

## 1. DESCRIPTION

The XL217 are monolithic integrated circuits in SOP8 packages intended for use as positive adjustable voltage regulators.

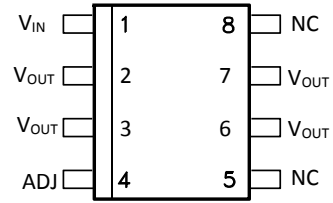
They are designed to supply up to 100 mA of load current with an output voltage adjustable over a 1.2 to 37 V range. The nominal output voltage is selected by means of only a resistive divider, making the device exceptionally easy to use and eliminating the stocking of many fixed regulators.

## 2. FEATURES

- Output voltage range: 1.2 to 37 V
- Output current in excess of 100 mA
- Output current up to 100 mA
- Line regulation typ. 0.01%
- Load regulation typ. 0.1%
- Thermal overload protection
- Short-circuit protection
- Output transition safe area compensation
- Floating operation for high voltage applications

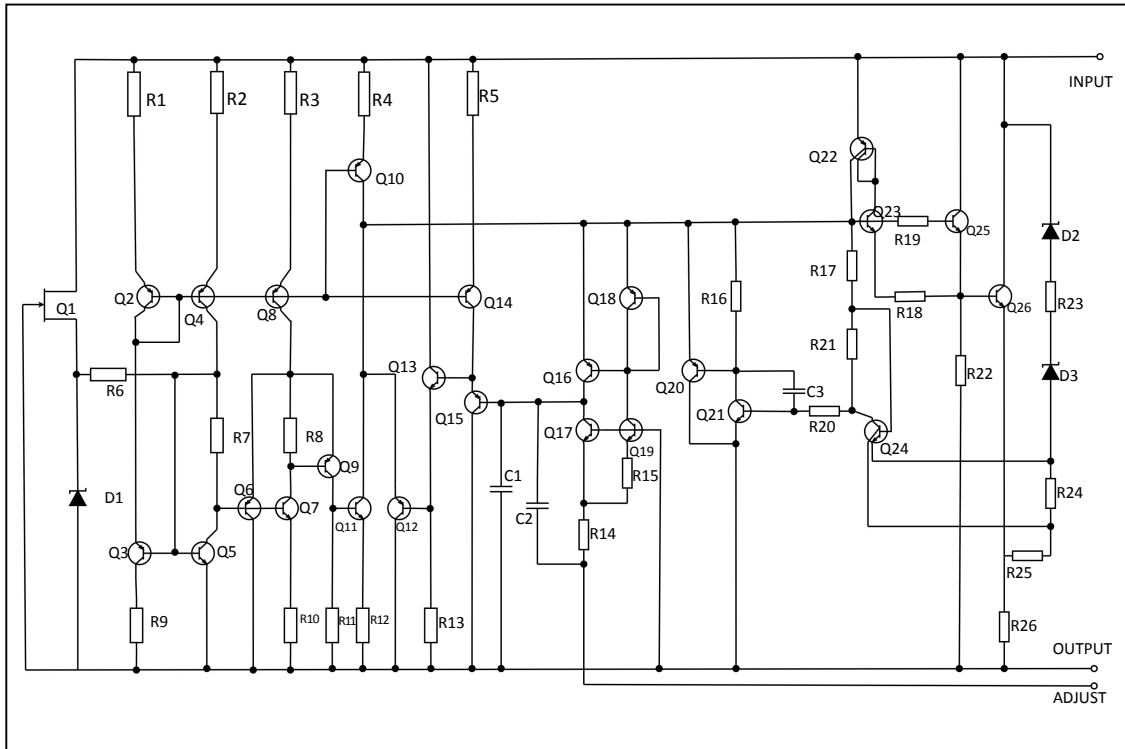
### 3. PIN CONFIGURATIONS AND FUNCTIONS

#### XL217



(TOP VIEW)

#### 4. FUNCTIONAL BLOCK DIAGRAM



Schematic diagram

## 5. SPECIFICATIONS

### 5.1. Absolute Maximum Ratings

Symbol	Parameter		Value	Unit
$V_I-V_O$	Input-output differential voltage		40	V
$P_D$	Power dissipation		Internally limited	mW
$T_{OP}$	Operating junction temperature range	for XL217	-40 to 85	°C
$T_{STG}$	Storage temperature range		-55 to 150	°C

