

DESCRIPTION

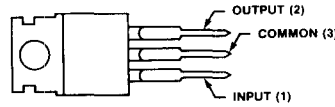
The 78HV00 series of monolithic Three-Terminal Positive Voltage Regulators employ 60 volt input breakdown, thermal shutdown and safe-area compensation, making them essentially indestructible. If adequate heat sinking is provided, they can deliver over 1A output current, (78HV00 series) and 500mA (78MHV00 series). They are intended as fixed-voltage regulators in a wide range of applications including local, on-card regulation for elimination of distribution problems associated with single point regulation. In addition to use as fixed voltage regulators, these devices can be used with external components to obtain adjustable output voltages and currents and also as the power pass element in precision regulators.

FEATURES

- Input voltage greater than 60 volts
- No external components
- Internal thermal overload protection
- Internal short circuit current limiting
- Output transistor safe-area compensation
- Available in the TO-220, the TO-3, and the TO-39 package
- Output voltages of 5, 6, 8, 12, 13.8, 15, 18, and 24 volts

PIN CONFIGURATIONS

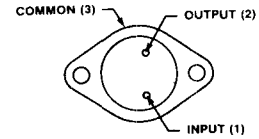
U PACKAGE (TO-220)



ORDER INFORMATION

OUTPUT VOLTAGE	ORDER PART NO.
5V	78HV05CU/SA78HV05CU
6V	78HV06CU/SA78HV06CU
8V	78HV08CU/SA78HV08CU
12V	78HV12CU/SA78HV12CU
13.8V	78HV14CU/SA78HV14CU
15V	78HV15CU/SA78HV15CU
18V	78HV18CU/SA78HV18CU
24V	78HV24CU/SA78HV24CU
5V	78MHV05CU/SA78MHV05CU
6V	78MHV06CU/SA78MHV06CU
8V	78MHV08CU/SA78MHV08CU
12V	78MHV12CU/SA78MHV12CU
15V	78MHV15CU/SA78MHV15CU
18V	78MHV18CU/SA78MHV18CU
24V	78MHV24CU/SA78MHV24CU

DA PACKAGE (TO-3)



ORDER INFORMATION

OUTPUT VOLTAGE	ORDER PART NO.
5V	78HV05DA
6V	78HV06DA
8V	78HV08DA
12V	78HV12DA
13.8V	78HV14DA
15V	78HV15DA
18V	78HV18DA
24V	78HV24DA
5V	78HV05CDA/SA78HV05CDA
6V	78HV06CDA/SA78HV06CDA
8V	78HV08CDA/SA78HV08CDA
12V	78HV12CDA/SA78HV12CDA
13.8V	78HV14CDA/SA78HV14CDA
15V	78HV15CDA/SA78HV15CDA
18V	78HV18CDA/SA78HV18CDA
24V	78HV24CDA/SA78HV24CDA

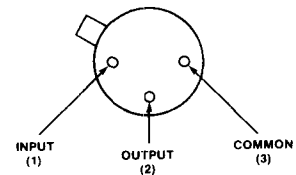
ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING	UNIT
Input voltage (5V through 24V)	60	V
Internal power dissipation ¹	Internally limited	
Storage temperature range	-65 to +150	°C
Operating junction temperature range ²		
78HV00, 78MHV00	-55 to +150	°C
78HV00C, 78MHV00C	0 to +125	°C
SA78HV00C, SA78MHV00C	-40 to +125	°C
Lead temperature		
TO-3 package (soldering, 60 second time limit)	300	°C
TO-220 package (soldering, 10 second time limit)	230	°C

NOTES

1. Thermal resistance of the packages (without a heat sink)
 Junction to case: TO-3 package 4°C/W; TO-220 package 2°C/W, TO-39 package 20°C/W
 Junction to ambient: TO-3 package 35°C/W; TO-220 package 50°C/W, TO-39 package 170°C/W
2. Operating ambient temperature range
 78HV00 -55°C to +125°C
 78HV00C 0°C to +85°C
 SA78HV00C -40°C to +85°C

