# 1A Standard Negative Voltage Regulator

General Description

- The LM79XX series is three terminal standard negative voltage regulator designed for a wide range of applications that required supply current up to 1A.

- The LM79XX series is available in 11 fixed output voltage: -5V, -6V, -7V, -8V, -9V, -12V, -15V, -18V, -20V and -24V.

- The LM79XX series provides internal current limiting, thermal shut-down and safe-area protection which make it essentially indestructible.

- The LM79XX series is available in TO-252, TO-220F packages.

.

D-PAK (TO-252)
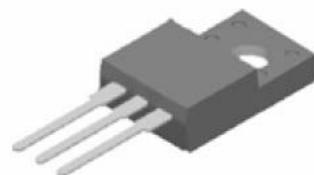
TO-220F

Features

- Output current up to 1A
- Overload shutdown protection
- Short circuit limiting
- RoHS compliant

Applications

- Linear Regulator
- CMOS
- TTL
- IC Power Supply

Ordering Information

LM79 ☐☐ ☐ - 93 - ☐☐

Circuit Type
 Io=1A

Typical Output Voltage
 05: -5V; 06: -6V;
 07: -7V; 08: -8V;
 09: -9V; 10: -10V
 12: -12V; 15: -15V;
 18: -18V; 20: -20V;
 24: -24V

Packing Code
 TU: Tube, RoHS
 UG: Tube, Halogen Free

Factory Location Code

Outline
 F: TO-220F
 D: D-PAK (TO-252)
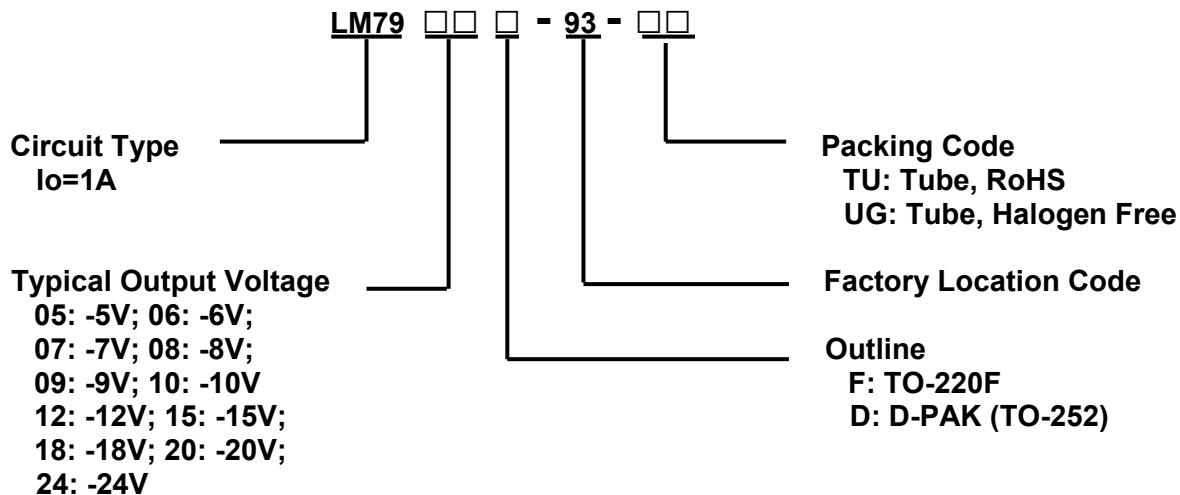
Pin Configuration
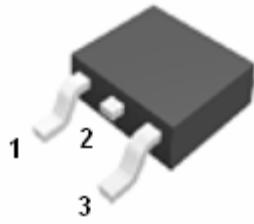
1: GND 2: INPUT 3: OUTPUT

D-PAK(TO-252)
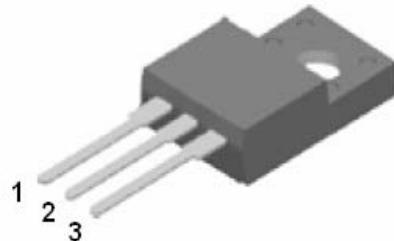
1: GND 2: INPUT 3: OUTPUT

TO-220F

Equivalent Circuit
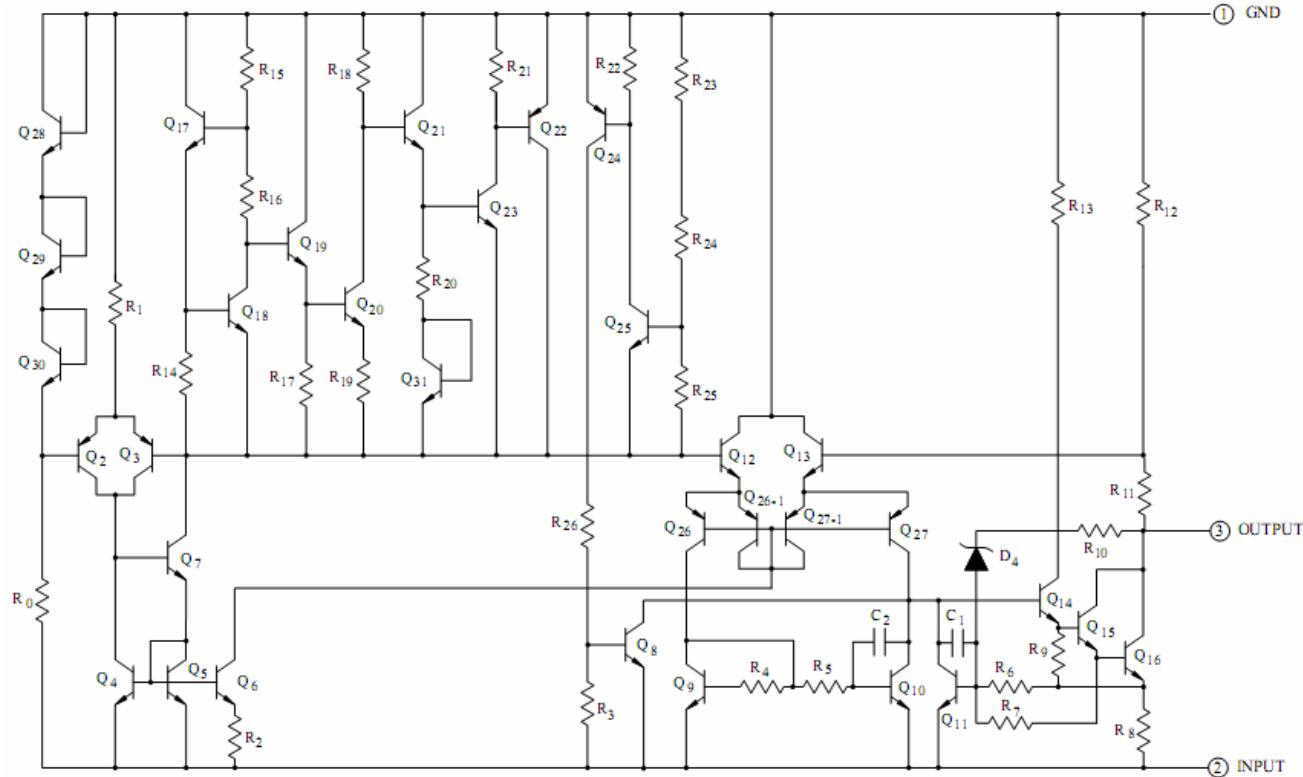
Absolute Maximum Ratings (Ta=25 °C)

