

SANYO

No.2609B

L78M00T Series

5 to 24V 0.5A 3-Pin Voltage Regulators

Features

- Output voltage

L78M05T: 5V	L78M06T: 6V	L78M07T: 7V	L78M08T: 8V
L78M09T: 9V	L78M10T: 10V	L78M12T: 12V	L78M15T: 15V
L78M18T: 18V	L78M20T: 20V	L78M24T: 24V	
- 500mA output
- On-chip thermal protector
- On-chip overcurrent limiter
- On-chip ASO protector
- Small-sized power package TP-3H permitting the equipment to be made compact
- The allowable power dissipation can be increased by being surface-mounted on the board.
- Capable of being mounted in a variety of methods because of various lead forming versions available

[Common to L78M00T series]**Maximum Ratings at $T_a=25^\circ\text{C}$**

			unit
Maximum Supply Voltage	V_{CC} max	Pin 1	35 V
Allowable Power Dissipation	P_d max	No fin	1.0 W
Operating Temperature	T_{opr}		-20 to +80 $^\circ\text{C}$
Storage Temperature	T_{stg}		-40 to +150 $^\circ\text{C}$

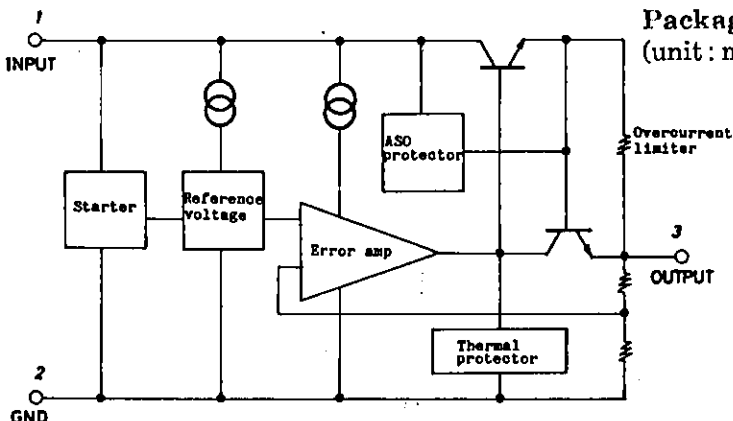
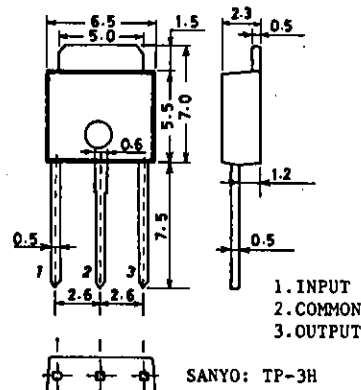
[L78M05T]**Recommended Operating Conditions at $T_a=25^\circ\text{C}$**

		unit
Input Voltage	V_{IN}	7.5 to 20 V
Output Current	I_{OUT}	5 to 500 mA

**Operating Characteristics at $T_a=25^\circ\text{C}$, $V_{IN}=10\text{V}$, $I_{OUT}=350\text{mA}$,
See specified Test Circuit.**

			min	typ	max	unit
Output Voltage	V_{OUT}	$T_j=25^\circ\text{C}$	4.8	5.0	5.2	V
Line Regulation	ΔV_{oline}	$T_j=25^\circ\text{C}$, $7\text{V} \leq V_{IN} \leq 25\text{V}$, $I_{OUT}=200\text{mA}$	3.0	50		mV
		$T_j=25^\circ\text{C}$, $8\text{V} \leq V_{IN} \leq 20\text{V}$, $I_{OUT}=200\text{mA}$	1.0	25		mV

Continued on next page.

