



UM5237

Preliminary

LINEAR INTEGRATED CIRCUIT

3-TERMINAL ADJUSTABLE REGULATOR

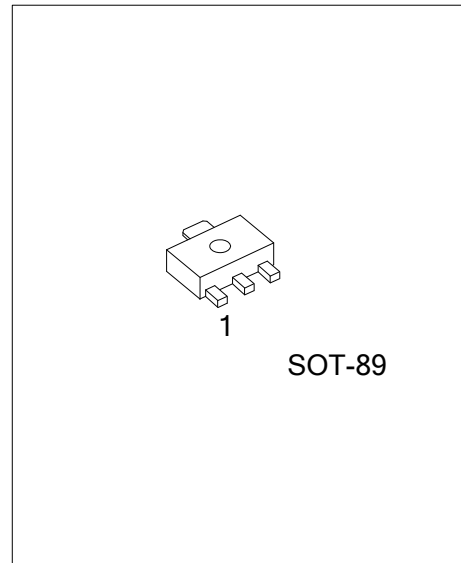
DESCRIPTION

The UTC **UM5237** is a 3-terminal adjustable regulator. It's used as a variable output voltage regulator.

The UTC **UM5237** has a less power dissipation and more exact loading voltage regulation .it's suitable for driver circuit, differential amplifier and reference voltage generator circuit, etc.

FEATURES

- * Wide Input/Output voltage range
- * Low Dropout Voltage
- * Over current protect
- * External circuit can adjust the output voltage



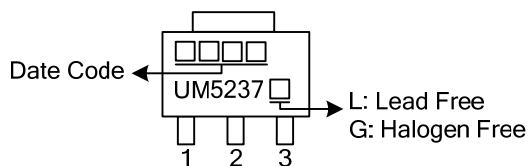
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UM5237L-AB3-R	UM5237G-AB3-R	SOT-89	O	G	I	Tape Reel

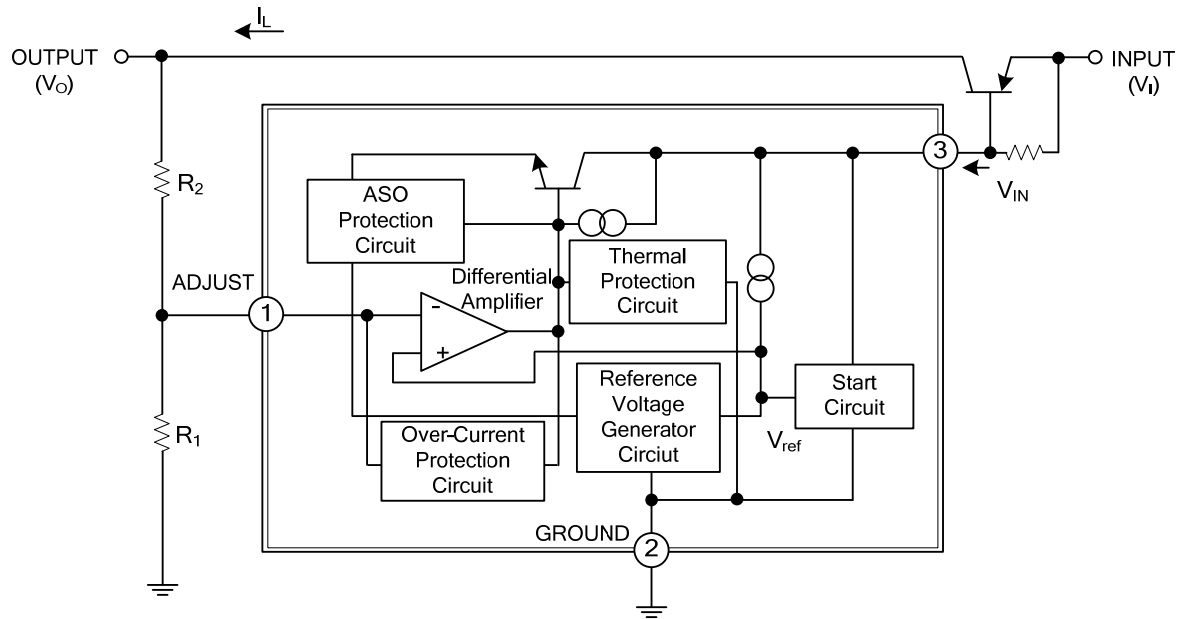
Note: Pin Assignment: O: OUTPUT G: GROUND I: INPUT