Symbol	Description		Ratings	Unit
V_{IN}	Input Voltage	LM7905~LM7915	-35	V
		LM7918~LM7924	-40	
I_{OUT}	Output Current		1.0	A
P_{D1}	Power Dissipation-1 (No Heat-sink)	D-PAK	1.3	W
		TO-220F	2.0	
P_{D2}	Power Dissipation-2 (Infinite Heat-sink)	D-PAK	12.0	W
		TO-220F	20.8	
T_j	Operating Junction Temperature		-30 ~ +150	°C
T_{OPR}	Operating Temperature		-30 ~ +75	°C
T_{STG}	Storage Temperature		-55 ~ +150	°C

Electrical Characteristics

LM7905

(Unless otherwise specified, V_{IN}=-10V, I_{OUT}=0.5A, 0°C≤Tj≤125°C, C_{IN}=2.2μF, C_{OUT}=1μF)

Symbol	Description	Test Circuit	Test Conditions	Min.	Typ.	Max.	Unit
V_{OUT}	Output Voltage	C-1	Tj=25°C	-5.2	-5.0	-4.8	V
ΔV_{LINE}	Line Regulation	C-1	-12V≤V_{IN}≤-8V Tj=25°C	-	5	50	mV
			-25V≤V_{IN}≤-7V Tj=25°C	-	10	100	mV
ΔV_{LOAD}	Load Regulation	C-1	5mA≤I_{OUT}≤1.5A Tj=25°C	-	10	100	mV
			0.25A≤I_{OUT}≤0.75A Tj=25°C	-	3	50	mV
V_{OUT}	Output Voltage	C-1	-20V≤V_{IN}≤-7V 5mA≤I_{OUT}≤1A	-5.25	-5.0	-4.75	V
I_Q	Quiescent Current	C-1	Tj=25°C	-	3	6	mA
ΔI_Q	Quiescent Current Change	C-1	-25V≤V_{IN}≤-8V	-	0.1	1.3	mA
			5mA≤I_{OUT}≤1A	-	0.05	0.5	
e_N	Output Noise Voltage	C-2	10Hz≤f≤100KHz Ta=25°C	-	100	-	μVrms
RR	Ripple Rejection Ratio	C-3	I_{OUT}=20mA, f=120Hz	54	60	-	dB
I_{SC}	Short-Circuit Current Limit	C-1	Tj=25°C	-	1.9	-	A
$\Delta V_O/\Delta T$	Average Temperature Coefficient of V_{OUT}	C-1	I_{OUT}=5mA	-	-0.4	-	mV/℃
V_D	Dropout Voltage	C-1	I_{OUT}=1A Tj=25°C	-	2.0	-	V

LM7906

(Unless otherwise specified, V_{IN}=-11V, I_{OUT}=0.5A, 0°C≤Tj≤125°C, C_{IN}=2.2μF, C_{OUT}=1μF)

Symbol	Description	Test Circuit	Test Conditions	Min.	Typ.	Max.	Unit
V_{OUT}	Output Voltage	C-1	Tj=25°C	-6.25	-6.0	-5.75	V
ΔV_{LINE}	Line Regulation	C-1	-13V≤V_{IN}≤-9V Tj=25°C	-	5	60	mV
			-25V≤V_{IN}≤-8V Tj=25°C	-	10	120	mV
ΔV_{LOAD}	Load Regulation	C-1	5mA≤I_{OUT}≤1.5A Tj=25°C	-	10	120	mV
			0.25A≤I_{OUT}≤0.75A Tj=25°C	-	3	60	mV
V_{OUT}	Output Voltage	C-1	-21V≤V_{IN}≤-9V 5mA≤I_{OUT}≤1A	-6.3	-6.0	-5.7	V
I_Q	Quiescent Current	C-1	Tj=25°C	-	3	6	mA
ΔI_Q	Quiescent Current Change	C-1	-25V≤V_{IN}≤-9V	-	-	1.3	mA
			5mA≤I_{OUT}≤1A	-	-	0.5	
eN	Output Noise Voltage	C-2	10Hz≤f≤100KHz, Ta=25°C	-	130	-	μVrms
RR	Ripple Rejection Ratio	C-3	I_{OUT}=20mA, f=120Hz	54	60	-	dB
Isc	Short-Circuit Current Limit	C-1	Tj=25°C	-	1.9	-	A
$\Delta V_O/\Delta T$	Average Temperature Coefficient of V_{OUT}	C-1	I_{OUT}=5mA	-	-0.5	-	mV/℃
V_D	Dropout Voltage	C-1	I_{OUT}=1A Tj=25°C	-	2.0	-	V

LM7907

(Unless otherwise specified, V_{IN}=-12V, I_{OUT}=0.5A, 0°C≤Tj≤125°C, C_{IN}=2.2μF, C_{OUT}=1μF)

