



## LM7805CT - LM7812CT- LM7824CT

### Positive Voltage Regulators

#### GENERAL DESCRIPTION

This series of fixed-voltage integrated-circuit voltage regulators is designed for a wide range of applications. These applications include on-card regulation for elimination of noise and distribution problems associated with single-point regulation. Each of these regulators can deliver up to 1.5A of output current. The internal current-limiting and thermal-shutdown features of these regulators essentially make them immune to overload. In addition to use as fixed-voltage regulators, these devices can be used with external components to obtain adjustable output voltages and currents, and also can be used as the power-pass element in precision regulators. Compliance to RoHS.

#### FEATURES

- 3-Terminal Regulators
- Output Current up to 1.5A
- Internal Thermal-Overload Protection
- Output Transistor Safe-Area Compensation
- With TO220 package

#### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit
V <sub>I</sub>	Input Voltage DC	V <sub>o</sub> = 5 V to 18V	35	V
		V <sub>o</sub> = 20 V & 24V	40	
I <sub>o</sub>	Output Current		Internally Limited	
P <sub>D</sub>	Power Dissipation		Internally Limited	
T <sub>OP</sub>	Operating Junction Temperature		0° to 150	°C
T <sub>STG</sub>	Storage Temperature		-55° to 150	°C

#### THERMAL DATA

Symbol	Ratings	Value	Unit
R <sub>thJC</sub>	From Junction to Case Thermal Resistance	5	°C/W
R <sub>thJA</sub>	From Junction to Free-Air Thermal Resistance	50	



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### ELECTRICAL CHARACTERISTICS OF LM7805CT

$T_C = 25^\circ\text{C}$

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$V_O$	Output Voltage	$V_i = 20\text{ V}; I_o = 500\text{ mA}$	4.75	5	5.25	V
$\Delta V_V$	Line Regulation	$8\text{ V} \leq V_i \leq 20\text{ V}; I_o = 500\text{ mA}$	-	-	100	mV
$\Delta V_I$	Load Regulation	$V_i = 14\text{ V}; 5\text{ mA} \leq I_o \leq 1\text{ A}$	-	-	100	mV
$I_B$	Quiescent Current	$V_i = 14\text{ V}; I_o = 1\text{ A}$	-	-	8	mA
$\Delta I_{B1}$	Quiescent Current Change	$V_i = 14\text{ V}; 5\text{ mA} \leq I_o \leq 1\text{ A}$	-	-	1.43	$\mu\text{A}$
$\Delta I_{B2}$	Quiescent Current Change	$8\text{ V} \leq V_i \leq 20\text{ V}; I_o = 500\text{ mA}$	-	-	0.45	$\mu\text{A}$

### ELECTRICAL CHARACTERISTICS OF LM7812CT

$T_C = 25^\circ\text{C}$

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$V_O$	Output Voltage	$V_i = 19\text{ V}; I_o = 500\text{ mA}$	11.75	12	12.25	V
$\Delta V_V$	Line Regulation	$14.8\text{ V} \leq V_i \leq 30\text{ V}$ $I_o = 500\text{ mA}$	-	-	120	mV
$\Delta V_I$	Load Regulation	$V_i = 19\text{ V}; 5\text{ mA} \leq I_o \leq 1\text{ A}$	-	-	100	mV
$I_B$	Quiescent Current	$V_i = 19\text{ V}; I_o = 1\text{ A}$	-	-	6	mA
$\Delta I_{B1}$	Quiescent Current Change	$V_i = 19\text{ V}; 5\text{ mA} \leq I_o \leq 1\text{ A}$	-	-	0.5	$\mu\text{A}$
$\Delta I_{B2}$	Quiescent Current Change	$15\text{ V} \leq V_i \leq 30\text{ V}$ $I_o = 500\text{ mA}$	-	-	0.8	$\mu\text{A}$

### ELECTRICAL CHARACTERISTICS OF LM7824CT

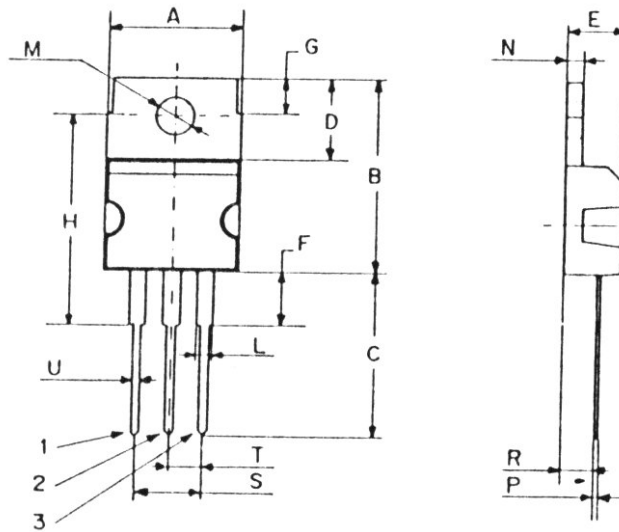
$T_C = 25^\circ\text{C}$

Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit
$V_O$	Output Voltage	$V_i = 33\text{ V}; I_o = 1\text{ A}$	23.5	24	24.5	V
$\Delta V_V$	Line Regulation	$26.7\text{ V} \leq V_i \leq 38\text{ V}$ $I_o = 1\text{ A}$	-	-	240	mV
$\Delta V_I$	Load Regulation	$5\text{ mA} \leq I_o \leq 1.5\text{ A}$	-	-	100	mV
$I_B$	Quiescent Current		-	-	6	mA
$\Delta I_{B1}$	Quiescent Current Change	$V_i = 33\text{ V}; 5\text{ mA} \leq I_o \leq 1\text{ A}$	-	-	0.5	$\mu\text{A}$
$\Delta I_{B2}$	Quiescent Current Change	$27.3\text{ V} \leq V_i \leq 38\text{ V}; I_o = 1\text{ A}$	-	-	0.8	$\mu\text{A}$

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### MECHANICAL DATA CASE TO-220

DIMENSIONS (mm)		
	Min.	Max.
A	9,90	10,30
B	15,65	15,90
C	13,20	13,40
D	6,45	6,65
E	4,30	4,50
F	2,70	3,15
G	2,60	3,00
H	15,75	17,15
L	1,15	1,40
M	3,50	3,70
N	-	1,37
P	0,46	0,55
R	2,50	2,70
S	4,98	5,08
T	2,49	2,54
U	0,70	0,90



Pin 1 :	Input
Pin 2 :	Ground
Pin 3 :	Output

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