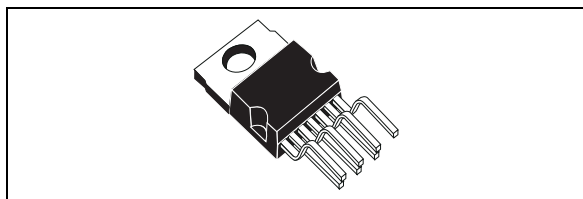


## 5 V and 8 V voltage regulator

### Features

- Output currents up to 1 A
- Fixed precision output 1 voltage  $5\text{ V} \pm 2\%$
- Fixed precision output 2 voltage  $8\text{ V} \pm 2\%$
- Output 1 with disable by TTL input
- Output 2 with disable by TTL input
- Short circuit protection at both outputs
- Thermal protection
- Low drop output voltage



**Table 1. Device summary**

Order code	Packaging
STV8131	Tray

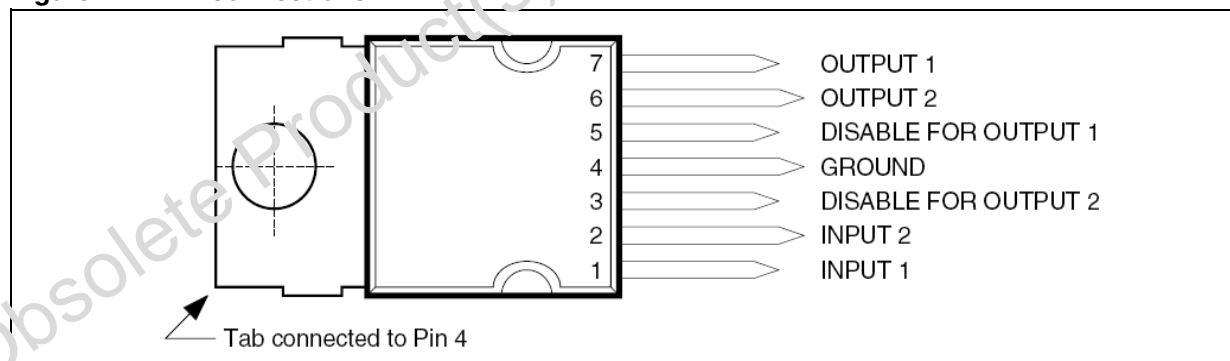
### Description

The STV8131 is a monolithic dual positive voltage regulator designed to provide fixed precision output voltages of 5 V and 8 V at currents up to 1A.

Each output can be disabled separately by a TTL input.

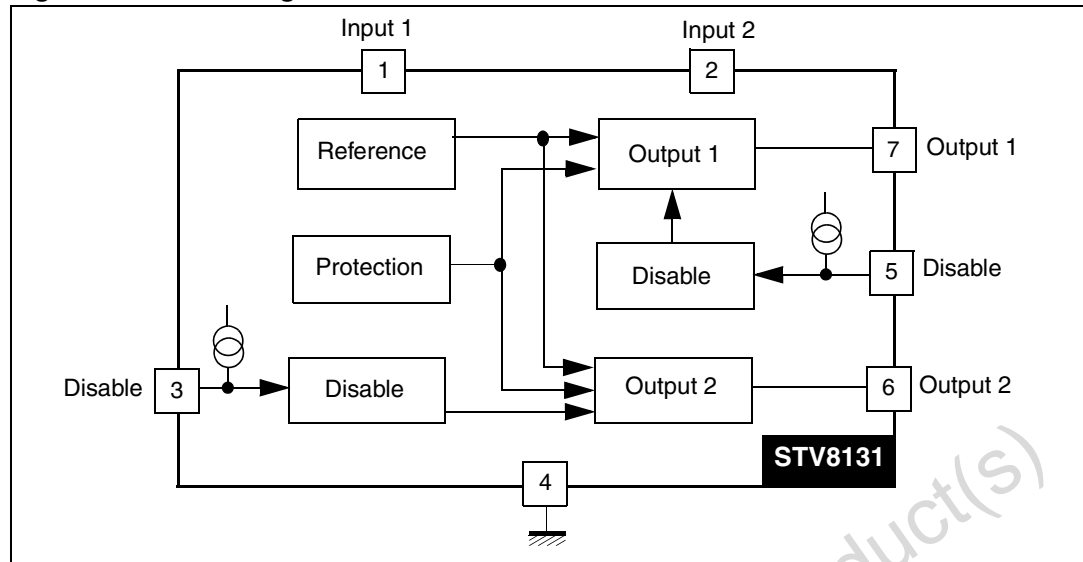
Short circuit and thermal protections are included.

