

**CONTROL I.C. FOR SWITCH MODE POWER SUPPLY  
AND FOR LINE DEFLECTION**

ADVANCE DATA

**SECONDARY SIDE SWITCH MODE POWER SUPPLY**

- INTERNAL PWM SIGNAL GENERATOR
- SYNCHRONIZATION OR FREE RUNNING MODES
- SOFT START
- REFERENCE VOLTAGE ADJUSTABLE BY I<sup>2</sup>C BUS
- WIDE FREQUENCY RANGE
- MINIMUM OUTPUT PULSE WIDTH 2.4µs
- STAND-BY MODE, COMMANDED STBY INPUT OR I<sup>2</sup>C BUS

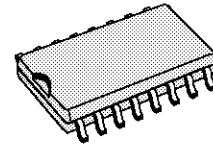
**HORIZONTAL DEFLECTION CONTROLLER**

- INTERNAL PWM SIGNAL GENERATOR
- SYNCHRONIZATION OR FREE RUNNING MODES
- SOFT START
- PERMANENT CONTROL OF DUTY CYCLE TO SAFE THE POWER STAGE
- CHOICE (BY I<sup>2</sup>C BUS) OF THE ACTIVE EDGE OF THE INPUT SIGNAL
- ON/OFF FUNCTION COMMANDED BY I<sup>2</sup>C BUS
- STAND-BY MODE COMMANDED BY STBY INPUT AND BY I<sup>2</sup>C BUS

**DESCRIPTION**

The STV5180 is designed to work in the secondary

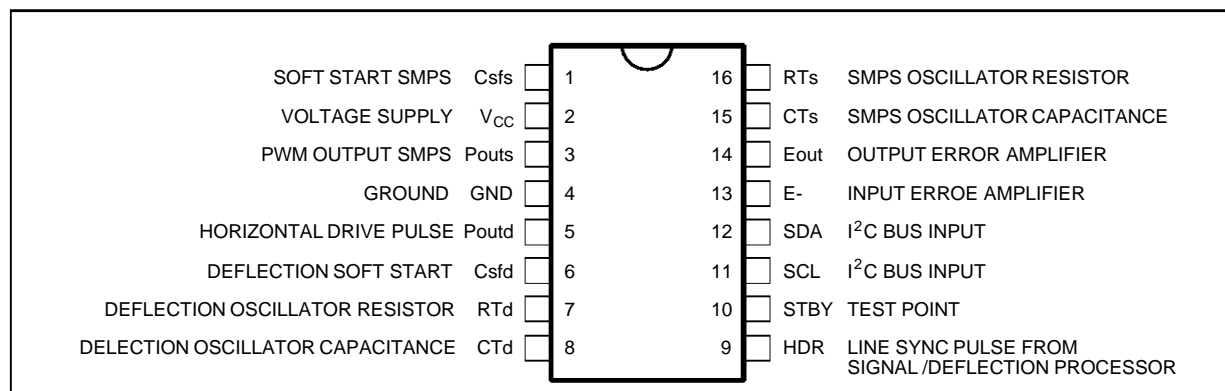
part of an off-line SMPS, sending pulses to the slaved TEA2260/61 which are located on the primary side of the main transformer. Dedicated for TV set applications, it contains also a line deflection control circuit to insure a high level of safety for the power deflection stage. These two functions are commanded by I<sup>2</sup>C bus.



