

L79M00 Series



3028

Monolithic Linear IC

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

©2610

Features

- Output Voltage

L79M05:-5V	L79M06:-6V	L79M08:-8V	L79M09:-9V
L79M10:-10V	L79M12:-12V	L79M15:-15V	L79M20:-20V
L79M24:-24V			
- 500mA output
- On-chip thermal protector
- On-chip overcurrent limiter
- On-chip ASO protector
- JEDEC TO-220AB package facilitating easy mounting and thermal design as in case of transistor

[Common to L79M00 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		1.75 W
Operating Temperature	Topg		-30 to +80 °C
Storage Temperature	Tstg		-40 to +150 °C

[L79M05]

Recommended Operating Conditions at Ta=25°C

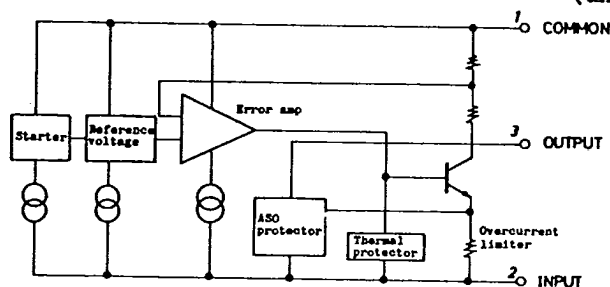
			unit
Input Voltage	V _{IN}	-20 to -7.5	V
Output Voltage	I _{OUT}	5 to 500	mA

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

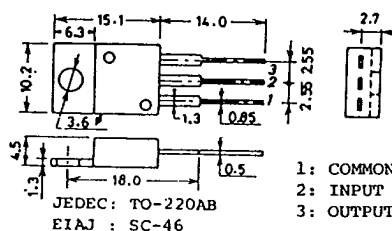
			min	typ	max	unit
Output Voltage	V _{OUT}	Tj=25°C	-5.2	-5.0	-4.8	V
Line Regulation	ΔV _{oline}	Tj=25°C, -25V ≤ V _{IN} ≤ -7V		7.0	50	mV
		Tj=25°C, -18V ≤ V _{IN} ≤ -8V		3.0	30	mV
Load Regulation	ΔV _{oload}	Tj=25°C, 5mA ≤ I _{OUT} ≤ 500mA		10	100	mV
		Tj=25°C, 5mA ≤ I _{OUT} ≤ 350mA		5		mV

Continued on next page.

Equivalent Circuit Diagram



Case Outline 3028-S3TR (unit:mm)



7247TA, TS No.2610-1/6

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Continued from preceding page.

			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}	$f = 120Hz$ $-18V \leq V_{IN} \leq -8V$ $T_j = 25^\circ C$	$I_{OUT} = 100mA$ 50 $I_{OUT} = 300mA$ 50		65	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

[L79M06]

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}	$T_j = 25^\circ C, -25V \leq V_{IN} \leq -8V$		7.0	60	mV
		$T_j = 25^\circ C, -19V \leq V_{IN} \leq -9V$		3.0	40	mV
Load Regulation	ΔV_{oload}	$T_j = 25^\circ C, 5mA \leq I_{OUT} \leq 500mA$		10	120	mV
		$T_j = 25^\circ C, 5mA \leq I_{OUT} \leq 350mA$		5		mV
Output Voltage	V_{OUT}	$-25V \leq V_{IN} \leq -8V$, $5mA \leq I_{OUT} \leq 350mA$	-6.3		-5.7	V
Current Dissipation	I_{CC}	$T_j = 25^\circ C$		1.0	2.5	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	$-25V \leq V_{IN} \leq -9V$			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}	$f = 120Hz$ $-19V \leq V_{IN} \leq -9V$ $T_j = 25^\circ C$	$I_{OUT} = 100mA$ 50 $I_{OUT} = 300mA$ 50		65	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

[L79M08]

