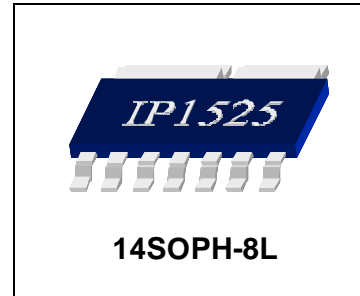


**DESCRIPTION**

The IP1525 is a dual output voltage LDO regulator which can provide up to 500mA of output current. The IP1525 consists of 2-adjustable regulators.



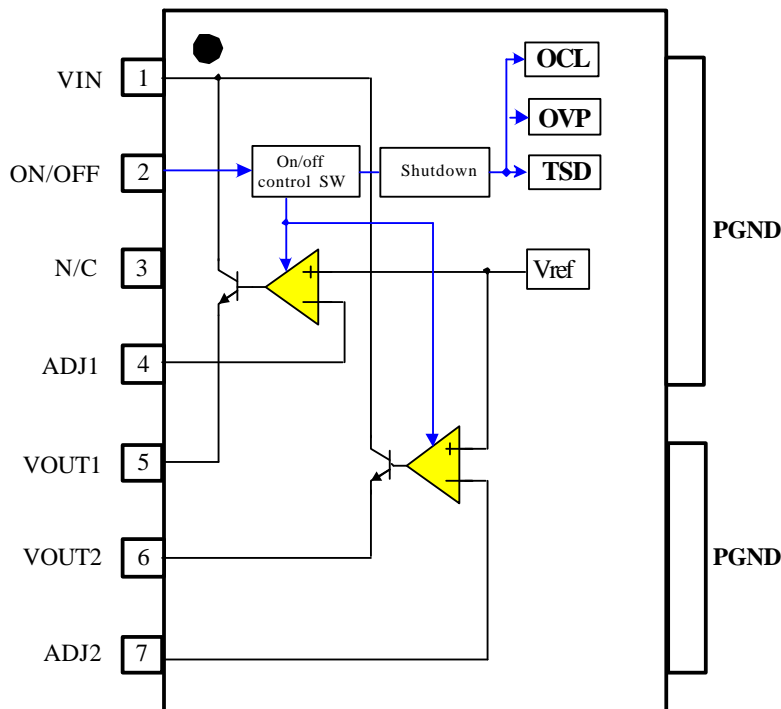
**FEATURES**

- 2-Adjustable LDO regulators with internal NPN TR.
- Built-in TSD circuit.
- Built-in current limit circuit.
- Built-in over voltage protection circuit.
- Output trimmed to +/-3% Tolerance

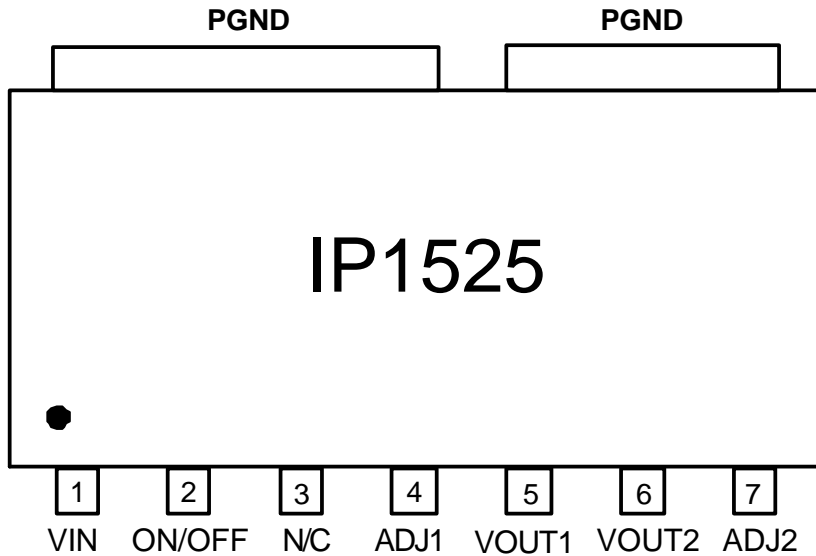
**ORDERING INFORMATION**

Device	Package	Operating Temp
SAC1525	14SOPH-8L	-35°C ~ +85°C

**BLOCK DIAGRAM**



**PIN CONNECTIONS**



**PIN DESCRIPTIONS**

NO	SYMBOL	I/O	DESCRIPTION
1	VIN	I	Input Supply Voltage
2	ON/OFF	I	ON/OFF control
3	N/C	-	No Connection
4	ADJ1	I	Regulator 1 Adjustable Pin
5	VOUT1	O	Regulator 1 Output (Adjustable)
6	VOUT2	O	Regulator 2 Output (Adjustable)
7	ADJ2	I	Regulator 2 Adjustable Pin
8	PGND	-	Power Ground

