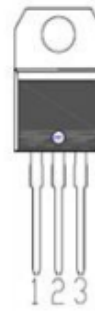


### FEATURES

- Output current in excess of 1.5A
- Fixed output voltage of 5V, 6V, 8V, 9V, 10V, 12V, 15V, 18V and 24V available
- Internal thermal overload protection
- Output transition Safe-Area compensation



PIN1 : IN  
 PIN 2 : GND  
 PIN 3 : OUT

### ABSOLUTE MAXIMUM RATINGS

( Operating temperature range applies unless otherwise specified )

PARAMETER	SYMBOL	RATING	UNIT
Input voltage(for Vo=5~18V) (for Vo=24V)	Vi	35	V
		40	V
Output Current	Io	1	A
Power Dissipation	PD	Internally Limited	W
Operating Junction Temperature Range	TOPR	-20~150	°C
Storage Temperature Range	TSTG	-55~150	°C

### L7805CV ELECTRICAL CHARACTERISTICS

( Vi=10V, Io=0.5A, Tj= 0°C - 125°C, C1=0.33uF, Co=0.1uF, unless otherwise specified )(Note 1)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	Vo	Tj=25°C, Io=5mA - 1.0A	4.80	5.0	5.20	V
		Vi =7.5V to 20V, Io=5mA - 1.0A,PD<15W	4.75		5.25	V
Load Regulation	ΔVo	Tj=25°C, Io=5mA - 1.5A			50	mV
		Tj=25°C, Io=0.25A - 0.75A			25	mV
Line regulation	ΔVo	Vi =7V to 25V, Tj=25°C			50	mV
		Vi =7.5V to 20V, Tj=25°C, Io=1A			50	mV
Quiescent Current	Iq	Tj=25°C, Io=<1A			8.0	mA
Quiescent Current Change	ΔIq	Vi =7.5V to 20V			1.0	mA
		Io=5mA - 1.0A			0.5	mA
Output Noise Voltage	VN	10Hz<=f<=100kHz		40		μV
Temperature coefficient of Vo	ΔVo/ΔT	Io=5mA		-0.6		mV/°C
Ripple Rejection	RR	Vi =8V - 18V, f=120Hz, Tj=25°C	62	80		dB
Peak Output Current	IPK	Tj=25°C		1.8		A
Short-Circuit Current	Isc	Vi=35V, Tj=25°C		250		mA
Dropout Voltage	Vd	Tj=25°C		2.0		V

**L7806CV ELECTRICAL CHARACTERISTICS**

 (  $V_I=11V$ ,  $I_o=0.5A$ ,  $T_j=0^{\circ}C - 125^{\circ}C$ ,  $C_1=0.33\mu F$ ,  $C_o=0.1\mu F$ , unless otherwise specified )(Note 1)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	$V_o$	$T_j=25^{\circ}C$ , $I_o=5mA - 1.0A$	5.76	6.0	6.24	V
		$V_I = 8.5V$ to $21V$ , $I_o=5mA - 1.0A$ , $PD<15W$	5.70		6.30	V
Load Regulation	$\Delta V_o$	$T_j=25^{\circ}C$ , $I_o=5mA - 1.5A$			60	mV
		$T_j=25^{\circ}C$ , $I_o=0.25A - 0.75A$			30	mV
Line regulation	$\Delta V_o$	$V_I = 8V$ to $25V$ , $T_j=25^{\circ}C$			60	mV
		$V_I = 8.5V$ to $21V$ , $T_j=25^{\circ}C$ , $I_o=1A$			60	mV
Quiescent Current	$I_q$	$T_j=25^{\circ}C$ , $I_o=<1A$			8.0	mA
Quiescent Current Change	$\Delta I_q$	$V_I = 8.5V$ to $21V$			1.0	mA
	$\Delta I_q$	$I_o=5mA - 1.0A$			0.5	mA
Output Noise Voltage	$V_N$	$10Hz \leq f \leq 100kHz$		45		$\mu V$
Temperature coefficient of $V_o$	$\Delta V_o/\Delta T$	$I_o=5mA$		-0.7		$mV/^{\circ}C$
Ripple Rejection	RR	$V_I = 9V - 19V$ , $f=120Hz$ , $T_j=25^{\circ}C$	59	75		dB
Peak Output Current	$I_{PK}$	$T_j=25^{\circ}C$		1.8		A
Short-Circuit Current	$I_{sc}$	$V_I=35V$ , $T_j=25^{\circ}C$		250		mA
Dropout Voltage	$V_d$	$T_j=25^{\circ}C$		2.0		V

