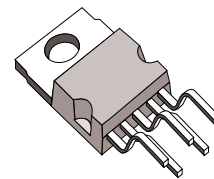


VERY LOW DROP 5V REGULATOR WITH RESET

- PRECISE OUTPUT VOLTAGE ($5\text{ V} \pm 4\%$)
- VERY LOW DROPOUT VOLTAGE
- OUTPUT CURRENT IN EXCESS OF 500mA
- POWER-ON, POWER-OFF INFORMATION (RESET FUNCTION)
- HIGH NOISE IMMUNITY ON RESET DELAY CAPACITOR

DESCRIPTION

The L387A is a very low drop voltage regulator in a Pentawatt[®] package specially designed to provide stabilized 5V supplies in consumer and industrial applications. Thanks to its very low input/output voltage drop this device is very useful in battery powered equipment, reducing consumption and prolonging battery life. A reset output makes the L387A particularly suitable for microprocessor systems. This output provides a reset signal when power is applied (after an external programmable delay) and goes low when



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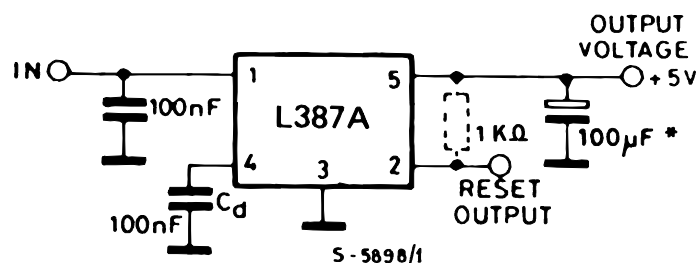
ORDERING NUMBER : L387A

power is removed, inhibiting the microprocessor. An hysteresis on reset delay capacitor raises the immunity to the ground noise.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_i	D.C. Input Voltage	35	V
T_j, T_{stg}	Junction and Storage Temperature Range	-55 to 150	°C

