

**5.1V AND ADJUSTABLE VOLTAGE REGULATOR  
WITH DISABLE AND RESET**

- OUTPUT CURRENTS UP TO 750mA
- FIXED PRECISION OUTPUT 1 VOLTAGE  
5.1V ± 2%
- OUTPUT 2 VOLTAGE PROGRAMMABLE  
FROM 2.8 TO 16V
- OUTPUT 1 WITH RESET FACILITY
- OUTPUT 2 WITH DISABLE BY TTL INPUT
- SHORT CIRCUIT PROTECTION AT BOTH  
OUTPUTS
- THERMAL PROTECTION
- LOW DROP OUTPUT VOLTAGE

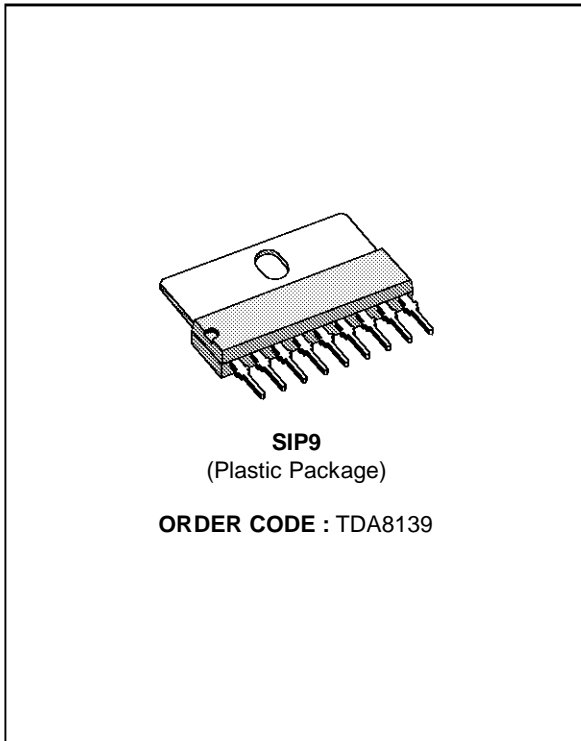
**DESCRIPTION**

The TDA8139 is a monolithic dual positive voltage regulator designed to provide precision output voltages of 5.1V and adjustable at currents up to 750mA.

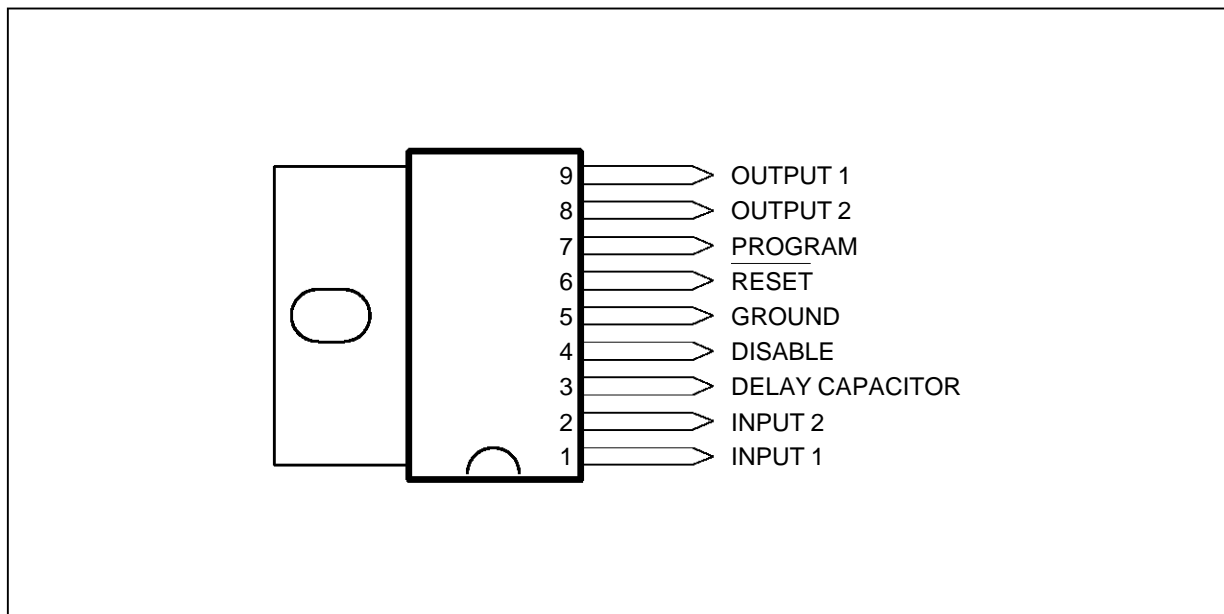
An internal reset circuit generates a reset pulse when the output 1 decrease below the regulated voltage value.