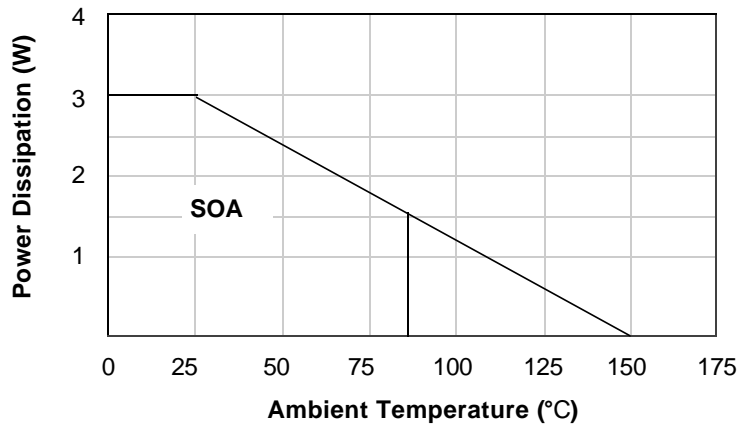
**ABSOLUTE MAXIMUM RATINGS(TA=25°C)**

CHARACTERISTICS	SYMBOL	VALUE	UNIT
Maximum supply voltage	Vccmax	10	V
Input voltage	Vinmax	10	V
Power dissipation	Pd	3.0*	W
Operating temperature	Topr	-35 ~ +85	°C
Storage temperature	Tstr	-55 ~ +150	°C

Note>

1. When mounted on 100mm X 100mm X 1mm PCB (Phenolic resin material).
2. Power dissipation reduces 24mW/°C for using above Ta=25°C
3. Do not exceed Pd and SOA.

**POWER DISSIPATION CURVE**



**RECOMMENDED OPERATING CONDITIONS**

CHARACTERISTICS	SYMBOL	VALUE	UNIT
Input voltage	VIN	4.5 ~ 6.0	V

**ELECTRICAL CHARACTERISTICS**

( $V_{in}=5V$ ,  $C_o=10\mu F$ ,  $T_a=25^\circ C$ , unless otherwise specified.)

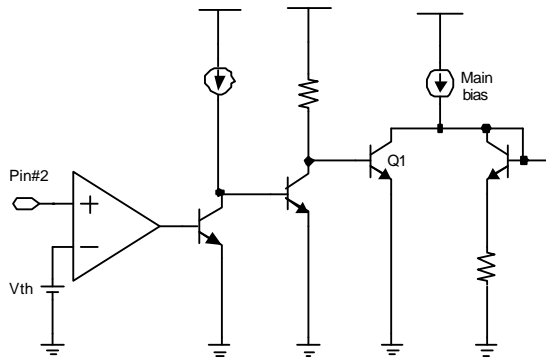
Characteristics	Symbol	Condition	Min.	Typ.	Max.	Units
Quiescent current	I <sub>cc</sub>	V <sub>cc</sub> =5V, No-Load	-	7	12	mA
OVP Detecting Voltage	V <sub>ovp</sub>	V <sub>cc</sub> =Variable	6.5	-	-	V
Reference voltage	V <sub>ref</sub>	-	1.212	1.25	1.288	V
<b>LDO REGULATOR 1 (ADJUSTABLE TYPE)</b>						
Output Voltage	V <sub>out1</sub>	I <sub>o</sub> =10mA	V <sub>ref</sub>	-	V <sub>in</sub> -1.5V	V
Line Regulation	dV <sub>line1</sub>	V <sub>in</sub> =4.5~6V, I <sub>o</sub> =10mA	-	0.01	0.2	%
Load Regulation	dV <sub>load1</sub>	T <sub>a</sub> =25°C V <sub>in</sub> =5V, 10mA < I <sub>o</sub> < 400mA	-	0.4	0.8	%
Dropout voltage	V <sub>drop1</sub>	I <sub>o</sub> =400mA	-	1.1	1.3	V
Ripple rejection	RR1	F=120Hz, C <sub>o</sub> =10μF Tantalum V <sub>in</sub> -V <sub>out</sub> =2V, I <sub>o</sub> =200mA	60	70	-	dB
Current limit <sup>*Note</sup>	I <sub>limit1</sub>	V <sub>in</sub> -V <sub>out</sub> =3.0V	500	-	-	mA
Adjust pin current	I <sub>adj 1</sub>	-	-	0.1	-	μA
Minimum load current	I <sub>lmin1</sub>	-	10	-	-	mA
Temperature stability	Temp1	-	-	0.5	-	%
<b>LDO REGULATOR 2 (ADJUSTABLE TYPE)</b>						
Output Voltage	V <sub>out2</sub>	I <sub>o</sub> =10mA	V <sub>ref</sub>	-	V <sub>in</sub> -1.5V	V
Line Regulation	dV <sub>line2</sub>	V <sub>in</sub> =4.5~6V, I <sub>o</sub> =10mA	-	0.01	0.2	%
Load Regulation	dV <sub>load2</sub>	T <sub>a</sub> =25°C V <sub>in</sub> =5V, 10mA < I <sub>o</sub> < 400mA	-	0.4	0.8	%
Dropout voltage	V <sub>drop2</sub>	I <sub>o</sub> =400mA	-	1.1	1.3	V
Ripple rejection	RR2	F=120Hz, C <sub>o</sub> =10μF Tantalum V <sub>in</sub> -V <sub>out</sub> =2V, I <sub>o</sub> =200mA	60	70	-	dB
Current limit <sup>*Note</sup>	I <sub>limit2</sub>	V <sub>in</sub> -V <sub>out</sub> =3.0V	500	-	-	mA
Adjust pin current	I <sub>adj 2</sub>	-	-	0.1	-	μA
Minimum load current	I <sub>lmin2</sub>	-	10	-	-	mA
Temperature stability	Temp2	-	-	0.5	-	%
<b>ON/OFF CONTROL PART</b>						
On voltage	V <sub>on</sub>	V <sub>out</sub> =Enabled	-	-	0.8	V
Off voltage	V <sub>off</sub>	V <sub>out</sub> =Disabled	2.0	-	-	V

