

SPECIFICATION

Device Name : Current Mode PWM Controller

Type Name : FA13844N

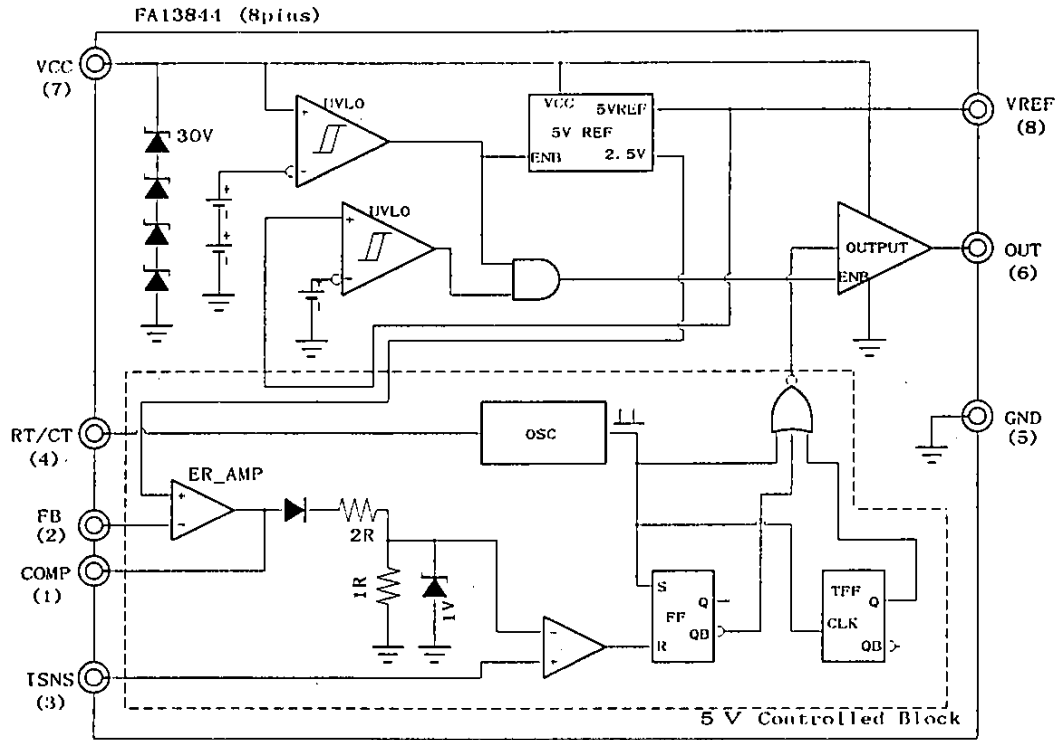
Spec. No. :

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Matsumoto Factory

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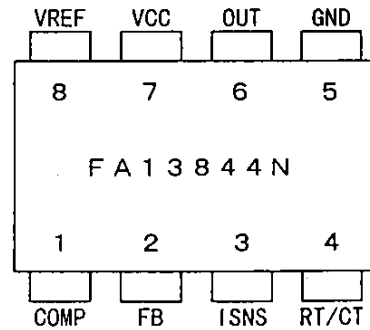
1. Type Name FA13844N
2. Function Current Mode PWM Controller
3. Process CMOS IC
4. Outline SOP-8(8pin plastic mold small out-line package)
5. Block Diagram



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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 $I_{CC} < 10\text{mA}$)	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 $T_a < 50^\circ\text{C}$ (SOP-8)	400	mW
Package Thermal Resistance θ_{j-a}	between junction and Ambient	250	$^\circ\text{C}/\text{W}$
Operating Junction Temperature		150	$^\circ\text{C}$
Operating Ambient Temperature		-25 ~ 85	$^\circ\text{C}$
Storage Temperature		-40 ~ 150	$^\circ\text{C}$

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

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9. ELECTRICAL SPECIFICATIONS

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

Reference Section

Parameter	Conditions	MIN.	TYP.	MAX.	Units
Output Voltage	Tj=25°C, 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°C		±0.3		mV/°C
Output Short Current	Tj=25°C		60		mA

