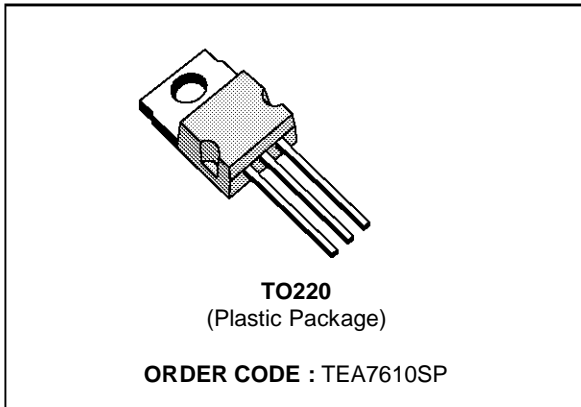
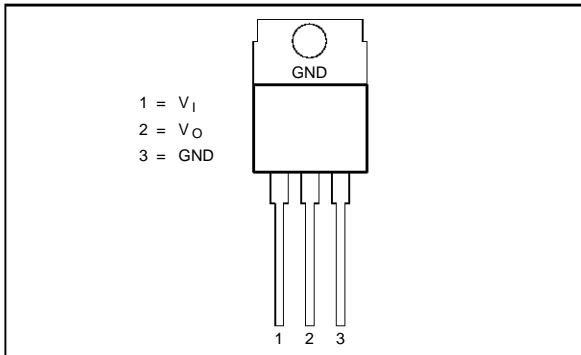


**LOW-DROP VOLTAGE REGULATOR**

- $V_O = 10V \pm 4\%$  ( $I_O = 5mA$ )
- $I_O = 5$  TO  $500mA$
- $V_I - V_O = 0.6V$  ( $I_O = 500mA$ )
- $V_I$  (surge) =  $\pm 80V$
- THERMAL AND SHORT-CIRCUIT PROTECTION



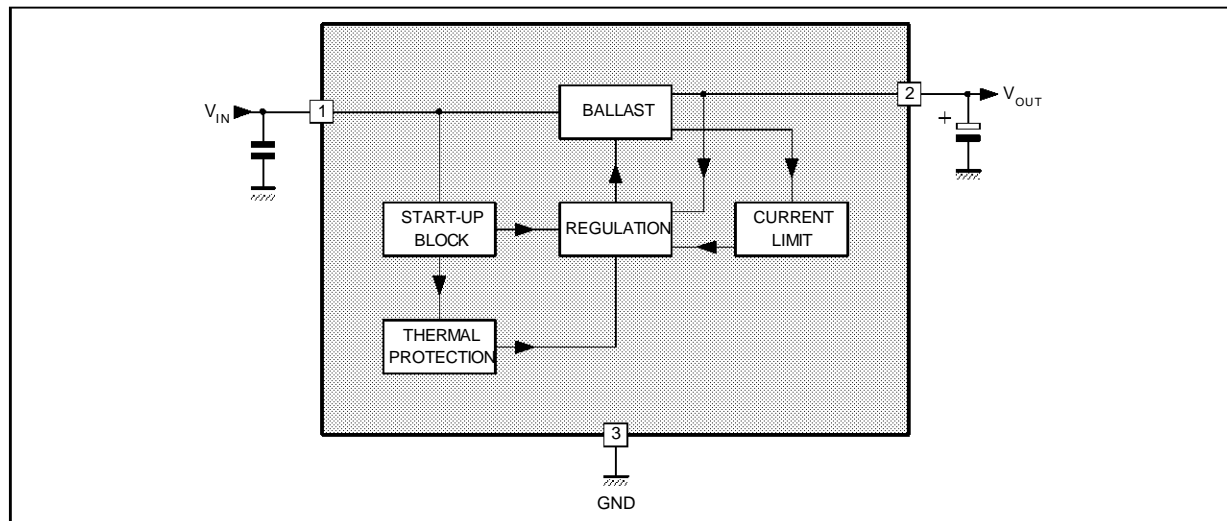
**PIN CONNECTIONS**



**DESCRIPTION**

TEA7610 is a low-drop regulator well suited to supplying stabilized voltage to  $\mu$ Ps in harsh industrial environment.  
Special care was taken to keep :  
- Lowest possible output capacitor ( $1\mu F$ ).

