



STV8130A/STV8130B

3.3V AND ADJUSTABLE VOLTAGE REGULATORS WITH DISABLE AND RESET

FEATURES

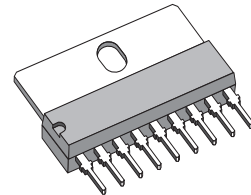
- Output currents up to 750mA for STV8130A and up to 200mA for STV8130B
- Fixed precision output 1 voltage $3.3V \pm 2\%$
- Output 2 voltage programmable from 2.8V to 16V
- Output 1 with reset facility
- Output 2 with disable by TTL input
- Short circuit protection at both outputs
- Thermal protection
- Lowdrop output voltage

DESCRIPTION

The STV8130A and STV8130B are monolithic dual positive voltage regulators, designed to provide precision output voltages of 3.3V and adjustable, at currents up to 750mA for STV8130A and 200mA for STV8130B. The ability to deliver currents is the same for the two ICs, but the higher thermal resistor of PDIP8 does not allow to overpass 200mA for the STV8130B.

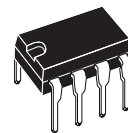
An internal reset circuit generates a reset pulse if Output 1 drops below the regulated voltage value.

Output 2 can be disabled by TTL input. Short circuit and thermal protections are included.



SIP9
(Plastic Package)

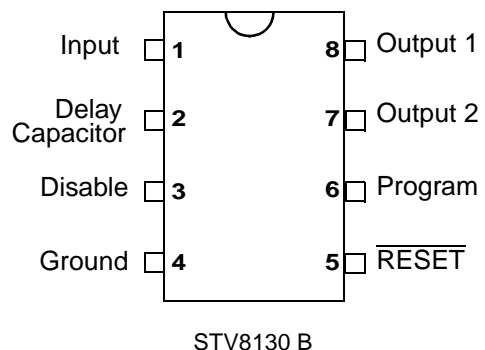
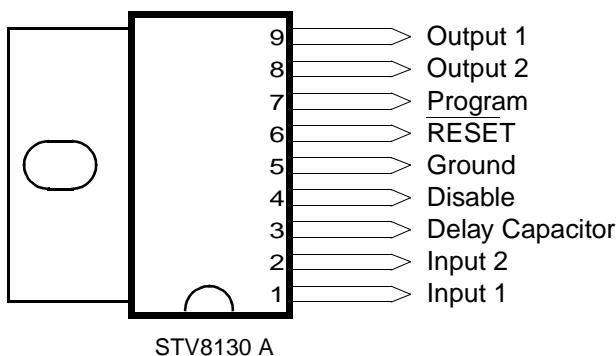
ORDER CODE: STV8130A



PDIP8
(Plastic Package)