### 5.2. Electrical Characteristics

(Refer to the test circuits,  $T_J = -40$  to  $85^\circ\text{C}$ ,  $V_I - V_O = 5$  V,  $I_O = 40$  mA, unless otherwise specified)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit	
$DV_O$	Line regulation	$V_I - V_O = 3$ to $40$ V, $I_L = 20$ mA		$T_J = 25^\circ\text{C}$	0.01	0.02	%V
					0.02	0.05	
$DV_O$	Load regulation	$V_O \leq 5$ V, $I_O = 5$ to $100$ mA		$T_J = 25^\circ\text{C}$	5	15	mV
					20	50	
		$V_O \geq 5$ V, $I_O = 5$ to $100$ mA		$T_J = 25^\circ\text{C}$	0.1	0.3	%
					0.3	1	
$I_{ADJ}$	Adjustment pin current			50	100	$\mu\text{A}$	
$D I_{ADJ}$	Adjustment pin current	$V_I - V_O = 3$ to $40$ V, $I_O = 5$ to $100$ mA $P_d < 625$ mW		0.2	5	$\mu\text{A}$	
$V_{REF}$	Reference voltage	$V_I - V_O = 3$ to $40$ V, $I_O = 10$ to $500$ mA $P_d < 625$ mW	1.2	1.25	1.3	V	
$DV_O/V_O$	Output voltage temperature stability			0.7		%	
$I_{O(\min)}$	Minimum load current	$V_I - V_O = 40$ V		3.5	5	mA	
$I_{O(\max)}$	Maximum output current	$V_I - V_O = 3$ to $13$ V	100	200		mA	
		$V_I - V_O = 40$ V		50			
eN	Output noise voltage	$B = 10$ Hz to $10$ KHz, $T_J = 25^\circ\text{C}$		0.003		%	
SVR	Supply voltage rejection <sup>[1]</sup>	$T_J = 25^\circ\text{C}$ $f = 120$ Hz	$C_{ADJ} = 0$		65	dB	
			$C_{ADJ} = 10$ $\mu\text{F}$	66	80		

[1]  $C_{ADJ}$  is connected between adjust pin and ground.

## 6. Typical performance

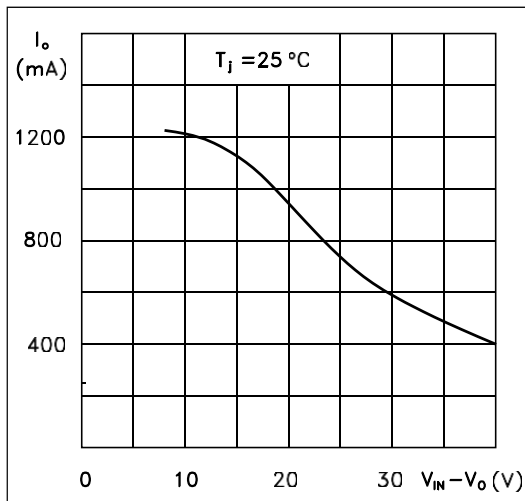


Figure 3. Current limit

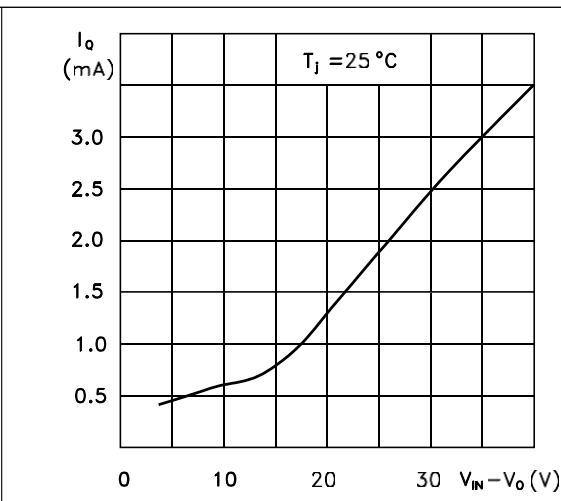


Figure 4. Minimum operating current

## 7. Application information

The device was designed to minimize the term  $I_{ADJ}$  (100  $\mu$ A max) and to maintain it very constant with line and load changes. Usually, the error term  $I_{ADJ} \times R_2$  can be neglected. To obtain the previous requirement, all the regulator quiescent current is returned to the output terminal, imposing a minimum load current condition. If the load is insufficient, the output voltage will rise.