Equivalent Circuit**Package Dimensions 3110
(unit: mm)**

L78M00T Series

Continued from preceding page.

			min	typ	max	unit
Load Regulation	ΔV_{oload}	$T_j=25^\circ\text{C}, 5\text{mA} \leq I_{\text{OUT}} \leq 500\text{mA}$			100	mV
		$T_j=25^\circ\text{C}, 5\text{mA} \leq I_{\text{OUT}} \leq 200\text{mA}$			50	mV
Output Voltage	V_{OUT}	$7\text{V} \leq V_{\text{IN}} \leq 20\text{V}, 5\text{mA} \leq I_{\text{OUT}} \leq 350\text{mA}$	4.75		5.25	V
Current Dissipation	I_{CC}	$T_j=25^\circ\text{C}$		4.5	6.0	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	$8\text{V} \leq V_{\text{IN}} \leq 25\text{V}, I_{\text{OUT}}=200\text{mA}$			0.8	mA
Current Dissipation Variation (Load)	ΔI_{CCload}	$5\text{mA} \leq I_{\text{OUT}} \leq 350\text{mA}$			0.5	mA
Output Noise Voltage	V_{NO}	$10\text{Hz} \leq f \leq 100\text{kHz}$		40		μV
Ripple Rejection	R_{rej}	$f=120\text{Hz}$	62			dB
		$8\text{V} \leq V_{\text{IN}} \leq 19\text{V}$	62	80		dB
		$T_j=25^\circ\text{C}$				
Minimum Input-Output Voltage Drop	V_{drop}	$I_{\text{OUT}}=350\text{mA}$		2.0		V
Short Current	I_{OS}	$T_j=25^\circ\text{C}, V_{\text{IN}}=35\text{V}, \text{to GND}$		300		mA
Peak Output Current	I_{op}	$T_j=25^\circ\text{C}$		0.7		A

[L78M06T]

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

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

Operating Characteristics at $T_a=25^\circ\text{C}, V_{\text{IN}}=11\text{V}, I_{\text{OUT}}=350\text{mA}$,
See specified Test Circuit.

			min	typ	max	unit
Output Voltage	V_{OUT}	$T_j=25^\circ\text{C}$	5.75	6.0	6.25	V
Line Regulation	ΔV_{oline}	$T_j=25^\circ\text{C}, 8\text{V} \leq V_{\text{IN}} \leq 25\text{V}, I_{\text{OUT}}=200\text{mA}$		5.0	60	mV
		$T_j=25^\circ\text{C}, 9\text{V} \leq V_{\text{IN}} \leq 20\text{V}, I_{\text{OUT}}=200\text{mA}$		1.5	30	mV
Load Regulation	ΔV_{oload}	$T_j=25^\circ\text{C}, 5\text{mA} \leq I_{\text{OUT}} \leq 500\text{mA}$			120	mV
		$T_j=25^\circ\text{C}, 5\text{mA} \leq I_{\text{OUT}} \leq 200\text{mA}$			60	mV
Output Voltage	V_{OUT}	$8\text{V} \leq V_{\text{IN}} \leq 21\text{V}, 5\text{mA} \leq I_{\text{OUT}} \leq 350\text{mA}$	5.7		6.3	V
Current Dissipation	I_{CC}	$T_j=25^\circ\text{C}$		4.5	6.0	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	$9\text{V} \leq V_{\text{IN}} \leq 25\text{V}, I_{\text{OUT}}=200\text{mA}$			0.8	mA
Current Dissipation Variation (Load)	ΔI_{CCload}	$5\text{mA} \leq I_{\text{OUT}} \leq 350\text{mA}$			0.5	mA
Output Noise Voltage	V_{NO}	$10\text{Hz} \leq f \leq 100\text{kHz}$		45		μV
Ripple Rejection	R_{rej}	$f=120\text{Hz}$	59			dB
		$9\text{V} \leq V_{\text{IN}} \leq 20\text{V}$	59	80		dB
		$T_j=25^\circ\text{C}$				
Minimum Input-Output Voltage Drop	V_{drop}	$I_{\text{OUT}}=350\text{mA}$		2.0		V
Short Current	I_{OS}	$T_j=25^\circ\text{C}, V_{\text{IN}}=35\text{V}, \text{to GND}$		300		mA
Peak Output Current	I_{op}	$T_j=25^\circ\text{C}$		0.7		A

[L78M07T]

