



Micro Commercial Components

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MC7905CT THRU MC7915CT

Three-Terminal Negative Voltage Regulators

Features

- Output current in excess of 1.0 Ampere
- No external components required
- Internal thermal overload protection
- Internal short-circuit current limiting
- Output voltage offered in 2% tolerance
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0

Maximum Ratings @ $T_A=25^\circ\text{C}$, Unless Otherwise Noted

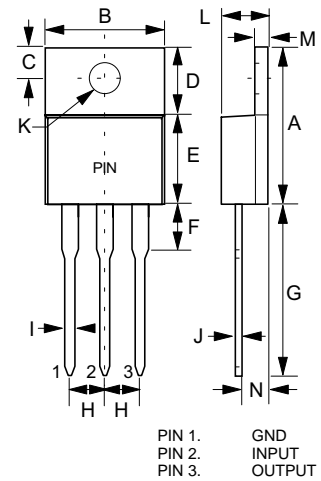
Parameter	Symbol	Value	Unit
Input Voltage	V_i	-35	V
Operating Ambient Temperature	P_D	15	W
Operating Junction Temperature	T_{OPR}	0---+150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55---+150	$^\circ\text{C}$

MC7905CT

Electrical Characteristics ($V_i=10\text{V}$, $I_o=500\text{mA}$, $0^\circ\text{C}<T_j<125^\circ\text{C}$,
 $C_i=2.0\mu\text{F}$, $C_o=1.0\mu\text{F}$, Unless Otherwise Specified)

Parameter	Sym	Min	Typ	Max	Test conditions
Output Voltage	V_o	-4.9V	-5.0V	-5.1V	$T_j=25^\circ\text{C}$
		-4.85V		-5.15V	$-7\text{V} \leq V_i \leq -20\text{V}$, $5\text{mA} \leq I_o \leq 1.0\text{A}$, $P_D=15\text{W}$
Load Regulation	ΔV_o		10mV	100mV	$5\text{mA} \leq I_o \leq 1.5\text{A}$, $T_j=25^\circ\text{C}$,
			3.0mV	50mV	$250\text{mA} \leq I_o \leq 750\text{mA}$, $T_j=25^\circ\text{C}$
Line regulation	ΔV_o		3.0mV 1.0mV	100mV	$-7\text{V} \leq V_i \leq -25\text{V}$, $T_j=25^\circ\text{C}$ $-8\text{V} \leq V_i \leq -12\text{V}$, $T_j=25^\circ\text{C}$
Quiescent Current	I_q		2.0mA	4.0mA	$T_j=25^\circ\text{C}$, $I_o=0$
Quiescent Current Change	ΔI_q			1.3mA 0.5mA	$-7\text{V} \leq V_i \leq -25\text{V}$ $5\text{mA} \leq I_o \leq 1.0\text{A}$
Output Noise Voltage	V_N		40 μV		$f=120\text{Hz}$
Ripple Rejection	RR	62dB	74dB		$-8\text{V} \leq V_i \leq -18\text{V}$ $f=120\text{Hz}$, $T_j=25^\circ\text{C}$
Dropout Voltage	V_d		1.1V		$I_o=1.0\text{A}$, $T_j=25^\circ\text{C}$
Peak Output Current	I_{opeak}		2.1A		$T_j=25^\circ\text{C}$
Temperature Coefficient of Output voltage	$\frac{\Delta V_o}{\Delta T_j}$		-0.4mV/ $^\circ\text{C}$		$0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $I_o=5\text{mA}$

TO-220



DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.560	.625	14.22	15.88	
B	.380	.420	9.65	10.67	
C	.100	.135	2.54	3.43	
D	.230	.270	5.84	6.86	
E	.380	.420	9.65	10.67	
F	-----	.250	-----	6.35	
G	.500	.580	12.70	14.73	
H	.090	.110	2.29	2.79	
I	.020	.045	0.51	1.14	
J	.012	.025	0.30	0.64	
K	.139	.161	3.53	4.09	\emptyset
L	.140	.190	3.56	4.83	
M	.045	.055	1.14	1.40	
N	.080	.115	2.03	2.92	