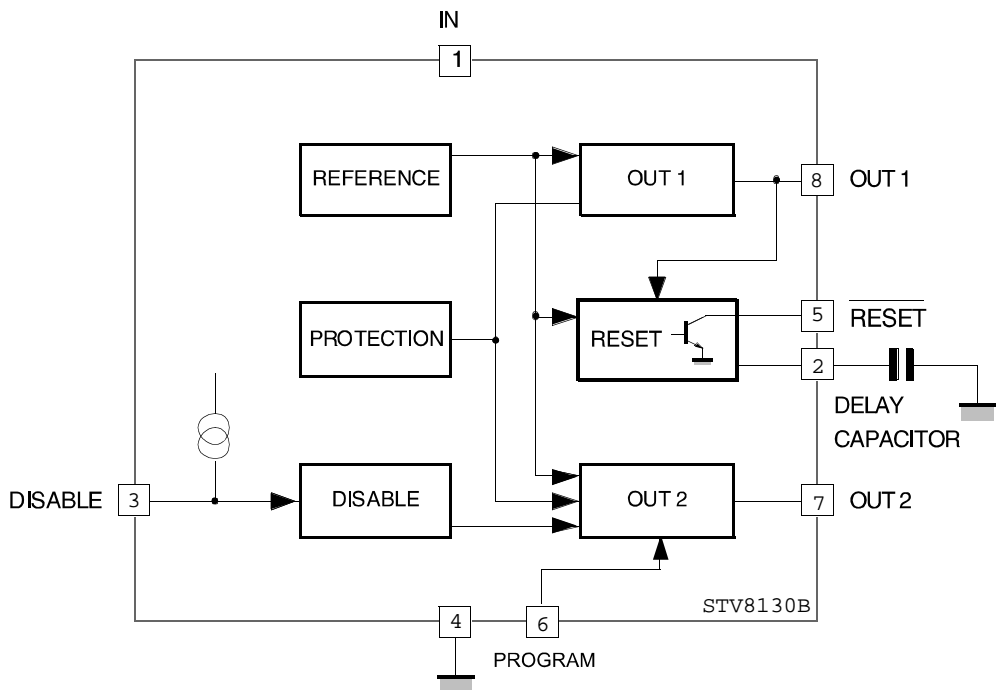
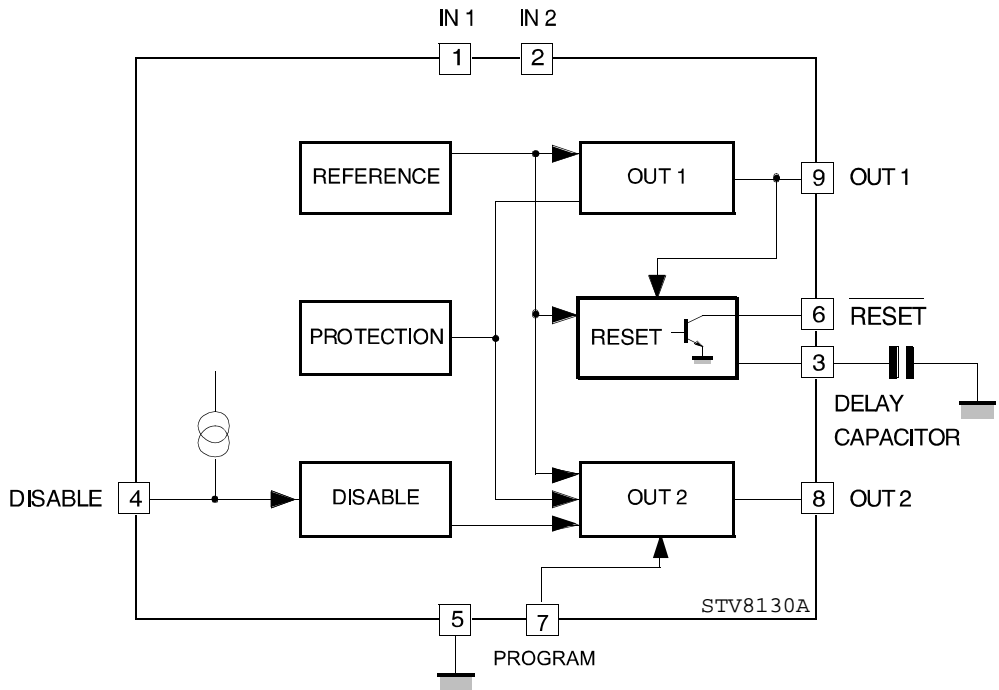
ORDER CODE: STV8130B

PIN CONNECTIONS



Rev. 1.7

BLOCK DIAGRAMS



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{IN}	DC Input Voltage Pin 1, 2 (STV8130A) or Pin 1 (STV8130B)	20	V
V_{DIS}	Disable Input Voltage Pin 4 (STV8130A) or Pin 3 (STV8130B)	20	V
V_{RST}	Output Voltage at Pin 6 (STV8130A) or Pin 5 (STV8130B)	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

THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{TH(l-c)}$	Thermal Resistance Junction Case of STV8130A	8	°C/W
	Thermal Resistance Junction Case of STV8130B	45	
T_J	Maximum Recommended Junction Temperature	130	°C
T_{OPER}	Operating Free Air Temperature Range	0 to 70	°C

ELECTRICAL CHARACTERISTICS(V_{IN} = 7V; T_J = 25°C unless otherwise specified)

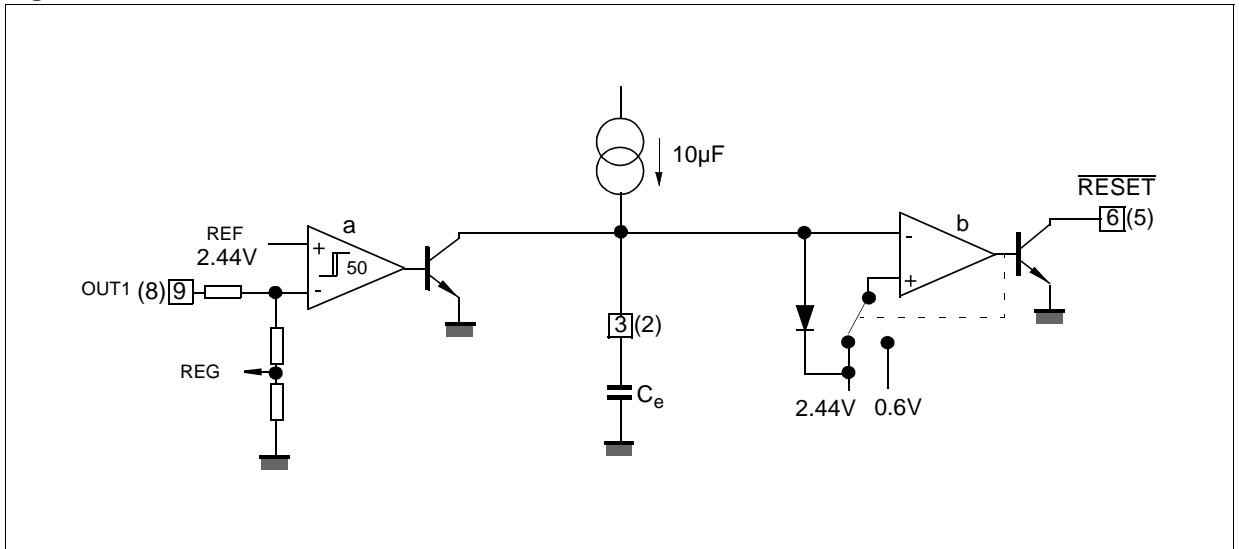
Symbol	Parameter	Value	Min.	Typ.	Max.	Unit
V _{O1}	Output Voltage	I _{O1} = 10mA	3.23	3.30	3.37	V
V _{O2}	Output Voltage	I _{O2} = 10mA	2.8		16	V
V _{O1,2}	Dropout Voltage	I _{O1,2} = 750mA (STV8130A)			1.4	V
		I _{O1,2} = 200mA (STV8130B)				
V _{O1}	Line Regulation 1	6V < V _{IN1} < 12V, 12V < V _{IN2} < 18V for STV 8130A			50	mV
V _{O2}	Line Regulation 2	and 7V < V _{IN} < 12V for STV8130B (@ V _{O2} : 10V, I _{O1,2} = 200mA)			100	mV
V _{O1}	Load Regulation 1	5mA < I _{O1,2} < 0.6A, @ V _{O2} = 10V			100	mV
V _{O2}	Load Regulation 2				200	mV
I _Q	Quiescent Current	I _{O1} = 10mA, Output 2 Disabled			2	mA
V _{Q1RST}	Reset Threshold Voltage	(K = V _{O1})	K-0.4	K-.25	K-0.1	V
V _{RTH}	Reset Threshold Hysteresis	(see circuit description)	20	50	75	V
t _{RD}	Reset Pulse delay at Pin 6 (STV8130A) or pin 5 (STV8130B)	C ₀ = 100nF (see circuit description)		25		ms
V _{RL}	Saturation Volt. at Pin 6 in Reset Condition for STV8130A	I ₆ = 5mA			0.4	V
	Saturation Volt. at Pin 5 in Reset Condition for STV8130B	I ₅ = 5mA				
I _{RH}	Leakage Current at Pin 6 in Normal Condition for STV8130A	V ₆ = 10V			10	μA
	Leakage Current at Pin 5 in Normal Condition for STV8130A	V ₅ = 10V				
K _{O1,2}	Output Volt Thermal Drift	$K_O = \frac{\Delta V_O \cdot 10^6}{\Delta T \cdot V_O}$ T _J = 0 to + 125°C		100		ppm/°C
I _{O1,2 sc}	Short Circuit Output Current	V _{IN} = 7V			1.6	A
		V _{IN} = 16V (see ¹)			1	A
V _{DISH}	Disable Volt. at Pin 4 High (out 2 active) for STV8130A		2			V
	Disable Volt. at Pin 3 High (out 2 active) for STV8130B					
V _{DISL}	Disable Volt. at Pin 4 Low (out 2 disabled) for STV8130A				0.8	V
	Disable Volt. at Pin 3 Low (out 2 disabled) for STV8130B					
I _{DIS}	Disable Bias Current at Pin 4 (STV8130A) or Pin 3 (STV8130B)	0V < V _{DIS} < 7V	-100		2	μA
V _{ref}	Pin 7 (STV8130A)			2.44		V
	Pin 6 (STV8130B)					
T _{JSD}	Junction Temp. for Thermal Shut Down			145		°C

