

L79M00ML Series

T-58-11-13



3100

Monolithic Linear IC

-5 to -24V 0.5A 3-Pin Voltage Regulator

©2606

Features

- Output Voltage

L79M05ML:-5V	L79M06ML:-6V	L79M08ML:-8V
L79M09ML:-9V	L79M10ML:-10V	L79M12ML:-12V
L79M15ML:-15V	L79M20ML:-20V	L79M24ML:-24V
- Output current 500mA
- On-chip overheat protector
- On-chip overcurrent limiter
- On-chip ASO protector
- TO-220ML package facilitating easy mounting and thermal design
- Micaless version that insulates the package from each pin, requiring no insulation for mounting

TENTATIVE

[Common to L79M00ML series]

Absolute Maximum Ratings at Ta=25°C

				unit
Maximum Supply Voltage	V _{CC} max	-5 to -15V output	-35	V
		-20,-24V output	-40	V
Allowable Power Dissipation	Pd max		2.0	W
	Pd (Ta=25°C)		7.5	W
Operating Temperature	Topg		-30 to +80	°C
Storage Temperature	Tstg		-40 to +150	°C

[L79M05ML]

Recommended Operating Conditions at Ta=25°C

				unit
Input Voltage	V _{IN}		-20 to -7.5	V
Output Current	I _{OUT}		5 to 500	mA

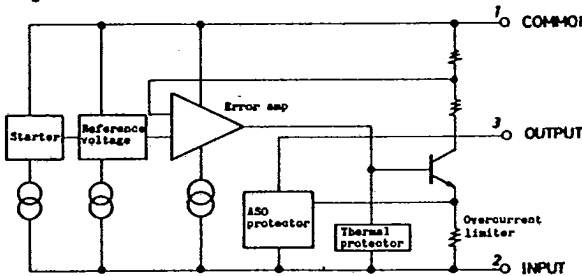
Operating Characteristics at Ta=25°C, V_{IN}=-10V, I_{OUT}=350mA, C_{IN}=2uF, C_{OUT}=1uF

			min	typ	max	unit
Output Voltage	V _{OUT}	Tj=25°C	-5.2	-5.0	-4.8	V
Line Regulation	ΔV _{oline}	Tj=25°C, -25V ≤ V _{IN} ≤ -7V		7.0	50	mV
		Tj=25°C, -18V ≤ V _{IN} ≤ -8V		3.0	30	mV
Load Regulation	ΔV _{oload}	Tj=25°C, 5mA ≤ I _{OUT} ≤ 500mA		10	100	mV
		Tj=25°C, 5mA ≤ I _{OUT} ≤ 350mA		5		mV

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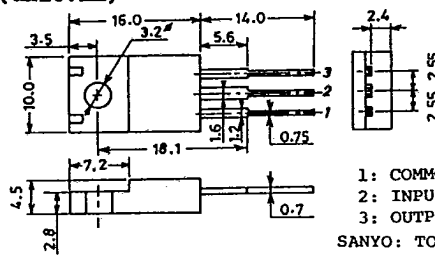


Equivalent Circuit Diagram



Case Outline 3100-S3TR

(unit:mm)



7247TA, TS No.2606-1/6

565

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			min	typ	max	unit
Output Voltage	V_{OUT}	$-25V \leq V_{IN} \leq -7V,$ $5mA \leq I_{OUT} \leq 350mA$	-5.25	-4.75		V
Current Dissipation	I_{CC}	$T_j = 25^\circ C$		1.0	2.5	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	$-25V \leq V_{IN} \leq -8V$			1.0	mA
Current Dissipation Variation (Load)	ΔI_{CCload}	$5mA \leq I_{OUT} \leq 350mA$			0.4	mA
Output Noise Voltage	V_{NO}	$10Hz \leq f \leq 100kHz$		125		μV
Ripple Rejection	R_{rej}	$f = 120Hz$ $-18V \leq V_{IN} \leq -8V$ $T_j = 25^\circ C$		50	65	dB
		$I_{OUT} = 100mA$ $I_{OUT} = 300mA$				dB
Minimum Input-Output Voltage Drop	V_{drop}	$T_j = 25^\circ C, I_{OUT} = 350mA$		1.1		V
Short Current	I_{OS}	$T_j = 25^\circ C, V_{IN} = -30V$		130		mA
Peak Output Current	I_{op}			800		mA

[L79M06ML]