**SO16 WIDE**  
(Plastic Micropackage)

**ORDER CODE : STV5180**

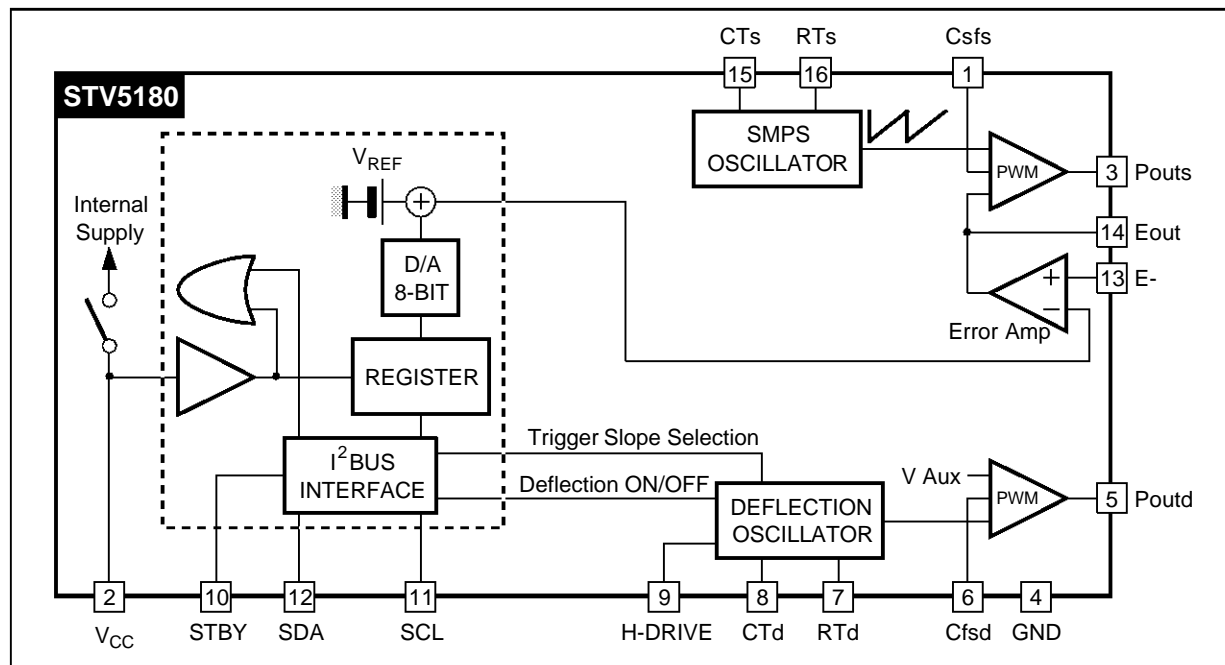
**PIN CONNECTIONS**



5180-01LEPS

# STV5180

## BLOCK DIAGRAM



5180-02.EPS

## ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V <sub>CC</sub>	Supply Voltage	6	V
T <sub>j</sub>	Operating Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature Range	0, + 70	°C

5180-01.TBL

## THERMAL DATA

Symbol	Parameter	Value	Unit
R <sub>th (j-a)</sub>	Junction-ambient Thermal Resistance	75	°C/W

5180-02.TBL

## RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min.	Typ.	Max.	Unit
V <sub>CC</sub>	Power Supply Voltage	4.5	5		V
RT	Timing Resistor		82		kΩ
CT	Timing Capacitor		1		nF
F <sub>osc</sub>	Oscillator Frequency		16		kHz
T <sub>amb</sub>	Operating Ambient Temperature	0		70	°C
I <sub>SOURCE</sub>	Output Current (Pin 3 and Pin 5) V <sub>OUT</sub> = 2.5V	30		70	mA

5180-03.TBL

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$ ,  $V_{CC} = 5\text{V}$ )

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
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## SMPS OSCILLATOR

$T_1$	Free Period	$RT = 82\text{k}\Omega$ ; $CT = 1\text{nF}$	57	60	63.5	$\mu\text{S}$
$T_{\text{ONmin}}$	Minimum Duty Cycle	$RT = 82\text{k}\Omega$ ; $CT = 1\text{nF}$	1.8	2.4	3	$\mu\text{S}$
$D_{\text{ONmax}}$	Maximum Duty Cycle	$RT = 82\text{k}\Omega$ ; $CT = 1\text{nF}$	70	75	80	%
$W_{\text{SPOS}}$	Positive Triggering Window $\frac{T_{\text{trig}+} - T_0}{T_0}$	$RT = 82\text{k}\Omega$ ; $CT = 1\text{nF}$		33		%
$W_{\text{SNEG}}$	Negative Triggering Window $\frac{T_0 - T_{\text{trig}-}}{T_0}$	$RT = 82\text{k}\Omega$ ; $CT = 1\text{nF}$		20		%

## DEFLECTION OSCILLATOR

$T_2$	Free Period	$RT = 82\text{k}\Omega$ ; $CT = 1\text{nF}$	57	60	63.5	$\mu\text{S}$
$D_{\text{ON}}$	Duty Cycle	$RT = 82\text{k}\Omega$ ; $CT = 1\text{nF}$		50		%
$T_{\text{OFF}}$		$RT = 82\text{k}\Omega$ ; $CT = 1\text{nF}$		30		$\mu\text{S}$
$W_{\text{DPOS}}$	Positive Triggering Window $\frac{T_{\text{trig}+} - T_0}{T_0}$	$RT = 82\text{k}\Omega$ ; $CT = 1\text{nF}$		20		%
$W_{\text{DNEG}}$	Negative Triggering Window $\frac{T_0 - T_{\text{trig}-}}{T_0}$	$RT = 82\text{k}\Omega$ ; $CT = 1\text{nF}$		0		%

## INTERNAL VOLTAGE REFERENCE

$V_{\text{REFmin}}$	Minimum Voltage Reference	DAC set to 00 Hex	1.76	1.84	1.92	V
$V_{\text{REFmax}}$	Maximum Voltage Reference	DAC set to 3F Hex	2.08	2.16	2.24	V

## POWER OUTPUT STAGES

$V_{\text{POUTH}}$	Output High Level (Pin 3 and 5)	$I_{\text{load}} = 1\text{mA}$	4	4.5		V
$V_{\text{POUTL}}$	Output Low Level (Pin 3 and 5)	$I_{\text{load}} = -1\text{mA}$		0.5	1	V
$I_{\text{SINK}}$	Sink Current (Pin 3 and 5)	$V_{\text{POUT}} = 2.5\text{V}$	30		70	mA
$I_{\text{SOURCE}}$	Source Current (Pin 3 and 5)	$V_{\text{POUT}} = 2.5\text{V}$	30		70	mA

5180-04.TBL

**DAC**

6 bits DAC ; power on default value : 00 Hex.

