameter	Conditions	MIN.	TYP.	MAX.	Units
Standby Current	VCC=14V			2	uA
Start-up Current	VCC=Start Threshold		12	30	uA
Operating Current			3	5	mA
Zener Voltage (VCC)	ICC=5mA	28	30	34	V

11. Outline Diagram (SOP-8 pins)



Contents of Lot No.

D 7 1 01

- 01 — Serial number
- 1 — Monthly No. (October: O, November: N, December: D)
- 7 — The end of A. D.
- D — Discrimination Symbol (Fixed)

Fuji Electric Co., Ltd.	DWG.NO.	