**Figure 1. Pin connections**



# 1 Block diagram

Figure 2. Block diagram



## 2 Circuit description

The STV8131 is a dual voltage regulator with separate disable for each output.

The two regulation parts are supplied from one voltage reference circuit trimmed by zener zap during EWS test.

Since the supply voltage of this last is connected at Pin 1 ( $V_{IN1}$ ), the regulator 2 will not work if Pin 1 is not supplied.

The outputs stage have been realized in a Darlington configuration with a drop typical 1.2V.

For each output a disable circuit switches-off this output if a voltage lower than 0.8V is applied at corresponding Pin (Pin 3 for output 2, Pin 5 for output 1).

### 3 Absolute maximum ratings

**Table 2. Absolute maximum ratings**

Symbol	Parameter	Value	Unit
$V_{IN}$	DC input voltage Pin 1	20	V
$V_{DIS}$	Disable Input voltage Pin 3-5	20	V
$I_{O1,2}$	Output currents	Internally limited	
$P_t$	Power dissipation	Internally limited	
$T_{STG}$	Storage temperature	- 65 to + 150	°C
$T_J$	Junction temperature	0 to + 150	°C

### 4 Thermal data

**Table 3. Thermal data**

Symbol	Parameter	Value	Unit
$R_{TH(j-c)}$	Thermal resistance junction-case	Max 3	°C/W
$T_J$	Recommended junction temperature	Max	°C

## 5 Electrical characteristics

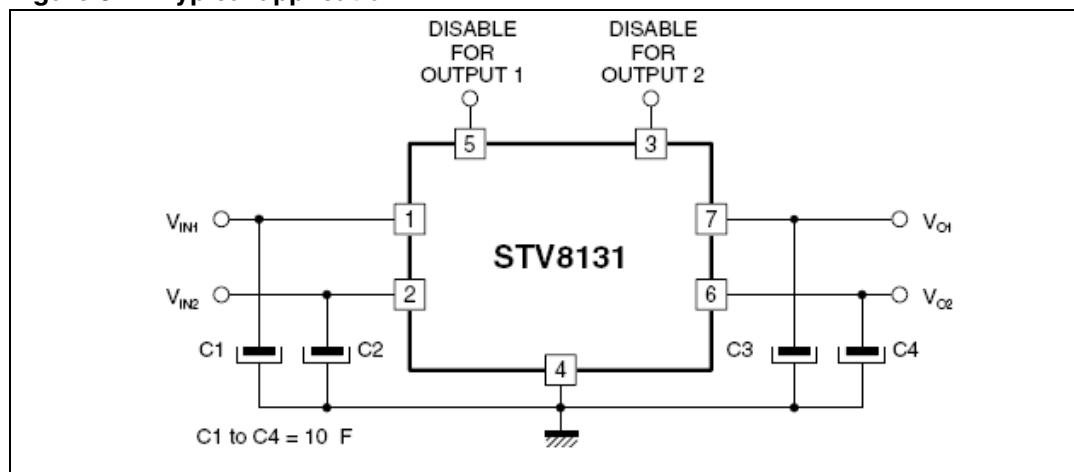
$V_{IN1} = 7\text{ V}$ ,  $V_{IN2} = 10\text{ V}$ ,  $T_J = 25\text{ °C}$  unless otherwise specified.

**Table 4. Electrical characteristics**

Symbol	Parameter	Test conditions	Min	Typical	Max	Unit
$V_{O1}$	Output voltage	$I_{O1} = 10\text{ mA}$	4.9	5	5.1	V
$V_{O2}$	Output voltage	$I_{O2} = 10\text{ mA}$	7.84	8	8.16	V
$V_{O1}$ $V_{O2}$	Output voltage	$5\text{ mA} < I_{O1,2} < 750\text{ mA}$ $7\text{ V} < V_{IN1} < 14\text{ V}$ $10\text{ V} < V_{IN2} < 14\text{ V}$	4.8 7.7		5.2 8.3	V V
$V_{IO1,2}$	Dropout voltage	$I_{O1,2} = 750\text{ mA}$ $I_{O1,2} = 1\text{ A}$			1.4 2	V V
$V_{O1,2LI}$	Line regulation	$7\text{ V} < V_{IN1} < 14\text{ V}$ $10\text{ V} < V_{IN2} < 14\text{ V}$ $I_{O1,2} = 200\text{ mA}$			50 80	mV mV
$V_{O1,2LO}$	Load regulation	$5\text{ mA} < I_{O1} < 0.6\text{ A}$ $5\text{ mA} < I_{O2} < 0.6\text{ A}$			100 160	mV mV
$I_Q$	Quiescent current	$I_{O1} = 10\text{ mA}$ Output 2 disabled			2	mA
$K_{O1,2}$	Output voltage thermal drift	$K_0 = \frac{\Delta V_0 \cdot 10^6}{\Delta T \cdot V_0}$ $T_J = 0\text{ to } +125\text{ °C}$		100		ppm/°C
$I_{O1,2SC}$	Short circuit output current	$V_{IN1} = 7\text{ V}$ , $V_{IN2} = 10\text{ V}$ $V_{IN2} = 16\text{ V}^{(1)}$			1.6 1	A A
$V_{DISH}$	Disable voltage high (corresponding out active)		2			V
$V_{DISL}$	Disable voltage low (corresponding out disabled)				0.8	V
$I_{DIS}$	Disable bias current	$0\text{ V} < V_{DIS} < 7\text{ V}$	-30		2	μA
$T_{jsd}$	Junction temperature for thermal shut down			145		°C