Symbol	Description	Test Circuit	Test Conditions	Min.	Typ.	Max.	Unit
V_{OUT}	Output Voltage	C-1	Tj=25°C	-7.28	-7.0	-6.72	V
ΔV_{LINE}	Line Regulation	C-1	-15V≤V_{IN}≤-10V Tj=25°C	-	10	70	mV
			-25V≤V_{IN}≤-9V Tj=25°C	-	45	140	mV
ΔV_{LOAD}	Load Regulation	C-1	5mA≤I_{OUT}≤1.5A Tj=25°C	-	20	140	mV
			0.25A≤I_{OUT}≤0.75A Tj=25°C	-	7	70	mV
V_{OUT}	Output Voltage	C-1	-22V≤V_{IN}≤-9V 5mA≤I_{OUT}≤1A	-7.35	-	-6.65	V
I_Q	Quiescent Current	C-1	Tj=25°C	-	4.3	8.0	mA
ΔI_Q	Quiescent Current Change	C-1	-25V≤V_{IN}≤-9V	-	-	1.0	mA
			5mA≤I_{OUT}≤1A	-	-	0.5	
eN	Output Noise Voltage	C-2	10Hz≤f≤100KHz, Ta=25°C	-	49	-	μVrms
RR	Ripple Rejection Ratio	C-3	I_{OUT}=20mA, f=120Hz	60	67	-	dB
I_{SC}	Short-Circuit Current Limit	C-1	Tj=25°C	-	1.9	-	A
$\Delta V_O/\Delta T$	Average Temperature Coefficient of V_{OUT}	C-1	I_{OUT}=5mA	-	-0.9	-	mV/℃
V_D	Dropout Voltage	C-1	I_{OUT}=1A Tj=25°C	-	2.0	-	V

LM7908

(Unless otherwise specified, V_{IN}=-14V, I_{OUT}=0.5A, 0°C≤Tj≤125°C, C_{IN}=2.2µF, C_{OUT}=1µF)

Symbol	Description	Test Circuit	Test Conditions	Min.	Typ.	Max.	Unit
V_{OUT}	Output Voltage	C-1	Tj=25°C	-8.3	-8.0	-7.7	V
ΔV_{LINE}	Line Regulation	C-1	-17V≤V_{IN}≤-11V Tj=25°C	-	5	80	mV
			-25V≤V_{IN}≤-10.5V Tj=25°C	-	10	100	mV
ΔV_{LOAD}	Load Regulation	C-1	5mA≤I_{OUT}≤1.5A Tj=25°C	-	12	160	mV
			0.25A≤I_{OUT}≤0.75A Tj=25°C	-	4	80	mV
V_{OUT}	Output Voltage	C-1	-23V≤V_{IN}≤-11.5V 5mA≤I_{OUT}≤1A	-8.4	-8.0	-7.6	V
I_Q	Quiescent Current	C-1	Tj=25°C	-	3	6	mA
ΔI_Q	Quiescent Current Change	C-1	-25V≤V_{IN}≤-11.5V	-	0.1	1.0	mA
			5mA≤I_{OUT}≤1A	-	0.05	0.5	
eN	Output Noise Voltage	C-2	10Hz≤f≤100KHz, Ta=25°C	-	175	-	µVrms
RR	Ripple Rejection Ratio	C-3	I_{OUT}=20mA, f=120Hz	54	60	-	dB
I_{SC}	Short-Circuit Current Limit	C-1	Tj=25°C	-	1.9	-	A
$\Delta V_O/\Delta T$	Average Temperature Coefficient of V_{OUT}	C-1	I_{OUT}=5mA	-	-0.6	-	mV/℃
V_D	Dropout Voltage	C-1	I_{OUT}=1A Tj=25°C	-	2.0	-	V

LM7909

(Unless otherwise specified, V_{IN}=-15V, I_{OUT}=0.5A, 0°C≤Tj≤125°C, C_{IN}=2.2μF, C_{OUT}=1μF)

Symbol	Description	Test Circuit	Test Conditions	Min.	Typ.	Max.	Unit
V_{OUT}	Output Voltage	C-1	Tj=25°C	-9.3	-9.0	-8.7	V
ΔV_{LINE}	Line Regulation	C-1	-19V≤V_{IN}≤-13V Tj=25°C	-	5	90	mV
			-26V≤V_{IN}≤-11.5V Tj=25°C	-	10	100	mV
ΔV_{LOAD}	Load Regulation	C-1	5mA≤I_{OUT}≤1.5A Tj=25°C	-	10	150	mV
			0.25A≤I_{OUT}≤0.75A Tj=25°C	-	5	120	mV
V_{OUT}	Output Voltage	C-1	-24V≤V_{IN}≤-11.5V 5mA≤I_{OUT}≤1A	-9.4	-9.0	-8.6	V
I_Q	Quiescent Current	C-1	Tj=25°C	-	3	6	mA
ΔI_Q	Quiescent Current Change	C-1	-26.5V≤V_{IN}≤-13V	-	0.1	1.0	mA
			5mA≤I_{OUT}≤1A	-	0.05	0.5	
eN	Output Noise Voltage	C-2	10Hz≤f≤100KHz, Ta=25°C	-	180	-	μVrms
RR	Ripple Rejection Ratio	C-3	I_{OUT}=20mA, f=120Hz	54	60	-	dB
I_{SC}	Short-Circuit Current Limit	C-1	Tj=25°C	-	1.9	-	A
$\Delta V_O/\Delta T$	Average Temperature Coefficient of V_{OUT}	C-1	I_{OUT}=5mA	-	-0.7	-	mV/℃
V_D	Dropout Voltage	C-1	I_{OUT}=1A Tj=25°C	-	2.0	-	V

LM7910

(Unless otherwise specified, V_{IN}=-16V, I_{OUT}=0.5A, 0°C≤Tj≤125°C, C_{IN}=2.2µF, C_{OUT}=1µF)

