GS317HTF

High Voltage Three-Terminal Adjustable Regulator

Product Description

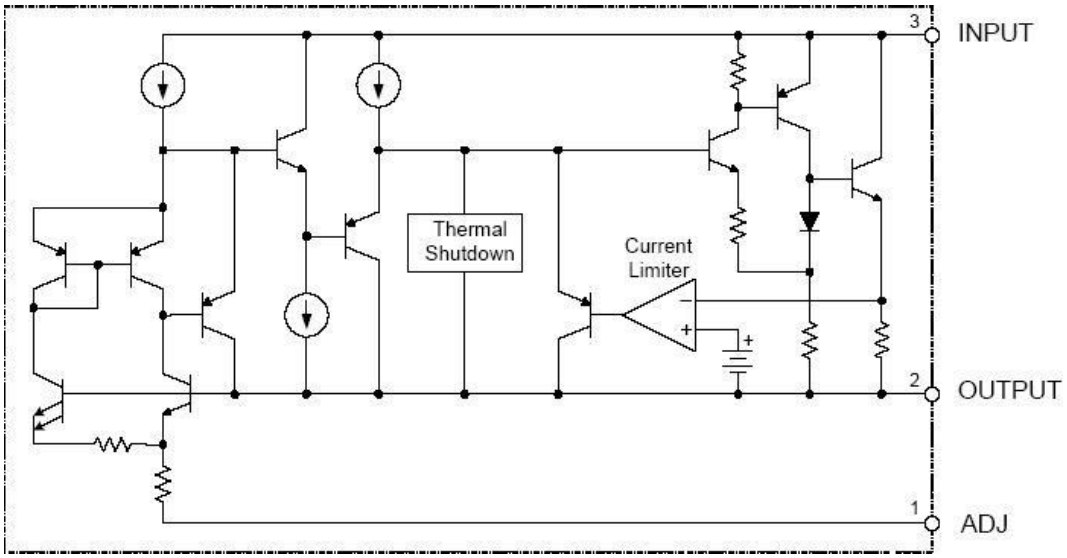
The GS317H is an adjustable 3-terminal positive voltage regulator. Using 2 external resistors, the GS317H can provide an adjustable output voltage down to 1. 25V.

The GS317H provides current limiting and thermal shutdown. The current limit is trimmed to ensure specified output current. The thermal limiting provides protection against any combination of overload and ambient temperature that would create excessive junction temperature.

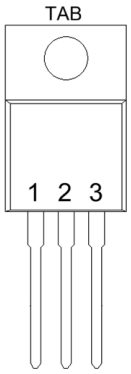
Features

- Current Limit
- Thermal Protection

Block Diagram



Packages & Pin Assignments



Front View

Pin	Name	I/O	Description
1	ADJ	—	Adjust Pin
2 & TAB	V_{OUT}	O	Output Voltage Pin
3	V_{IN}	I	Input Voltage Pin

Ordering and Marking Information

Ordering Information

Part Number	Package	Part Marking	Quantity / Tube
GS317HTF	TO-220-3L	CHMC D317HT S□□□□	50 PCS

GS317H 1 2

- **Product Code:** GS317H
- **Package Code:** 1 is **T** for TO-220-3L
- **Green Level:** 2 is **F** for RoHS Compliant and Halogen Free

Marking Information

CHMC
D317HT
S□□□□

- **Product Code:**
  CHMC
  D317HT
- **GS Code:**
  S□□□□

Absolute Maximum Ratings (T_A=25 ºC)

Symbol	Parameter	Value	Unit
V_{IN}	Input Voltage	60	V
T_J	Maximum Junction Temperature	150	ºC
T_{STG}	Storage Temperature Range	-65 to +150	ºC
T_{LEAD}	Lead Temperature (soldering, 10 seconds)	300	ºC

NOTE: Stresses greater than those listed under " Absolute Maximum Ratings" may cause permanentdamage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under" Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