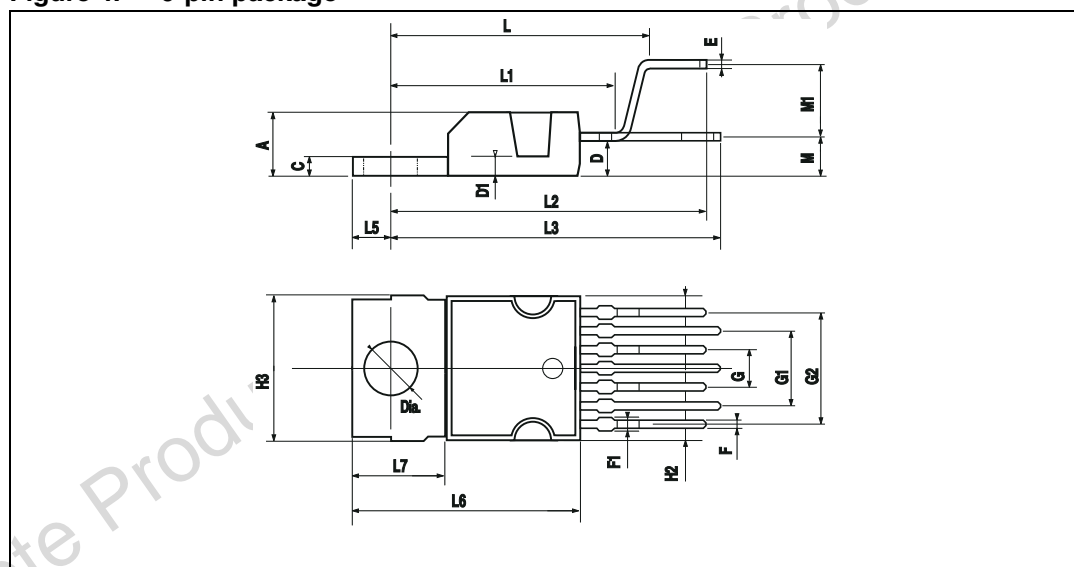
1. Safe permanent short-circuit is only guaranteed for input voltages up to 16 V.

Figure 3. Typical application



## 6 Package mechanical data

Figure 4. 9-pin package



**Table 5. JEDEC standard package dimensions**

Dimensions	Millimeters			Inches		
	Minimum	Typical	Maximum	Minimum	Typical	Maximum
A			4.8			0.189
C			1.37			0.054
D	2.4		2.8	0.094		0.110
D1	1.2		1.35	0.047		0.053
E	0.35		0.55	0.014		0.022
F	0.6		0.8	0.024		0.031
F1			0.9			0.035
G	2.41	2.54	2.67	0.095	0.100	0.105
G1	4.91	5.08	5.21	0.193	0.200	0.205
G2	7.49	7.62	7.80	0.295	0.300	0.307
H2			10.4			0.409
H3	10.05		10.40	0.396		0.409
L		16.97			0.668	
L1		14.92			0.587	
L2		21.54			0.848	
L3		22.62			0.891	
L5	2.6		3.0	0.102		0.118
L6	15.10		15.80	0.594		0.622
L7	6.0		6.6	0.236		0.260
M		2.8			0.110	
M1		5.08			0.200	
Dia.	3.65		3.85	0.144		0.152

## 6.1 Environmentally-friendly packages

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance.

ECOPACK specifications, grade definitions and product status are available at: [www.st.com](http://www.st.com). ECOPACK is an ST trademark.

## 7 Revision history

**Table 6. Document revision history**

Date	Revision	Changes
September 2003	1	Initial release
23-Feb-2009	2	Preliminary banner removed, template updated and <a href="#">Section 6.1</a> added

Obsolete Product(s) - Obsolete Product(s)

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