**L7808CV ELECTRICAL CHARACTERISTICS**

 (  $V_I=14V$ ,  $I_o=0.5A$ ,  $T_j=0^{\circ}C - 125^{\circ}C$ ,  $C_1=0.33\mu F$ ,  $C_o=0.1\mu F$ , unless otherwise specified )(Note 1)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	$V_o$	$T_j=25^{\circ}C$ , $I_o=5mA - 1.0A$	7.68	8.0	8.32	V
		$V_I = 10.5V$ to $23V$ , $I_o=5mA - 1.0A$ , $PD<15W$	7.60		8.40	V
Load Regulation	$\Delta V_o$	$T_j=25^{\circ}C$ , $I_o=5mA - 1.5A$			80	mV
		$T_j=25^{\circ}C$ , $I_o=0.25A - 0.75A$			40	mV
Line regulation	$\Delta V_o$	$V_I = 10.5V$ to $25V$ , $T_j=25^{\circ}C$			80	mV
		$V_I = 10.5V$ to $23V$ , $T_j=25^{\circ}C$ , $I_o=1A$			80	mV
Quiescent Current	$I_q$	$T_j=25^{\circ}C$ , $I_o=<1A$			8.0	mA
Quiescent Current Change	$\Delta I_q$	$V_I = 10.5V$ to $23V$			1.0	mA
	$\Delta I_q$	$I_o=5mA - 1.0A$			0.5	mA
Output Noise Voltage	$V_N$	$10Hz \leq f \leq 100kHz$		58		$\mu V$
Temperature coefficient of $V_o$	$\Delta V_o/\Delta T$	$I_o=5mA$		-0.9		$mV/^{\circ}C$
Ripple Rejection	RR	$V_I = 11.5V$ to $21.5V$ , $f=120Hz$ , $T_j=25^{\circ}C$	56	72		dB
Peak Output Current	$I_{PK}$	$T_j=25^{\circ}C$		1.8		A
Short-Circuit Current	$I_{sc}$	$V_I=35V$ , $T_j=25^{\circ}C$		250		mA
Dropout Voltage	$V_d$	$T_j=25^{\circ}C$		2.0		V

**L7809CV ELECTRICAL CHARACTERISTICS**

 (  $V_I=15V$ ,  $I_o=0.5A$ ,  $T_j=0^{\circ}C - 125^{\circ}C$ ,  $C_1=0.33\mu F$ ,  $C_o=0.1\mu F$ , unless otherwise specified )(Note 1)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	$V_o$	$T_j=25^{\circ}C$ , $I_o=5mA - 1.0A$	8.64	9.0	9.36	V
		$V_I = 11.5V$ to $24V$ , $I_o=5mA - 1.0A, PD < 15W$	8.55		9.45	V
Load Regulation	$\Delta V_o$	$T_j=25^{\circ}C, I_o=5mA - 1.5A$			90	mV
		$T_j=25^{\circ}C, I_o=0.25A - 0.75A$			45	mV
Line regulation	$\Delta V_o$	$V_I = 11.5V$ to $25V$ , $T_j=25^{\circ}C, PD < 15W$			90	mV
		$V_I = 11.5V$ to $24V, T_j=25^{\circ}C$ , $I_o \leq 1A$			90	mV
Quiescent Current	$I_q$	$T_j=25^{\circ}C, I_o \leq 1A$			8.0	mA
Quiescent Current Change	$\Delta I_q$	$V_I = 11.5V$ to $24V$			1.0	mA
	$\Delta I_q$	$I_o=5mA - 1.0A$			0.5	mA
Output Noise Voltage	$V_N$	$10Hz \leq f \leq 100kHz$		58		$\mu V$
Temperature coefficient of $V_o$	$\Delta V_o / \Delta T$	$I_o=5mA$		-1.1		$mV/^{\circ}C$
Ripple Rejection	RR	$V_I = 12.5V$ to $22.5V$ , $f=120Hz, T_j=25^{\circ}C$	56	72		dB
Peak Output Current	$I_{PK}$	$T_j=25^{\circ}C$		1.8		A
Short-Circuit Current	$I_{SC}$	$V_I=35V, T_j=25^{\circ}C$		250		mA
Dropout Voltage	$V_d$	$T_j=25^{\circ}C$		2.0		V