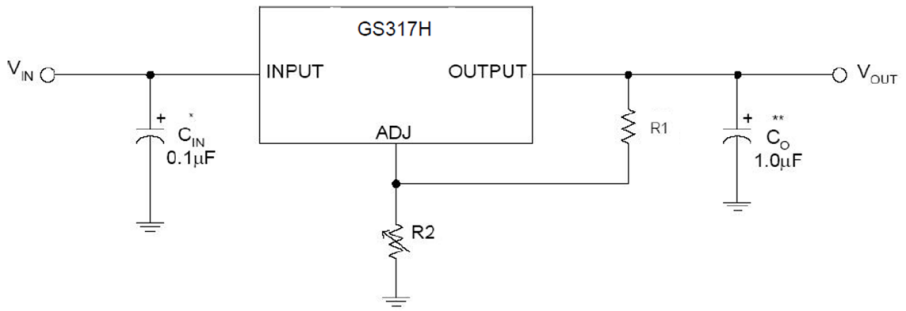
Recommended Operating Conditions

Symbol	Parameter	Value	Unit
V_{IN}	Input Voltage	(V_{OUT}+2) to 60	V
T_{OPR}	Operating Junction Temperature Range	-40 to +125	ºC

Electrical Characteristics (T_J =25 ºC)

Symbol	Characteristics	Test conditions	Min.	Typ.	Max.	Unit
V_{REF}	Reference voltage	10 mA≤ I_{OUT} ≤ 1A 3V≤ (V_{IN} - V_{OUT}) ≤ 40V	1.20	1.25	1.30	V
S_V	Line regulation	I_{OUT} ≤ 20 mA, 3V≤ V_{IN} -V_{OUT} ≤ 40V		3	16	mV
Si	Load regulation	V_{IN} - V_{OUT} =2 V, 10 mA≤ I_{OUT} ≤ 1A		5	25	mV
	Thermal regulation	20ms pulse		0.04	0.07	%/W
ΔV	Dropout voltage	I_{OUT} =1A		1.3	1.5	V
I_{LIM}	Current limit	(V_{IN} - V_{OUT}) =2V	1.5	2.0		A
I_{ADJ}	Adjust pin current			50	100	μA
ΔI_{ADJ}	Adjust pin current change	1.4 V≤ (V_{IN} - V_{OUT}) ≤ 40V 10 mA≤ I_{OUT} ≤ 1A		0.2	5.0	μA
$I_{L(MIN)}$	Minimum load current	3V≤ (V_{IN} -V_{OUT}) ≤ 40V		3.5	10.0	m A
RR	Ripple rejection	f=120Hz, COUT=1μF tantalum, (VIN -V_{OUT}) =3 V, I_{OUT} =1A	60	75		dB
T_S	Temperature stability			1		%
	Long-term stability	Ta= 125 ℃,1000hrs		0.3		%
eN	RMS output noise (% of V_{OUT})	Ta= 25 ℃, 10Hz≤ f ≤ 10kHz		0.003		%
$R_{\theta JC}$	Thermal resistance, Junction to case	TO-220		4.5		℃ /W
	Thermal shutdown	Junction temperature		150		℃
	Thermal shutdown hysteresis			25		℃

Application Circuit



*=C_{IN} is required if the regulator is located near power supply filter.
**=C_O is needed for stability and improves transient response.

$V_{OUT}=V_{REF}$ x (1+R2/R1) + I_{ADJ} x R2

Since I_{ADJ} is controlled to less than 100 μA, the error associated with this term is negligible in most applications.