Recommended Operating Conditions at $T_a = 25^\circ C$

			unit
Input Voltage	V_{IN}	-21 to -8.5	V
Output Current	I_{OUT}	5 to 500	mA

Operating Characteristics at $T_a = 25^\circ C, V_{IN} = -11V, I_{OUT} = 350mA, C_{IN} = 2\mu F, C_{OUT} = 1\mu F$

			min	typ	max	unit
Output Voltage	V_{OUT}	$T_j = 25^\circ C$	-6.25	-6.0	-5.75	V
Line Regulation	ΔV_{oline}	$T_j = 25^\circ C, -25V \leq V_{IN} \leq -8V$ $T_j = 25^\circ C, -19V \leq V_{IN} \leq -9V$		7.0	60	mV
Load Regulation	ΔV_{oload}	$T_j = 25^\circ C, 5mA \leq I_{OUT} \leq 500mA$ $T_j = 25^\circ C, 5mA \leq I_{OUT} \leq 350mA$		3.0	40	mV
Output Voltage	V_{OUT}	$-25V \leq V_{IN} \leq -8V,$ $5mA \leq I_{OUT} \leq 350mA$	-6.3		5	mV
Current Dissipation	I_{CC}	$T_j = 25^\circ C$		1.0	2.5	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	$-25V \leq V_{IN} \leq -9V$			1.0	mA
Current Dissipation Variation (Load)	ΔI_{CCload}	$5mA \leq I_{OUT} \leq 350mA$			0.4	mA
Output Noise Voltage	V_{NO}	$10Hz \leq f \leq 100kHz$		150		μV
Ripple Rejection	R_{rej}	$f = 120Hz$ $-19V \leq V_{IN} \leq -9V$ $T_j = 25^\circ C$		50	65	dB
		$I_{OUT} = 100mA$ $I_{OUT} = 300mA$				dB
Minimum Input-Output Voltage Drop	V_{drop}	$T_j = 25^\circ C, I_{OUT} = 350mA$		1.1		V
Short Current	I_{OS}	$T_j = 25^\circ C, V_{IN} = -30V$		130		mA
Peak Output Current	I_{op}			800		mA

[L79M08ML]

Recommended Operating Conditions at $T_a = 25^\circ C$

			unit
Input Voltage	V_{IN}	-23 to -11	V
Output Current	I_{OUT}	5 to 500	mA

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Operating Characteristics at Ta=25°C, V_{IN}=-14V, I_{OUT}=350mA, C_{IN}=2μF, C_{OUT}=1μF

			min	typ	max	unit
Output Voltage	V _{OUT}	T _j =25°C	-8.3	-8.0	-7.7	V
Line Regulation	ΔV _{oline}	T _j =25°C, -25V ≤ V _{IN} ≤ -10.5V		8.0	80	mV
Load Regulation	ΔV _{oload}	T _j =25°C, -21V ≤ V _{IN} ≤ -11V		4.0	50	mV
		T _j =25°C, 5mA ≤ I _{OUT} ≤ 500mA		11	160	mV
Output Voltage	V _{OUT}	T _j =25°C, 5mA ≤ I _{OUT} ≤ 350mA, -25V ≤ V _{IN} ≤ -10.5V, 5mA ≤ I _{OUT} ≤ 350mA	-8.4		-7.6	V
Current Dissipation	I _{CC}	T _j =25°C		1.0	2.5	mA
Current Dissipation Variation (Line)	ΔI _{CCline}	-25V ≤ V _{IN} ≤ -10.5V			1.0	mA
Current Dissipation Variation (Load)	ΔI _{CCload}	5mA ≤ I _{OUT} ≤ 350mA			0.4	mA
Output Noise Voltage	V _{NO}	10Hz ≤ f ≤ 100kHz		200		μV
Ripple Rejection	R _{rej}	f=120Hz				dB
		-21.5V ≤ V _{IN} ≤ -11.5V, T _j =25°C	I _{OUT} =100mA	50	64	dB
Minimum Input-Output Voltage Drop	V _{drop}	T _j =25°C, I _{OUT} =350mA		1.1		V
Short Current	I _{OS}	T _j =25°C, V _{IN} =-30V		130		mA
Peak Output Current	I _{op}			800		mA

[L79M09ML]