**L7810CV ELECTRICAL CHARACTERISTICS**

 (  $V_I=16V$ ,  $I_o=0.5A$ ,  $T_j=0^{\circ}C - 125^{\circ}C$ ,  $C_1=0.33\mu F$ ,  $C_o=0.1\mu F$ , unless otherwise specified )(Note 1)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	$V_o$	$T_j=25^{\circ}C, I_o=5mA - 1.0A$	9.60	10.0	10.40	V
		$V_I = 12.5V$ to $25V$ , $I_o=5mA - 1.0A, PD \leq 15W$	9.50		10.50	V
Load Regulation	$\Delta V_o$	$T_j=25^{\circ}C, I_o=5mA - 1.5A$			100	mV
		$T_j=25^{\circ}C, I_o=0.25A - 0.75A$			50	mV
Line regulation	$\Delta V_o$	$V_I = 13V$ to $25V, T_j=25^{\circ}C$			100	mV
		$V_I = 13V$ to $25V$ , $T_j=25^{\circ}C, I_o \leq 1A$			100	mV
Quiescent Current	$I_q$	$T_j=25^{\circ}C, I_o \leq 1A$			8.0	mA
Quiescent Current Change	$\Delta I_q$	$V_I = 12.6V$ to $25V$			1.0	mA
	$\Delta I_q$	$I_o=5mA - 1.0A$			0.5	mA
Output Noise Voltage	$V_N$	$10Hz \leq f \leq 100kHz$		58		$\mu V$
Temperature coefficient of $V_o$	$\Delta V_o / \Delta T$	$I_o=5mA$		-1.1		$mV/^{\circ}C$
Ripple Rejection	RR	$V_I = 13V - 23V, f=120Hz, T_j=25^{\circ}C$	56	72		dB
Peak Output Current	$I_{PK}$	$T_j=25^{\circ}C$		1.8		A
Short-Circuit Current	$I_{SC}$	$V_I=35V, T_j=25^{\circ}C$		250		mA
Dropout Voltage	$V_d$	$T_j=25^{\circ}C$		2.0		V

**L7812CV ELECTRICAL CHARACTERISTICS**

 (  $V_I=19V$ ,  $I_o=0.5A$ ,  $T_j=0^{\circ}C - 125^{\circ}C$ ,  $C_1=0.33\mu F$ ,  $C_o=0.1\mu F$ , unless otherwise specified )(Note 1)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	$V_o$	$T_j=25^{\circ}C$ , $I_o=5mA - 1.0A$	11.52	12.0	12.48	V
		$V_I=14.5V$ to $27V$ , $I_o=5mA - 1.0A$ , $P_D<15W$	11.40		12.60	V
Load Regulation	$\Delta V_o$	$T_j=25^{\circ}C$ , $I_o=5mA - 1.5A$			120	mV
		$T_j=25^{\circ}C$ , $I_o=0.25A - 0.75A$			60	mV
Line regulation	$\Delta V_o$	$V_I=14.5V$ to $30V$ , $T_j=25^{\circ}C$			120	mV
		$V_I=14.6V$ to $27V$ , $T_j=25^{\circ}C$ , $I_o=1A$			120	mV
Quiescent Current	$I_q$	$T_j=25^{\circ}C$ , $I_o=<1A$			8.0	mA
Quiescent Current Change	$\Delta I_q$	$V_I=14.5V$ to $30V$			1.0	mA
	$\Delta I_q$	$I_o=5mA - 1.0A$			0.5	mA
Output Noise Voltage	$V_N$	$10Hz \leq f \leq 100kHz$		75		$\mu V$
Temperature coefficient of $V_o$	$\Delta V_o/\Delta T$	$I_o=5mA$		-1.5		$mV/^{\circ}C$
Ripple Rejection	RR	$V_I=15V - 25V$ , $f=120Hz$ , $T_j=25^{\circ}C$	55	72		dB
Peak Output Current	$I_{PK}$	$T_j=25^{\circ}C$		1.8		A
Short-Circuit Current	$I_{SC}$	$V_I=35V$ , $T_j=25^{\circ}C$		250		mA
Dropout Voltage	$V_d$	$T_j=25^{\circ}C$		2.0		V