<p>UM5237G-AB3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Halogen Free</p>	<p>(1) R: Tape Reel</p> <p>(2) AB3: SOT-89</p> <p>(3) G: Halogen Free, L: Lead Free</p>
---	---

MARKING INFORMATION



■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	30	V
Drive Current	I_D	30	mA
Input/Output Voltage Difference	$V_{IN}-V_{OUT}$	28	V
Internal Power Dissipation	P_D	500	mW
Operating Temperature	T_{OPR}	-20~+75	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage Range	V_{IN}	3.5~30	V
Output Voltage Range	V_{OUT}	1.5~25	V

■ ELECTRICAL CHARACTERISTICS

Test circuit (a) is used with $T_A=25^{\circ}\text{C}$, $V_I=15\text{V}$, $V_O=12\text{V}$, $I_L=200\text{mA}$, $C_{REF}=1\mu\text{A}$, $R_1=4.3\text{K}\Omega$

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	V_{IN}	Between Pin 1 and Pin 2	3.5		30	V
Output Voltage	V_{OUT}	$R_2 \approx 0.82 \sim 108\text{K}\Omega$	1.5		28	V
Minimum Input/Output Voltage Difference	$V_{IN}-V_{OUT}$			0.2		V
Reference Voltage	V_{REF}	Between Pin 2 and Pin 3	1.2	1.26	1.32	V
Input Voltage Regulation	R_{eq-in}	$V_I=15 \sim 20\text{V}$		0.02	0.1	%/V
Loading Voltage Regulation	R_{eq-L}	$I_L=10 \sim 200\text{mA}$		0.02	0.1	%
Bias Current	I_B	$I_L=0$ (disregarding the current in resistors R_1 , R_2)		1.7	3.0	mA
Output Voltage Thermal Coefficient	TC_{VO}	$T_A=0 \sim 75^{\circ}\text{C}$		0.02		%/ $^{\circ}\text{C}$
Ripple Rejection	RR	$f=120\text{Hz}$ measured with circuit (b)		68		dB
Output Noise Voltage	V_{NO}	$f=20\text{Hz} \sim 100\text{KHZ}$		25		μVrms

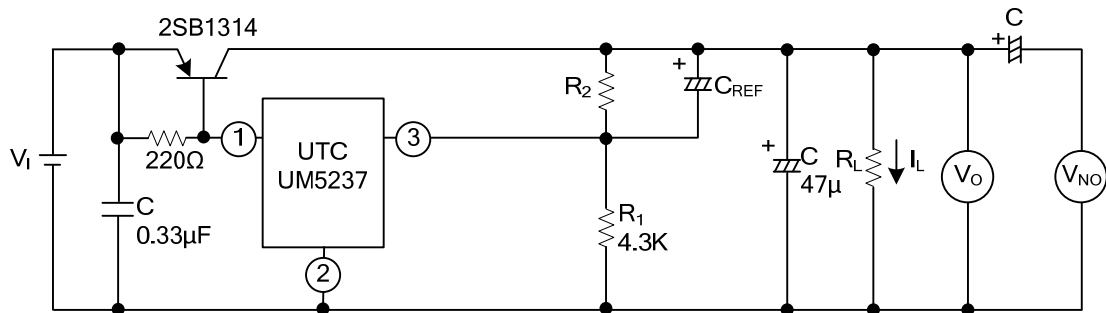
■ TEST CIRCUIT

(a) Standard test circuit

$$V_O = V_{REF} \left(1 + \frac{R_2}{R_1} \right) \approx 1.26 \times \left(1 + \frac{R_2}{4.3} \right) (V)$$