Recommended Operating Conditions at Ta=25°C

			unit
Input Voltage	V _{IN}	-25 to -12	V
Output Current	I _{OUT}	5 to 500	mA

Operating Characteristics at Ta=25°C, V_{IN}=-16V, I_{OUT}=350mA, C_{IN}=2μF, C_{OUT}=1μF

			min	typ	max	unit
Output Voltage	V _{OUT}	T _j =25°C	-9.4	-9.0	-8.6	V
Line Regulation	ΔV _{oline}	T _j =25°C, -25V ≤ V _{IN} ≤ -11.5V		8.0	80	mV
Load Regulation	ΔV _{oload}	T _j =25°C, -20V ≤ V _{IN} ≤ -12V		4.0	50	mV
		T _j =25°C, 5mA ≤ I _{OUT} ≤ 500mA		12	200	mV
Output Voltage	V _{OUT}	T _j =25°C, 5mA ≤ I _{OUT} ≤ 350mA, -25V ≤ V _{IN} ≤ -11.5V, 5mA ≤ I _{OUT} ≤ 350mA	-9.5		-8.5	V
Current Dissipation	I _{CC}	T _j =25°C		1.0	2.5	mA
Current Dissipation Variation (Line)	ΔI _{CCline}	-25V ≤ V _{IN} ≤ -11.5V			1.0	mA
Current Dissipation Variation (Load)	ΔI _{CCload}	5mA ≤ I _{OUT} ≤ 350mA			0.4	mA
Output Noise Voltage	V _{NO}	10Hz ≤ f ≤ 100kHz		225		μV
Ripple Rejection	R _{rej}	f=120Hz				dB
		-22.5V ≤ V _{IN} ≤ -12.5V, T _j =25°C	I _{OUT} =100mA	50	63	dB
Minimum Input-Output Voltage Drop	V _{drop}	T _j =25°C, I _{OUT} =350mA		1.1		V
Short Current	I _{OS}	T _j =25°C, V _{IN} =-30V		130		mA
Peak Output Current	I _{op}			800		mA

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[L79M10ML]

Recommended Operating Conditions at Ta=25°C

Input Voltage	V _{IN}	-25 to -13	V	unit
Output Current	I _{OUT}	5 to 500	mA	

Operating Characteristics at Ta=25°C, V_{IN}=-10V, I_{OUT}=350mA, C_{IN}=2uF, C_{OUT}=1uF

			min	typ	max	unit
Output Voltage	V _{OUT}	Tj=25°C	-10.4	-10	-9.6	V
Line Regulation	ΔV _{oline}	Tj=25°C, -25V ≤ V _{IN} ≤ -12.5V		9.0	80	mV
		Tj=25°C, -22V ≤ V _{IN} ≤ -13V		5.0	50	mV
Load Regulation	ΔV _{oload}	Tj=25°C, 5mA ≤ I _{OUT} ≤ 500mA		12	200	mV
		Tj=25°C, 5mA ≤ I _{OUT} ≤ 350mA		7		mV
Output Voltage	V _{OUT}	-25V ≤ V _{IN} ≤ -12.5V, 5mA ≤ I _{OUT} ≤ 350mA	-10.5		-9.5	V
Current Dissipation	I _{CC}	Tj=25°C		1.0	2.5	mA
Current Dissipation Variation (Line)	ΔI _{CCline}	-25V ≤ V _{IN} ≤ -12.5V			1.0	mA
Current Dissipation Variation (Load)	ΔI _{CCload}	5mA ≤ I _{OUT} ≤ 350mA			0.4	mA
Output Noise Voltage	V _{NO}	10Hz ≤ f ≤ 100kHz		250		uV
Ripple Rejection	R _{rej}	f=120Hz				dB
		-23.5V ≤ V _{IN} ≤ -13.5V Tj=25°C	I _{OUT} =100mA	50		dB
			I _{OUT} =300mA	50		dB
Minimum Input-Output Voltage Drop	V _{drop}	Tj=25°C, I _{OUT} =350mA		1.1		V
Short Current	I _{OS}	Tj=25°C, V _{IN} =-30V		130		mA
Peak Output Current	I _{op}			800		mA

[L79M12ML]

Recommended Operating Conditions at Ta=25°C

Input Voltage	V _{IN}	-25 to -15	V	unit
Output Current	I _{OUT}	5 to 500	mA	

Operating Characteristics at Ta=25°C, V_{IN}=-19V, I_{OUT}=350mA, C_{IN}=2uF, C_{OUT}=1uF