**L7815CV ELECTRICAL CHARACTERISTICS**

 (  $V_I=23V$ ,  $I_o=0.5A$ ,  $T_j=0^{\circ}C - 125^{\circ}C$ ,  $C_1=0.33\mu F$ ,  $C_o=0.1\mu F$ , unless otherwise specified )(Note 1)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	$V_o$	$T_j=25^{\circ}C$ , $I_o=5mA - 1.0A$	14.40	15.0	15.60	V
		$V_I=17.5V$ to $30V$ , $I_o=5mA - 1.0A$ , $P_D<15W$	14.25		15.75	V
Load Regulation	$\Delta V_o$	$T_j=25^{\circ}C$ , $I_o=5mA - 1.5A$			150	mV
		$T_j=25^{\circ}C$ , $I_o=0.25A - 0.75A$			75	mV
Line regulation	$\Delta V_o$	$V_I=18.5V$ to $30V$ , $T_j=25^{\circ}C$			150	mV
		$V_I=17.7V$ to $30V$ , $T_j=25^{\circ}C$ , $I_o=1A$			150	mV
Quiescent Current	$I_q$	$T_j=25^{\circ}C$ , $I_o=<1A$			8.0	mA
Quiescent Current Change	$\Delta I_q$	$V_I=17.5V$ to $30V$			1.0	mA
	$\Delta I_q$	$I_o=5mA - 1.0A$			0.5	mA
Output Noise Voltage	$V_N$	$10Hz \leq f \leq 100kHz$		90		$\mu V$
Temperature coefficient of $V_o$	$\Delta V_o/\Delta T$	$I_o=5mA$		-1.8		$mV/^{\circ}C$
Ripple Rejection	RR	$V_I=18.5V$ to $28.5V$ $f=120Hz$ , $T_j=25^{\circ}C$	54	70		dB
Peak Output Current	$I_{PK}$	$T_j=25^{\circ}C$		1.8		A
Short-Circuit Current	$I_{SC}$	$V_I=35V$ , $T_j=25^{\circ}C$		250		mA
Dropout Voltage	$V_d$	$T_j=25^{\circ}C$		2.0		V

**L7818CV ELECTRICAL CHARACTERISTICS**

 (  $V_I=27V$ ,  $I_o=0.5A$ ,  $T_j= 0^{\circ}C - 125^{\circ}C$ ,  $C_1=0.33\mu F$ ,  $C_o=0.1\mu F$ , unless otherwise specified )(Note 1)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	$V_o$	$T_j=25^{\circ}C$ , $I_o=5mA - 1.0A$	17.28	18.0	18.72	V
		$V_I =21V$ to $33V$ , $I_o=5mA - 1.0A$	17.10		18.90	V
Load Regulation	$\Delta V_o$	$T_j=25^{\circ}C$ , $I_o=5mA - 1.5A$			180	mV
		$T_j=25^{\circ}C$ , $I_o=0.25A - 0.75A$			90	mV
Line regulation	$\Delta V_o$	$V_I =21V$ to $33V$ , $T_j=25^{\circ}C$			180	mV
		$V_I =21V$ to $33V$ , $T_j=25^{\circ}C$ , $I_o = <1A$ , $PD < 15W$			180	mV
Quiescent Current	$I_q$	$T_j=25^{\circ}C$ , $I_o = <1A$			8.0	mA
Quiescent Current Change	$\Delta I_q$	$V_I =21.5V$ to $33V$			1.0	mA
	$\Delta I_q$	$I_o=5mA - 1.0A$			0.5	mA
Output Noise Voltage	$V_N$	$10Hz \leq f \leq 100kHz$		110		$\mu V$
Temperature coefficient of $V_o$	$\Delta V_o / \Delta T$	$I_o=5mA$		-2.2		$mV/^{\circ}C$
Ripple Rejection	RR	$V_I =22V - 32V$ , $f=120Hz$ , $T_j=25^{\circ}C$	53	69		dB
Peak Output Current	$I_{PK}$	$T_j=25^{\circ}C$		1.8		A
Short-Circuit Current	$I_{SC}$	$V_I=35V$ , $T_j=25^{\circ}C$		250		mA
Dropout Voltage	$V_d$	$T_j=25^{\circ}C$		2.0		V