## 8. Application circuits

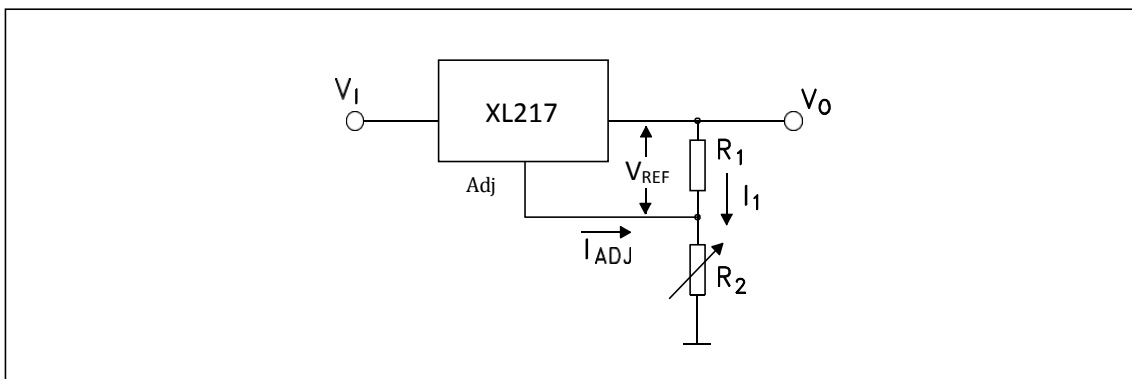
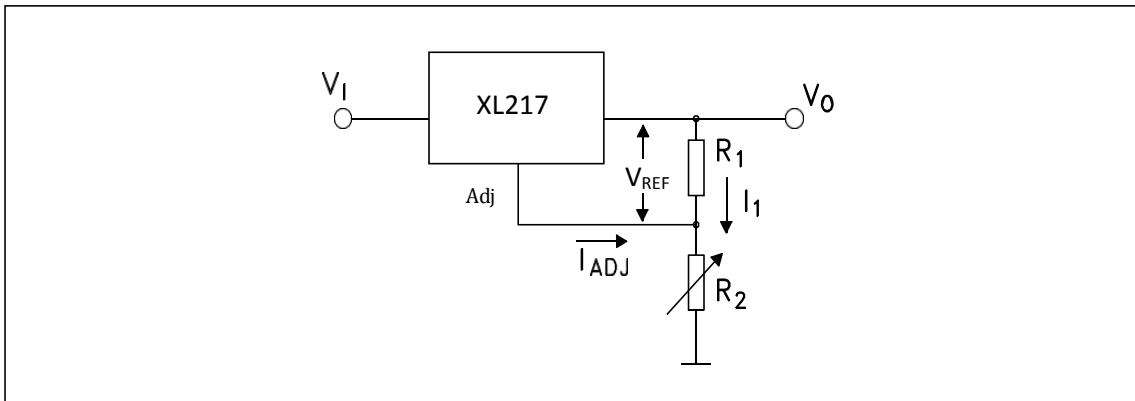
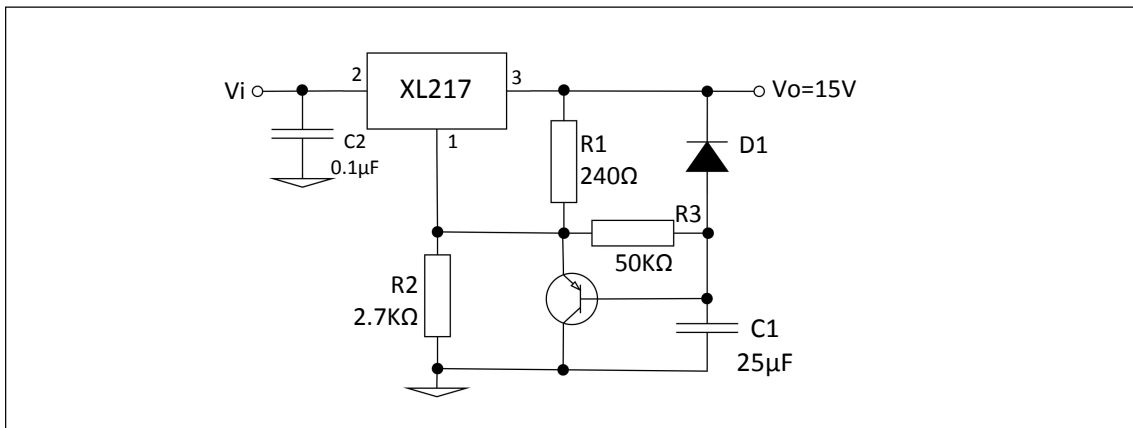