Output 2 can be disabled by TTL input.

Short circuit and thermal protections are included.

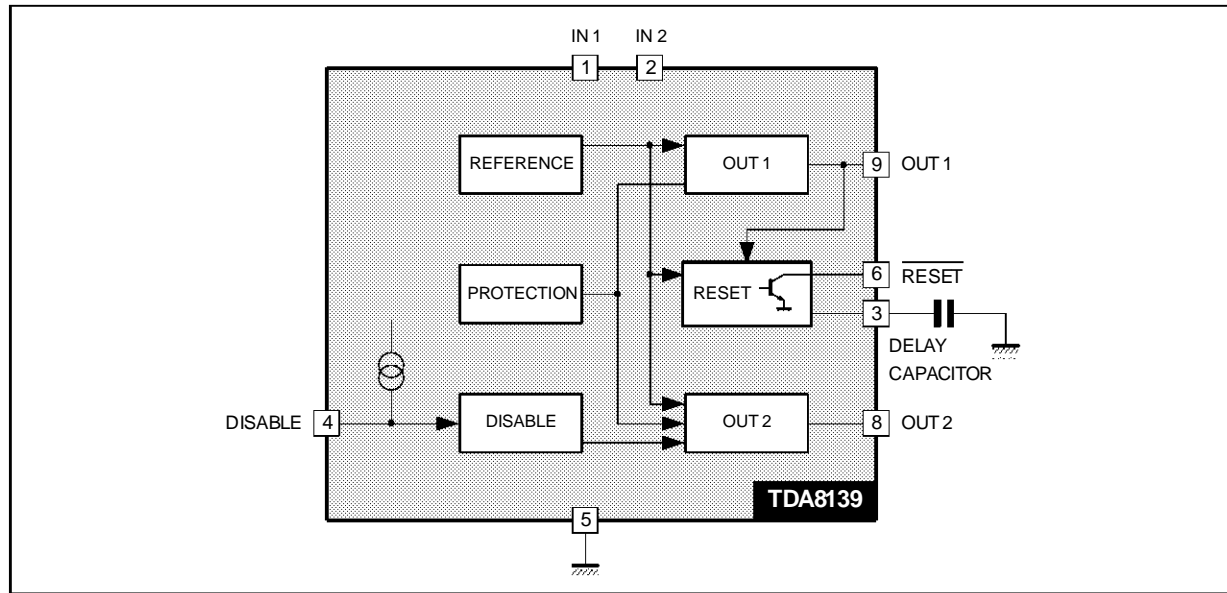


**PIN CONNECTIONS**



8139-01.EPS

**BLOCK DIAGRAM**



8139-02.EPS

**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
$V_{IN}$	DC Input Voltage Pin 1, 2	20	V
$V_{DIS}$	Disable Input Voltage Pin 4	20	V
$V_{RST}$	Output Voltage at Pin 6	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

8139-01.TBL

**THERMAL DATA**

Symbol	Parameter	Value	Unit
$R_{TH(j-c)}$	Thermal Resistance Junction-case	Max. 8	°C/W
$T_J$	Recommended Junction Temperature	Max. 130	°C

8139-02.TBL

**ELECTRICAL CHARACTERISTICS** ( $V_{IN} = 7V$  ;  $T_j = 25^\circ C$  unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{O1}$	Output Voltage	$I_{O1} = 10mA$	5	5.1	5.2	V
$V_{O2}$	Output Voltage	$I_{O2} = 10mA$	2.8		16	V
$V_{IO1, 2}$	Dropout Voltage	$I_{O1, 2} = 750mA$			1.4	V
$V_{O1}$	Line Regulation 1	$7V < V_{IN1} < 14V, 12V < V_{IN2} < 18V, @ V_{O2} : 10V, I_{O1, 2} = 200mA$			50	mV
$V_{O2}$	Line Regulation 2				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	$I_{O1} = 10mA, \text{Output 2 Disabled}$			2	mA
$V_{O1RST}$	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	mV
$t_{RD}$	Reset Pulse Delay at Pin 6	$C_e = 100nF$ (see circuit description)		25		ms