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 $T_a=25^{\circ}\text{C}$, $V_{IN}=-14\text{V}$, $I_{OUT}=350\text{mA}$, $C_{IN}=2\mu\text{F}$, $C_{OUT}=1\mu\text{F}$

			min	typ	max	unit
Output Voltage	V_{OUT}	$T_j=25^{\circ}\text{C}$	-8.3	-8.0	-7.7	V
Line Regulation	ΔV_{oline}	$T_j=25^{\circ}\text{C}$, $-25\text{V} \leq V_{IN} \leq -10.5\text{V}$		8.0	80	mV
		$T_j=25^{\circ}\text{C}$, $-21\text{V} \leq V_{IN} \leq -11\text{V}$		4.0	50	mV
Load Regulation	ΔV_{oload}	$T_j=25^{\circ}\text{C}$, $5\text{mA} \leq I_{OUT} \leq 500\text{mA}$		11	160	mV
		$T_j=25^{\circ}\text{C}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$		6		mV
Output Voltage	V_{OUT}	$-25\text{V} \leq V_{IN} \leq -10.5\text{V}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	-8.4		-7.6	V
Current Dissipation	I_{CC}	$T_j=25^{\circ}\text{C}$		1.0	2.5	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	$-25\text{V} \leq V_{IN} \leq -10.5\text{V}$			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}	$10\text{Hz} \leq f \leq 100\text{kHz}$		200		μV
Ripple Rejection	R_{rej}	$f=120\text{Hz}$				dB
		$-21.5\text{V} \leq V_{IN} \leq -11.5\text{V}$, $I_{OUT}=100\text{mA}$		50		dB
		$T_j=25^{\circ}\text{C}$, $I_{OUT}=300\text{mA}$		64		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

[L79M09]

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

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

Operating Characteristics at $T_a=25^{\circ}\text{C}$, $V_{IN}=-16\text{V}$, $I_{OUT}=350\text{mA}$, $C_{IN}=2\mu\text{F}$, $C_{OUT}=1\mu\text{F}$

			min	typ	max	unit
Output Voltage	V_{OUT}	$T_j=25^{\circ}\text{C}$	-9.4	-9.0	-8.6	V
Line Regulation	ΔV_{oline}	$T_j=25^{\circ}\text{C}$, $-25\text{V} \leq V_{IN} \leq -11.5\text{V}$		8.0	80	mV
		$T_j=25^{\circ}\text{C}$, $-20\text{V} \leq V_{IN} \leq -12\text{V}$		4.0	50	mV
Load Regulation	ΔV_{oload}	$T_j=25^{\circ}\text{C}$, $5\text{mA} \leq I_{OUT} \leq 500\text{mA}$		12	200	mV
		$T_j=25^{\circ}\text{C}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$		7		mV
Output Voltage	V_{OUT}	$-25\text{V} \leq V_{IN} \leq -11.5\text{V}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	-9.5		-8.5	V
Current Dissipation	I_{CC}	$T_j=25^{\circ}\text{C}$		1.0	2.5	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	$-25\text{V} \leq V_{IN} \leq -11.5\text{V}$			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}	$10\text{Hz} \leq f \leq 100\text{kHz}$		225		μV
Ripple Rejection	R_{rej}	$f=120\text{Hz}$				dB
		$-22.5\text{V} \leq V_{IN} \leq -12.5\text{V}$, $I_{OUT}=100\text{mA}$		50		dB
		$T_j=25^{\circ}\text{C}$, $I_{OUT}=300\text{mA}$		63		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

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[L79M10]**Recommended Operating Conditions at Ta=25°C**

Input Voltage	V_{IN}	-25 to -13	unit
Output Current	I_{OUT}	5 to 500	mA

Operating Characteristics at Ta=25°C, $V_{IN}=-17V$, $I_{OUT}=350mA$, $C_{IN}=2\mu F$, $C_{OUT}=1\mu F$

