

## Features

- Internal Thermal Shut Down Protection
- Internal Short Circuit Current Limiting
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant(Note1) ("P" Suffix Designates RoHS Compliant. See ordering information)

## Maximum Ratings

Parameter	Symbol	Value	Unit
Input Voltage	$V_I$	-35	V
Output Current	$I_O$	1.0	A
Operating Junction Temperature $T_{OJ}^*$	$T_{OPR}$	0~125	°C
Storage Temperature Range	$T_{STG}$	-55~150	°C

Notes: 1. High Temperature Solder Exemption Applied, see EU Directive Annex 7a.

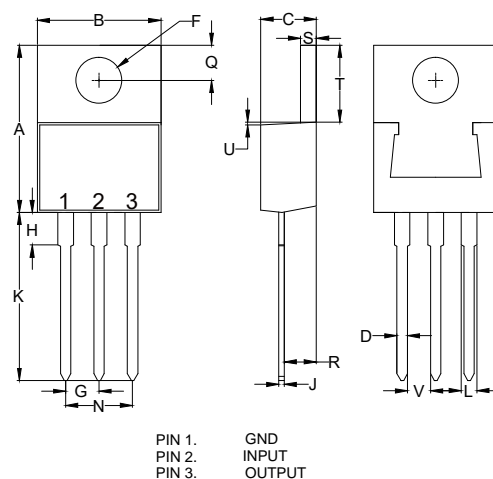
## Marking Code:

MCC 79XXCT
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XX:05~12

# Three-Terminal Positive Voltage Regulators

## TO-220



## DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.560	0.625	14.22	15.88	
B	0.380	0.420	9.65	10.67	
C	0.140	0.190	3.56	4.82	
D	0.020	0.045	0.51	1.14	
F	0.139	0.161	3.53	4.09	Φ
G	0.090	0.110	2.29	2.79	
H	-----	0.250	-----	6.35	
J	0.012	0.025	0.30	0.64	
K	0.500	0.580	12.70	14.73	
L	0.045	0.060	1.14	1.52	
N	0.190	0.210	4.83	5.33	
Q	0.100	0.135	2.54	3.43	
R	0.080	0.115	2.04	2.92	
S	0.045	0.055	1.14	1.39	
T	0.230	0.270	5.84	6.86	
U	-----	0.050	-----	1.27	
V	0.045	-----	1.15	-----	

## Electrical Characteristics

### MC7905CT

( $V_i=10V$ ,  $I_o=500mA$ ,  $0^{\circ}C < T_j < 125^{\circ}C$ ,  $C_i=2.0\mu F$ ,  $C_o=0.1\mu F$ , Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	$V_o$	$T_j=25^{\circ}C$	-4.8	-5.0	-5.2	V
		$-7V \leq V_i \leq -20V$ , $5mA \leq I_o \leq 1000mA$ , $P_D \leq 15W$	-4.75	-	-5.25	V
Load Regulation	$\Delta V_o$	$5mA \leq I_o \leq 1500mA$ , $T_j=25^{\circ}C$	-	15.0	100	mV
		$250mA \leq I_o \leq 750mA$ , $T_j=25^{\circ}C$	-	5.0	50	mV
Line Regulation	$\Delta V_o$	$-7V \leq V_i \leq -25V$ , $T_j=25^{\circ}C$	-	12.5	50	mV
		$-8V \leq V_i \leq -12V$ , $T_j=25^{\circ}C$	-	4.0	15	mV
Quiescent Current	$I_q$	$T_j=25^{\circ}C$ , $I_o=0$	-	1.5	2.0	mA
Quiescent Current Change	$\Delta I_q$	$-7V \leq V_i \leq -25V$ ,	-	-	0.5	mA
		$5mA \leq I_o \leq 1000mA$	-	-	0.5	mA
Output Noise Voltage	$V_N$	$f=120Hz$	-	120	-	$\mu V$
Ripple Rejection	RR	$-8V \leq V_i \leq -18V$ , $f=120Hz$ , $T_j=25^{\circ}C$	54	60	-	dB
Dropout Voltage	$V_d$	$T_j=25^{\circ}C$ , $I_o=1.0A$	-	1.1	-	V
Peak Output Current	$I_{opeak}$	$T_j=25^{\circ}C$	-	2.1	-	A
Temperature Coefficient of Output Voltage	$\Delta V_o / \Delta T_j$	$0^{\circ}C \leq T_j \leq 125^{\circ}C$ , $I_o=5.0mA$	-	-0.4	-	mV/ $^{\circ}C$