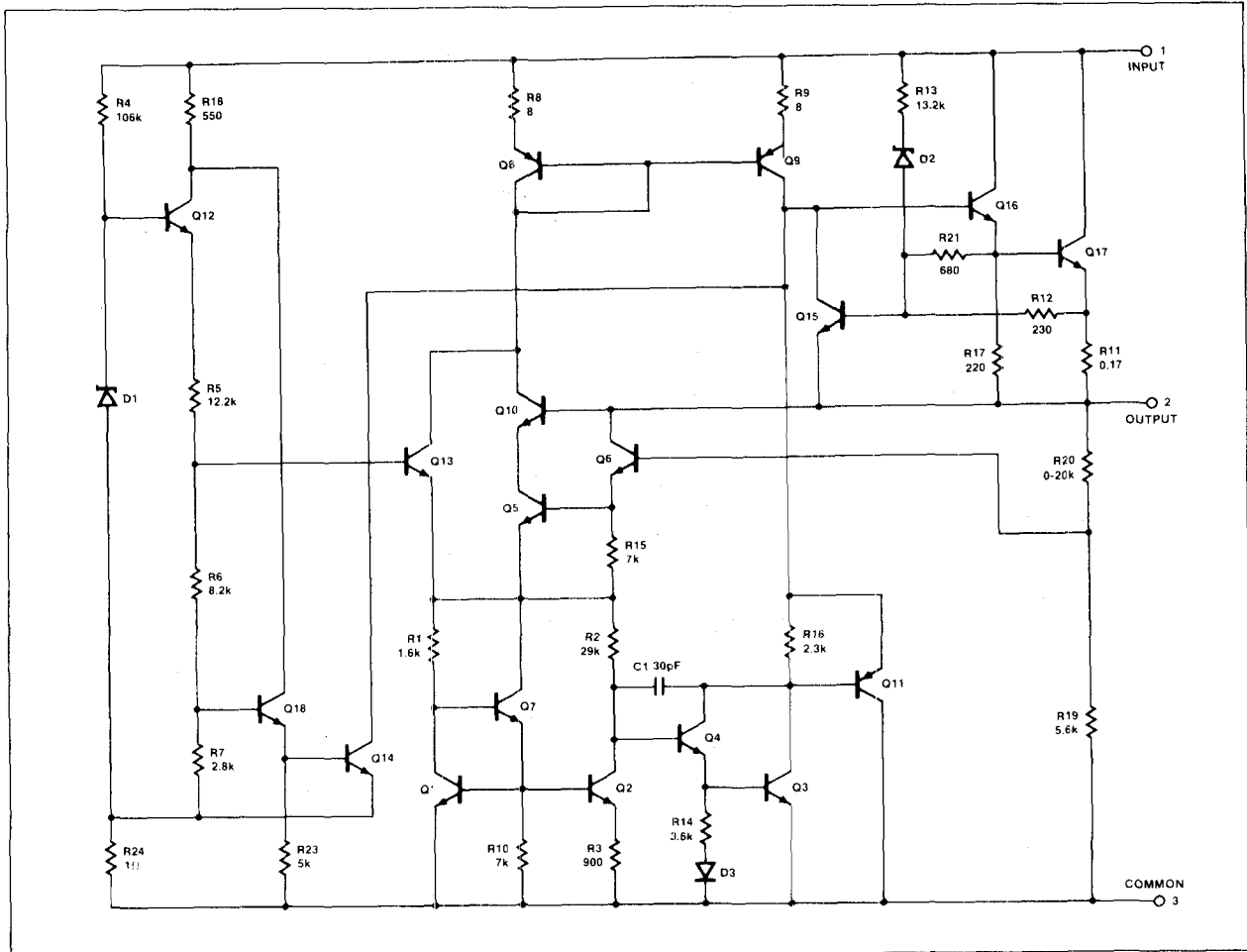
DB PACKAGE (TO-39)



ORDER INFORMATION

OUTPUT VOLTAGE	ORDER PART NO.
5V	78MHV05DB
6V	78MHV06DB
8V	78MHV08DB
12V	78MHV12DB
15V	78MHV15DB
20V	78MHV20DB
24V	78MHV24DB
5V	78MHV05CDB/SA78MHV05CDB
6V	78MHV06CDB/SA78MHV06CDB
8V	78MHV08CDB/SA78MHV08CDB
12V	78MHV12CDB/SA78MHV12CDB
15V	78MHV15CDB/SA78MHV15CDB
20V	78MHV20CDB/SA78MHV20CDB
24V	78MHV24CDB/SA78MHV24CDB

EQUIVALENT SCHEMATIC



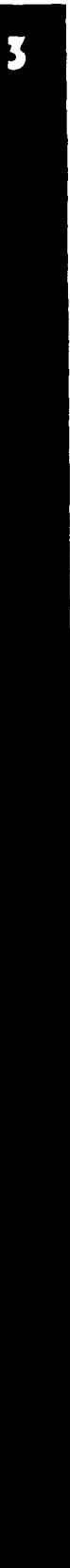
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DC ELECTRICAL CHARACTERISTICS $I_{OUT} = 500\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$
unless otherwise specified.