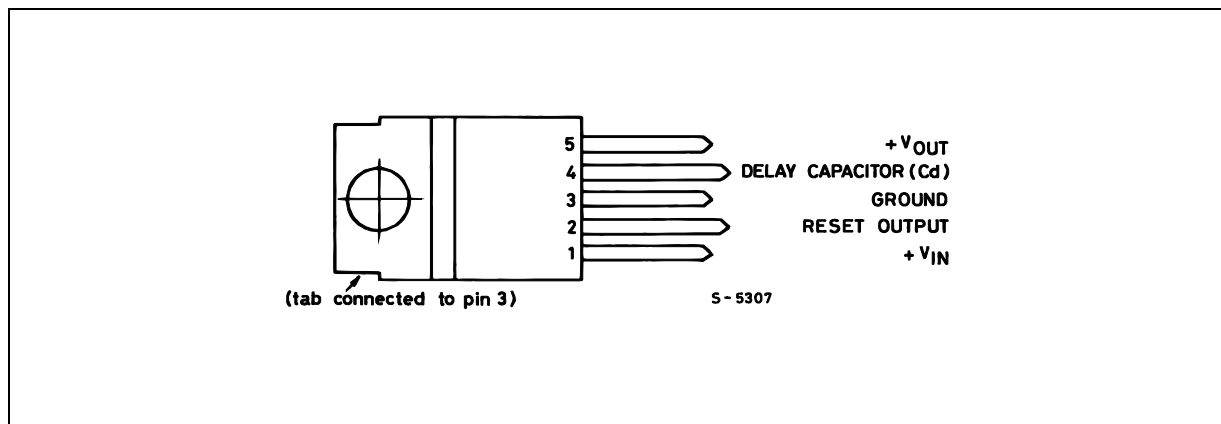
APPLICATION CIRCUIT



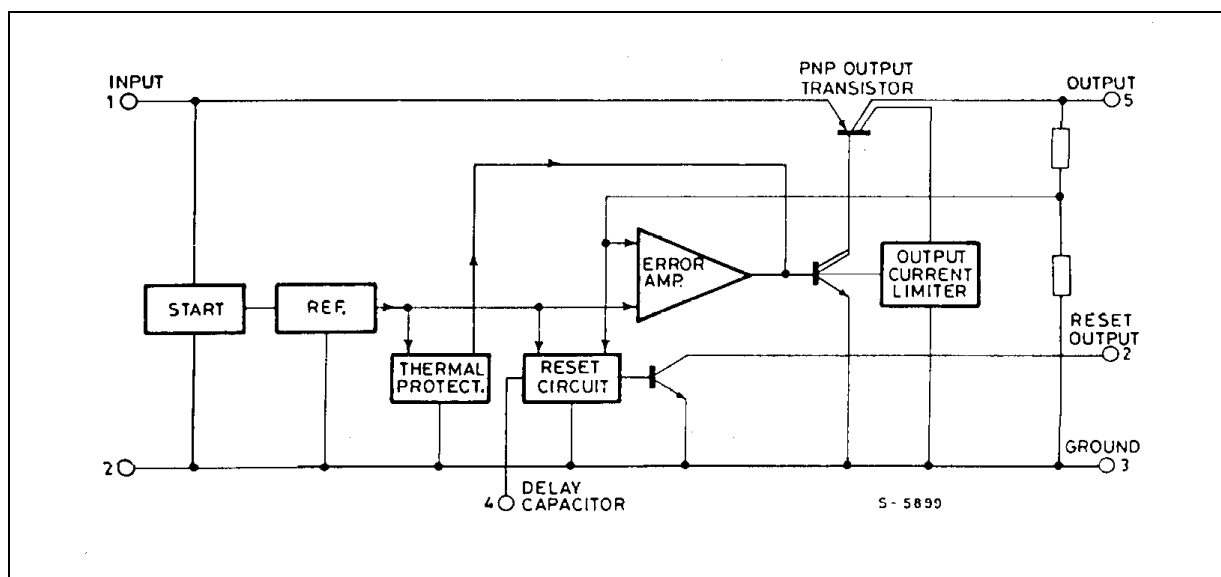
* Min 33 μF and max. ESR $\leq 3\ \Omega$ over temperature range.

L387A

PIN CONNECTION (Top views)



BLOCK DIAGRAM



THERMAL DATA

$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	4	$^{\circ}C/W$
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ELECTRICAL CHARACTERISTICS (refer to the test circuit, $V_i = 14.4\text{ V}$, $T_j = 25\text{ }^\circ\text{C}$, $C_o = 100\text{ }\mu\text{F}$; unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_o	Output Voltage	$I_o = 5\text{ mA to } 500\text{ mA}$ $T_j = 25\text{ }^\circ\text{C}$ $-40 \leq T_j \leq 125\text{ }^\circ\text{C}$	4.80 4.75	5.00 5.00	5.20 5.25	V V
V_i	Operating Input Voltage	(*), Over Full T Range (-40 to $125\text{ }^\circ\text{C}$) (see note **)			26	V
ΔV_o	Line Regulation	$V_i = 6\text{ V to } 26\text{ V}$ $I_o = 5\text{ mA}$		5	50	mV
ΔV_o	Load Regulation	$I_o = 5\text{ mA to } 500\text{ mA}$		15	60	mV
$V_i - V_o$	Dropout Voltage	$V_o = V_{O\text{ NOM}} - 100\text{ mV}$ $I_o = 350\text{ mA}$ $I_o = 500\text{ mA}$		0.40 0.60	0.65 0.8	V V
I_q	Quiescent Current	$I_o = 0\text{ mA}$ $I_o = 150\text{ mA}$ $I_o = 350\text{ mA}$ $I_o = 500\text{ mA}$ $V_i = 6.2\text{ V}$ $I_o = 500\text{ mA}$		5 20 60 100	15 35 100 160	mA mA mA mA
$\frac{\Delta V_o}{\Delta T}$	Temperature Output Voltage Drift			-0.5		mV/ $^\circ\text{C}$
SVR	Supply Voltage Rejection	$I_o = 350\text{ mA}$ $f = 120\text{ Hz}$ $C_o = 100\text{ }\mu\text{F}$ $V_i = 12\text{ V} \pm 5\text{ V}_{pp}$			60	
I_{SC}	Output Short Circuit Current			1.2	1.6	A
V_R	Reset Output Voltage	$I_R = 3\text{ mA}$ $1 < V_o < 4.70\text{ V}$ $I_R = 16\text{ mA}$ $1.5 < V_o < 4.75\text{ V}$ Over Full T ($-40\text{ }^\circ\text{C} \leq T_j \leq 125\text{ }^\circ\text{C}$)			0.5 0.8	V V
I_R	Reset Output Leakage Current	V_o in Regulation $V_R = 5\text{ V}$ Over Full T Range			50	μA
t_d	Delay Time for Reset Output	$C_d = 100\text{ nF}$ Over Full T Range		25		ms
$V_{RT\text{ (off)}}$		V_o @ Reset out H to L Transition, Over Full T Range	4.75	$V_o - 0.15$		V
I_{C4}	Charging Current (current generator)	$V_4 = 3\text{ V}$	10	20	30	μA
$V_{RT\text{ (on)}}$	Power on V_o Threshold	V_o @ Reset out L to H Transition, Over Full T Range		$V_{RT\text{ (off)}} + 0.05\text{ V}$	$V_o - 0.04\text{ V}$	V
V_4	Comparator Threshold (pin 4)	V_4 @ Reset out H to L Transition V_4 @ Reset out L to H Transition	3.2 3.7		3.9 4.3	V V
V_H	Hysteresis Voltage	Over Full T Range		450		mV

(*) For a DC voltage $26 < V_i < 37\text{ V}$ the device is not operating.