			min	typ	max	unit
Output Voltage	V _{OUT}	Tj=25°C	-12.5	-12	-11.5	V
Line Regulation	ΔV _{oline}	Tj=25°C, -30V ≤ V _{IN} ≤ -14.5V		9.0	80	mV
		Tj=25°C, -25V ≤ V _{IN} ≤ -15V		5.0	50	mV
Load Regulation	ΔV _{oload}	Tj=25°C, 5mA ≤ I _{OUT} ≤ 500mA		9	240	mV
		Tj=25°C, 5mA ≤ I _{OUT} ≤ 350mA		6		mV
Output Voltage	V _{OUT}	-30V ≤ V _{IN} ≤ -14.5V, 5mA ≤ I _{OUT} ≤ 350mA	-12.6		-11.4	V
Current Dissipation	I _{CC}	Tj=25°C		1.6	3.5	mA
Current Dissipation Variation (Line)	ΔI _{CCline}	-30V ≤ V _{IN} ≤ -14.5V			1.0	mA
Current Dissipation Variation (Load)	ΔI _{CCload}	5mA ≤ I _{OUT} ≤ 350mA			0.4	mA
Output Noise Voltage	V _{NO}	10Hz ≤ f ≤ 100kHz		300		uV
Ripple Rejection	R _{rej}	f=120Hz				dB
		-25V ≤ V _{IN} ≤ -15V Tj=25°C	I _{OUT} =100mA	50		dB
			I _{OUT} =300mA	50	72	dB
Minimum Input-Output Voltage Drop	V _{drop}	Tj=25°C, I _{OUT} =350mA		1.1		V
Short Current	I _{OS}	Tj=25°C, V _{IN} =-30V		130		mA
Peak Output Current	I _{op}			800		mA

L79M00ML Series

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[L79M15ML]Recommended Operating Conditions at $T_a=25^\circ\text{C}$

			unit
Input Voltage	V_{IN}	-30 to -18	V
Output Current	I_{OUT}	5 to 500	mA

Operating Characteristics at $T_a=25^\circ\text{C}$, $V_{IN}=-23\text{V}$, $I_{OUT}=350\text{mA}$, $C_{IN}=2\mu\text{F}$, $C_{OUT}=1\mu\text{F}$

			min	typ	max	unit
Output Voltage	V_{OUT}	$T_j=25^\circ\text{C}$	-15.6	-15	-14.4	V
Line Regulation	ΔV_{oline}	$T_j=25^\circ\text{C}$, $-30\text{V} \leq V_{IN} \leq -17.5\text{V}$		9.0	80	mV
Load Regulation	ΔV_{oload}	$T_j=25^\circ\text{C}$, $-28\text{V} \leq V_{IN} \leq -18\text{V}$		7.0	50	mV
		$T_j=25^\circ\text{C}$, $5\text{mA} \leq I_{OUT} \leq 500\text{mA}$		9	240	mV
Output Voltage	V_{OUT}	$T_j=25^\circ\text{C}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$		6		mV
		$-30\text{V} \leq V_{IN} \leq -17.5\text{V}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	-15.75		-14.25	V
Current Dissipation	I_{CC}	$T_j=25^\circ\text{C}$		1.6	3.5	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	$-30\text{V} \leq V_{IN} \leq -17.5\text{V}$			1.0	mA
Current Dissipation Variation (Load)	ΔI_{CCload}	$5\text{mA} \leq I_{OUT} \leq 350\text{mA}$			0.4	mA
Output Noise Voltage	V_{NO}	$10\text{Hz} \leq f \leq 100\text{kHz}$		375		μV
Ripple Rejection	R_{rej}	$f=120\text{Hz}$				dB
		$-28.5\text{V} \leq V_{IN} \leq -18.5\text{V}$, $T_j=25^\circ\text{C}$	$I_{OUT}=100\text{mA}$ 50		70	dB
Minimum Input-Output Voltage Drop	V_{drop}	$T_j=25^\circ\text{C}$, $I_{OUT}=350\text{mA}$		1.1		V
Short Current	I_{OS}	$T_j=25^\circ\text{C}$, $V_{IN}=-30\text{V}$		130		mA
Peak Output Current	I_{op}			800		mA

[L79M20ML]Recommended Operating Conditions at $T_a=25^\circ\text{C}$

			unit
Input Voltage	V_{IN}	-35 to -23	V
Output Current	I_{OUT}	5 to 500	mA

Operating Characteristics at $T_a=25^\circ\text{C}$, $V_{IN}=-29\text{V}$, $I_{OUT}=350\text{mA}$, $C_{IN}=2\mu\text{F}$, $C_{OUT}=1\mu\text{F}$