Note 1: The output short circuit currents are tested one channel at a time.

During a short circuit there is heavy consumption of power, but the thermal protection circuit prevents an excessively high temperature level being reached.

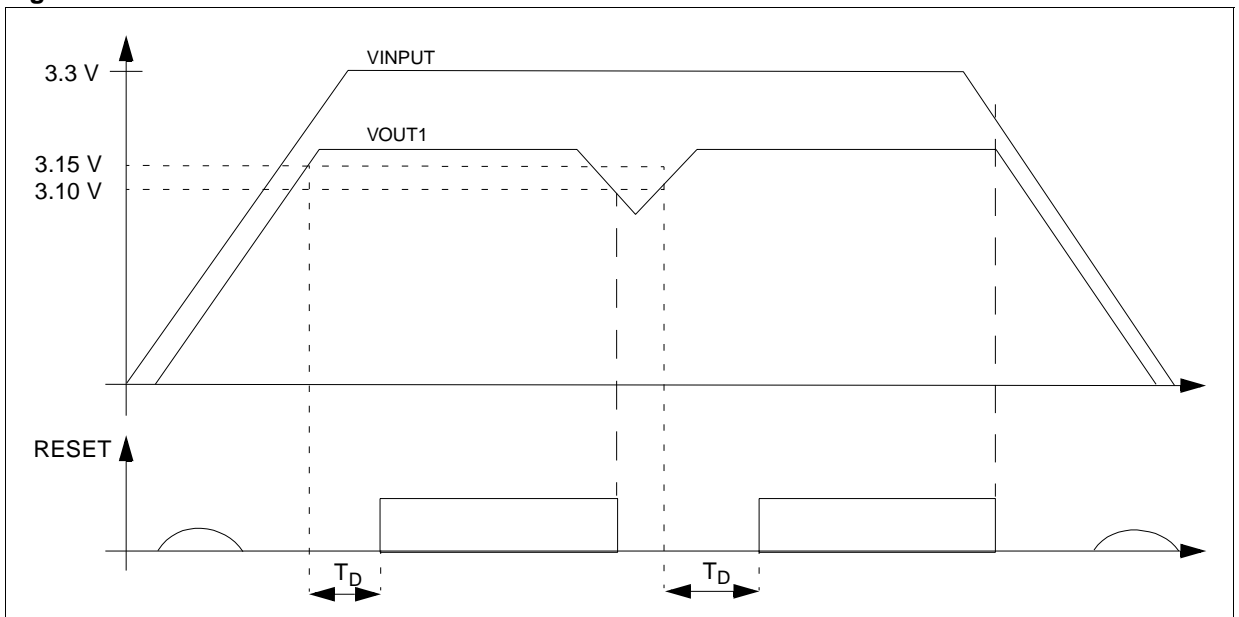
Safe permanent short circuits can only be guaranteed for input voltages up to 16V.

