



## 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 ambient temperature range	-25 to 85	°C

#### FUNCTIONAL DESCRIPTION

The TDA1060N contains the control loop for a fixed-frequency pulse-duration regulated SMPS. The device works as follows. The output voltage  $V_o$  of the SMPS is sensed via a feedback network and compared with an internal reference voltage  $V_{ref}$ . Any difference between  $V_o$  and  $V_{ref}$  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  $V_o$  and  $V_{ref}$ . 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.

## TDA1060N

### 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	°C
$T_{amb}$	Operating ambient temperature range	-25 to 85	°C
$P_{tot}$	Power dissipation (-25 to 60°C)	<0.9	W

### CHARACTERISTICS

$T_{amb}$  range

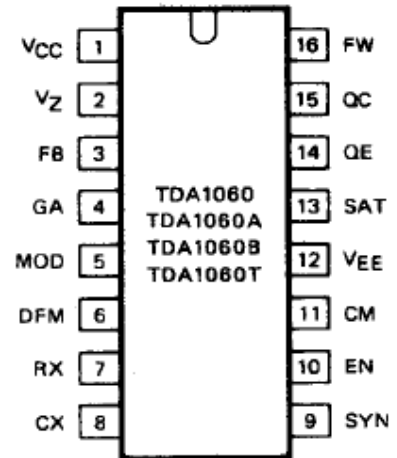
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$I_{CC}$	Supply Current	$-I_7=300\mu A$ , $U_3=U_5=U_6=U_{14}=0$ $U_8=1V$ , $R_{2/12}=12.6 k\Omega$	-	-	13	mA
$-I_z$	Output Current		-	-	5	mA
$V_{ref}$	Internal Reference Voltage	Measured at pins 3 and 4 interconnected and grounded $T_{amb}=25^\circ C$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



## TDA1060N

### PINNING

Pin	Symbol	Descriptions
1	V <sub>CC</sub>	Positive Supply Connection
2	V <sub>Z</sub>	Stabilized Voltage Output
3	FB	Feedback Input
4	GA	Gain Adjustment 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 <sub>EE</sub>	Common
13	SAT	Core Saturation And Overvoltage Protection Input
14	Q <sub>E</sub>	Emitter Output
15	QC	Collrctor Output
16	FW	Feed-Forward Input



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