**BLOCK DIAGRAM**



## ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_I$	Input Voltage - Continuous - $\tau = 300$ ms	30	V
		80	V
$V_{I(R)}$	Reverse Input Voltage - Continuous - $\tau = 120$ ms	- 18	V
		- 80	V
$T_J$	Operating Junction Temperature	- 45, +150	°C
$T_{stg}$	Storage Temperature	- 55, +150	°C

7610-01.TBL

## THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction-case Thermal Resistance	Max. 3	°C/W
$R_{th(j-a)}$	Junction-ambient Thermal Resistance	Max. 70	°C/W

7610-02.TBL

## ELECTRICAL OPERATING CHARACTERISTICS

$T_j = 25^\circ\text{C}$ ,  $V_I = 14.4\text{V}$  (unless otherwise specified) Output Capacitor =  $10\mu\text{F}$  (see note)

Symbol	Parameter	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage ( $I_O = 5$ to $500\text{mA}$ )	9.7	10	10.3	V
$V_I$	Input Supply Voltage (permanent)			28	V
$I_{CC}$	Current Consumption	$I_O = 0\text{mA}$	1.5	2	mA
		$I_O = 150\text{mA}$	10	20	mA
		$I_O = 500\text{mA}$	75	100	mA
$K_{VI}$	Line Regulation ( $V_I = 11$ to $26\text{V}$ ; $I_O = 5\text{mA}$ )		5	20	mV
$K_{VO}$	Load Regulation ( $I_O = 5$ to $500\text{mA}$ )		40	80	mV
$V_I - V_O$	Drop-out Voltage	$I_O = 150\text{mA}$	0.18		V
		$I_O = 500\text{mA}$	0.4	0.6	V
SVR	Supply Voltage Rejection ( $I_O = 350\text{mA}$ , $f = 120\text{Hz}$ , $C_O = 1\mu\text{F}$ , $V_I = 12 \pm 5\text{V}$ )		60		dB
$I_{OS}$	Short-circuit Output Current	0.5	0.7		A

7610-03.TBL

## NOTE: Applications Hints

The output capacitor has a direct influence on output voltage stability. A  $10\mu\text{F}$  capacitor will provide satisfactory results. There is no upper limit on this capacitor value.

If necessary, this value can be reduced down to  $1\mu\text{F}$ ; however, in such case, it should be checked that output capacitor keeps sufficiently high capacitance and low equivalent series resistance in the whole temperature range.

Such low capacitor value is not recommended either, if output current is to switch abruptly from very high to very low values (for instance,  $400\text{mA}$  to  $< 1\text{mA}$ ).

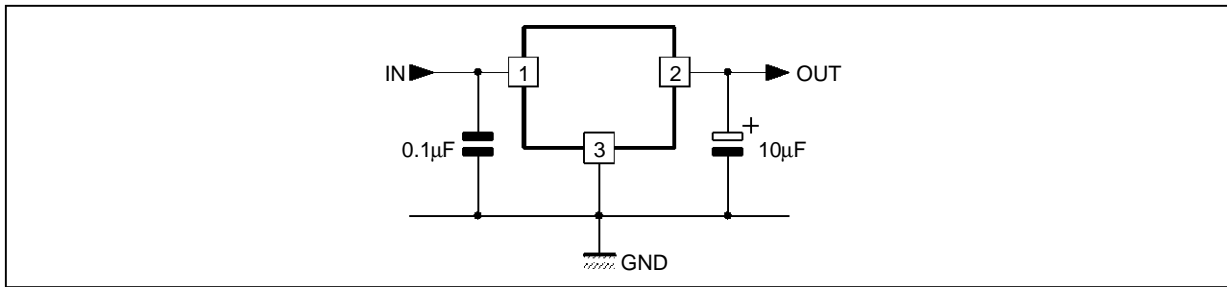
## ELECTRICAL OPERATING CHARACTERISTICS

$T_j = -45^\circ\text{C}$  to  $+125^\circ\text{C}$ ,  $V_I = 14.4\text{V}$  (unless otherwise specified) Output Capacitor =  $10\mu\text{F}$