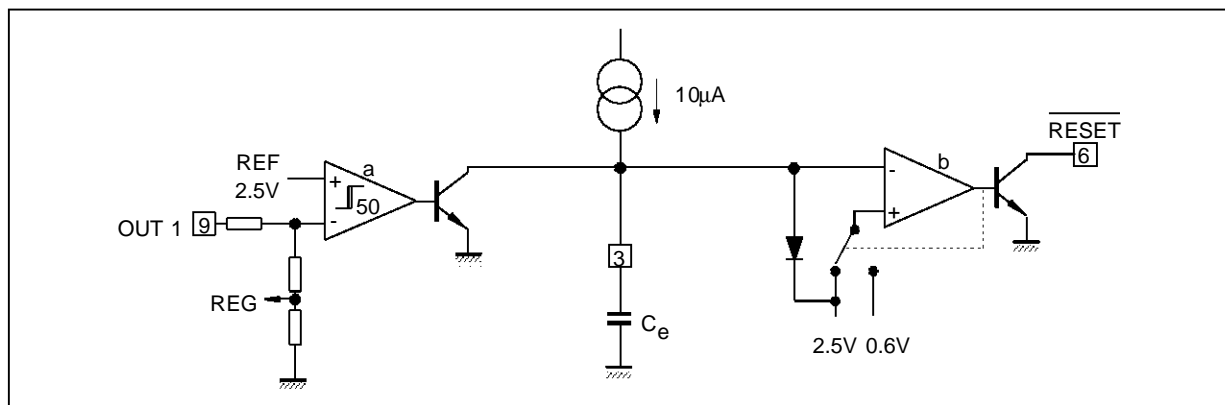
8139-03.TBL

**ELECTRICAL CHARACTERISTICS** ( $V_{IN} = 7V$  ;  $T_j = 25^\circ C$  unless otherwise specified)

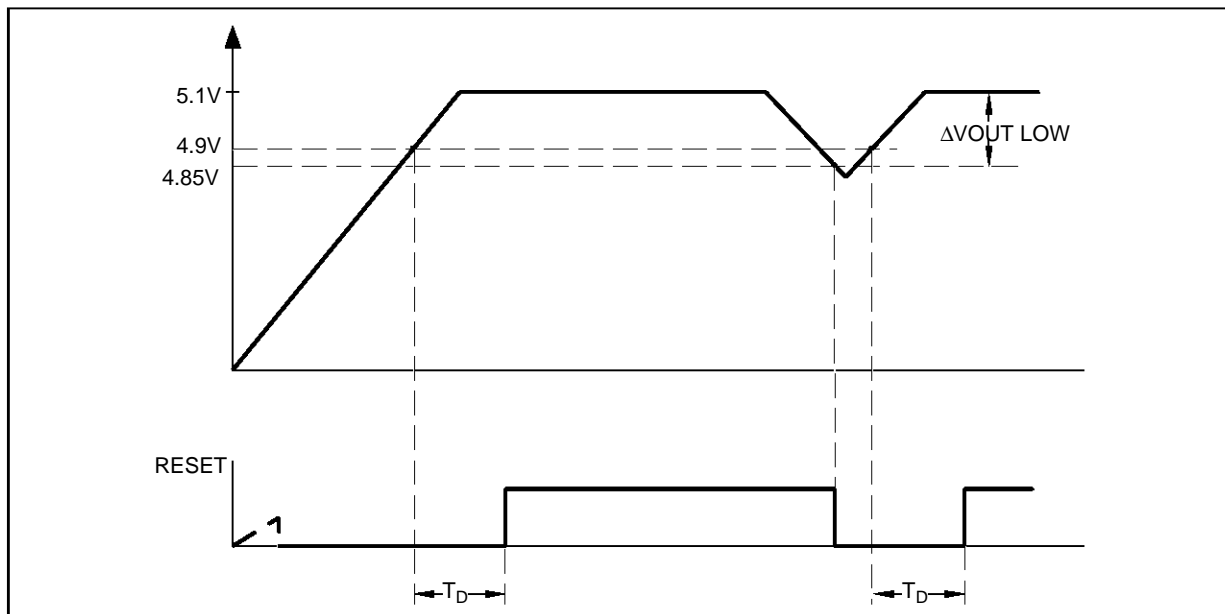
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{RL}$	Saturation Volt. at Pin 6 in Reset Condition	$I_5 = 5mA$			0.4	V
$I_{RH}$	Leakage Current at Pin 6 in Normal Condition	$V_5 = 10V$			10	$\mu A$
$K_{O1,2}$	Output Volt. Thermal Drift	$K_0 = \frac{\Delta V_o \cdot 10^6}{\Delta T \cdot V_o}$ $T_j = 0 \text{ to } + 125^\circ C$		100		ppm/ $^\circ C$
$I_{O1,2_{sc}}$	Short Circ. Ouput Current	$V_{IN} = 7V$			1.6	A
		$V_{IN} = 16V$ , (see note 1)			1	A
$V_{DISH}$	Disable Volt. at Pin 4 High (out 2 active)		2			V
$V_{DISL}$	Disable Volt. at Pin 4 Low (out 2 disabled)				0.8	V
$I_{DIS}$	Disable Bias Current at Pin 4	$0V < V_{DIS} < 7V$	-100		2	$\mu A$
$V_{ref}$	Pin 7			2.5		V
$T_{jsd}$	Junction Temp. for Thermal Shut Down			145		$^\circ C$