Symbol	Description	Test Circuit	Test Conditions	Min.	Typ.	Max.	Unit
V_{OUT}	Output Voltage	C-1	Tj=25°C	-10.4	-10.0	-9.6	V
ΔV_{LINE}	Line Regulation	C-1	-20V≤V_{IN}≤-14V Tj=25°C	-	5	100	mV
			-27V≤V_{IN}≤-12.5V Tj=25°C	-	10	110	mV
ΔV_{LOAD}	Load Regulation	C-1	5mA≤I_{OUT}≤1.5A Tj=25°C	-	10	180	mV
			0.25A≤I_{OUT}≤0.75A Tj=25°C	-	6	120	mV
V_{OUT}	Output Voltage	C-1	-25V≤V_{IN}≤-12.5V 5mA≤I_{OUT}≤1A	-10.5	-10	-9.5	V
I_Q	Quiescent Current	C-1	Tj=25°C	-	3	6	mA
ΔI_Q	Quiescent Current Change	C-1	-27.5V≤V_{IN}≤-14V	-	0.1	1.0	mA
			5mA≤I_{OUT}≤1A	-	0.05	0.5	
e_N	Output Noise Voltage	C-2	10Hz≤f≤100KHz, Ta=25°C	-	190	-	µVrms
RR	Ripple Rejection Ratio	C-3	I_{OUT}=20mA, f=120Hz	54	60	-	dB
I_{SC}	Short-Circuit Current Limit	C-1	Tj=25°C	-	1.9	-	A
$\Delta V_O/\Delta_T$	Average Temperature Coefficient of V_{OUT}	C-1	I_{OUT}=5mA	-	-0.7	-	mV/℃
V_D	Dropout Voltage	C-1	I_{OUT}=1A Tj=25°C	-	2.0	-	V

LM7912

(Unless otherwise specified, V_{IN}=-18V, I_{OUT}=0.5A, 0°C≤Tj≤125°C, C_{IN}=2.2μF, C_{OUT}=1μF)

Symbol	Description	Test Circuit	Test Conditions	Min.	Typ.	Max.	Unit
V_{OUT}	Output Voltage	C-1	Tj=25°C	-12.5	-12	-11.5	V
ΔV_{LINE}	Line Regulation	C-1	-22V≤V_{IN}≤-16V Tj=25°C	-	6	120	mV
			-30V≤V_{IN}≤-14.5V Tj=25°C	-	12	240	mV
ΔV_{LOAD}	Load Regulation	C-1	5mA≤I_{OUT}≤1.5A Tj=25°C	-	12	240	mV
			0.25A≤I_{OUT}≤0.75A Tj=25°C	-	4	120	mV
V_{OUT}	Output Voltage	C-1	-27V≤V_{IN}≤-15.5V 5mA≤I_{OUT}≤1A	-12.6	-12	-11.4	V
I_Q	Quiescent Current	C-1	Tj=25°C	-	3	6	mA
ΔI_Q	Quiescent Current Change	C-1	-30V≤V_{IN}≤-15V	-	0.1	1.0	mA
			5mA≤I_{OUT}≤1A	-	0.05	0.5	
eN	Output Noise Voltage	C-2	10Hz≤f≤100KHz, Ta=25°C	-	200	-	μVrms
RR	Ripple Rejection Ratio	C-3	I_{OUT}=20mA, f=120Hz	54	60	-	dB
I_{SC}	Short-Circuit Current Limit	C-1	Tj=25°C	-	1.9	-	A
$\Delta V_O/\Delta T$	Average Temperature Coefficient of V_{OUT}	C-1	I_{OUT}=5mA	-	-0.8	-	mV/℃
V_D	Dropout Voltage	C-1	I_{OUT}=1A Tj=25°C	-	2.0	-	V

LM7915

(Unless otherwise specified, V_{IN}=-23V, I_{OUT}=0.5A, 0°C≤Tj≤125°C, C_{IN}=2.2μF, C_{OUT}=1μF)

Symbol	Description	Test Circuit	Test Conditions	Min.	Typ.	Max.	Unit
V_{OUT}	Output Voltage	C-1	Tj=25°C	-15.6	-15	-14.4	V
ΔV_{LINE}	Line Regulation	C-1	-26V≤V_{IN}≤-20V Tj=25°C	-	6	150	mV
			-30V≤V_{IN}≤-17.5V Tj=25°C	-	12	300	mV
ΔV_{LOAD}	Load Regulation	C-1	5mA≤I_{OUT}≤1.5A Tj=25°C	-	12	300	mV
			0.25A≤I_{OUT}≤0.75A Tj=25°C	-	4	150	mV
V_{OUT}	Output Voltage	C-1	-30V≤V_{IN}≤-18V 5mA≤I_{OUT}≤1A	-15.75	-15	-14.25	V
I_Q	Quiescent Current	C-1	Tj=25°C	-	3	6	mA
ΔI_Q	Quiescent Current Change	C-1	-30V≤V_{IN}≤-17.5V	-	0.1	1.0	mA
			5mA≤I_{OUT}≤1A	-	0.05	0.5	
eN	Output Noise Voltage	C-2	10Hz≤f≤100KHz, Ta=25°C	-	250	-	μVrms
RR	Ripple Rejection Ratio	C-3	I_{OUT}=20mA, f=120Hz	54	60	-	dB
I_{SC}	Short-Circuit Current Limit	C-1	Tj=25°C	-	1.9	-	A
$\Delta V_O/\Delta_T$	Average Temperature Coefficient of V_{OUT}	C-1	I_{OUT}=5mA	-	-0.9	-	mV/℃
V_D	Dropout Voltage	C-1	I_{OUT}=1A Tj=25°C	-	2.0	-	V

LM7918

(Unless otherwise specified, V_{IN}=-27V, I_{OUT}=0.5A, 0°C≤Tj≤125°C, C_{IN}=2.2μF, C_{OUT}=1μF)