Figure 1.



Note: Pin numbers are related to STV8130A. Numbers between brackets correspond to the pin numbers of STV8130B.

Figure 2.



CIRCUIT DESCRIPTION

The STV8130A and STV8130B are dual voltage regulators with Reset and Disable.

The two regulation parts are supplied from one voltage reference circuit trimmed by zener zap during EWS testing. Since the supply voltage of this last is connected at Pin 1 (V_{IN1}) in STV8130A, regulator 2 will not work if Pin 1 is not supplied. In STV8130B, the two regulators are supplied by pin 1.

The output stages have been designed in a darlington configuration with a typical drop of 1.2V. The adjustable voltage of Output 2 is defined by output bridge resistors (R_1 , R_2): the values of these resistors are calculated to obtain, with the targetted value for V_{O2} , the V_{ref} voltage (2.44V) on the median point connected to PROGRAM (Pin 7 for STV8130A or Pin 6 for STV8130B).

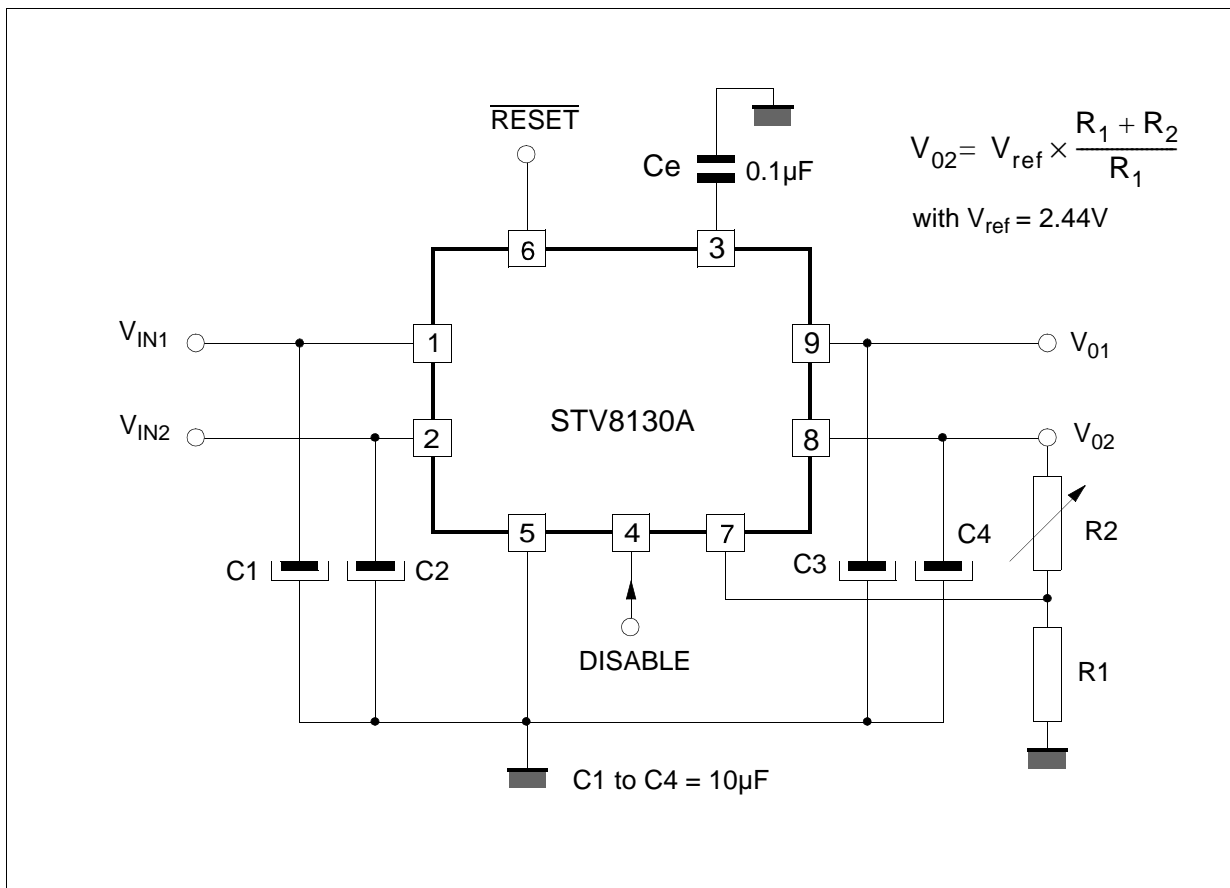
The disable circuit switches off Output 2 if a voltage of less than 0.8V is applied at Pin 4 (STV8130A) or Pin 3 (STV8130B).