MC7906CT

Electrical Characteristics ($V_i=11V$, $I_o=500mA$, $0^\circ C < T_j < 125^\circ C$, $C_i=2.0\mu F$, $C_o=1.0\mu F$, Unless Otherwise Specified)

Parameter	Sym	Min	Typ	Max	Test conditions
Output Voltage	V_o	-5.88V	-6.0V	-6.12V	$T_j=25^\circ C$
		-5.83V		-6.17V	$-8V \leq V_1 \leq -21V$, $5mA \leq I_o \leq 1.0A$, $P_D=15W$
Load Regulation	ΔV_o		10mV	120mV	$5mA \leq I_o \leq 1.5A$, $T_j=25^\circ C$,
			3.0mV	60mV	$250mA \leq I_o \leq 750mA$, $T_j=25^\circ C$
Line regulation	ΔV_o		4.0mV 1.5mV	120mV 60mV	$-8V \leq V_1 \leq -25V$, $T_j=25^\circ C$ $-9V \leq V_1 \leq -13V$, $T_j=25^\circ C$
Quiescent Current	I_q		2.0mA	4.0mA	$T_j=25^\circ C$, $I_o=0$
Quiescent Current Change	ΔI_q			1.3mA 0.5mA	$-8V \leq V_1 \leq -25V$ $5mA \leq I_o \leq 1.0A$
Output Noise Voltage	V_N		44 μV		$10Hz \leq f \leq 100KHz$ $T_j=25^\circ C$
Ripple Rejection	RR	60dB	73dB		$f=120Hz$
Dropout Voltage	V_d		1.1V		$I_o=1.0A$, $T_j=25^\circ C$
Peak Output Current	I_{opeak}		2.1A		$T_j=25^\circ C$
Temperature Coefficient of Output voltage	$\Delta V_o/\Delta T_j$		-0.5mV/ $^\circ C$		$0^\circ C \leq T_j \leq 125^\circ C$, $I_o=5mA$

MC7908CT

Electrical Characteristics ($V_i=14V$, $I_o=500mA$, $0^\circ C < T_j < 125^\circ C$, $C_i=2.0\mu F$, $C_o=1.0\mu F$, Unless Otherwise Specified)

Parameter	Sym	Min	Typ	Max	Test conditions
Output Voltage	V_o	-7.84V	-8.0V	-8.16V	$T_j=25^\circ C$
		-7.74V		-8.26V	$-10.5V \leq V_1 \leq -23V$, $5mA \leq I_o \leq 1.0A$, $P_D=15W$
Load Regulation	ΔV_o		12mV	160mV	$5mA \leq I_o \leq 1.5A$, $T_j=25^\circ C$,
			4.0mV	80mV	$250mA \leq I_o \leq 750mA$, $T_j=25^\circ C$
Line regulation	ΔV_o		6.0mV 2.0mV	160mV 80mV	$-10.5V \leq V_1 \leq -25V$, $T_j=25^\circ C$ $-11V \leq V_1 \leq -17V$, $T_j=25^\circ C$
Quiescent Current	I_q		2.2mA	4.5mA	$T_j=25^\circ C$, $I_o=0$
Quiescent Current Change	ΔI_q			1.0mA 0.5mA	$-10.5V \leq V_1 \leq -25V$ $5mA \leq I_o \leq 1.0A$
Output Noise Voltage	V_N		52 μV		$10Hz \leq f \leq 100KHz$ $T_j=25^\circ C$
Ripple Rejection	RR	56dB	71dB		$f=120Hz$
Dropout Voltage	V_d		2.0V		$I_o=1.0A$, $T_j=25^\circ C$
Peak Output Current	I_{opeak}		2.1A		$T_j=25^\circ C$
Temperature Coefficient of Output voltage	$\Delta V_o/\Delta T_j$		-0.6mV/ $^\circ C$		$0^\circ C \leq T_j \leq 125^\circ C$, $I_o=5mA$

