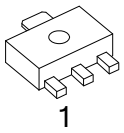
3-TERMINAL ADJUSTABLE REGULATOR



SOT-89

■ 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

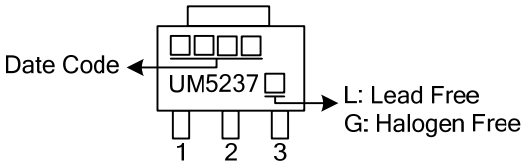
■ ORDERING INFORMATION

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

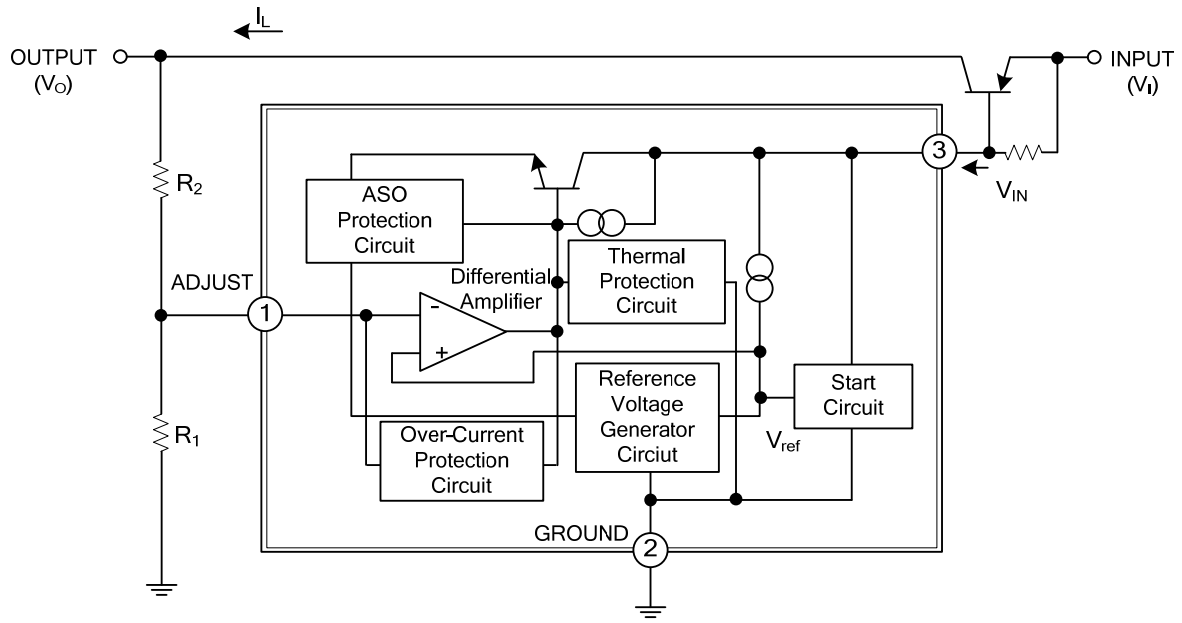
Note: Pin Assignment: O: OUTPUT G: GROUND I: INPUT

UM5237G-AB3-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AB3: SOT-89 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING (T_A=25°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	°C
Storage Temperature	T_{STG}	-55 ~ +150	°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°C, V_I=15V, V_O=12V, I_L=200mA, C_{REF}=1μA, R_1=4.3KΩ)

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≈0.82~108KΩ	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	$R_{eg\text{-}in}$	V_I=15~20V		0.02	0.1	%/V
Loading Voltage Regulation	$R_{eg\text{-}L}$	I_L=10~200mA		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=0~75°C		0.02		%/°C
Ripple Rejection	RR	f=120Hz measured with circuit (b)		68		dB
Output Noise Voltage	V_{NO}	f=20Hz~100KHZ		25		μVrms