Symbol	Description	Test Circuit	Test Conditions	Min.	Typ.	Max.	Unit
V_{OUT}	Output Voltage	C-1	Tj=25°C	-18.7	-18	-17.3	V
ΔV_{LINE}	Line Regulation	C-1	-30V≤V_{IN}≤-24V Tj=25°C	-	8	180	mV
			-33V≤V_{IN}≤-21V Tj=25°C	-	15	360	mV
ΔV_{LOAD}	Load Regulation	C-1	5mA≤I_{OUT}≤1.5A Tj=25°C	-	15	360	mV
			0.25A≤I_{OUT}≤0.75A Tj=25°C	-	5	180	mV
V_{OUT}	Output Voltage	C-1	-33V≤V_{IN}≤-22.5V 5mA≤I_{OUT}≤1A	-18.85	-18	-17.15	V
I_Q	Quiescent Current	C-1	Tj=25°C	-	3	6	mA
ΔI_Q	Quiescent Current Change	C-1	-33V≤V_{IN}≤-22V	-	-	1.0	mA
			5mA≤I_{OUT}≤1A	-	-	0.5	
eN	Output Noise Voltage	C-2	10Hz≤f≤100KHz, Ta=25°C	-	300	-	μVrms
RR	Ripple Rejection Ratio	C-3	I_{OUT}=20mA, f=120Hz	54	60	-	dB
Isc	Short-Circuit Current Limit	C-1	Tj=25°C	-	1.9	-	A
$\Delta V_O/\Delta T$	Average Temperature Coefficient of V_{OUT}	C-1	I_{OUT}=5mA	-	-1.0	-	mV/℃
V_D	Dropout Voltage	C-1	I_{OUT}=1A Tj=25°C	-	2.0	-	V

LM7920

(Unless otherwise specified, V_{IN}=-30V, I_{OUT}=0.5A, 0°C≤Tj≤125°C, C_{IN}=2.2µF, C_{OUT}=1µF)

Symbol	Description	Test Circuit	Test Conditions	Min.	Typ.	Max.	Unit
V_{OUT}	Output Voltage	C-1	Tj=25°C	-20.8	-20	-19.2	V
ΔV_{LINE}	Line Regulation	C-1	-32V≤V_{IN}≤-26V Tj=25°C	-	10	180	mV
			-35V≤V_{IN}≤-24V Tj=25°C	-	18	360	mV
ΔV_{LOAD}	Load Regulation	C-1	5mA≤I_{OUT}≤1.5A Tj=25°C	-	18	360	mV
			0.25A≤I_{OUT}≤0.75A Tj=25°C	-	10	180	mV
V_{OUT}	Output Voltage	C-1	-35V≤V_{IN}≤-24V 5mA≤I_{OUT}≤1A	-21	-20	-19	V
I_Q	Quiescent Current	C-1	Tj=25°C	-	3	6	mA
ΔI_Q	Quiescent Current Change	C-1	-36.5V≤V_{IN}≤-25V	-	-	1.0	mA
			5mA≤I_{OUT}≤1A	-	-	0.5	
eN	Output Noise Voltage	C-2	10Hz≤f≤100KHz, Ta=25°C	-	350	-	µVrms
RR	Ripple Rejection Ratio	C-3	I_{OUT}=20mA, f=120Hz	54	60	-	dB
Isc	Short-Circuit Current Limit	C-1	Tj=25°C	-	1.9	-	A
$\Delta V_O/\Delta T$	Average Temperature Coefficient of V_{OUT}	C-1	I_{OUT}=5mA	-	-1.0	-	mV/℃
V_D	Dropout Voltage	C-1	I_{OUT}=1A Tj=25°C	-	2.0	-	V

LM7924

(Unless otherwise specified, V_{IN}=-33V, I_{OUT}=0.5A, 0°C≤Tj≤125°C, C_{IN}=2.2μF, C_{OUT}=1μF)

| Symbol	Description	Test Circuit	Test Conditions	Min.	Typ.	Max.	Unit
V_{OUT}	Output Voltage	C-1	Tj=25°C	-25	-24	-23	V
ΔV_{LINE}	Line Regulation	C-1	-36V≤V_{IN}≤-30V Tj=25°C	-	8	240	mV
			-38V≤V_{IN}≤-27V Tj=25°C	-	15	480	mV
ΔV_{LOAD}	Load Regulation	C-1	5mA≤I_{OUT}≤1.5A Tj=25°C	-	15	480	mV
			0.25A≤I_{OUT}≤0.75A Tj=25°C	-	5	240	mV
V_{OUT}	Output Voltage	C-1	-38V≤V_{IN}≤-27V 5mA≤I_{OUT}≤1A	-25.2	-24	-22.5	V
I_Q	Quiescent Current	C-1	Tj=25°C	-	3	6	mA
ΔI_Q	Quiescent Current Change	C-1	-38V≤V_{IN}≤-27V	-	-	1.0	mA
			5mA≤I_{OUT}≤1A	-	-	0.5	
eN	Output Noise Voltage	C-2	10Hz≤f≤100KHz, Ta=25°C	-	400	-	μVrms
RR	Ripple Rejection Ratio	C-3	I_{OUT}=20mA, f=120Hz	54	60	-	dB
I_{SC}	Short-Circuit Current Limit	C-1	Tj=25°C	-	1.9	-	A
$\Delta V_O/\Delta T$	Average Temperature Coefficient of V_{OUT}	C-1	I_{OUT}=5mA	-	-1.0	-	mV/℃
V_D	Dropout Voltage	C-1	I_{OUT}=1A Tj=25°C	-	2.0	-	V