\* Note : Don't exceed following current limit.  
( I<sub>out1</sub> : 500 mA, I<sub>out2</sub> : 500 mA )

**APPLICATION SUMMARY**

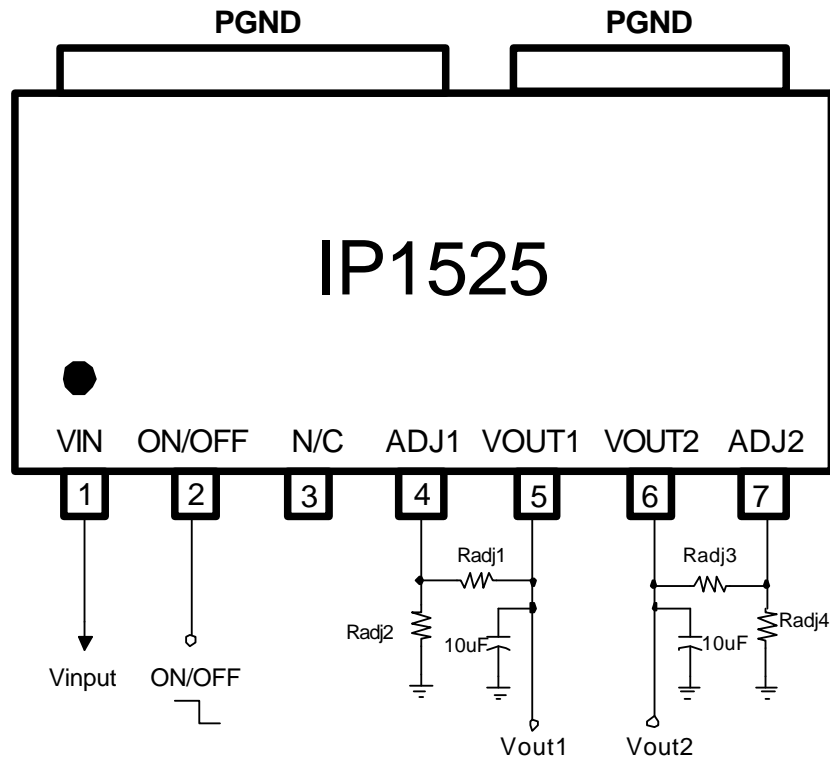
**- ON / OFF**

When you want to control output of the IP1525, use pin #2 as follows



As shown in figure  
Pin#2 is positive input of the comparator,  
and the other Input is threshold voltage.  
If the voltage of the pin#2 rises above threshold voltage,  
then TR Q1 will be saturated and the main bias current  
will be shut down.