MC7909CT

Electrical Characteristics ($V_i=15V$, $I_o=500mA$, $0^\circ C < T_j < 125^\circ C$, $C_i=2.0\mu F$, $C_o=1.0\mu F$, Unless Otherwise Specified)

Parameter	Sym	Min	Typ	Max	Test conditions
Output Voltage	V_o	-8.82V	-9.0V	-9.18V	$T_j=25^\circ C$
		-8.72V		-9.28V	$-11.5V \leq V_1 \leq -24V$, $5mA \leq I_o \leq 1.0A$, $P_D=15W$
Load Regulation	ΔV_o		12mV	180mV	$5mA \leq I_o \leq 1.5A$, $T_j=25^\circ C$,
			4.0mV	90mV	$250mA \leq I_o \leq 750mA$, $T_j=25^\circ C$
Line regulation	ΔV_o		7.0mV 2.0mV	180mV 90mV	$-11.5V \leq V_1 \leq -26V$, $T_j=25^\circ C$ $-12V \leq V_1 \leq -18V$, $T_j=25^\circ C$
Quiescent Current	I_q		2.2mA	4.5mA	$T_j=25^\circ C$, $I_o=0$
Quiescent Current Change	ΔI_q			1.0mA 0.5mA	$-11.5V \leq V_1 \leq -26V$ $5mA \leq I_o \leq 1.0A$
Output Noise Voltage	V_N		58 μV		$10Hz \leq f \leq 100KHz$ $T_j=25^\circ C$
Ripple Rejection	RR	56dB	71dB		$f=120Hz$
Dropout Voltage	V_d		1.1V		$I_o=1.0A$, $T_j=25^\circ C$
Peak Output Current	I_{opeak}		2.1A		$T_j=25^\circ C$
Temperature Coefficient of Output voltage	$\Delta V_o/\Delta T_j$		-0.6mV/ $^\circ C$		$0^\circ C \leq T_j \leq 125^\circ C$, $I_o=5mA$

MC7912CT

Electrical Characteristics (Vi=19V, Io=500mA, 0°C<Tj<125°C, Ci=2.0uF, Co=1.0uF, Unless Otherwise Specified)

Parameter	Sym	Min	Typ	Max	Test conditions
Output Voltage	Vo	-11.76V	-12V	-12.24V	Tj=25°C
		-11.66V		-12.34V	-14.5V ≤ V1 ≤ -27V, 5mA ≤ Io ≤ 1.0A, Po=15W
Load Regulation	ΔVo		12mV	240mV	5.0mA ≤ Io ≤ 1.5A, Tj=25°C,
			4.0mV	120mV	250mA ≤ Io ≤ 750mA, Tj=25°C
Line regulation	ΔVo		10mV 3.0mV	240mV 120mV	-14.5V ≤ V1 ≤ -30V, Tj=25°C -16V ≤ V1 ≤ -22V, Tj=25°C
Quiescent Current	Iq		2.5mA	5.0mA	Tj=25°C, Io=0
Quiescent Current Change	ΔIq			1.0mA 0.5mA	-14.5V ≤ V1 ≤ -30V 5mA ≤ Io ≤ 1.0A
Output Noise Voltage	VN		75μV		10Hz ≤ f ≤ 100KHz Tj=25°C
Ripple Rejection	RR	55dB	70dB		f=120Hz
Dropout Voltage	Vd		1.1V		Io=1.0A, Tj=25°C
Peak Output Current	Iopeak		2.1A		Tj=25°C
Temperature Coefficient of Output voltage	ΔVo/ΔTj		-0.8mV/°C		0°C ≤ Tj ≤ 125°C, Io=5mA