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

			unit
Input Voltage	V_{IN}	9.5 to 22	V
Output Current	I_{OUT}	5 to 500	mA

L78M00T Series

**Operating Characteristics at $T_a=25^{\circ}\text{C}$, $V_{IN}=12\text{V}$, $I_{OUT}=350\text{mA}$,
See specified Test Circuit.**

			min	typ	max	unit
Output Voltage	V_{OUT}	$T_j=25^{\circ}\text{C}$	6.72	7.0	7.28	V
Line Regulation	ΔV_{oline}	$T_j=25^{\circ}\text{C}$, $9\text{V} \leq V_{IN} \leq 25\text{V}$, $I_{OUT}=200\text{mA}$		6.0	60	mV
		$T_j=25^{\circ}\text{C}$, $10\text{V} \leq V_{IN} \leq 20\text{V}$, $I_{OUT}=200\text{mA}$		2.0	30	mV
Load Regulation	ΔV_{oload}	$T_j=25^{\circ}\text{C}$, $5\text{mA} \leq I_{OUT} \leq 500\text{mA}$			140	mV
		$T_j=25^{\circ}\text{C}$, $5\text{mA} \leq I_{OUT} \leq 200\text{mA}$			70	mV
Output Voltage	V_{OUT}	$9\text{V} \leq V_{IN} \leq 22\text{V}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	6.6		7.4	V
Current Dissipation	I_{CC}	$T_j=25^{\circ}\text{C}$		4.6	6.0	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	$10\text{V} \leq V_{IN} \leq 25\text{V}$, $I_{OUT}=200\text{mA}$			0.8	mA
Current Dissipation Variation (Load)	ΔI_{CCload}	$5\text{mA} \leq I_{OUT} \leq 350\text{mA}$			0.5	mA
Output Noise Voltage	V_{NO}	$10\text{Hz} \leq f \leq 100\text{kHz}$		48		μV
Ripple Rejection	R_{rej}	$f=120\text{Hz}$ $I_{OUT}=100\text{mA}$	58			dB
		$10\text{V} \leq V_{IN} \leq 21\text{V}$ $I_{OUT}=300\text{mA}$	58	80		dB
		$T_j=25^{\circ}\text{C}$				
Minimum Input-Output Voltage Drop	V_{drop}	$I_{OUT}=350\text{mA}$		2.0		V
Short Current	I_{OS}	$T_j=25^{\circ}\text{C}$, $V_{IN}=35\text{V}$, to GND		300		mA
Peak Output Current	I_{op}	$T_j=25^{\circ}\text{C}$		0.7		A

[L78M08T]

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

			unit
Input Voltage	V_{IN}	10.5 to 23	V
Output Current	I_{OUT}	5 to 500	mA

**Operating Characteristics at $T_a=25^{\circ}\text{C}$, $V_{IN}=15\text{V}$, $I_{OUT}=350\text{mA}$,
See specified Test Circuit.**

			min	typ	max	unit
Output Voltage	V_{OUT}	$T_j=25^{\circ}\text{C}$	7.7	8.0	8.3	V
Line Regulation	ΔV_{oline}	$T_j=25^{\circ}\text{C}$, $10.5\text{V} \leq V_{IN} \leq 25\text{V}$, $I_{OUT}=200\text{mA}$		6.0	60	mV
		$T_j=25^{\circ}\text{C}$, $11\text{V} \leq V_{IN} \leq 20\text{V}$, $I_{OUT}=200\text{mA}$		2.0	30	mV
Load Regulation	ΔV_{oload}	$T_j=25^{\circ}\text{C}$, $5\text{mA} \leq I_{OUT} \leq 500\text{mA}$			160	mV
		$T_j=25^{\circ}\text{C}$, $5\text{mA} \leq I_{OUT} \leq 200\text{mA}$			80	mV
Output Voltage	V_{OUT}	$10.5\text{V} \leq V_{IN} \leq 23\text{V}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	7.6		8.4	V
Current Dissipation	I_{CC}	$T_j=25^{\circ}\text{C}$		4.6	6.0	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	$11\text{V} \leq V_{IN} \leq 25\text{V}$, $I_{OUT}=200\text{mA}$			0.8	mA
Current Dissipation Variation (Load)	ΔI_{CCload}	$5\text{mA} \leq I_{OUT} \leq 350\text{mA}$			0.5	mA
Output Noise Voltage	V_{NO}	$10\text{Hz} \leq f \leq 100\text{kHz}$		50		μV
Ripple Rejection	R_{rej}	$f=120\text{Hz}$ $I_{OUT}=100\text{mA}$	56			dB
		$11.5\text{V} \leq V_{IN} \leq 22\text{V}$ $I_{OUT}=300\text{mA}$	56	80		dB
		$T_j=25^{\circ}\text{C}$				
Minimum Input-Output Voltage Drop	V_{drop}	$I_{OUT}=350\text{mA}$		2.0		V
Short Current	I_{OS}	$T_j=25^{\circ}\text{C}$, $V_{IN}=35\text{V}$, to GND		300		mA
Peak Output Current	I_{op}	$T_j=25^{\circ}\text{C}$		0.7		A