			min	typ	max	unit
Output Voltage	V_{OUT}	$T_j=25^\circ C$	-10.4	-10	-9.6	V
Line Regulation	ΔV_{oline}	$T_j=25^\circ C, -25V \leq V_{IN} \leq -12.5V$		9.0	80	mV
		$T_j=25^\circ C, -22V \leq V_{IN} \leq -13V$		5.0	50	mV
Load Regulation	ΔV_{oload}	$T_j=25^\circ C, 5mA \leq I_{OUT} \leq 500mA$		12	200	mV
		$T_j=25^\circ C, 5mA \leq I_{OUT} \leq 350mA$		7		mV
Output Voltage	V_{OUT}	$-25V \leq V_{IN} \leq -12.5V$, $5mA \leq I_{OUT} \leq 350mA$	-10.5		-9.5	V
Current Dissipation	I_{CC}	$T_j=25^\circ C$		1.0	2.5	mA
Current Dissipation	ΔI_{CCline}	$-25V \leq V_{IN} \leq -12.5V$			1.0	mA
Variation (Line)						
Current Dissipation	ΔI_{CCload}	$5mA \leq I_{OUT} \leq 350mA$			0.4	mA
Variation (Load)						
Output Noise Voltage	V_{NO}	$10Hz \leq f \leq 100kHz$		250		μV
Ripple Rejection	R_{rej}	$f=120Hz$				dB
		$-23.5V \leq V_{IN} \leq -13.5V$		$I_{OUT}=100mA$ 50		dB
		$T_j=25^\circ C$		$I_{OUT}=300mA$ 50	63	dB
Minimum Input-Output	V_{drop}	$T_j=25^\circ C, I_{OUT}=350mA$		1.1		V
Voltage Drop						
Short Current	I_{OS}	$T_j=25^\circ C, V_{IN}=-30V$		130		mA
Peak Output Current	I_{op}			800		mA

[L79M12]**Recommended Operating Conditions at Ta=25°C**

Input Voltage	V_{IN}	-25 to -15	unit
Output Current	I_{OUT}	5 to 500	mA

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

			min	typ	max	unit
Output Voltage	V_{OUT}	$T_j=25^\circ C$	-12.5	-12	-11.5	V
Line Regulation	ΔV_{oline}	$T_j=25^\circ C, -30V \leq V_{IN} \leq -14.5V$		9.0	80	mV
		$T_j=25^\circ C, -25V \leq V_{IN} \leq -15V$		5.0	50	mV
Load Regulation	ΔV_{oload}	$T_j=25^\circ C, 5mA \leq I_{OUT} \leq 500mA$		9	240	mV
		$T_j=25^\circ C, 5mA \leq I_{OUT} \leq 350mA$		6		mV
Output Voltage	V_{OUT}	$-30V \leq V_{IN} \leq -14.5V$, $5mA \leq I_{OUT} \leq 350mA$	-12.6		-11.4	V
Current Dissipation	I_{CC}	$T_j=25^\circ C$		1.6	3.5	mA
Current Dissipation	ΔI_{CCline}	$-30V \leq V_{IN} \leq -14.5V$			1.0	mA
Variation (Line)						
Current Dissipation	ΔI_{CCload}	$5mA \leq I_{OUT} \leq 350mA$			0.4	mA
Variation (Load)						
Output Noise Voltage	V_{NO}	$10Hz \leq f \leq 100kHz$		300		μV
Ripple Rejection	R_{rej}	$f=120Hz$				dB
		$-25V \leq V_{IN} \leq -15V$		$I_{OUT}=100mA$ 50		dB
		$T_j=25^\circ C$		$I_{OUT}=300mA$ 50	72	dB
Minimum Input-Output	V_{drop}	$T_j=25^\circ C, I_{OUT}=350mA$		1.1		V
Voltage Drop						
Short Current	I_{OS}	$T_j=25^\circ C, V_{IN}=-30V$		130		mA
Peak Output Current	I_{op}			800		mA

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[L79M15]

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

Input Voltage	V_{IN}	-30 to -18	unit
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}	$T_j=25^\circ\text{C}$				
Line Regulation	ΔV_{oline}	$T_j=25^\circ\text{C}$, $-30\text{V} \leq V_{IN} \leq -17.5\text{V}$	-15.6	-15	-14.4	V
		$T_j=25^\circ\text{C}$, $-28\text{V} \leq V_{IN} \leq -18\text{V}$		9.0	80	mV
Load Regulation	ΔV_{oload}	$T_j=25^\circ\text{C}$, $5\text{mA} \leq I_{OUT} \leq 500\text{mA}$		7.0	50	mV
		$T_j=25^\circ\text{C}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$		9	240	mV
Output Voltage	V_{OUT}	$-30\text{V} \leq V_{IN} \leq -17.5\text{V}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	-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}	$f=120\text{Hz}$ $-28.5\text{V} \leq V_{IN} \leq -18.5\text{V}$ $T_j=25^\circ\text{C}$	$I_{OUT}=100\text{mA}$ 50 $I_{OUT}=300\text{mA}$ 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

[L79M20]