Typical Test Circuit

C-1 Standard Test Circuit
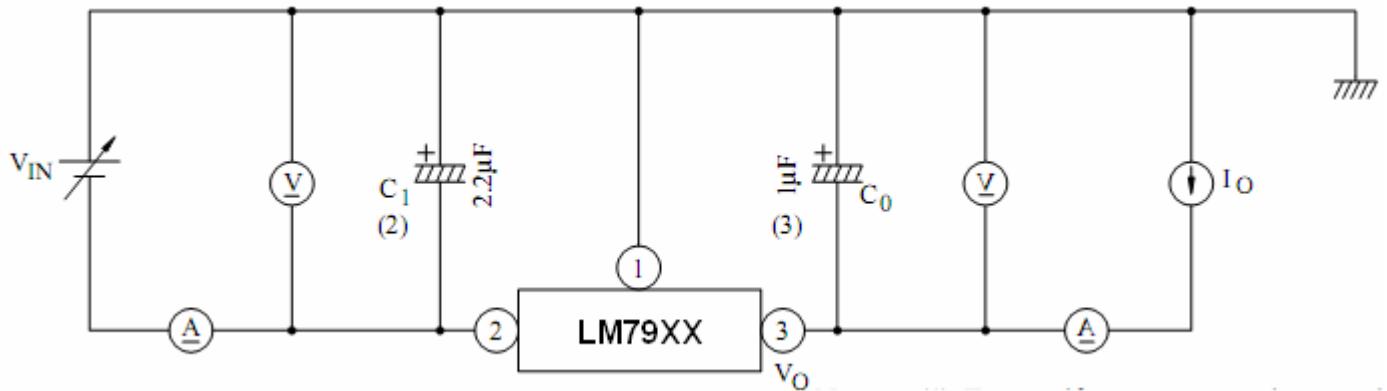
Note: 1. To specify an output voltage, substitute voltage value for "XX";
   2. Required for stability. For value given, capacitor must be solid tantalum. If aluminum electrolytic is used, at least 10 times value shown should be selected. C_I is required if regulator is located an appreciate distance from power supply filter.
   3. To improve transient response. If large capacitors are used, a high current diode from input to output is needed.

C-2 Output Noise Voltage Test Circuit
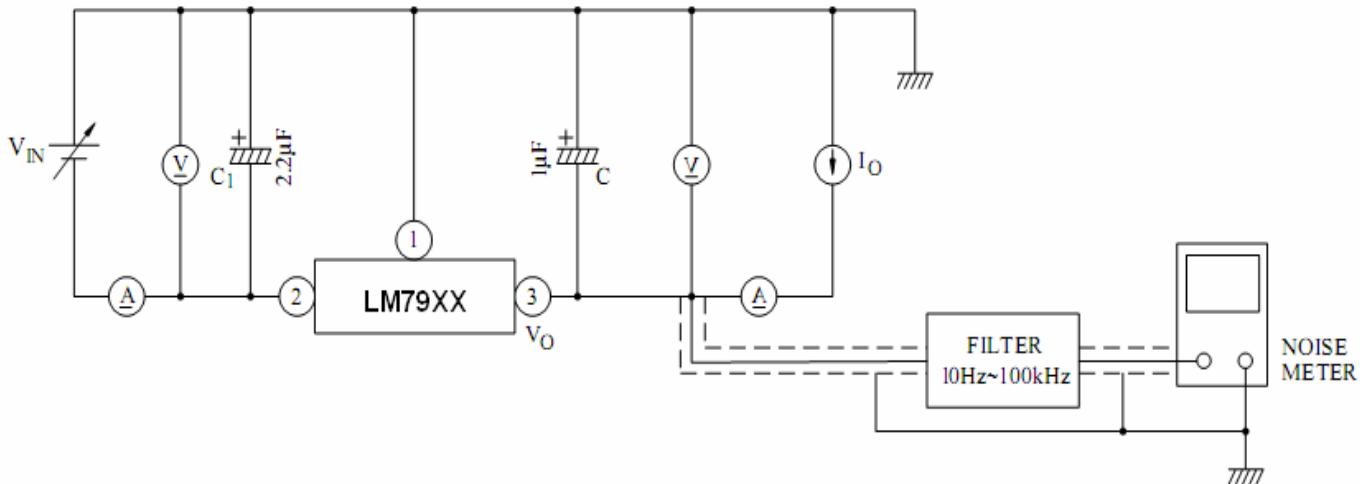
C-3 Ripple Rejection Ratio Test Circuit

V_{IN}

C_1 2.2μF

1μF C_0

I_O

OSCILLOSCOPE

LM79XX

V_O

$e_i = 1V_{p-p}$
$f = 120Hz$

$\ell \leq 30cm$

$R.R. = 20 \log \frac{e_i}{e_o}$ (dB)
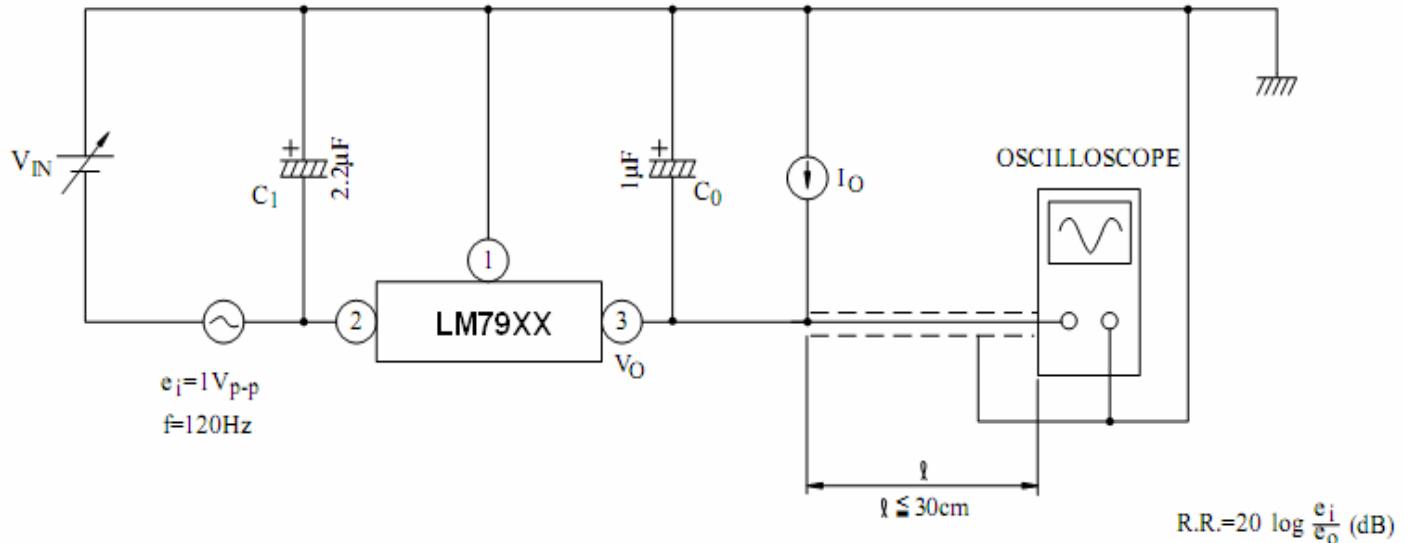
Typical Characteristics Curves