[L78M09T]

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

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

L78M00T Series

Operating Characteristics at $T_a=25^{\circ}\text{C}$, $V_{IN}=16\text{V}$, $I_{OUT}=350\text{mA}$,
See specified Test Circuit.

			min	typ	max	unit
Output Voltage	V_{OUT}	$T_j=25^{\circ}\text{C}$	8.6	9.0	9.4	V
Line Regulation	ΔV_{oline}	$T_j=25^{\circ}\text{C}$, $11.5\text{V} \leq V_{IN} \leq 25\text{V}$, $I_{OUT}=200\text{mA}$		6.0	100	mV
		$T_j=25^{\circ}\text{C}$, $12\text{V} \leq V_{IN} \leq 20\text{V}$, $I_{OUT}=200\text{mA}$		2.0	50	mV
Load Regulation	ΔV_{oload}	$T_j=25^{\circ}\text{C}$, $5\text{mA} \leq I_{OUT} \leq 500\text{mA}$			180	mV
		$T_j=25^{\circ}\text{C}$, $5\text{mA} \leq I_{OUT} \leq 200\text{mA}$			90	mV
Output Voltage	V_{OUT}	$11.5\text{V} \leq V_{IN} \leq 24\text{V}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	8.5		9.5	V
Current Dissipation	I_{CC}	$T_j=25^{\circ}\text{C}$		4.6	6.0	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	$12.5\text{V} \leq V_{IN} \leq 25\text{V}$, $I_{OUT}=200\text{mA}$			0.8	mA
Current Dissipation Variation (Load)	ΔI_{CCload}	$5\text{mA} \leq I_{OUT} \leq 350\text{mA}$			0.5	mA
Output Noise Voltage	V_{NO}	$10\text{Hz} \leq f \leq 100\text{kHz}$		60		μV
Ripple Rejection	R_{rej}	$f=120\text{Hz}$	56			dB
		$12\text{V} \leq V_{IN} \leq 23\text{V}$, $I_{OUT}=100\text{mA}$	56	80		dB
		$T_j=25^{\circ}\text{C}$, $I_{OUT}=300\text{mA}$				dB
Minimum Input-Output Voltage Drop	V_{drop}	$I_{OUT}=350\text{mA}$		2.0		V
Short Current	I_{OS}	$T_j=25^{\circ}\text{C}$, $V_{IN}=35\text{V}$, to GND		300		mA
Peak Output Current	I_{op}	$T_j=25^{\circ}\text{C}$		0.7		A

[L78M10T]

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

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

Operating Characteristics at $T_a=25^{\circ}\text{C}$, $V_{IN}=17\text{V}$, $I_{OUT}=350\text{mA}$,
See specified Test Circuit.