Typical Performance Characteristics

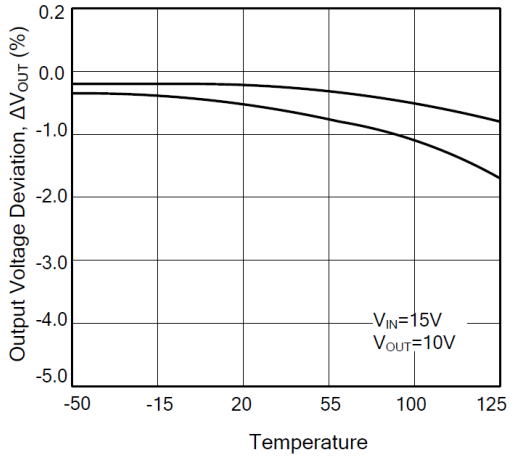


Fig.1 Load Regulation vs. temperature

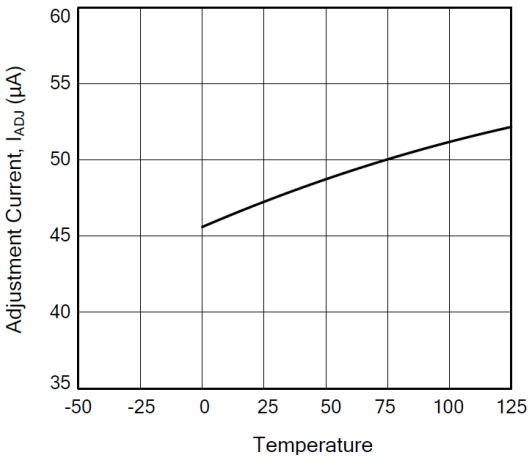


Fig.2 Adjustment Current vs. Temperature

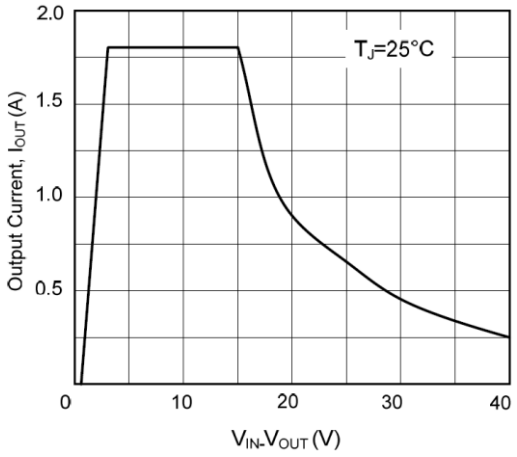


Fig.3 Current Limit

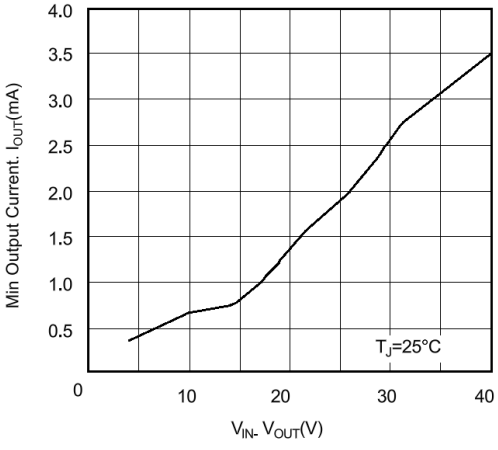


Fig.4 Minimum Operating Current

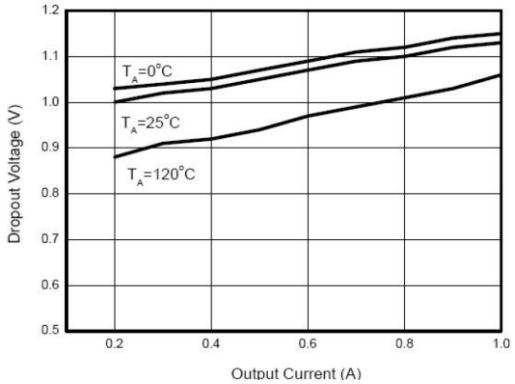


Fig.5 Output Saturation Voltage

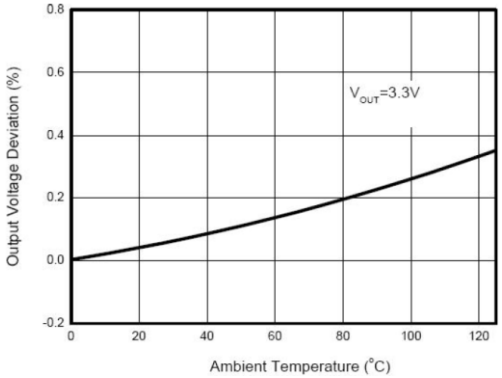


Fig.6 Load Regulation vs. Temperature

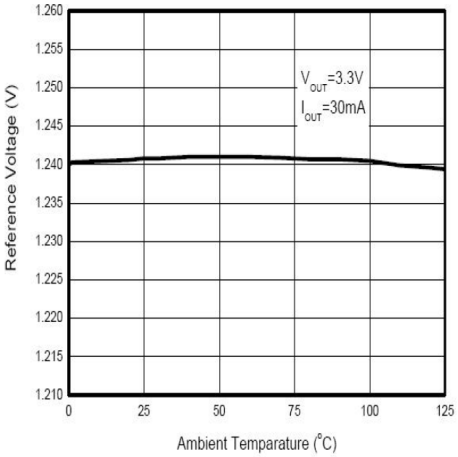


Fig.7 Reference Voltage vs. Temperature

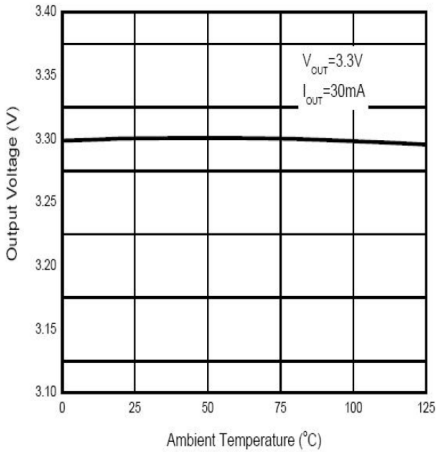


Fig.8 Output Voltage vs. Temperature

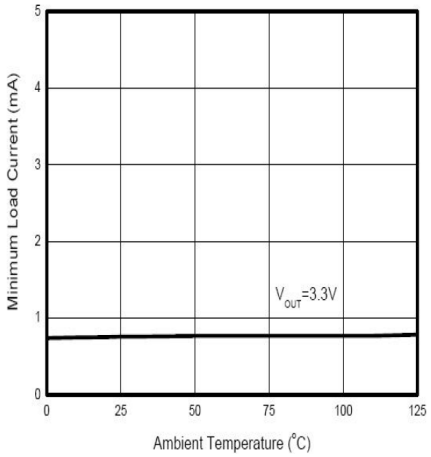