## SOFTWARE SPECIFICATION

### I<sup>2</sup>C Bus Address

8C Hex.

### Overview

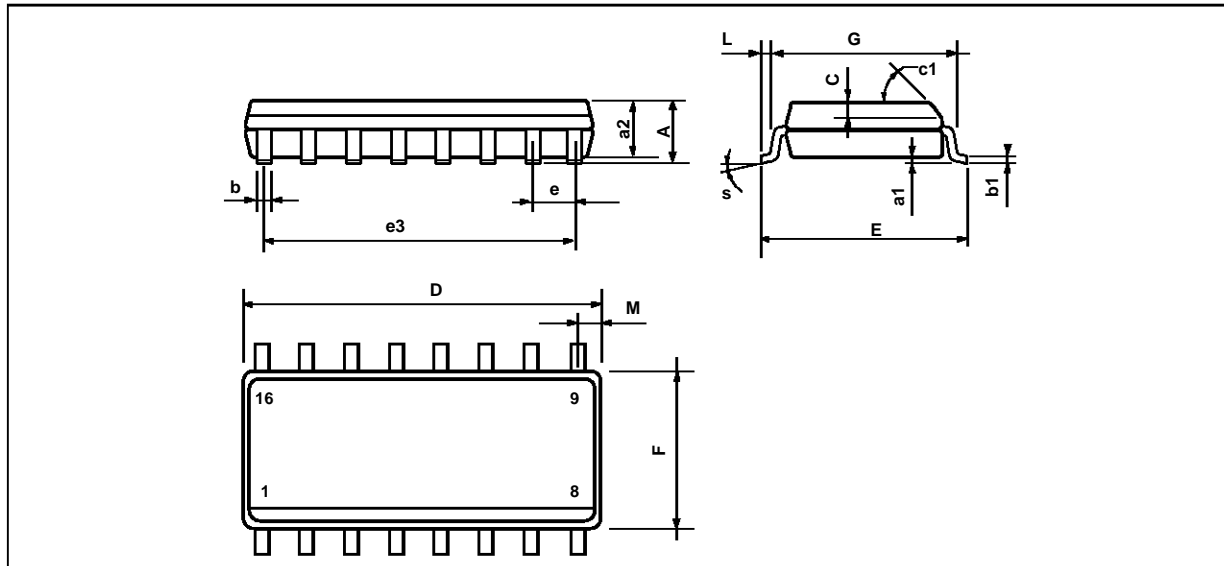
The data consists of two bytes with the following possible values :

Byte n°	Bit n°	Function
1	d0 to d5	DAC value for output voltage adjustment ; d0 = LSB ; Default = 00
	d6 to d7	Subaddress 0 ; d6 = d7 = 0
2	d0	Mode switching ; Stand-by = 0 ; ON = 1 ; Default = 1
	d1	H-Deflection ON/OFF ; OFF = 0 ; ON = 1 ; Default = 1
	d2	Polarity H-Drive ; Chroma4 = 1 ; Philips = 0 ; Default = 0
	d3 to d5	Unused
	d6 to d7	Subaddress 1 ; d6 = 1 ; d7 = 0

### Command Codes

- 1 Normal Operating : 43 Hex
- 2 Stand-by : 40 Hex
- 3 Power Stand-by : 41 Hex
- 4 Triggering Slope Positive : 43 Hex
- 5 Triggering Slope Negative : 47 Hex
- 6 Output Voltage Adjustment : 00 to 3F Hex

**PACKAGE MECHANICAL DATA**  
16 PINS - PLASTIC MICROPACKAGE



PM-SO16N.EPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75			0.069
a1	0.1		0.2	0.004		0.008
a2			1.6			0.063
b	0.35		0.46	0.014		0.018
b1	0.19		0.25	0.007		0.010
C		0.5			0.020	
c1	45° (typ.)					
D	9.8		10	0.386		0.394
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		8.89			0.350	
F	3.8		4.0	0.150		0.157
G	4.6		5.3	0.181		0.209
L	0.5		1.27	0.020		0.050
M			0.62			0.024
S	8° (max.)					

SO16N.TBL

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