			min	typ	max	unit
Output Voltage	V_{OUT}	$T_j=25^{\circ}\text{C}$	9.6	10.0	10.4	V
Line Regulation	ΔV_{oline}	$T_j=25^{\circ}\text{C}$, $12.5\text{V} \leq V_{IN} \leq 25\text{V}$, $I_{OUT}=200\text{mA}$		7.0	100	mV
		$T_j=25^{\circ}\text{C}$, $13\text{V} \leq V_{IN} \leq 22\text{V}$, $I_{OUT}=200\text{mA}$		2.0	50	mV
Load Regulation	ΔV_{oload}	$T_j=25^{\circ}\text{C}$, $5\text{mA} \leq I_{OUT} \leq 500\text{mA}$			200	mV
		$T_j=25^{\circ}\text{C}$, $5\text{mA} \leq I_{OUT} \leq 200\text{mA}$			100	mV
Output Voltage	V_{OUT}	$12.5\text{V} \leq V_{IN} \leq 25\text{V}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	9.5		10.5	V
Current Dissipation	I_{CC}	$T_j=25^{\circ}\text{C}$		4.6	6.0	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	$13.5\text{V} \leq V_{IN} \leq 25\text{V}$, $I_{OUT}=200\text{mA}$			0.8	mA
Current Dissipation Variation (Load)	ΔI_{CCload}	$5\text{mA} \leq I_{OUT} \leq 350\text{mA}$			0.5	mA
Output Noise Voltage	V_{NO}	$10\text{Hz} \leq f \leq 100\text{kHz}$		65		μV
Ripple Rejection	R_{rej}	$f=120\text{Hz}$	55			dB
		$13\text{V} \leq V_{IN} \leq 25\text{V}$, $I_{OUT}=100\text{mA}$	55	80		dB
		$T_j=25^{\circ}\text{C}$, $I_{OUT}=300\text{mA}$				dB
Minimum Input-Output Voltage Drop	V_{drop}	$I_{OUT}=350\text{mA}$		2.0		V
Short Current	I_{OS}	$T_j=25^{\circ}\text{C}$, $V_{IN}=35\text{V}$, to GND		300		mA
Peak Output Current	I_{op}	$T_j=25^{\circ}\text{C}$		0.7		A

L78M00T Series

[L78M12T]

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

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

Operating Characteristics at $T_a=25^\circ\text{C}$, $V_{IN}=19\text{V}$, $I_{OUT}=350\text{mA}$,
See specified Test Circuit.

			min	typ	max	unit
Output Voltage	V_{OUT}	$T_j=25^\circ\text{C}$	11.5	12.0	12.5	V
Line Regulation	ΔV_{oline}	$T_j=25^\circ\text{C}$, $14.5\text{V} \leq V_{IN} \leq 30\text{V}$, $I_{OUT}=200\text{mA}$	8.0	100		mV
		$T_j=25^\circ\text{C}$, $16\text{V} \leq V_{IN} \leq 25\text{V}$, $I_{OUT}=200\text{mA}$	2.0	50		mV
Load Regulation	ΔV_{oload}	$T_j=25^\circ\text{C}$, $5\text{mA} \leq I_{OUT} \leq 500\text{mA}$			240	mV
		$T_j=25^\circ\text{C}$, $5\text{mA} \leq I_{OUT} \leq 200\text{mA}$			120	mV
Output Voltage	V_{OUT}	$14.5\text{V} \leq V_{IN} \leq 27\text{V}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	11.4		12.6	V
Current Dissipation	I_{CC}	$T_j=25^\circ\text{C}$	4.8	6.0		mA
Current Dissipation	ΔI_{CCline}	$15\text{V} \leq V_{IN} \leq 30\text{V}$, $I_{OUT}=200\text{mA}$			0.8	mA
Variation (Line)						
Current Dissipation	ΔI_{CCload}	$5\text{mA} \leq I_{OUT} \leq 350\text{mA}$			0.5	mA
Variation (Load)						
Output Noise Voltage	V_{NO}	$10\text{Hz} \leq f \leq 100\text{kHz}$		75		μV
Ripple Rejection	R_{rej}	$f=120\text{Hz}$	55			dB
		$15\text{V} \leq V_{IN} \leq 25\text{V}$	55	80		dB
		$T_j=25^\circ\text{C}$				
Minimum Input-Output	V_{drop}	$I_{OUT}=350\text{mA}$		2.0		V
Voltage Drop						
Short Current	I_{OS}	$T_j=25^\circ\text{C}$, $V_{IN}=35\text{V}$, to GND		300		mA
Peak Output Current	I_{op}	$T_j=25^\circ\text{C}$		0.7		A

[L78M15T]

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

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

Operating Characteristics at $T_a=25^\circ\text{C}$, $V_{IN}=23\text{V}$, $I_{OUT}=350\text{mA}$,
See specified Test Circuit.