(**) Design limits are guaranteed (but not 100 % production tested) over the indicated temperature and supply voltage ranges. These limits are not used to calculate outgoing quality levels.

Figure 1 : Dropout Voltage vs. Output Current.

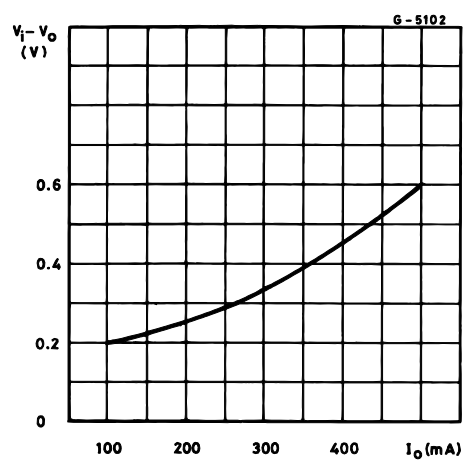


Figure 2 : Quiescent Current vs. Output Current.

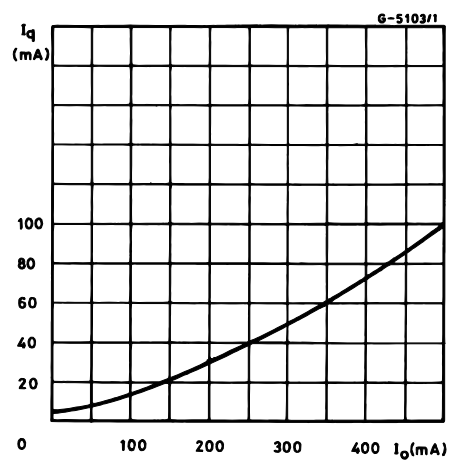
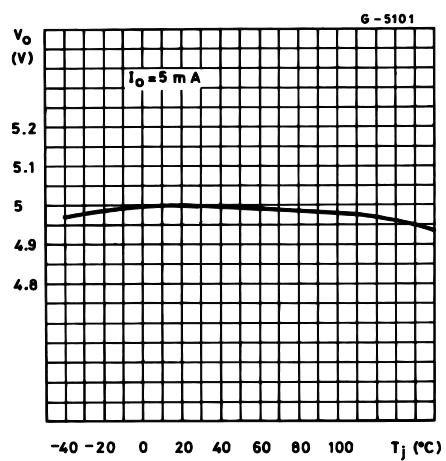
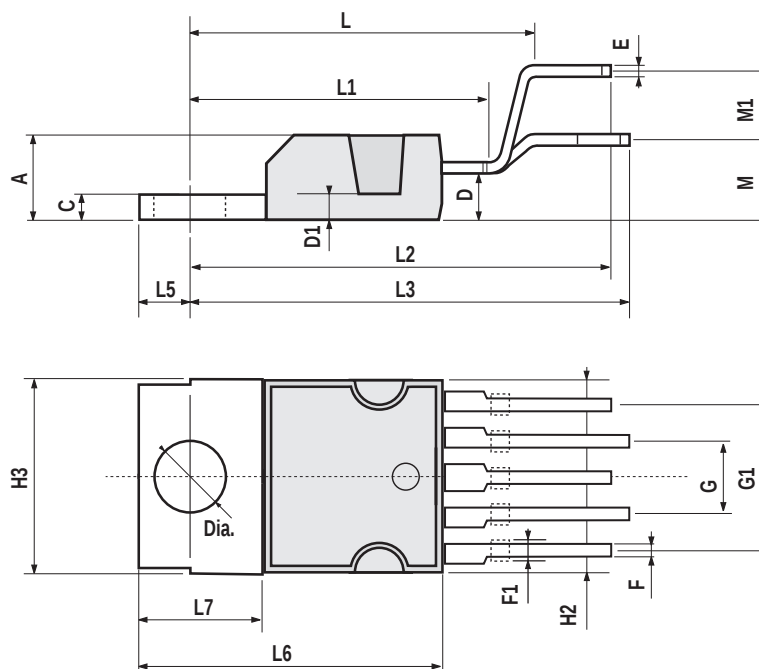


Figure 3 : Output Voltage vs. Temperature.



PENTAWATT PACKAGE MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
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	0.8		1.05	0.031		0.041
F1	1		1.4	0.039		0.055
G		3.4		0.126	0.134	0.142
G1		6.8		0.260	0.268	0.276
H2			10.4			0.409
H3	10.05		10.4	0.396		0.409
L		17.85			0.703	
L1		15.75			0.620	
L2		21.4			0.843	
L3		22.5			0.886	
L5	2.6		3	0.102		0.118
L6	15.1		15.8	0.594		0.622
L7	6		6.6	0.236		0.260
M		4.5			0.177	
M1		4			0.157	
Dia	3.65		3.85	0.144		0.152



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