Fig.1- I_{SC} vs. V_{IN}

Input Voltage V_{IN} (V)

Fig.2- V_D vs. Tj

Junction Temperature T_j (°C)
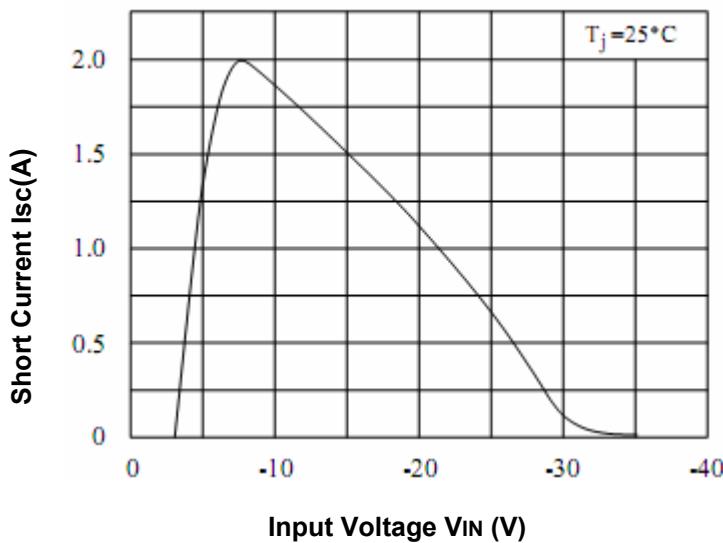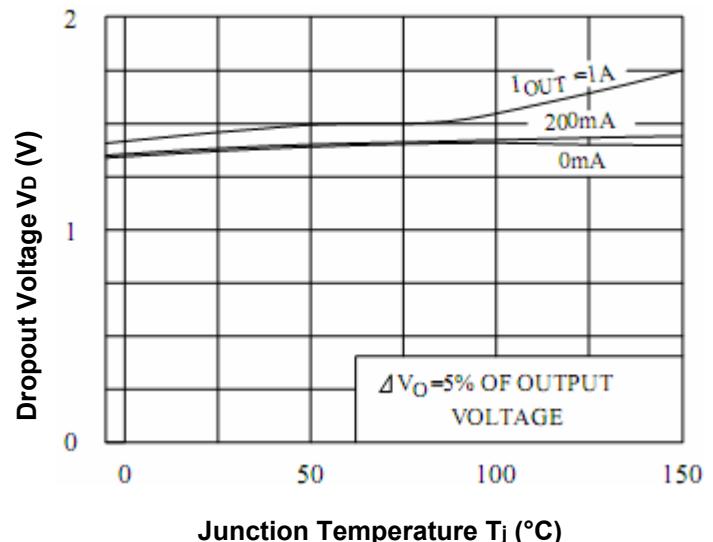
**Fig.3- P_D vs. Ta (D-PAK)**
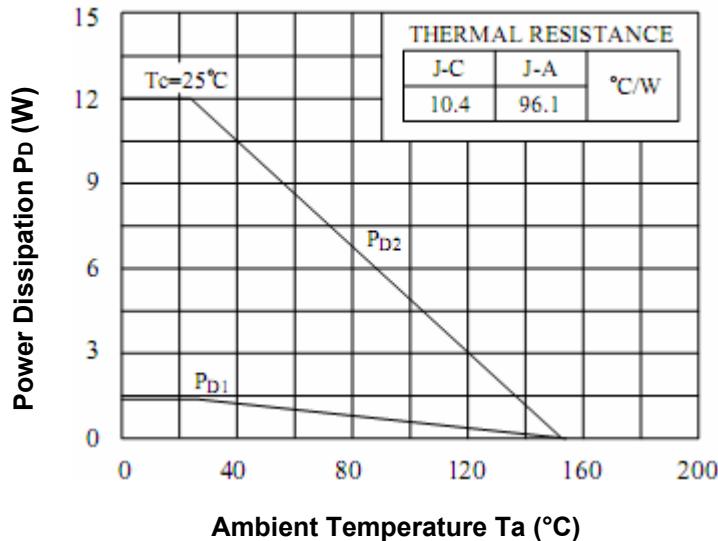
Fig.4- P_D vs. Ta (TO-220F)
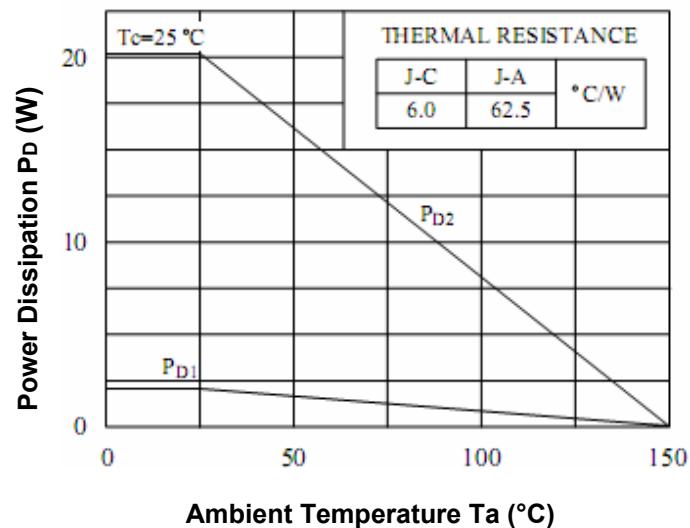
Dimensions in mm(inches)
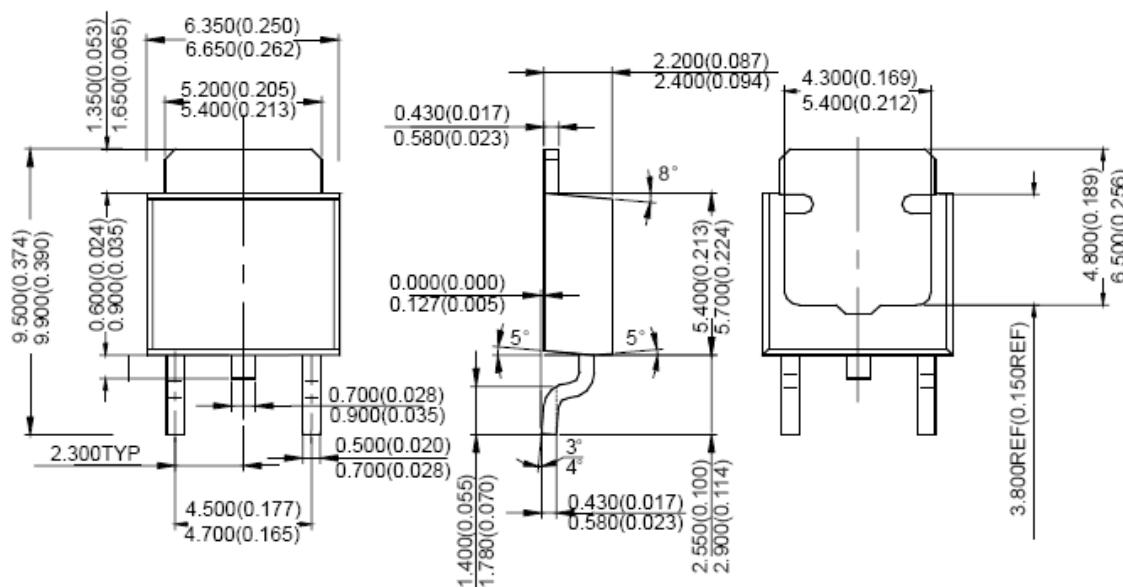
D-PAK
(TO-252)
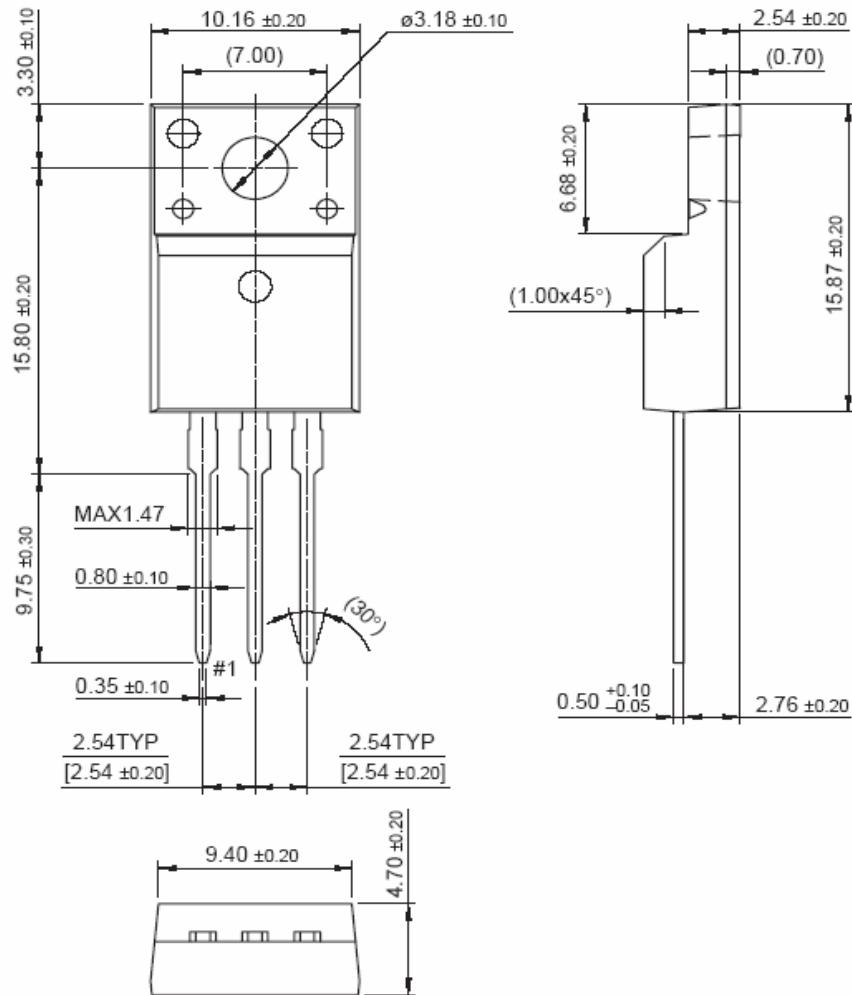
TO-220F