			min	typ	max	unit
Output Voltage	V_{OUT}	$T_j=25^\circ\text{C}$	14.4	15.0	15.6	V
Line Regulation	ΔV_{oline}	$T_j=25^\circ\text{C}$, $17.5\text{V} \leq V_{IN} \leq 30\text{V}$, $I_{OUT}=200\text{mA}$	10.0	100		mV
		$T_j=25^\circ\text{C}$, $19\text{V} \leq V_{IN} \leq 30\text{V}$, $I_{OUT}=200\text{mA}$	3.0	50		mV
Load Regulation	ΔV_{oload}	$T_j=25^\circ\text{C}$, $5\text{mA} \leq I_{OUT} \leq 500\text{mA}$			300	mV
		$T_j=25^\circ\text{C}$, $5\text{mA} \leq I_{OUT} \leq 200\text{mA}$			150	mV
Output Voltage	V_{OUT}	$17.5\text{V} \leq V_{IN} \leq 30\text{V}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	14.25		15.75	V
Current Dissipation	I_{CC}	$T_j=25^\circ\text{C}$	4.8	6.0		mA
Current Dissipation	ΔI_{CCline}	$17.5\text{V} \leq V_{IN} \leq 30\text{V}$, $I_{OUT}=200\text{mA}$			0.8	mA
Variation (Line)						
Current Dissipation	ΔI_{CCload}	$5\text{mA} \leq I_{OUT} \leq 350\text{mA}$			0.5	mA
Variation (Load)						
Output Noise Voltage	V_{NO}	$10\text{Hz} \leq f \leq 100\text{kHz}$		90		μV
Ripple Rejection	R_{rej}	$f=120\text{Hz}$	54			dB
		$18.5\text{V} \leq V_{IN} \leq 28.5\text{V}$	54	70		dB
		$T_j=25^\circ\text{C}$				
Minimum Input-Output	V_{drop}	$I_{OUT}=350\text{mA}$		2.0		V
Voltage Drop						
Short Current	I_{OS}	$T_j=25^\circ\text{C}$, $V_{IN}=35\text{V}$, to GND		300		mA
Peak Output Current	I_{op}	$T_j=25^\circ\text{C}$		0.7		A

L78M00T Series

[L78M18T]

Recommended Operating Conditions at Ta=25°C

Input Voltage	V_{IN}	21 to 33	V
Output Current	I_{OUT}	5 to 500	mA

Operating Characteristics at Ta=25°C, $V_{IN}=27V$, $I_{OUT}=350mA$, See specified Test Circuit.

			min	typ	max	unit
Output Voltage	V_{OUT}	$T_j=25^{\circ}C$	17.3	18.0	18.7	V
Line Regulation	ΔV_{oline}	$T_j=25^{\circ}C, 21V \leq V_{IN} \leq 35V, I_{OUT}=200mA$		10.0	100	mV
		$T_j=25^{\circ}C, 22V \leq V_{IN} \leq 35V, I_{OUT}=200mA$		5.0	50	mV
Load Regulation	ΔV_{oload}	$T_j=25^{\circ}C, 5mA \leq I_{OUT} \leq 500mA$			360	mV
		$T_j=25^{\circ}C, 5mA \leq I_{OUT} \leq 200mA$			180	mV
Output Voltage	V_{OUT}	$21V \leq V_{IN} \leq 33V, 5mA \leq I_{OUT} \leq 350mA$	17.1		18.9	V
Current Dissipation	I_{CC}	$T_j=25^{\circ}C$		4.9	6.0	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	$21V \leq V_{IN} \leq 33V, I_{OUT}=200mA$			0.8	mA
Current Dissipation Variation (Load)	ΔI_{CCload}	$5mA \leq I_{OUT} \leq 350mA$			0.5	mA
Output Noise Voltage	V_{NO}	$10Hz \leq f \leq 100kHz$		100		μV
Ripple Rejection	R_{rej}	$f=120Hz$		53		dB
		$22V \leq V_{IN} \leq 33V$		53	70	dB
		$T_j=25^{\circ}C$				
Minimum Input-Output Voltage Drop	V_{drop}	$I_{OUT}=350mA$		2.0		V
Short Current	I_{OS}	$T_j=25^{\circ}C, V_{IN}=35V, \text{to GND}$		300		mA
Peak Output Current	I_{op}	$T_j=25^{\circ}C$		0.7		A