## Electrical Characteristics

### MC7906CT

( $V_i=11V$ ,  $I_o=500mA$ ,  $0^{\circ}C < T_j < 125^{\circ}C$ ,  $C_i=2.0\mu F$ ,  $C_o=0.1\mu F$ , Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	$V_o$	$T_j=25^{\circ}C$	-5.75	-6.0	-6.25	V
		$-8V \leq V_i \leq -21V$ , $5mA \leq I_o \leq 1000mA$ , $P_D \leq 15W$	-5.70	-	-6.30	V
Load Regulation	$\Delta V_o$	$5mA \leq I_o \leq 1500mA$ , $T_j=25^{\circ}C$	-	15.0	160	mV
		$250mA \leq I_o \leq 750mA$ , $T_j=25^{\circ}C$	-	5.0	80	mV
Line Regulation	$\Delta V_o$	$-8V \leq V_i \leq -25V$ , $T_j=25^{\circ}C$	-	12.5	160	mV
		$-9V \leq V_i \leq -13V$ , $T_j=25^{\circ}C$	-	4.0	80	mV
Quiescent Current	$I_q$	$T_j=25^{\circ}C$ , $I_o=0$	-	1.5	2.0	mA
Quiescent Current Change	$\Delta I_q$	$-10.5V \leq V_i \leq -25V$ ,	-	-	1.0	mA
		$5mA \leq I_o \leq 1000mA$	-	-	0.5	mA
Output Noise Voltage	$V_N$	$10Hz \leq f \leq 100KHz$ , $T_j=25^{\circ}C$	-	200	-	$\mu V$
Ripple Rejection	RR	$-9V \leq V_i \leq -13V$ , $f=120Hz$ , $T_j=25^{\circ}C$	54	60	-	dB
Dropout Voltage	$V_d$	$T_j=25^{\circ}C$ , $I_o=1.0A$	-	1.1	-	V
Peak Output Current	$I_{opeak}$	$T_j=25^{\circ}C$	-	2.1	-	A
Temperature Coefficient of Output Voltage	$\Delta V_o / \Delta T_j$	$0^{\circ}C \leq T_j \leq 125^{\circ}C$ , $I_o=5.0mA$	-	-0.5	-	mV/ $^{\circ}C$

## Electrical Characteristics

### MC7908CT

( $V_i=14V$ ,  $I_o=500mA$ ,  $0^{\circ}C < T_j < 125^{\circ}C$ ,  $C_i=2.0\mu F$ ,  $C_o=0.1\mu F$ , Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	$V_o$	$T_j=25^{\circ}C$	-7.70	-8.0	-8.30	V
		$-10.5V \leq V_i \leq -23V$ , $5mA \leq I_o \leq 1000mA$ , $P_D=15W$	-7.60	-	-8.40	V
Load Regulation	$\Delta V_o$	$5mA \leq I_o \leq 1500mA$ , $T_j=25^{\circ}C$	-	12.0	160	mV
		$250mA \leq I_o \leq 750mA$ , $T_j=25^{\circ}C$	-	4.0	80	mV
Line Regulation	$\Delta V_o$	$-10.5V \leq V_i \leq -25V$ , $T_j=25^{\circ}C$	-	6.0	160	mV
		$-11V \leq V_i \leq -17V$ , $T_j=25^{\circ}C$	-	2.0	80	mV
Quiescent Current	$I_q$	$T_j=25^{\circ}C$ , $I_o=0$	-	2.2	4.5	mA
Quiescent Current Change	$\Delta I_q$	$-10.5V \leq V_i \leq -25V$ ,	-	-	1.0	mA
		$5mA \leq I_o \leq 1000mA$	-	-	0.5	mA
Output Noise Voltage	$V_N$	$10Hz \leq f \leq 100KHz$ , $T_j=25^{\circ}C$	-	52	-	$\mu V$
Ripple Rejection	RR	$-10.5V \leq V_i \leq -25V$ , $f=120Hz$ , $T_j=25^{\circ}C$	56	71	-	dB
Dropout Voltage	$V_d$	$T_j=25^{\circ}C$ , $I_o=1.0A$	-	2.0	-	V
Peak Output Current	$I_{opeak}$	$T_j=25^{\circ}C$	-	2.1	-	A
Temperature Coefficient of Output Voltage	$\Delta V_o / \Delta T_j$	$0^{\circ}C \leq T_j \leq 125^{\circ}C$ , $I_o=5.0mA$	-	-0.6	-	mV/ $^{\circ}C$