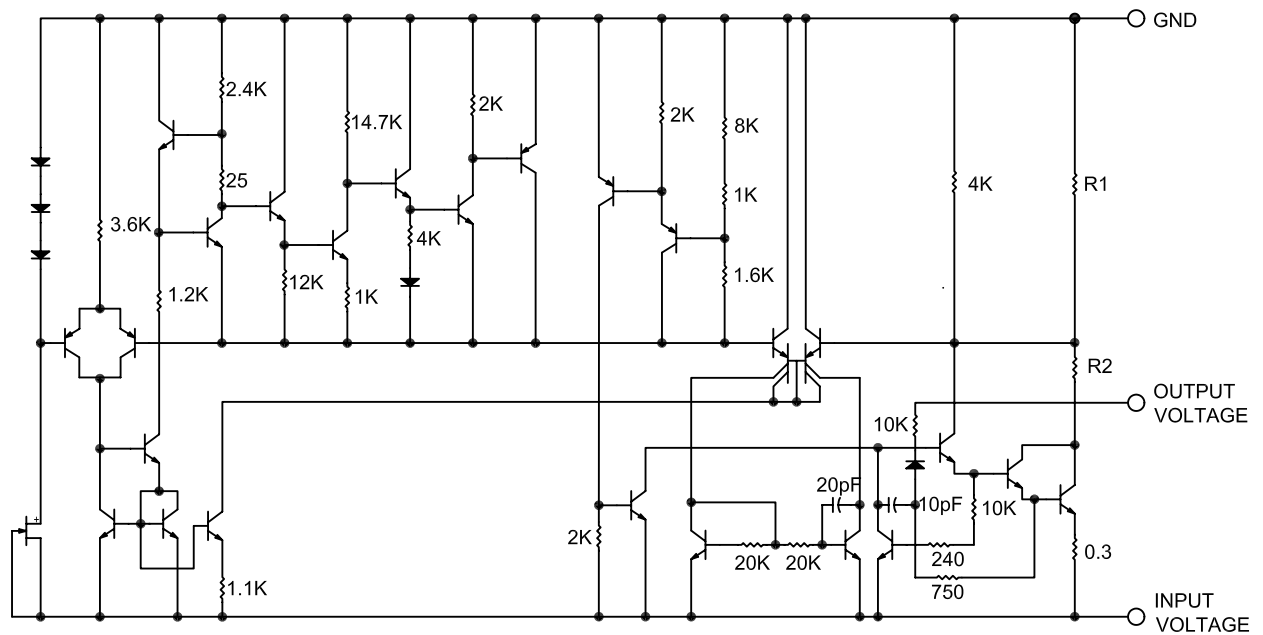
MC7915CT

Electrical Characteristics (Vi=23V, Io=500mA, 0°C<Tj<125°C, Ci=2.0uF, Co=1.0uF, Unless Otherwise Specified)

Parameter	Sym	Min	Typ	Max	Test conditions
Output Voltage	Vo	-14.7V	-15.0V	-15.3V	Tj=25°C
		-14.55V		15.45V	-17.5V ≤ V1 ≤ -30V, 5mA ≤ Io ≤ 1.0A, Po=15W
Load Regulation	ΔVo		12mV	300mV	5mA ≤ Io ≤ 1.5A, Tj=25°C,
			4.0mV	150mV	250mA ≤ Io ≤ 750mA, Tj=25°C
Line regulation	ΔVo		11mV 3.0mV	300mV 150mV	-17.5V ≤ V1 ≤ -30V, Tj=25°C -16V ≤ V1 ≤ -22V, Tj=25°C
Quiescent Current	Iq		2.5mA	5.0mA	Tj=25°C, Io=0
Quiescent Current Change	ΔIq			1.0mA 0.5mA	-17.5V ≤ V1 ≤ -30V 5mA ≤ Io ≤ 1.0A
Output Noise Voltage	VN		90μV		10Hz ≤ f ≤ 100KHz Tj=25°C
Ripple Rejection	RR	54dB	69dB		f=120Hz
Dropout Voltage	Vd		1.1V		Io=1.0A, Tj=25°C
Peak Output Current	Iopeak		2.1A		Tj=25°C
Temperature Coefficient of Output voltage	ΔVo/ΔTj		-0.9mV/°C		0°C ≤ Tj ≤ 125°C, Io=5mA

MC7905CT thru MC7915CT

Representation Schematic Diagram





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