How to contact us:

US HEADQUARTERS

28040 WEST HARRISON PARKAWAY, VALENCIA, CA 91355-4162
Tel: (800) TAITRON (800) 824-8766 (661) 257-6060
Fax: (800) TAITFAX (800) 824-8329 (661) 257-6415
Email: taitron@taitroncomponents.com
Http://www.taitroncomponents.com

TAITRON COMPONENTS MEXICO, S.A .DE C.V.

BOULEVARD CENTRAL 5000 INTERIOR 5 PARQUE INDUSTRIAL ATITALAQUIA, HIDALGO C.P.
42970 MEXICO
Tel: +52-55-5560-1519
Fax: +52-55-5560-2190

TAITRON COMPONETS INCORPORATED E REPRESENTAÇÕES DO BRASIL LTDA

RUA DOMINGOS DE MORAIS, 2777, 2.ANDAR, SALA 24 SAÚDE - SÃO PAULO-SP 04035-001 BRAZIL
Tel: +55-11-5574-7949
Fax: +55-11-5572-0052

TAITRON COMPONETS INCORPORATED, SHANGHAI REPRESENTATIVE OFFICE

METROBANK PLAZA, 1160 WEST YAN' AN ROAD, SUITE 1503, SHANGHAI, 200052, CHINA
Tel: +86-21-5424-9942
Fax: +86-21-5424-9931