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

Input Voltage	V_{IN}	-35 to -23	unit
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}	$T_j=25^\circ\text{C}$				
Line Regulation	ΔV_{oline}	$T_j=25^\circ\text{C}$, $-35\text{V} \leq V_{IN} \leq -23\text{V}$	-20.8	-20	-19.2	V
		$T_j=25^\circ\text{C}$, $-34\text{V} \leq V_{IN} \leq -24\text{V}$		12	80	mV
Load Regulation	ΔV_{oload}	$T_j=25^\circ\text{C}$, $5\text{mA} \leq I_{OUT} \leq 500\text{mA}$		10	70	mV
		$T_j=25^\circ\text{C}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$		10	300	mV
Output Voltage	V_{OUT}	$-35\text{V} \leq V_{IN} \leq -23\text{V}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	-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}	$f=120\text{Hz}$ $-34\text{V} \leq V_{IN} \leq -24\text{V}$ $T_j=25^\circ\text{C}$	$I_{OUT}=100\text{mA}$ 50 $I_{OUT}=300\text{mA}$ 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

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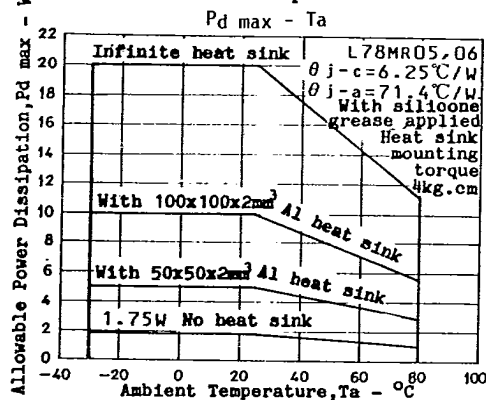
[L79M24]

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

Input Voltage	V_{IN}	-35 to -27	V
Output Current	I_{OUT}	5 to 500	mA

Operating Characteristics at $T_a = 25^\circ\text{C}$, $V_{IN} = -33\text{V}$, $I_{OUT} = 350\text{mA}$, $C_{IN} = 2\mu\text{F}$, $C_{OUT} = 1\mu\text{F}$

		$T_j = 25^\circ\text{C}$	min	typ	max	unit
Output Voltage	V_{OUT}	$T_j = 25^\circ\text{C}$	-25	-24	-23	V
Line Regulation	ΔV_{oline}	$T_j = 25^\circ\text{C}$, $-38\text{V} \leq V_{IN} \leq -27\text{V}$		12	80	mV
		$T_j = 25^\circ\text{C}$, $-38\text{V} \leq V_{IN} \leq -28\text{V}$		12	70	mV
Load Regulation	ΔV_{oload}	$T_j = 25^\circ\text{C}$, $5\text{mA} \leq I_{OUT} \leq 500\text{mA}$		10	300	mV
		$T_j = 25^\circ\text{C}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$		7		mV
Output Voltage	V_{OUT}	$-38\text{V} \leq V_{IN} \leq -27\text{V}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	-25.2		-22.8	V
Current Dissipation	I_{CC}	$T_j = 25^\circ\text{C}$	1.6	3.5		mA
Current Dissipation	ΔI_{CCline}	$-38\text{V} \leq V_{IN} \leq -27\text{V}$		1.0		mA
Variation (Line)						
Current Dissipation	ΔI_{CCload}	$5\text{mA} \leq I_{OUT} \leq 350\text{mA}$		0.4		mA
Variation (Load)						
Output Noise Voltage	V_{NO}	$10\text{Hz} \leq f \leq 100\text{kHz}$		600		μV
Ripple Rejection	R_{rej}	$f = 120\text{Hz}$		50		dB
		$-38\text{V} \leq V_{IN} \leq -28\text{V}$, $I_{OUT} = 100\text{mA}$		50		dB
		$T_j = 25^\circ\text{C}$, $I_{OUT} = 300\text{mA}$		65		dB
Minimum Input-Output	V_{drop}	$T_j = 25^\circ\text{C}$, $I_{OUT} = 350\text{mA}$	1.1			V
Voltage Drop						
Short Current	I_{OS}	$T_j = 25^\circ\text{C}$, $V_{IN} = -30\text{V}$	130			mA
Peak Output Current	I_{op}		800			mA



Specified Test Circuit (Common to L79M00 series)

