

# isc Adjustable Voltage Regulator

# LM317

## FEATURES

- Output Voltage Range :1.2V to 37V
- Output Current in Excess of 1.5A
- 0.1% Line and Load Regulation
- Floating Opearation for High Voltages
- Complete Series of Protections:  
Current Limiting,  
Thermal Shutdown and SOA Control

## DESCRIPTION

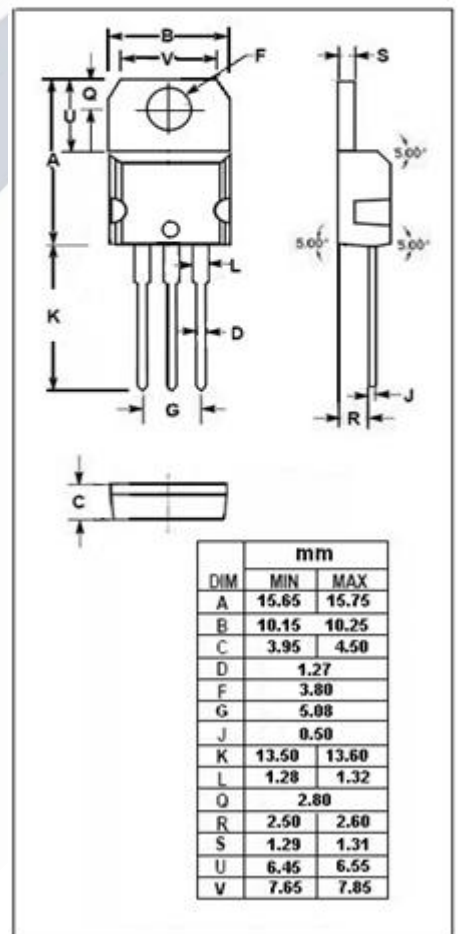
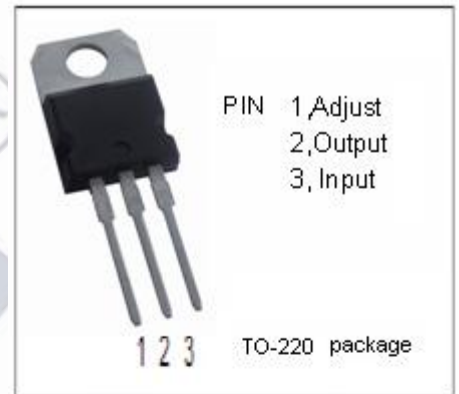
- They are designed to supply more than 1.5A of load current with an output voltage adjustable over a 1.2 to 37V range.
- The nominal output voltage is selected by means of only a resistive divider,making the device exceptionally easy to use and eliminating the stocking of many fixed regulators.

## ABSOLUTE MAXIMUM RATINGS(T<sub>a</sub>=25°C)

SYMBOL	PARAMETER	VALUE	UNIT
V <sub>i</sub> -V <sub>o</sub>	Input-output Differential Voltage	40	V
I <sub>o</sub>	Output Current	Internally Limited	A
P <sub>D</sub>	Power Dissipation	Internally Limited	W
T <sub>OP</sub>	Operating Junction Temperature	0~125	°C
T <sub>STG</sub>	Storage Temperature	-65~+125	°C

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R <sub>th j-c</sub>	Thermal Resistance, Junction to Case	3	°C/W
R <sub>th j-a</sub>	Thermal Resistance, Junction to Ambient	50	°C/W



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## • ELECTRICAL CHARACTERISTICS

(V<sub>i</sub>-V<sub>o</sub>=5V, I<sub>o</sub>=0.5A, I<sub>MAX</sub>=1.5A, P<sub>MAX</sub>=20W, unless otherwise specified)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$\Delta V_o$	Line Regulation	V <sub>i</sub> - V <sub>o</sub> = 3V to 40V; I <sub>o</sub> = 10mA to 1.5A			0.07	%/V
S <sub>VR</sub>	Ripple Rejection	V <sub>o</sub> = 10V; f = 120Hz, C <sub>ADJ</sub> = 10 μ F	66			dB
$\Delta V_o$	Load Regulation	I <sub>o</sub> = 10mA to 1.5A; V <sub>o</sub> ≤ 5V ; T <sub>j</sub> = 25 °C			25	mV
		I <sub>o</sub> = 10mA to 1.5A; V <sub>o</sub> > 5V ; T <sub>j</sub> = 25 °C			0.5	%
I <sub>o</sub> (min)	Minimum Load Current	V <sub>i</sub> - V <sub>o</sub> = 40 V			10	mA
I <sub>o</sub> (max)	Maximum Load Current	V <sub>i</sub> - V <sub>o</sub> ≤ 15 V	1.5			A
		V <sub>i</sub> - V <sub>o</sub> = 40 V; T <sub>j</sub> = 25 °C	0.15			A
I <sub>ADJ</sub>	Adjustment Pin Current	V <sub>i</sub> - V <sub>o</sub> = 5V ; I <sub>o</sub> = 500mA			100	μ A
$\Delta I_{ADJ}$	Adjustment Pin Current	V <sub>i</sub> - V <sub>o</sub> = 2.5V to 40V; I <sub>o</sub> = 10mA to 1.5A			5	μ A
V <sub>REF</sub>	Reference Voltage	V <sub>i</sub> - V <sub>o</sub> = 3V to 40V ; I <sub>o</sub> = 10mA to 1.5A, P ≤ 15W	1.2	1.25	1.3	V