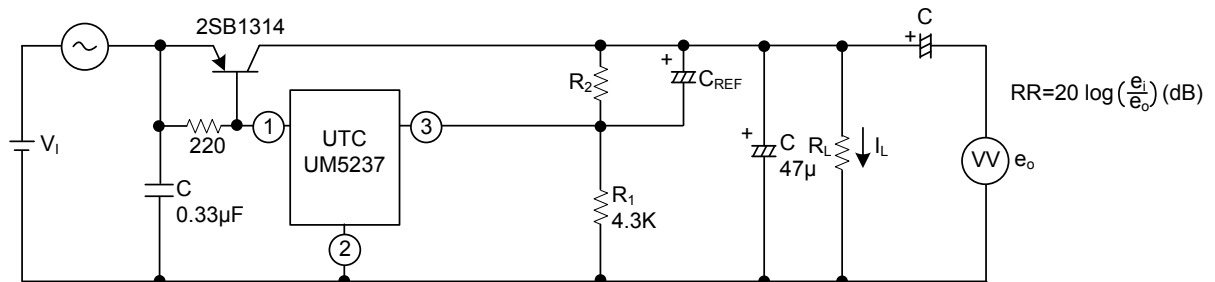
$$R_2 = R_1 \left(\frac{V_O}{V_{REF}} - 1 \right) \approx 4.3 \times \left(\frac{V_O}{1.26} - 1 \right) (K\Omega)$$

($R_1 = 4.3K\Omega$, $V_{REF} \approx 1.26V$)



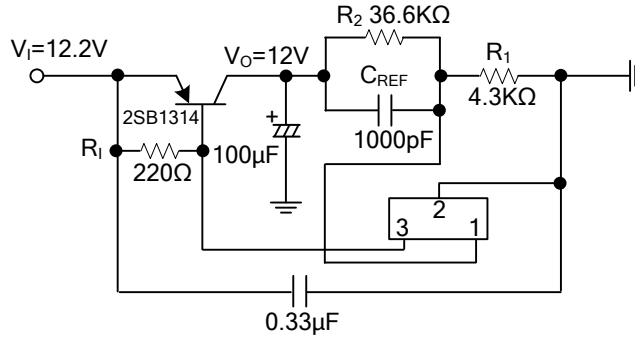
(b) Ripple rejection test circuit

$f = 120Hz$, $e_i = 0.1V_{rms}$



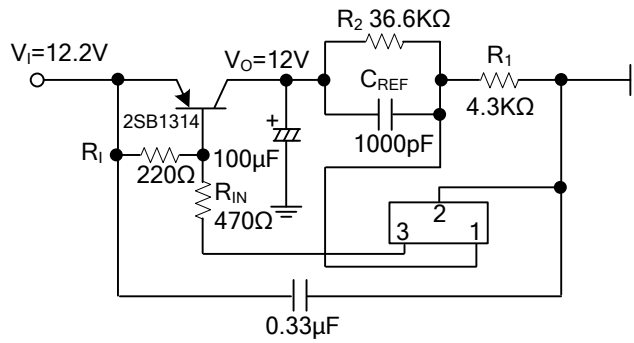
■ TYPICAL APPLICATION CIRCUIT

1. Standard Application Circuit

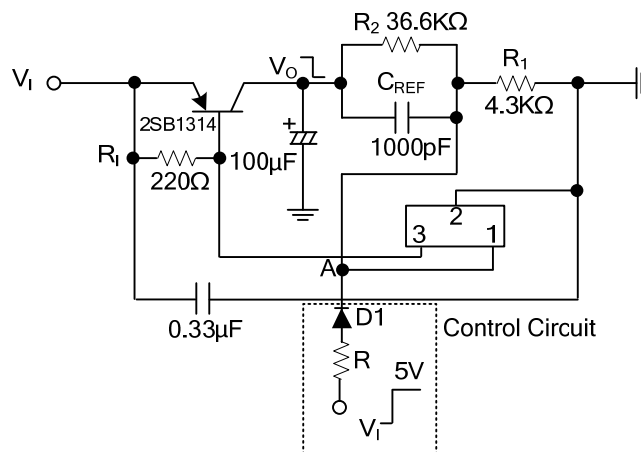


$$V_O = V_{REF} \times \left(1 + \frac{R_2}{R_1} \right) V, \quad V_{REF} = 1.26V$$

2. Maximum Drive Current Controller Application Circuit



3. Output Voltage ON/OFF Controller



Set control circuit resistor R so that voltage of point A is more than 1.5V and less than 5V

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.