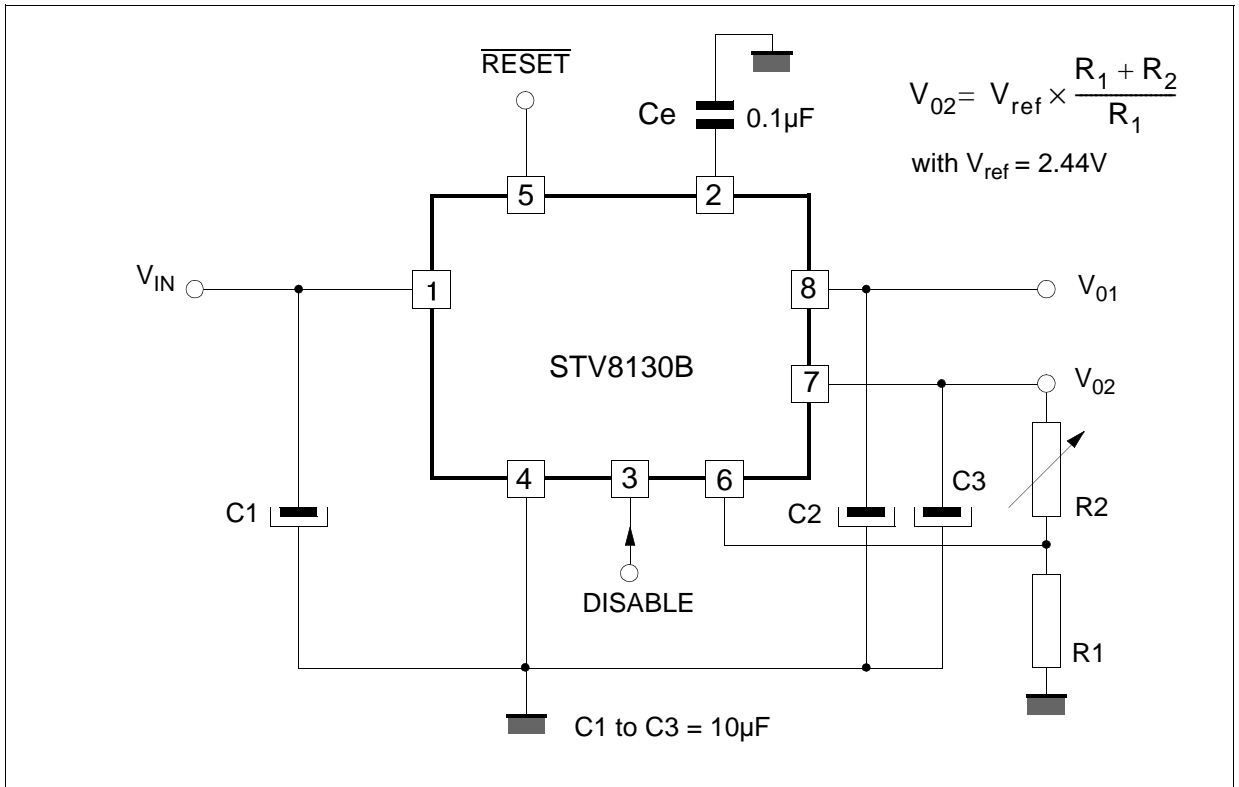
The Reset circuit checks the voltage at Output 1. If this drops below $V_{OUT} - 0.20V$ (3.10V Typ.), then the first comparator "a" (see Figure 1) rapidly discharges the Capacitor C_e and the reset output immediately drops to low. This drop can be caused by a parasitic loading condition on Out 1 or by a too low value of V_{IN} (short powering off). Once the voltage at Out 1 rises above $V_{OUT} - 0.15V$ (3.15V Typ.), voltage V_{C_e} increases linearly to 2.44V corresponding to delay t_D following the law below (see Figure 2), then the reset output becomes high again.