			min	typ	max	unit
Output Voltage	V_{OUT}	$T_j=25^\circ\text{C}$	-20.8	-20	-19.2	V
Line Regulation	ΔV_{oline}	$T_j=25^\circ\text{C}$, $-35\text{V} \leq V_{IN} \leq -23\text{V}$		12	80	mV
Load Regulation	ΔV_{oload}	$T_j=25^\circ\text{C}$, $-34\text{V} \leq V_{IN} \leq -24\text{V}$		10	70	mV
		$T_j=25^\circ\text{C}$, $5\text{mA} \leq I_{OUT} \leq 500\text{mA}$		10	300	mV
Output Voltage	V_{OUT}	$T_j=25^\circ\text{C}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$		7		mV
		$-35\text{V} \leq V_{IN} \leq -23\text{V}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	-21		-19	V
Current Dissipation	I_{CC}	$T_j=25^\circ\text{C}$		1.6	3.5	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	$-35\text{V} \leq V_{IN} \leq -23\text{V}$			1.0	mA
Current Dissipation Variation (Load)	ΔI_{CCload}	$5\text{mA} \leq I_{OUT} \leq 350\text{mA}$			0.4	mA
Output Noise Voltage	V_{NO}	$10\text{Hz} \leq f \leq 100\text{kHz}$		500		μV
Ripple Rejection	R_{rej}	$f=120\text{Hz}$				dB
		$-34\text{V} \leq V_{IN} \leq -24\text{V}$, $T_j=25^\circ\text{C}$	$I_{OUT}=100\text{mA}$ 50		67	dB
Minimum Input-Output Voltage Drop	V_{drop}	$T_j=25^\circ\text{C}$, $I_{OUT}=350\text{mA}$		1.1		V
Short Current	I_{OS}	$T_j=25^\circ\text{C}$, $V_{IN}=-30\text{V}$		130		mA
Peak Output Current	I_{op}			800		mA

L79M00ML Series

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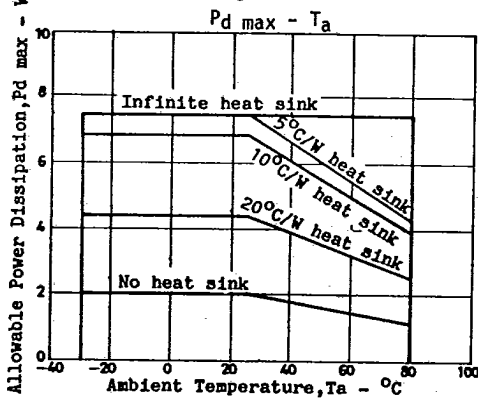
[L79M24ML]

Recommended Operating Conditions at Ta=25°C

Parameter	Symbol	Value	Unit
Input Voltage	V _{IN}	-35 to -27	V
Output Current	I _{OUT}	5 to 500	mA

Operating Characteristics at Ta=25°C, V_{IN}=-33V, I_{OUT}=350mA, C_{IN}=2uF, C_{OUT}=1uF

Parameter	Symbol	Conditions	min	typ	max	Unit
Output Voltage	V _{OUT}	T _j =25°C	-25	-24	-23	V
Line Regulation	ΔV _{oline}	T _j =25°C, -38V ≤ V _{IN} ≤ -27V		12	80	mV
		T _j =25°C, -38V ≤ V _{IN} ≤ -28V		12	70	mV
Load Regulation	ΔV _{oload}	T _j =25°C, 5mA ≤ I _{OUT} ≤ 500mA		10	300	mV
		T _j =25°C, 5mA ≤ I _{OUT} ≤ 350mA			7	mV
Output Voltage	V _{OUT}	-38V ≤ V _{IN} ≤ -27V, 5mA ≤ I _{OUT} ≤ 350mA	-25.2		-22.8	V
Current Dissipation	I _{CC}	T _j =25°C		1.6	3.5	mA
Current Dissipation Variation (Line)	ΔI _{CCline}	-38V ≤ V _{IN} ≤ -27V			1.0	mA
Current Dissipation Variation (Load)	ΔI _{CCload}	5mA ≤ I _{OUT} ≤ 350mA			0.4	mA
Output Noise Voltage	V _{NO}	10Hz ≤ f ≤ 100kHz		600		uV
Ripple Rejection	R _{rej}	f=120Hz, I _{OUT} =100mA		50		dB
		-38V ≤ V _{IN} ≤ -28V, I _{OUT} =300mA, T _j =25°C		50	65	dB
Minimum Input-Output Voltage Drop	V _{drop}	T _j =25°C, I _{OUT} =350mA		1.1		V
Short Current	I _{OS}	T _j =25°C, V _{IN} =-30V		130		mA
Peak Output Current	I _{op}			800		mA



Specified Test Circuit (Common to L79M00ML series)