Fig.9 Minimum Load Current vs. Temperature

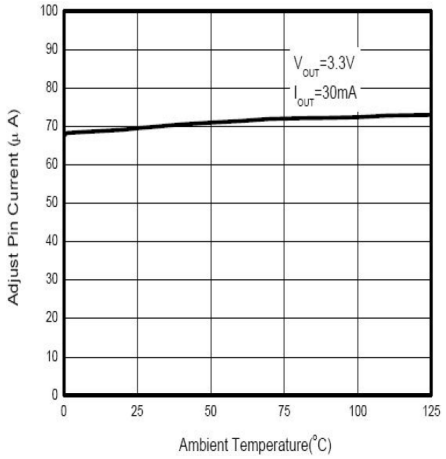
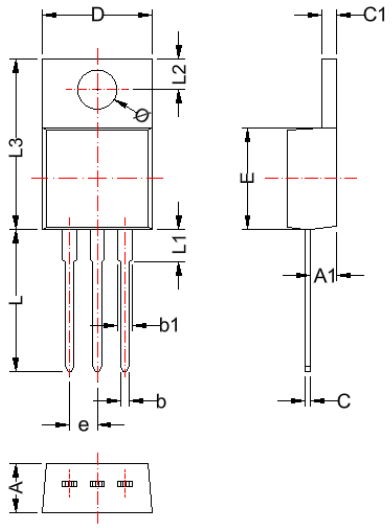


Fig.10 Adjust Pin Current vs. Temperature

TO-220-3L

Package Dimension



Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	4.30	4.70	0.169	0.185
A1	2.30	2.90	0.091	0.114
b	0.65	0.95	0.026	0.037
b1	1.20	1.65	0.047	0.065
c	0.45	0.60	0.018	0.024
c1	1.25	1.40	0.049	0.055
D	9.70	10.20	0.382	0.402
E	9.00	9.40	0.354	0.370
e	2.54 BSC		0.100 BSC	
L	12.78	13.38	0.503	0.527
L1	---	3.50	---	0.250
L2	2.50	3.00	0.098	0.118
L3	15.30	16.10	0.602	0.634
ø	3.50	3.70	0.138	0.146

NOTE:
Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

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