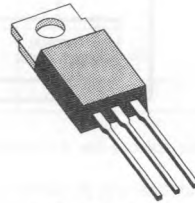




LOW-DROP VOLTAGE REGULATOR

- $V_o = 10V \pm 4\%$ ($I_o = 5mA$)
- $I_o = 5$ TO $500mA$
- $V_i - V_o = 0.6V$ ($I_o = 500mA$)
- V_i (surge) = $\pm 80V$
- THERMAL AND SHORT CIRCUIT PROTECTION



TEA7610 SP
TO220
(Plastic Package)

PIN CONNECTIONS



1 = V_i
2 = V_o
3 = GND

E88TEA7610-02

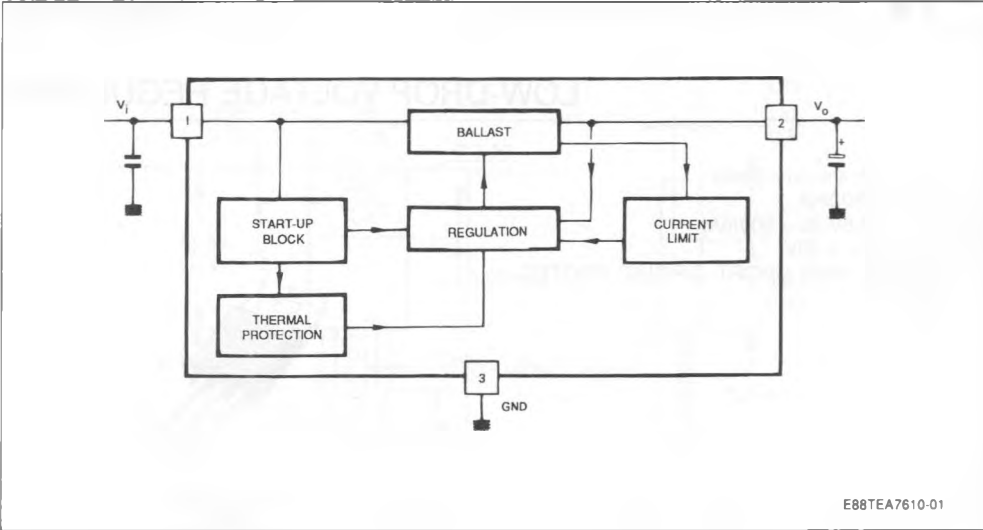
DESCRIPTION

TEA 7610 is a low-drop regulator well suited to supplying stabilized voltage to μ Ps in harsh industrial environment.

Special care was taken to keep :

- Lowest possible output capacitor ($1\mu F$).

BLOCK DIAGRAM



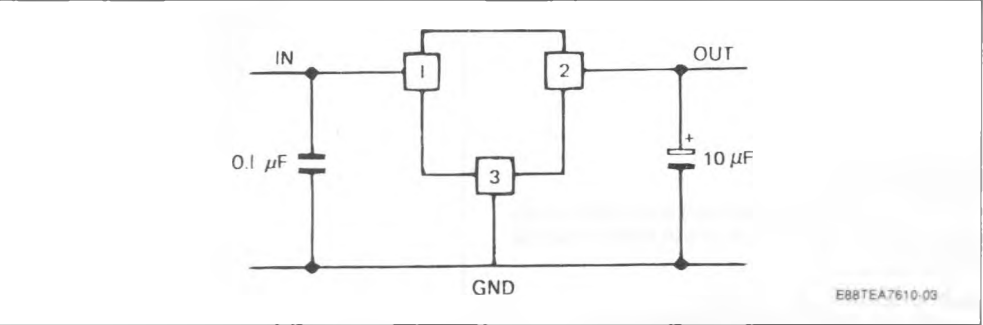
ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_i	Input Voltage - Continuous - $\tau = 300\text{mS}$	30	V
		80	V
V_r	Reverse Input Voltage - Continuous - $\tau = 120\text{mS}$	- 18	V
		- 80	V
T_{oper}	Operating Junction Temperature	45 to 150	°C
T_{stg}	Storage Temperature	- 55 to 150	°C

THERMAL DATA

$R_{th(j-c)}$	Maximum Junction-case Thermal Resistance	3	°C/W
$R_{th(j-a)}$	Maximum Junction-ambient Thermal Resistance	70	°C/W

APPLICATION DIAGRAM



ELECTRICAL OPERATING CHARACTERISTICS

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

Symbol	Parameter	Min.	Typ.	Max.	Unit
V_o	Output Voltage ($I_o = 5$ to 500mA)	9.7	10	10.3	V
V_i	Input Supply Voltage (permanent)			28	V
I_{CC}	Current Consumption $I_o = 0\text{mA}$ $I_o = 150\text{mA}$ $I_o = 500\text{mA}$		1.5	2	mA
			10	20	mA
			75	100	mA
kV_i	Line Regulation ($V_i = 6$ to 26V ; $I_o = 5\text{mA}$)		5	20	mV
kV_o	Load Regulation ($I_o = 5$ to 500mA)		40	80	mV
$V_i - V_o$	Drop-out Voltage $I_o = 150\text{mA}$ $I_o = 500\text{mA}$		0.18		V
			0.4	0.6	V
SVRR	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

NOTE : APPLICATION 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.

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 400mA to $< 1\text{mA}$).

ELECTRICAL OPERATING CHARACTERISTICS

$T_j = -45^{\circ}\text{C}$ to 125°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 500mA)	9.6	10	10.4	V
dV_o d_i	Output Voltage Drift -45 to 25°C 25 to 125°C	-1 -1.2		0 0	$\text{mV}/^{\circ}\text{C}$
I_{CC}	Current Consumption $I_o = 0\text{mA}$ $I_o = 150\text{mA}$ $I_o = 500\text{mA}$			2.5	mA
				25	mA
				120	mA
kV_i	Line Regulation ($V_i = 6$ to 26V ; $I_o = 5\text{mA}$)			30	mV
kV_o	Load Regulation ($I_o = 5$ to 500mA)			100	mV
$V_i - V_o$	Drop-out Voltage $I_o = 150\text{mA}$ $I_o = 500\text{mA}$		0.20		V
				0.8	V
I_{os}	Short-circuit Output Current	0.5			A

PACKAGE MECHANICAL DATA

TO220 – PLASTIC PACKAGE

