TDA1060N

CONTROL CIRCUIT FOR SMPS

GENERAL DESCRIPTION

The TDA1060N is a bipolar integrated circuit intended for the control of a switched-mode power supply.

QUICK REFERENCE DATA

Symbol	Ratings	Value	Unit
V_{CC}	Supply voltage (voltage source)	< 18	V
I_{CC}	Supply current (current source)	<30	mA
$-I_{14}$	Output current	<40	mA
I_{15}	Output current	<40	mA
T_{amb}	Operating ambiant temperature range	-25 to 85	℃

FUNCTIONAL DESCRIPTION

The TDA1060N contains the control loop for a fixed-frequency pulse-duration regulated SMPS. The device works as follows. The output voltage Vo of the SMPS is sensed via a feedback network and compared with an internal reference voltage Vref. Any difference between Vo and Vref is amplified and fed to a pulse-width modulator (PWM), where it is compared with the instantaneous level of a ramp waveform (sawtooth) from an oscillator. The output from the PWM is a rectangular waveform synchronized with the oscillator waveform ; its duty factor depends on the difference between Vo and Vref. This signal drives the base of the SMPS power switching transistor so that its conduction period and hence the amount of energy transferred from the input to the output of the SMPS is controlled, resulting in a constant output voltage.

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ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit
V_{CC}	Supply voltage (voltage source)	-0.5 to 18	V
I_{CC}	Supply current (current source)	<30	mA
V_{14}	Emitter output voltage range	0 to 5	V
V_{15}	Collector output voltage range	0 to V_{CC}	V
$-I_{14}$	Output current	<40	mA
I_{15}	Output current	<40	mA
T_{stg}	Storage temperature range	-55 to 150	℃
T_{amb}	Operating ambiant temperature range	-25 to 85	℃
P_{tot}	Power dissipation (-25 to 60℃)	<0.9	W

CHARACTERISTICS

T_{amb} range

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
I_{CC}	Supply Current	$-I_7$=300µA, $U_3=U_5=U_6=U_{14}=0$ U_8=1V, $R_{2/12}$=12.6 kΩ	-	-	13	mA
$-I_Z$	Output Current		-	-	5	mA
V_{ref}	Internal Reference Voltage	Measured at pins 3 and 4 interconnected and grounded T_{amb}=25℃	3.42	3.72	4.03	V
V_{15-14}	Collector Output Voltage	At V_{14}=0V ;I_{15}=40mA	-	-	400	mV

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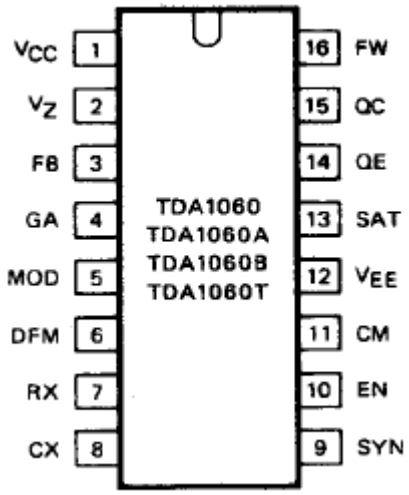
PINNING

Pin	Symbol	Descritions
1	V_{CC}	Positive Supply Connection
2	V_Z	Stabilized Voltage Output
3	FB	Feedback Input
4	GA	Gain Adjustement Output
5	MOD	Modulation Input
6	DFM	Maximum Duty Factor Input
7	RX	External Resistor Connection
8	CX	External Capacitor Connection
9	SYN	Synchronization Input
10	EN	ENABLE Input
11	CM	Overcurrent Protection Input
12	V_{EE}	Common
13	SAT	Core Saturation And Overvoltage Protection Input
14	Q_E	Emitter Output
15	QC	Collrctor Output
16	FW	Feed-Forward Input



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