[L78M20T]

Recommended Operating Conditions at Ta=25°C

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

Operating Characteristics at Ta=25°C, $V_{IN}=29V$, $I_{OUT}=350mA$, See specified Test Circuit.

			min	typ	max	unit
Output Voltage	V_{OUT}	$T_j=25^{\circ}C$	19.2	20.0	20.8	V
Line Regulation	ΔV_{oline}	$T_j=25^{\circ}C, 23V \leq V_{IN} \leq 35V, I_{OUT}=200mA$		10.0	100	mV
		$T_j=25^{\circ}C, 24V \leq V_{IN} \leq 35V, I_{OUT}=200mA$		5.0	50	mV
Load Regulation	ΔV_{oload}	$T_j=25^{\circ}C, 5mA \leq I_{OUT} \leq 500mA$			400	mV
		$T_j=25^{\circ}C, 5mA \leq I_{OUT} \leq 200mA$			200	mV
Output Voltage	V_{OUT}	$23V \leq V_{IN} \leq 35V, 5mA \leq I_{OUT} \leq 350mA$	19.0		21.0	V
Current Dissipation	I_{CC}	$T_j=25^{\circ}C$		4.9	6.0	mA
Current Dissipation Variation (Line)	ΔI_{CCline}	$23V \leq V_{IN} \leq 35V, I_{OUT}=200mA$			0.8	mA
Current Dissipation Variation (Load)	ΔI_{CCload}	$5mA \leq I_{OUT} \leq 350mA$			0.5	mA
Output Noise Voltage	V_{NO}	$10Hz \leq f \leq 100kHz$		110		μV
Ripple Rejection	R_{rej}	$f=120Hz$		53		dB
		$24V \leq V_{IN} \leq 34V$		53	70	dB
		$T_j=25^{\circ}C$				
Minimum Input-Output Voltage Drop	V_{drop}	$I_{OUT}=350mA$		2.0		V
Short Current	I_{OS}	$T_j=25^{\circ}C, V_{IN}=35V, \text{to GND}$		300		mA
Peak Output Current	I_{op}	$T_j=25^{\circ}C$		0.7		A

L78M00T Series

[L78M24T]

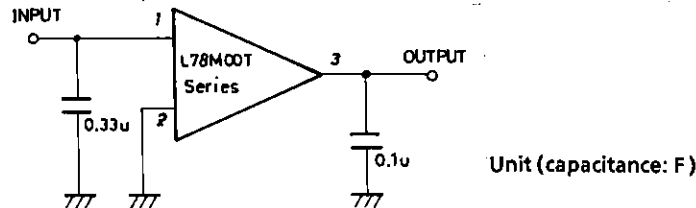
Recommended Operating Conditions at $T_a=25^\circ\text{C}$

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

Operating Characteristics at $T_a=25^\circ\text{C}$, $V_{IN}=33\text{V}$, $I_{OUT}=350\text{mA}$, See specified Test Circuit.