Symbol	Parameter	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage ( $I_O = 5$ to $500\text{mA}$ )	9.6	10	10.4	V
$\frac{dV_O}{dt}$	Output Voltage Drift	$T_j = -45$ to $+25^\circ\text{C}$	- 1		mV/°C
		$T_j = +25$ to $+125^\circ\text{C}$	- 1.2		
$I_{CC}$	Current Consumption	$I_O = 0\text{mA}$		2.5	mA
		$I_O = 150\text{mA}$		25	mA
		$I_O = 500\text{mA}$		120	mA
$K_{VI}$	Line Regulation ( $V_I = 11$ to $26\text{V}$ , $I_O = 5\text{mA}$ )			30	mV
$K_{VO}$	Load Regulation ( $I_O = 5$ to $500\text{mA}$ )			100	mV
$V_I - V_O$	Drop-out Voltage	$I_O = 150\text{mA}$	0.2		V
		$I_O = 500\text{mA}$		0.8	V
$I_{OS}$	Short-circuit Output Current	0.4			A
$I_{OM}$	Maximum Output Current	0.5			A

7610-04.TBL

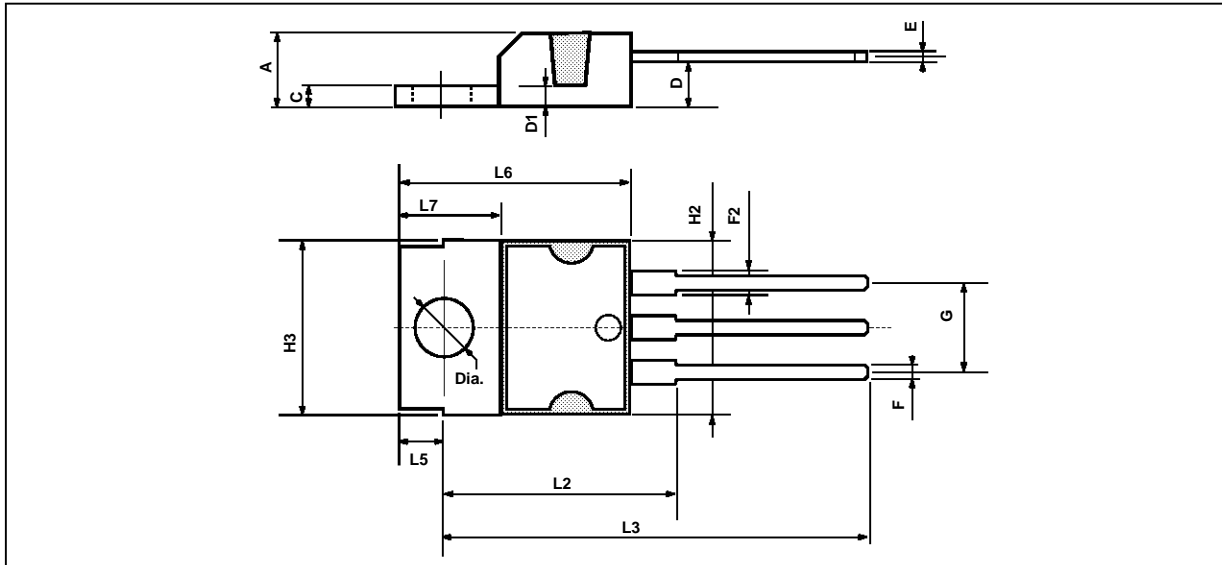
TYPICAL DIAGRAM



7610-03.EPS

**PACKAGE MECHANICAL DATA**

3 PINS - PLASTIC TO220



PM-TO220.EPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			4.8			0.189
C			1.37			0.054
D	2.4		2.8	0.094		0.110
D1	1.2		1.35	0.047		0.053
E	0.35		0.55	0.014		0.022
F	0.8		1.05	0.031		0.041
F2	1.15		1.4	0.045		0.055
G	4.95	5.08	5.21	0.195	0.200	0.205
H2			10.4			0.409
H3	10.05		10.4	0.396		0.409
L2		16.2			0.638	
L3	26.3	26.7	27.1	1.035	1.051	1.067
L5	2.6		3	0.102		0.118
L6	15.1		15.8	0.594		0.622
L7	6		6.6	0.236		0.260
Dia.	3.65		3.85	0.144		0.152

TO220.TBL

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