**Note 1 :** The output short circuit currents are tested one channel at time. During a short circuit a large consumption of power occurs, but the thermal protection circuit prevents any excessive temperature. Safe permanent short-circuit is only guaranteed for input voltages up to 16V.

**Figure 1**



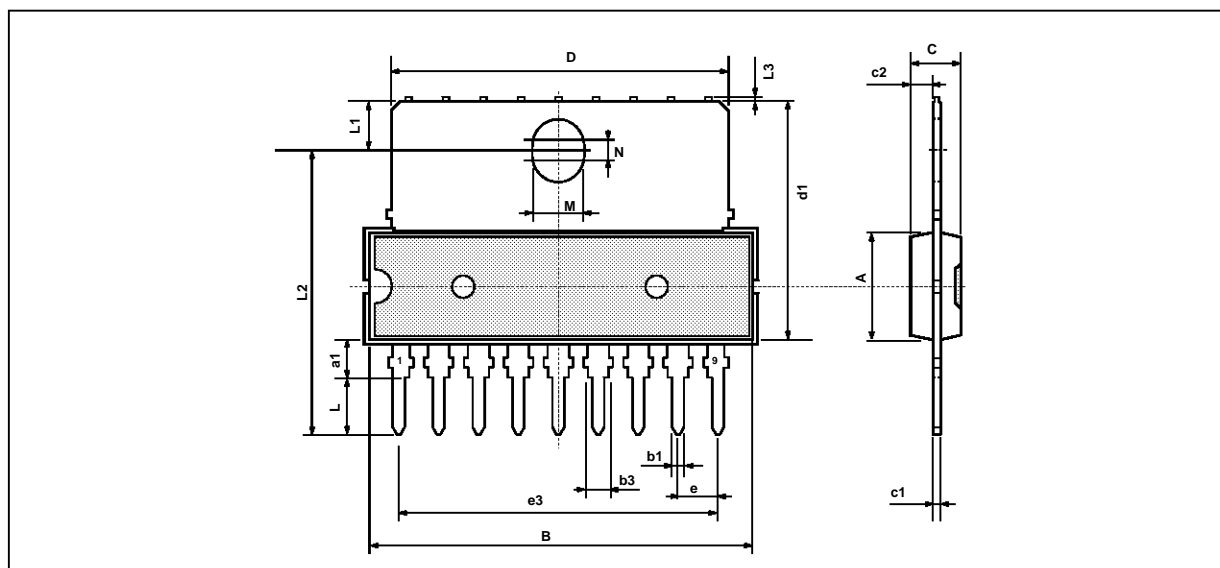
**Figure 2**





## PACKAGE MECHANICAL DATA

9 PINS - PLASTIC SIP



PM-SIP9.EPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			7.1			0.280
a1	2.7		3	0.106		0.118
B			24.8			0.976
b1		0.5			0.020	
b3	0.85		1.6	0.033		0.063
C		3.3			0.130	
c1		0.43			0.017	
c2		1.32			0.052	
D			21.2			0.835
d1		14.5			0.571	
e		2.54			0.100	
e3		20.32			0.800	
L	3.1			0.122		
L1		3			0.118	
L2		17.6			0.693	
L3			0.25			0.010
M		3.2			0.126	
N		1			0.039	

SIP9.TEL

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No licence is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1994 SGS-THOMSON Microelectronics - All Rights Reserved

Purchase of I<sup>2</sup>C Components of SGS-THOMSON Microelectronics, conveys a license under the Philips I<sup>2</sup>C Patent. Rights to use these components in a I<sup>2</sup>C system, is granted provided that the system conforms to the I<sup>2</sup>C Standard Specifications as defined by Philips.

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - China - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco  
The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.