**TYPICAL APPLICATION CIRCUIT**

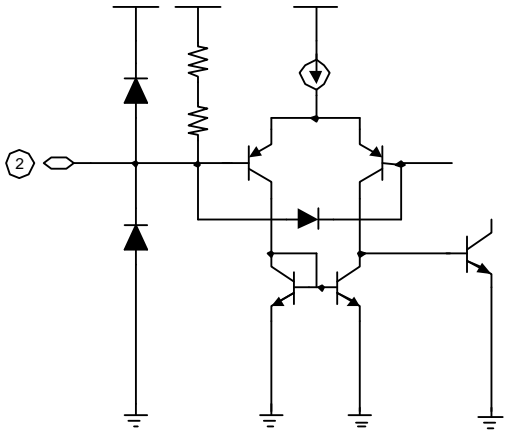
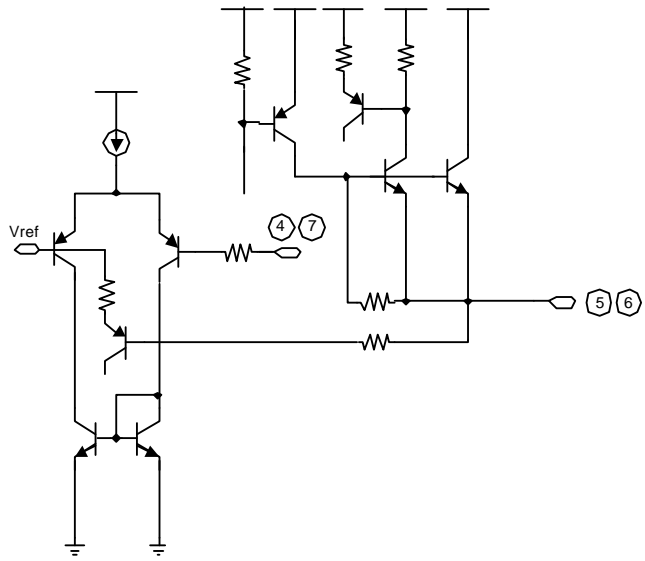


**\*CALCULATION OF OUTPUT VOLTAGE**

$$VOUT1 = VREF ( 1 + (Radj1 / Radj2) ) = 1.25V ( 1 + (Radj1 / Radj2) )$$

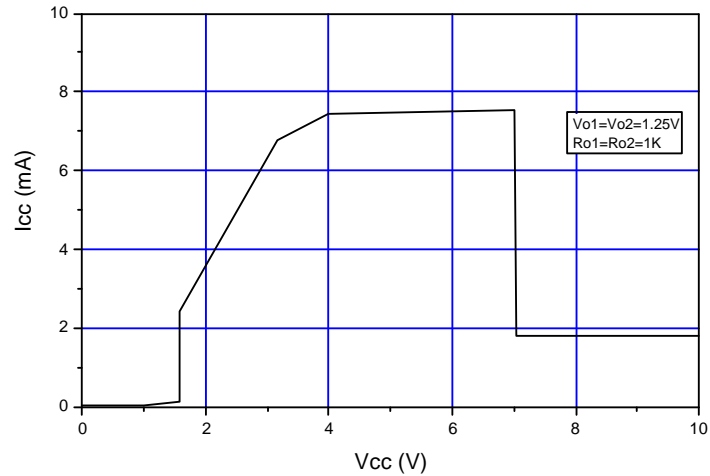
$$VOUT2 = VREF ( 1 + (Radj3 / Radj4) ) = 1.25V ( 1 + (Radj3 / Radj4) )$$

**INTERNAL CIRCUIT**

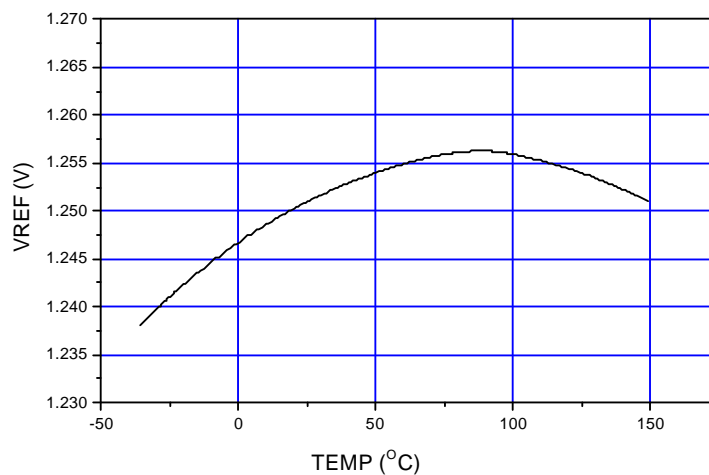
Pin no	Pin name	Internal circuit
2	ON/OFF	
4,5,6,7	Regulator Output1,2 Regulator Adjustable pin	