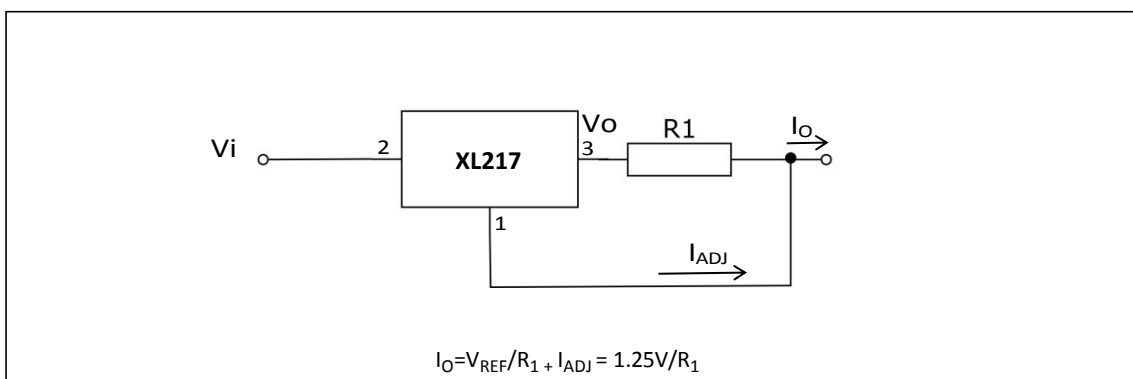
Figure 8-1. Basic adjustable regulator



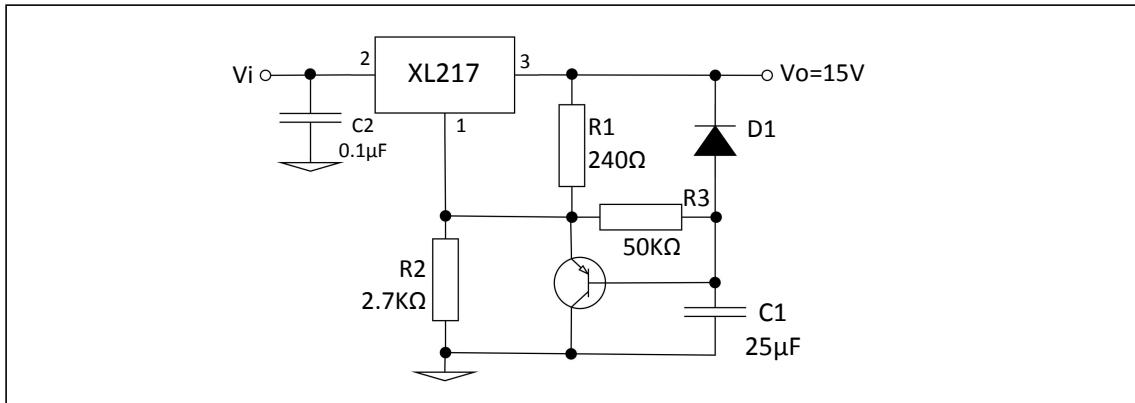
**Figure 8-2. Voltage regulator with protection diodes**



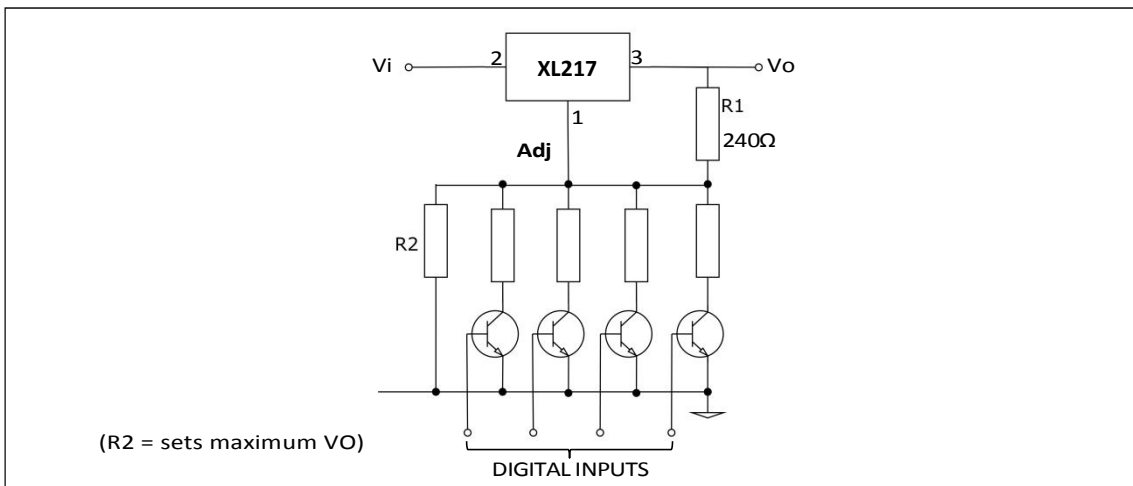
**Figure 8-3. Slow turn-on 15 V regulator**



**Figure 8-4. Current regulator**



**Figure 8-5. 5 V Electronic shut-down regulator**



**Figure 8-6. Digitally selected outputs**

## 1. ORDERING INFORMATION

### Ordering Information

Part Number	Device Marking	Package Type	Body size (mm)	Temperature (°C)	MSL	Transport Media	Package Quantity
XL217	XL217	SOP8	4.90 * 3.90	-40 to +85	MSL3	T&R	2500

## 2. DIMENSIONAL DRAWINGS