$$t_D = \frac{(C_E \times 2.44V)}{10\mu A}$$

To avoid problems with the reset output, the second comparator "b" has a large hysteresis (1.9V).

TYPICAL APPLICATION





PACKAGE MECHANICAL DATA

Figure 3. 9-Pin Plastic Single In Line Package (STV8130A)

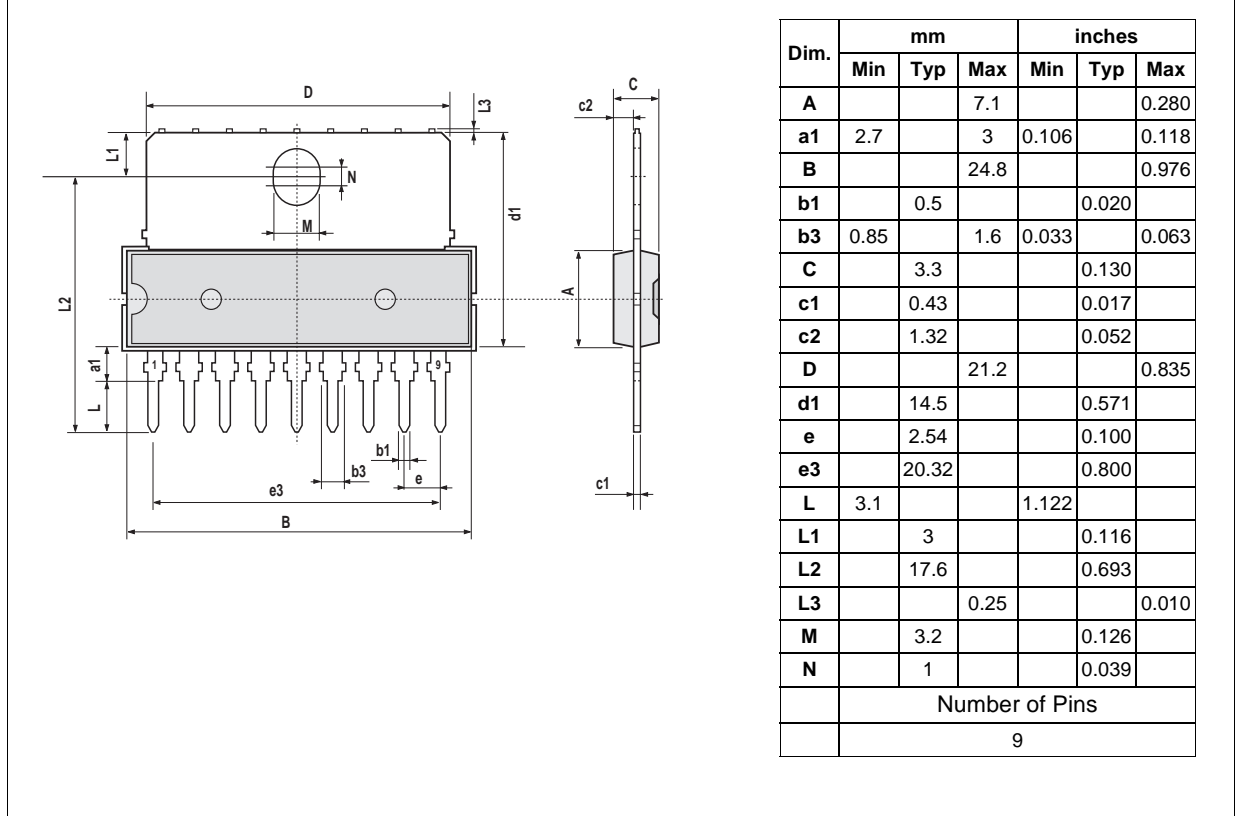
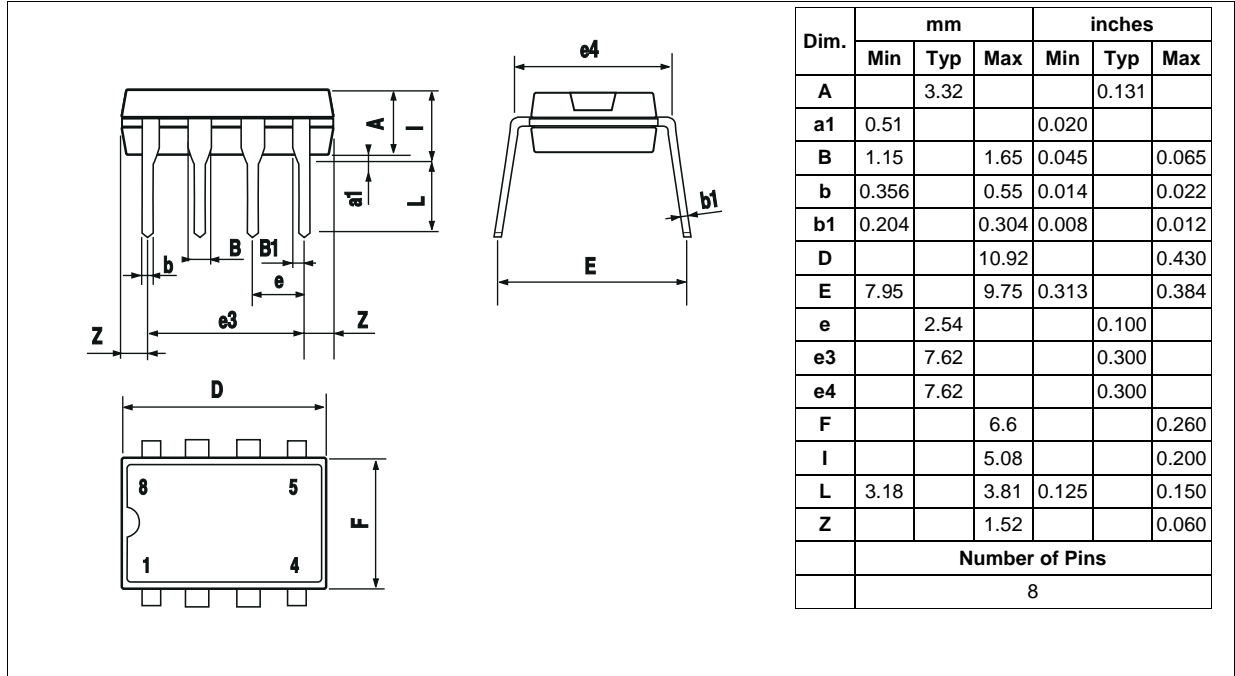


Figure 4. 8-Pin Plastic Dual In Line Package (STV8130B)



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