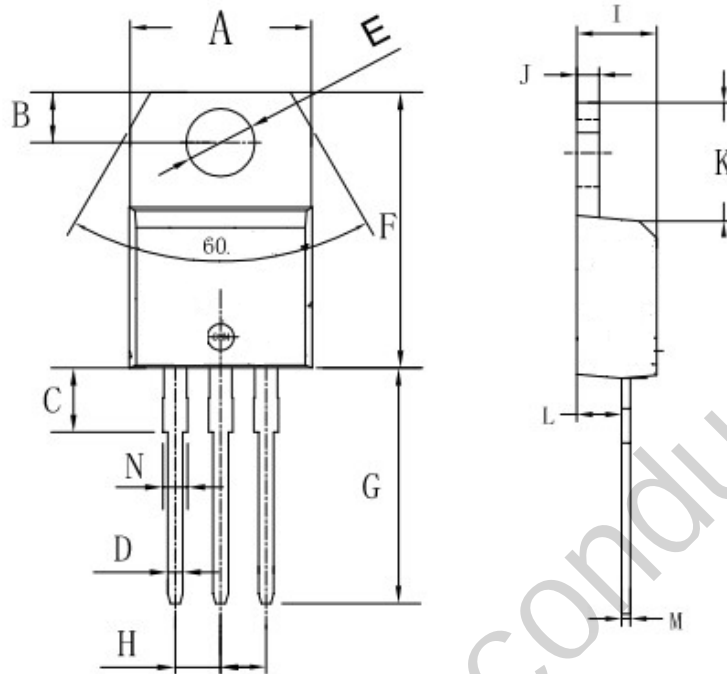
**L7824CV ELECTRICAL CHARACTERISTICS**

 (  $V_I=33V$ ,  $I_o=0.5A$ ,  $T_j= 0^{\circ}C - 12^{\circ}C$ ,  $C_1=0.33\mu F$ ,  $C_o=0.1\mu F$ , unless otherwise specified )(Note 1)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	$V_o$	$T_j=25^{\circ}C$ , $I_o=5mA - 1.0A$	23.04	24.0	24.96	V
		$V_I =27V$ to $38V$ , $I_o=5mA - 1.0A$	22.80		25.20	V
Load Regulation	$\Delta V_o$	$T_j=25^{\circ}C$ , $I_o=5mA - 1.5A$			240	mV
		$T_j=25^{\circ}C$ , $I_o=0.25A - 0.75A$			120	mV
Line regulation	$\Delta V_o$	$V_I =27V$ to $38V$ , $T_j=25^{\circ}C$			240	mV
		$V_I =27V$ to $38V$ , $T_j=25^{\circ}C$ , $I_o=1A$			240	mV
Quiescent Current	$I_q$	$T_j=25^{\circ}C$ , $I_o = <1A$			8.0	mA
Quiescent Current Change	$\Delta I_q$	$V_I =28V$ to $38V$			1.0	mA
	$\Delta I_q$	$I_o=5mA - 1.0A$			0.5	mA
Output Noise Voltage	$V_N$	$10Hz \leq f \leq 100kHz$		170		$\mu V$
Temperature coefficient of $V_o$	$\Delta V_o / \Delta T$	$I_o=5mA$		-2.8		$mV/^{\circ}C$
Ripple Rejection	RR	$V_I =28V - 38V$ , $f=120Hz$ , $T_j=25^{\circ}C$	50	66		dB
Peak Output Current	$I_{PK}$	$T_j=25^{\circ}C$		1.8		A
Short-Circuit Current	$I_{SC}$	$V_I=35V$ , $T_j=25^{\circ}C$		250		mA
Dropout Voltage	$V_d$	$T_j=25^{\circ}C$		2.0		V

Note 1: The Maximum steady state usable output current are dependent on input voltage, heat sinking, lead length of the package and copper pattern of PCB. The data above represents pulse test conditions with junction temperatures specified at the initiation of test.

Note 2: Power dissipation  $< 0.5W$

**TO-220AB PACKAGE OUTLINE DIMENSIONS**


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	9.8	10.4	0.385	0.409
B	2.65	3.1	0.104	0.122
C	2.8	4.2	0.110	0.165
D	0.7	0.92	0.027	0.036
E	3.75	3.95	0.147	0.155
F	14.8	16.1	0.582	0.633
G	13.05	13.6	0.513	0.535
H	2.4	2.7	0.094	0.106
I	4.38	4.61	0.172	0.181
J	1.15	1.36	0.045	0.053
K	5.85	6.82	0.230	0.268
L	2.35	2.75	0.092	0.108
M	0.35	0.65	0.013	0.025
N	1.18	1.42	0.046	0.055