ELECTRICAL CHARACTERISTICS CURVES

QUIESCENT CURRENT



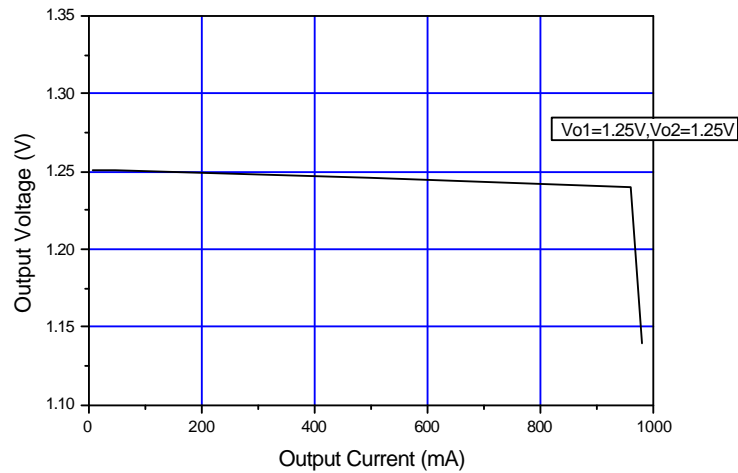
VREF TEMPERATURE STABILITY



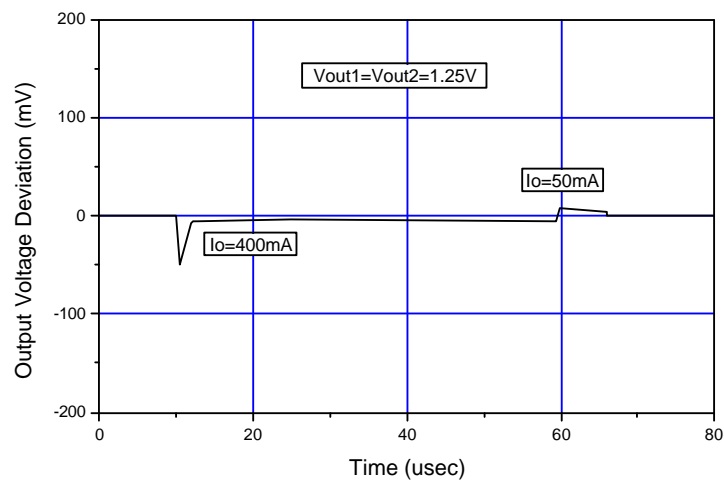


**ELECTRICAL CHARACTERISTICS CURVES (Continued)**

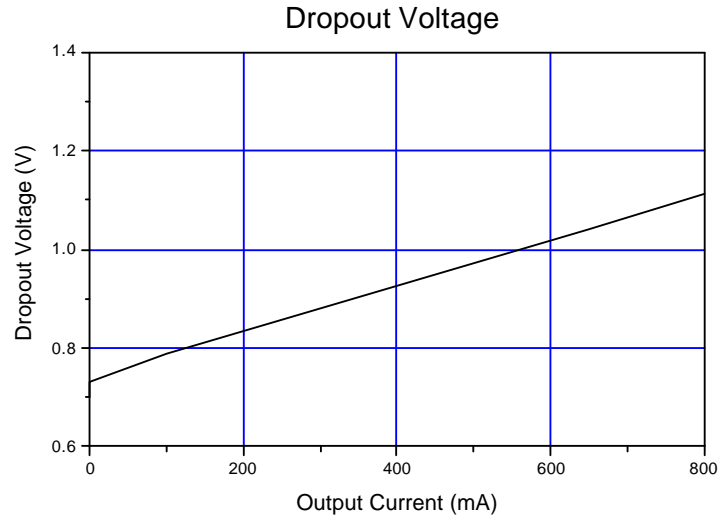
**VOUT1,2 Load Regulation ( $T_j=25^\circ\text{C}$ )**



**VOUT1,2 Load Transient Response**



**ELECTRICAL CHARACTERISTICS CURVES (Continued)**



**PACKAGE DIMENSION**

**14SOPH-8L**