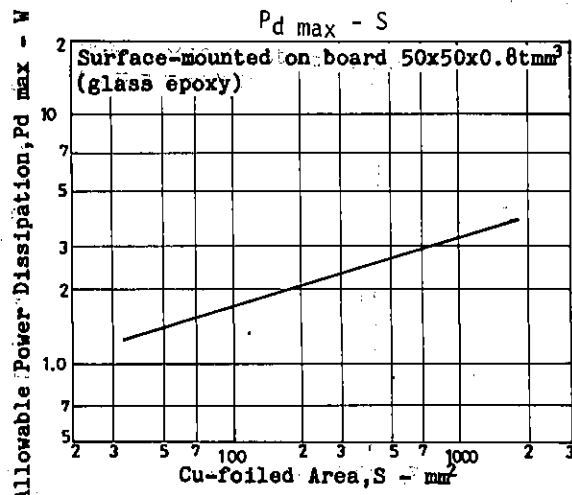
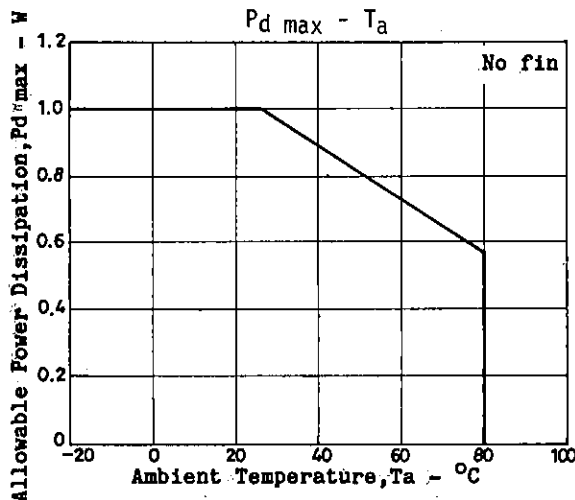
			min	typ	max	unit
Output Voltage	V_{OUT}	$T_j=25^\circ\text{C}$	23.0	24.0	25.0	V
Line Regulation	ΔV_{oline}	$T_j=25^\circ\text{C}$, $27\text{V} \leq V_{IN} \leq 35\text{V}$, $I_{OUT}=200\text{mA}$	10.0	100		mV
		$T_j=25^\circ\text{C}$, $28\text{V} \leq V_{IN} \leq 35\text{V}$, $I_{OUT}=200\text{mA}$	5.0	50		mV
Load Regulation	ΔV_{oload}	$T_j=25^\circ\text{C}$, $5\text{mA} \leq I_{OUT} \leq 500\text{mA}$			480	mV
		$T_j=25^\circ\text{C}$, $5\text{mA} \leq I_{OUT} \leq 200\text{mA}$			240	mV
Output Voltage	V_{OUT}	$27\text{V} \leq V_{IN} \leq 35\text{V}$, $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	22.8		25.2	V
Current Dissipation	I_{CC}	$T_j=25^\circ\text{C}$		5.0	6.0	mA
Current Dissipation	ΔI_{CCline}	$27\text{V} \leq V_{IN} \leq 35\text{V}$, $I_{OUT}=200\text{mA}$			0.8	mA
Variation (Line)						
Current Dissipation	ΔI_{CCload}	$5\text{mA} \leq I_{OUT} \leq 350\text{mA}$			0.5	mA
Variation (Load)						
Output Noise Voltage	V_{NO}	$10\text{Hz} \leq f \leq 100\text{kHz}$		170		μV
Ripple Rejection	R_{rej}	$f=120\text{Hz}$	50			dB
		$28\text{V} \leq V_{IN} \leq 35\text{V}$	50	70		dB
		$T_j=25^\circ\text{C}$				
Minimum Input-Output	V_{drop}	$I_{OUT}=350\text{mA}$		2.0		V
Voltage Drop						
Short Current	I_{OS}	$T_j=25^\circ\text{C}$, $V_{IN}=35\text{V}$, to GND		300		mA
Peak Output Current	I_{op}	$T_j=25^\circ\text{C}$		0.7		A

Specified Test Circuit (Common to L78M00T series)

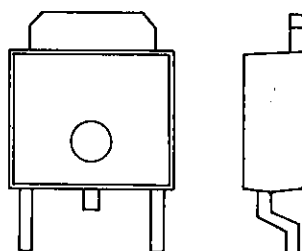


The allowable power dissipation ($P_d \text{ max}$) is 1.0W ($T_a=25^\circ\text{C}$) with no fin attached. When the L78M00T series are surface-mounted on a hybrid IC board or printed circuit board, a high allowable power dissipation can be obtained, though they are placed in a small-sized package.

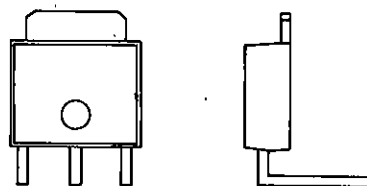
Shown below is the relationship between the Cu-foiled area and the allowable power dissipation when the L78M00T series are surface-mounted on a glass epoxy board ($50 \times 50 \times 0.8 \text{ mm}^3$).



Lead Formings



FA forming



LR forming

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