Oscillator Section

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

Error Amp Section

Parameter	Conditions	MIN.	TYP.	MAX.	Units
Input Voltage	COMP=2.5V, Tj=25°C	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°C	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°C, ISNS→OUT		150	300	ns

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Output Section

Parameter	Conditions	MIN.	TYP.	MAX.	Units
Output High Level	I _{source} =-20mA	14.5	14.75		V
	I _{source} =-100mA	12	13.5		V
Output Low Level	I _{sink} =20mA		0.15	0.3	V
	I _{sink} =200mA		1.5	3	V
Rise Time	CL=1nF, T _j =25°C		40	150	ns
Fall Time	CL=1nF, T _j =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		47	48	50	%
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

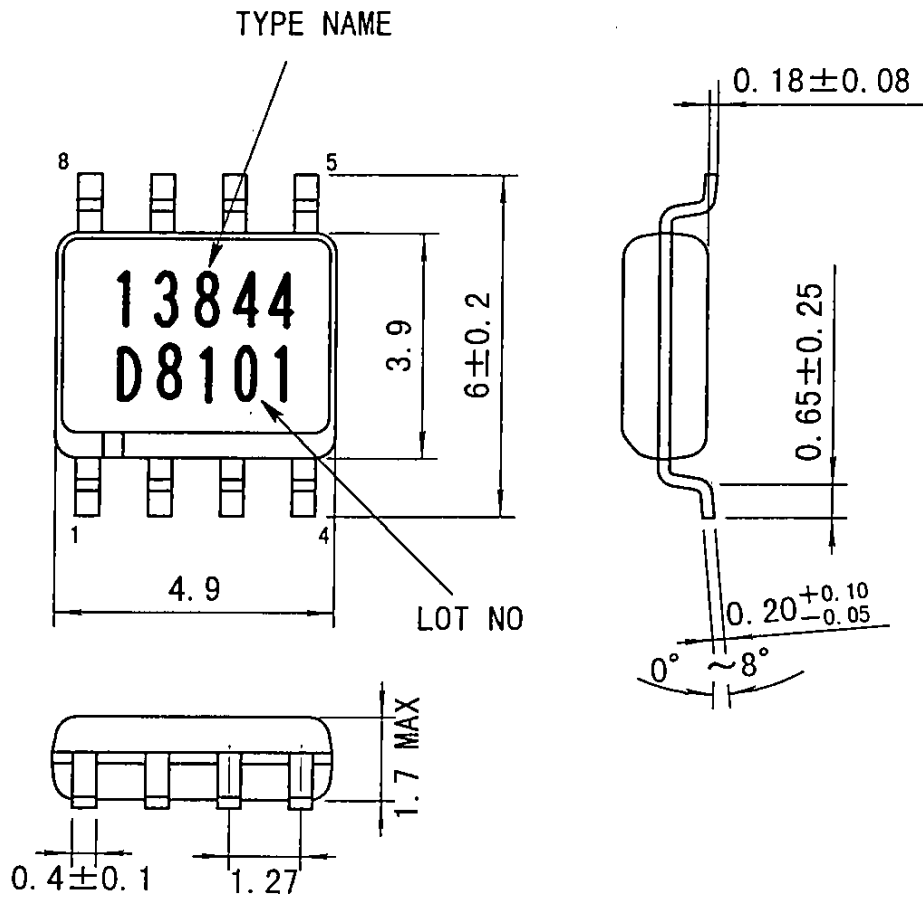
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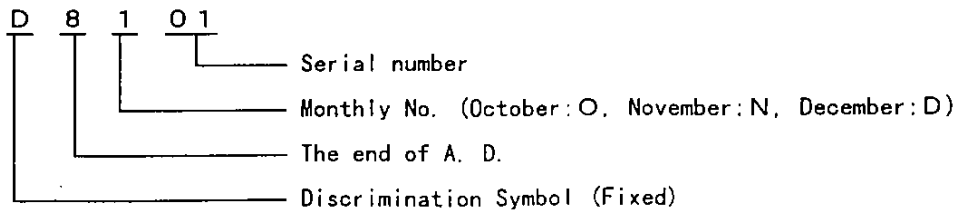
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11. Outline Diagram (SOP-8 pins)



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