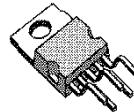


VERY LOW DROP 5V VOLTAGE REGULATOR WITH RESET

PRECISE OUTPUT VOLTAGE E ($5V \pm 4\%$)
 VERY LOW DROPOUT VOLTAGE
 OUTPUT CURRENT IN EXCESS OF 500mA
 POWER-ON, POWER-OFF INFORMATION
 (RESET FUNCTION)
 +80/-80V LOAD DUMP PROTECTION
 OVERVOLTAGE AND REVERSE VOLTAGE
 PROTECTION
 SHORT CIRCUIT PROTECTION AND
 THERMAL SHUT-DOWN

can work correctly even during the cranking phase, when the battery voltage could fall as low as 6V. Furthermore, it incorporates a complete range of protection circuits against the dangerous overvoltages always present on the battery rail of the car. The reset function makes the device particularly suited to supply microprocessor based systems: a pulse is available (after an externally programmable delay) to reset the microprocessor at power-on phase; at power-off, this pulse becomes low inhibiting the microprocessor.

The L487 is a monolithic integrated circuit in Pentawatt® package specially designed to provide a stabilized supply voltage for automotive and industrial electronic system. Thanks to its very low voltage drop in automotive applications the L487



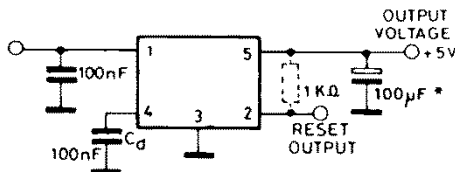
Pentawatt®

ORDERING NUMBER: L487

ABSOLUTE MAXIMUM RATINGS

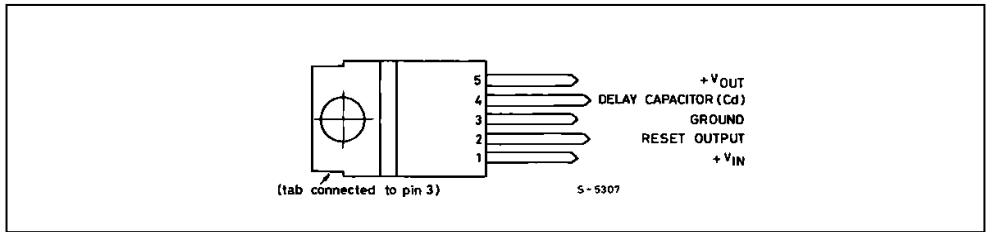
V_i	Forward input voltage	35	V
V_i	Reverse input voltage	-18	V
	Positive transient peak voltage ($t = 300\text{ms}$)	80	V
	Negative transient peak voltage ($t = 100\text{ms}$)	-80	V
T_{op}	Operating junction temperature	-40 to 150	°C
T_{stg}	Storage temperature	-55 to 150	°C

TEST CIRCUIT



* Min. 33μF and max. ESR ≤3Ω over temperature range

CONNECTION DIAGRAM (top view)



BLOCK DIAGRAM

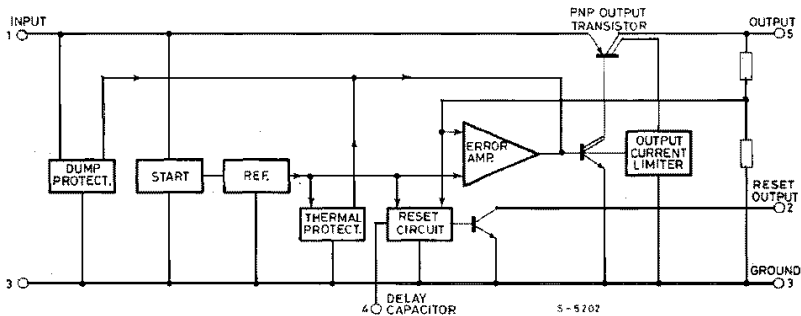


Fig.1 - Dropout voltage vs. output current

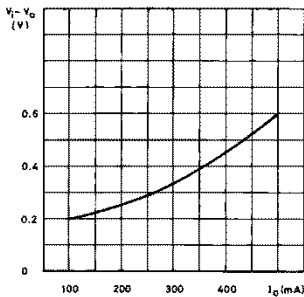


Fig.2 - Quiescent current vs. output current

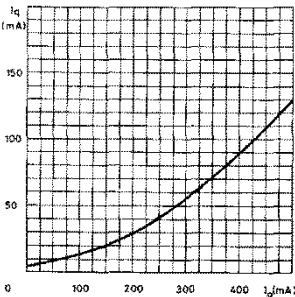
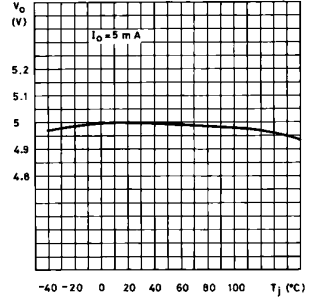


Fig.3 - Output voltage vs. temperature



THERMAL DATA

$R_{th j\text{-case}}$

Thermal resistance junction-case

max 4 °C/W

ELECTRICAL CHARACTERISTICS (Refer to the test circuit, $V_i = 14.4V$, $T_{amb} = 25^\circ C$, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_o	Output Voltage	$I_o = 5mA$ to $500mA$	4.80	5.00	5.20	V
V_i	Operating Input Voltage	(*) See note			28	V
ΔV_o	Line Regulation	$V_i = 6V$ to $26V$ $I_o = 5mA$		5	50	mV
ΔV_o	Load Regulation	$I_o = 5mA$ to $500mA$		15	60	mV
$V_i - V_o$	Dropout Voltage	$I_o = 500mA$		0.6	0.8	V
I_q	Quiescent Current	$I_o = 0mA$		6	15	mA
		$I_o = 150mA$		20	40	
		$I_o = 500mA$		130	210	
		$V_i = 6.2V$ $I_o = 500mA$			250	mA
$\frac{\Delta V_o}{\Delta T}$	Temperature Output Voltage Drift			-0.5		mV/°C
SVR	Supply Voltage Rejection	$I_o = 350mA$ $f = 120Hz$ $C_o = 100\mu F$ $V_i = 12V \pm 5V_{pp}$		55		dB
I_{sc}	Output Short Circuit Current			0.8		A
V_R	Reset Output Voltage	$I_R = 16mA$ $V_o \leq 4.75V$			0.8	V
I_R	Reset Output Leakage Current	V_o in Regulation			50	μA
t_d	Delay Time for Reset Output	$C_d = 100nF$		30		ms
$V_{RT(off)}$	Reset Threshold (delay charging current on)		4.75	$V_o - 0.15$	$V_o - 0.04$	V
I_{C4}	Charging Current (current generator)		10		27	μA
$V_{RT(on)}$	Reset Threshold (low)			$V_{RT(off)} - 10mV$		V
V_4	Comparator Threshold (pin 4)		3.6		3.95	V

* For a DC input voltage $28 < V_i < 35V$ the device is not operating

For dimensional information on the Pentawatt package see the L387A data sheet. For more information on this device see the SGS-Thomson Microelectronics Application Note: 'Low Drop Voltage Regulators for Automotive Electronics' by S.Ciscato.

This device can be used as a replacement for L387A, L4947, LM2927T, L78MR05 or 4848 (in house part number with 'SGS 88719' printed on it).