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NTE7117
Integrated Circuit
Switched–Mode Power Supply Controller

Description:

The NTE7117 is a control circuit in an 8–Lead DIP type package designed for use in switched–mode power supplies. It contains an internal temperature–compensated supply, PWM, sawtooth oscillator, over–current sense latch, and output stage. This device is intended for low cost SMPS applications where extensive housekeeping functions are not required.

Features:

- Pulse Width Modulator
- Current Limiting (Cycle–by–Cycle)
- Sawtooth Generator
- Stabilized Power Supply
- Double–Pulse Protection
- Internal Temperature–Compensated Reference

Applications:

- Switch–Mode Power Supplies
- DC Motor Controller Inverter
- DC/DC Converter

Absolute Maximum Ratings:

Supply Voltage, V_{CC} 18V
Output Current, I_{OUT} 40mA
Output Duty Cycle 98%
Maximum Total Power Dissipation, P_D 750mW
Operating Temperature Range, T_A . . . . . 0° to +70°C

DC Electrical Characteristics: (V_{CC} = 12V, T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reference Section						
Internal Reference Voltage	V_{REF}	T_A = +25°C	3.69	3.75	3.84	V
		T_A = 0° to +70°C	3.66	–	3.87	V
Internal Zener Reference	V_Z	I_L = 7mA	7.8	8.2	8.8	V
Temperature Coefficient of V_{REF}			–	±100	–	ppm/°C
Temperature Coefficient of V_Z			–	±100	–	ppm/°C
Oscillator Section						
Frequency Range	f	T_A = 0° to +70°C	50	–	100k	Hz
Initial Accuracy		R_T and C_T Constant	–	5	–	%
Duty Cycle Range		f_o = 20kHz	0	–	98	%

DC Electrical Characteristics (Cont'd): (V_{CC} = 12V, T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Current Limiting							
Input Current	I_{IN}	Pin6 = 250mV	T_A = +25°C	–	–2	–10	µA
			T_A = 0° to +70°C	–	–	–20	µA
Single Pulse Inhibit Delay		Inhibit Delay Time for 20% Overdrive	I_{OUT} = 20mA	–	0.88	1.10	µs
			I_{OUT} = 40mA	–	0.7	0.8	µs
Current Limit Trip Level				0.4	0.5	0.6	V
Error Amplifier							
Open–Loop Gain				–	60	–	dB
Feedback Resistor				10k	–	–	Ω
Small–Signal Bandwidth	BW			–	3	–	MHz
Output Voltage Swing, High	V_{OH}			6.2	–	–	V
Output Voltage Swing, Low	V_{OL}			–	–	0.7	V
Output Stage							
Output Current	I_{OUT}	T_A = 0° to +70°C		20	–	–	mA
Saturation Voltage	V_{CE}	T_A = 0° to +70°C	I_C = 20mA	–	–	0.4	V
			I_C = 40mA	–	–	0.5	V
Supply Voltage/Current							
Supply Current	I_{CC}	I_Z = 0, Voltage–Fed	T_A = +25°C	–	–	10	mA
			T_A = 0° to +70°C	–	–	13	mA
Supply Voltage	V_{CC}	I_S = 10mA, Current–Fed		19	21	24	V
		I_{CC} = 30mA, Current–Fed		20	–	30	V
Low Supply Protection							
Pin1 Threshold				8.0	9.0	10.5	V

Pin Connection Diagram



