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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)	V _I	35	V
		40	V
Output Current	I _o	1	A
Power Dissipation	PD	Internally Limited	W
Operating Junction Temperature Range	T _{OPR}	-20~150	°C
Storage Temperature Range	T _{STG}	-55~150	°C

L7805CV ELECTRICAL CHARACTERISTICS

(V_I=10V, I_o=0.5A, T_j= 0°C - 125°C, C₁=0.33uF, C_o=0.1uF, unless otherwise specified)(Note 1)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage	V _o	T _j =25°C, I _o =5mA - 1.0A	4.80	5.0	5.20	V
		V _I =7.5V to 20V, I _o =5mA - 1.0A, PD<15W	4.75		5.25	V
Load Regulation	ΔV _o	T _j =25°C, I _o =5mA - 1.5A			50	mV
		T _j =25°C, I _o =0.25A - 0.75A			25	mV
Line regulation	ΔV _o	V _I =7V to 25V, T _j =25°C			50	mV
		V _I =7.5V to 20V, T _j =25°C, I _o =1A			50	mV
Quiescent Current	I _q	T _j =25°C, I _o =<1A			8.0	mA
Quiescent Current Change	ΔI _q	V _I =7.5V to 20V			1.0	mA
	ΔI _q	I _o =5mA - 1.0A			0.5	mA
Output Noise Voltage	V _N	10Hz<=f<=100kHz		40		μV
Temperature coefficient of V _o	ΔV _o /ΔT	I _o =5mA		-0.6		mV/°C
Ripple Rejection	RR	V _I =8V - 18V, f=120Hz, T _j =25°C	62	80		dB
Peak Output Current	I _{PK}	T _j =25°C		1.8		A
Short-Circuit Current	I _{sc}	V _I =35V, T _j =25°C		250		mA
Dropout Voltage	V _d	T _j =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	ΔV_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	ΔV_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	ΔI_q	$V_I=8.5V$ to $21V$			1.0	mA
	ΔI_q	$I_o=5mA - 1.0A$			0.5	mA
Output Noise Voltage	V_N	$10Hz \leq f \leq 100kHz$		45		μV
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	ΔV_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	ΔV_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	ΔI_q	$V_I=10.5V$ to $23V$			1.0	mA
	ΔI_q	$I_o=5mA - 1.0A$			0.5	mA
Output Noise Voltage	V_N	$10Hz \leq f \leq 100kHz$		58		μV
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 $24V$, $I_o=5mA - 1.0A$, $P_D<15W$	8.55		9.45	V
Load Regulation	ΔV_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	ΔV_o	$V_I=11.5V$ to $25V$, $T_j=25^{\circ}C$, $P_D<15W$			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	ΔI_q	$V_I=11.5V$ to $24V$			1.0	mA
	ΔI_q	$I_o=5mA - 1.0A$			0.5	mA
Output Noise Voltage	V_N	$10Hz\leq f\leq 100kHz$		58		μV
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 $25V$, $I_o=5mA - 1.0A$, $P_D\leq 15W$	9.50		10.50	V
Load Regulation	ΔV_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	ΔV_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	ΔI_q	$V_I=12.6V$ to $25V$			1.0	mA
	ΔI_q	$I_o=5mA - 1.0A$			0.5	mA
Output Noise Voltage	V_N	$10Hz\leq f\leq 100kHz$		58		μV
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 $27V$, $I_o=5mA - 1.0A$, $PD<15W$	11.40		12.60	V
Load Regulation	ΔV_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	ΔV_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	ΔI_q	$V_I=14.5V$ to $30V$			1.0	mA
	ΔI_q	$I_o=5mA - 1.0A$			0.5	mA
Output Noise Voltage	V_N	$10Hz \leq f \leq 100kHz$		75		μV
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 $30V$, $I_o=5mA - 1.0A$, $PD<15W$	14.25		15.75	V
Load Regulation	ΔV_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	ΔV_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	ΔI_q	$V_I=17.5V$ to $30V$			1.0	mA
	ΔI_q	$I_o=5mA - 1.0A$			0.5	mA
Output Noise Voltage	V_N	$10Hz \leq f \leq 100kHz$		90		μV
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	ΔV_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	ΔV_o	$V_I=21V$ to $33V$, $T_j=25^{\circ}C$			180	mV
		$V_I=21V$ to $33V$, $T_j=25^{\circ}C$, $I_o \leq 1A$, $P_D < 15W$			180	mV
Quiescent Current	I_q	$T_j=25^{\circ}C$, $I_o \leq 1A$			8.0	mA
Quiescent Current Change	ΔI_q	$V_I=21.5V$ to $33V$			1.0	mA
	ΔI_q	$I_o=5mA - 1.0A$			0.5	mA
Output Noise Voltage	V_N	$10Hz \leq f \leq 100kHz$		110		μV
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

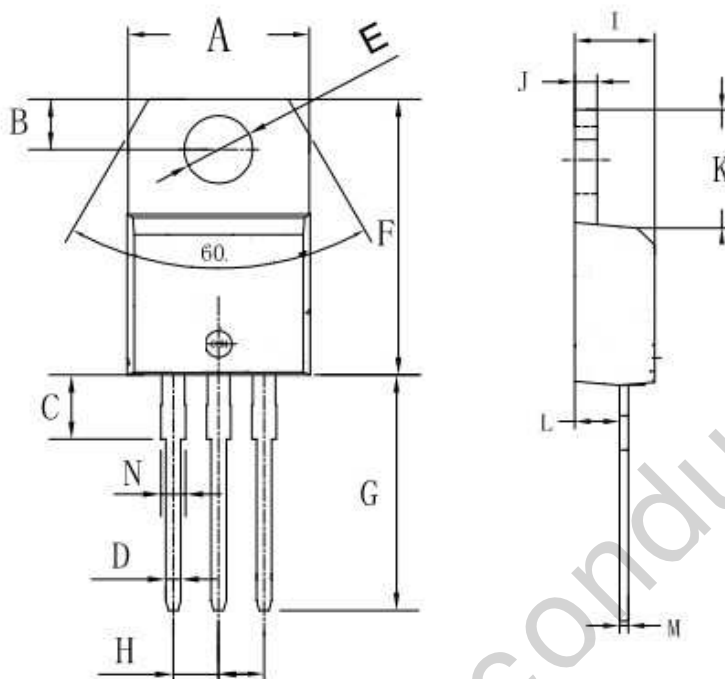
($V_I=33V$, $I_o=0.5A$, $T_j=0^{\circ}C - 12^{\circ}C$, $C_1=0.33\mu F$, $C_o=0.1\mu F$, unless otherwise specified)(Note 1)

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	ΔV_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	ΔV_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	$T_j=25^{\circ}C$, $I_o \leq 1A$			8.0	mA
Quiescent Current Change	ΔI_q	$V_I=28V$ to $38V$			1.0	mA
	ΔI_q	$I_o=5mA - 1.0A$			0.5	mA
Output Noise Voltage	V_N	$10Hz \leq f \leq 100kHz$		170		μV
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