## Electrical Characteristics

### MC7909CT

( $V_i=15V$ ,  $I_o=500mA$ ,  $0^{\circ}C < T_j < 125^{\circ}C$ ,  $C_i=2.0\mu F$ ,  $C_o=0.1\mu F$ , Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	$V_o$	$T_j=25^{\circ}C$	-8.70	-9.0	-9.30	V
		$-11.5V \leq V_i \leq -24V$ , $5mA \leq I_o \leq 1000mA$ , $P_D \leq 15W$	-8.60	-	-9.40	V
Load Regulation	$\Delta V_o$	$5mA \leq I_o \leq 1500mA$ , $T_j=25^{\circ}C$	-	12.0	180	mV
		$250mA \leq I_o \leq 750mA$ , $T_j=25^{\circ}C$	-	4.0	90	mV
Line Regulation	$\Delta V_o$	$-11.5V \leq V_i \leq -26V$ , $T_j=25^{\circ}C$	-	10	180	mV
		$-12V \leq V_i \leq -18V$ , $T_j=25^{\circ}C$	-	5.0	90	mV
Quiescent Current	$I_q$	$T_j=25^{\circ}C$ , $I_o=0$	-	3.0	6.0	mA
Quiescent Current Change	$\Delta I_q$	$-11.5V \leq V_i \leq -26V$ ,	-	-	1.0	mA
		$5mA \leq I_o \leq 1000mA$	-	-	0.5	mA
Output Noise Voltage	$V_N$	$10Hz \leq f \leq 100KHz$ , $T_j=25^{\circ}C$	-	175	-	$\mu V$
Ripple Rejection	RR	$-11.5V \leq V_i \leq -26V$ , $f=120Hz$ , $T_j=25^{\circ}C$	54	60	-	dB
Dropout Voltage	$V_d$	$T_j=25^{\circ}C$ , $I_o=1.0A$	-	1.1	-	V
Peak Output Current	$I_{opeak}$	$T_j=25^{\circ}C$	-	2.1	-	A
Temperature Coefficient of Output Voltage	$\Delta V_o / \Delta T_j$	$0^{\circ}C \leq T_j \leq 125^{\circ}C$ , $I_o=5.0mA$	-	-0.6	-	mV/ $^{\circ}C$

## Electrical Characteristics

### MC7912CT

( $V_i=19V$ ,  $I_o=500mA$ ,  $0^{\circ}C < T_j < 125^{\circ}C$ ,  $C_i=2.0\mu F$ ,  $C_o=0.1\mu F$ , Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	$V_o$	$T_j=25^{\circ}C$	-11.50	-12.0	-12.50	V
		$-14.5V \leq V_i \leq -27V$ , $5mA \leq I_o \leq 1000mA$ , $P_D \leq 15W$	-11.40	-	-12.60	V
Load Regulation	$\Delta V_o$	$5mA \leq I_o \leq 1500mA$ , $T_j=25^{\circ}C$	-	15.0	200	mV
		$250mA \leq I_o \leq 750mA$ , $T_j=25^{\circ}C$	-	5.0	75	mV
Line Regulation	$\Delta V_o$	$-14.5V \leq V_i \leq -30V$ , $T_j=25^{\circ}C$	-	5.0	80	mV
		$-16V \leq V_i \leq -22V$ , $T_j=25^{\circ}C$	-	3.0	30	mV
Quiescent Current	$I_q$	$T_j=25^{\circ}C$ , $I_o=0$	-	2.0	3.0	mA
Quiescent Current Change	$\Delta I_q$	$-14.5V \leq V_i \leq -30V$ ,	-	-	0.5	mA
		$5mA \leq I_o \leq 1000mA$	-	-	0.5	mA
Output Noise Voltage	$V_N$	$10Hz \leq f \leq 100KHz$ , $T_j=25^{\circ}C$	-	300	-	$\mu V$
Ripple Rejection	RR	$-14.5V \leq V_i \leq -30V$ , $f=120Hz$ , $T_j=25^{\circ}C$	54	60	-	dB
Dropout Voltage	$V_d$	$T_j=25^{\circ}C$ , $I_o=1.0A$	-	1.1	-	V
Peak Output Current	$I_{opeak}$	$T_j=25^{\circ}C$	-	2.1	-	A
Temperature Coefficient of Output Voltage	$\Delta V_o / \Delta T_j$	$0^{\circ}C \leq T_j \leq 125^{\circ}C$ , $I_o=5.0mA$	-	-0.8	-	mV/ $^{\circ}C$

[illegible]

## Ordering Information

Device	Packing
Part Number-BP	Bulk:50pcs/Tube,1Kpcs/Box,5Kpcs/Carton

Note : Adding "-HF" Suffix For Halogen Free, eg. Part Number-BP-HF

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