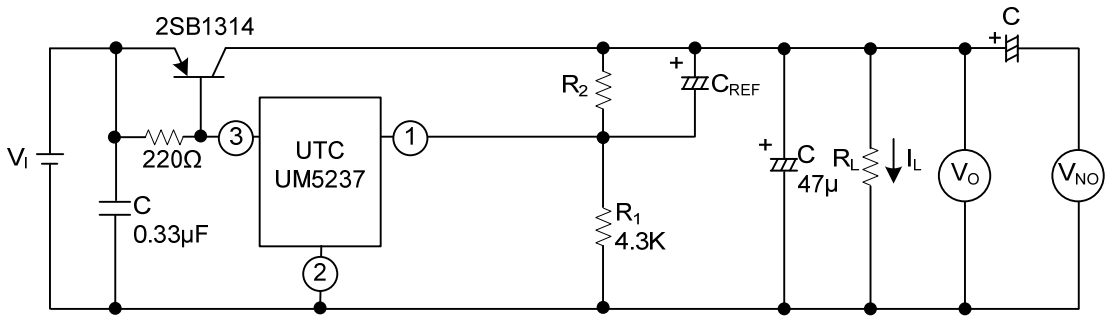
■ TEST CIRCUIT

(a) Standard test circuit

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

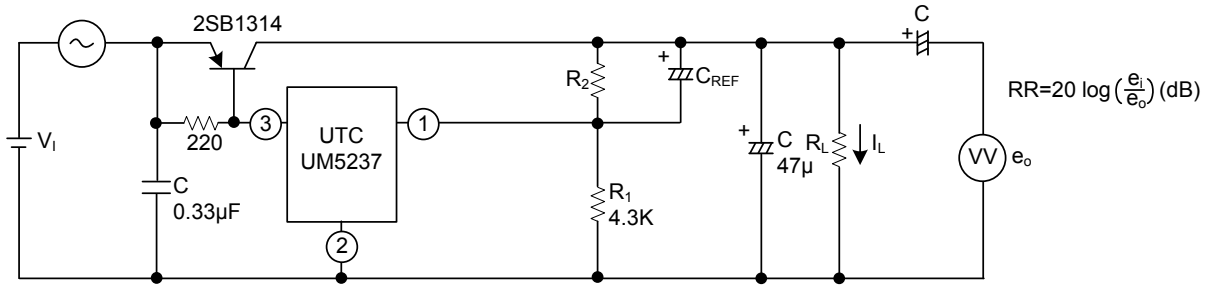
$$R_2=R_1\left(\frac{V_O}{V_{REF}}-1\right)\approx 4.3\times\left(\frac{V_O}{1.26}-1\right)(K\Omega)$$

(R_1=4.3KΩ, V_{RER}≈1.26V)



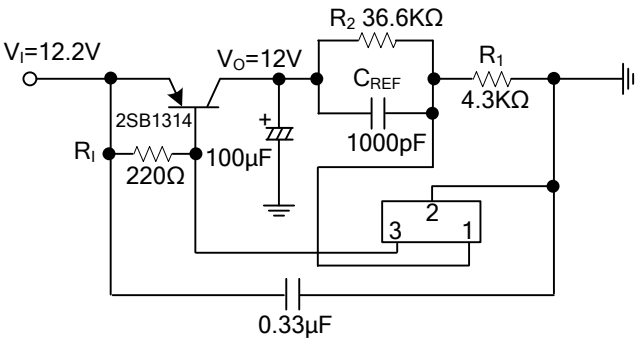
(b) Ripple rejection test circuit

f=120Hz, e_i=0.1Vrms



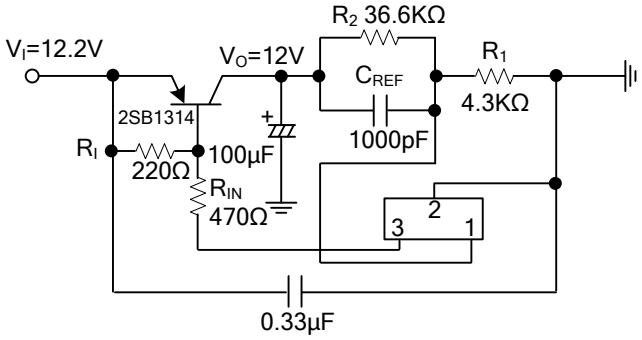
■ TYPICAL APPLICATION CIRCUIT

1. Standard Application Circuit

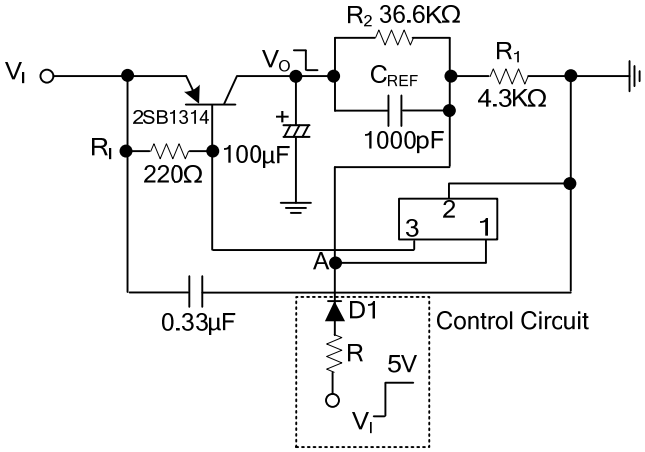


$V_O=V_{REF}\times\left(1+\frac{R_2}{R_1}\right)V$, V_{REF}=1.26V

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