PARAMETER	TEST CONDITIONS	78HV05 ¹			78HV05C ¹			UNIT
		Min	Typ	Max	Min	Typ	Max	
V_{OUT} Output voltage	Over temp., ¹ $5\text{mA} \leq I_{OUT} \leq 1.0\text{A}$, $P_D \leq 15\text{W}$	$V_{IN} = 10\text{V}$			$V_{IN} = 10\text{V}$			V
		4.8	5.0	5.2	4.8	5.0	5.2	V
		$8\text{V} \leq V_{IN} \leq 20\text{V}$			$7\text{V} \leq V_{IN} \leq 25\text{V}$			
		4.65		5.35	4.75		5.25	
Line regulation		$7\text{V} \leq V_{IN} \leq 25\text{V}$			$7\text{V} \leq V_{IN} \leq 25\text{V}$			mV
			3	50		3	100	
		$8\text{V} \leq V_{IN} \leq 12\text{V}$			$8\text{V} \leq V_{IN} \leq 12\text{V}$			mV
			1	25		1	50	
Load regulation	$5\text{mA} \leq I_{OUT} \leq 1.5\text{A}$ $250\text{mA} \leq I_{OUT} \leq 750\text{mA}$		15	50		15	100	mV
			5	25		5	50	mV
I_{CC}			4.2	6.0		4.2	8.0	mA
ΔI_{CC}	Over temp., ¹ with line With load, $5\text{mA} \leq I_{OUT} \leq 1.0\text{A}$	$8\text{V} \leq V_{IN} \leq 25\text{V}$			$7\text{V} \leq V_{IN} \leq 25\text{V}$			mA
				0.8			1.3	mA
				0.5		0.5		
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$		40			40	μV	
Voltage drift	mV/1000hrs.			20			mV	
Ripple rejection	Over temp., ¹ $f = 120\text{Hz}$	$8\text{V} \leq V_{IN} \leq 18\text{V}$			$8\text{V} \leq V_{IN} \leq 18\text{V}$			dB
		68	78		62	78		
Dropout voltage	$I_{OUT} = 1.0\text{A}$		2.0			2.0	V	
Output resistance	$f = 1\text{kHz}$		17			17	$\text{m}\Omega$	
I_{SC}			750			750	mA	
Peak output current			2.2			2.2	A	
V_{OUT} Output temperature drift	$I_{OUT} = 5\text{mA}$	$0^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$			$0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$			$\text{mV}/^\circ\text{C}$
			-1.1			-1.1		

NOTES

- 1. $-55^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ for 78HV00
 $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ for 78HV00C



DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 500\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$ unless otherwise specified.

PARAMETER	TEST CONDITIONS	78HV06 ¹			78HV06C ¹			UNIT
		Min	Typ	Max	Min	Typ	Max	
V _{OUT} Output voltage	Over temp., 1 5mA ≤ I _{OUT} ≤ 1.0A, P _D ≤ 15W	V _{IN} = 11V 5.75 6.0 6.25			V _{IN} = 11V 5.75 6.0 6.25			V
		9V ≤ V _{IN} ≤ 21V 5.65 6.35			8V ≤ V _{IN} ≤ 21V 5.7 6.3			V
Line regulation		8V ≤ V _{IN} ≤ 25V 5 60			8V ≤ V _{IN} ≤ 25V 5 120			mV
		9V ≤ V _{IN} ≤ 13V 1.5 30			9V ≤ V _{IN} ≤ 13V 1.5 60			mV
Load regulation	5mA ≤ I _{OUT} ≤ 1.5A 250mA ≤ I _{OUT} ≤ 750mA	14 60			14 120			mV
		4 30			4 60			mV
I _{CC}		4.3 6.0			4.3 8.0			mA
ΔI _{CC}	Over temp., 1 with line With load, 5mA ≤ I _{OUT} ≤ 1.0A	9V ≤ V _{IN} ≤ 25V 0.8			8V ≤ V _{IN} ≤ 25V 1.3			mA
		0.5			0.5			mA
Output noise voltage	10Hz ≤ f ≤ 100kHz	45			45			μV
Voltage drift	mV/1000hrs.	24			24			mV
Ripple rejection	Over temp., 1 f = 120Hz	9V ≤ V _{IN} ≤ 19V 65 75			9V ≤ V _{IN} ≤ 19V 59 75			dB
Dropout voltage	I _{OUT} = 1.0A	2.0			2.0			V
Output resistance	f = 1kHz	19			19			mΩ
I _{SC}		550			550			mA
Peak output current		2.2			2.2			A
V _{OUT} Output temperature drift	I _{OUT} = 5mA	0°C ≤ T _J ≤ 150°C -0.8			0°C ≤ T _J ≤ 125°C -0.8			mV/°C

NOTES

- 55°C ≤ T_J ≤ 150°C for 78HV00
0°C ≤ T_J ≤ 125°C for 78HV00C

DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 500\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$
unless otherwise specified.

PARAMETER	TEST CONDITIONS	78HV08 ¹			78HV08C ¹			UNIT
		Min	Typ	Max	Min	Typ	Max	
V_{OUT} Output voltage		$V_{IN} = 14\text{V}$ 7.7 8.0 8.3			$V_{IN} = 14\text{V}$ 7.7 8.0 8.3			V
	Over temp., ¹ $5\text{mA} \leq I_{OUT} \leq 1.0\text{A}$, $P_D \leq 15\text{W}$	$11.5\text{V} \leq V_{IN} \leq 23\text{V}$ 7.6 8.4			$10.5\text{V} \leq V_{IN} \leq 23\text{V}$ 7.6 8.4			V
Line regulation		$10.5 \leq V_{IN} \leq 25\text{V}$ 6 80			$10.5\text{V} \leq V_{IN} \leq 25\text{V}$ 6 160			mV
		$11\text{V} \leq V_{IN} \leq 17\text{V}$ 2 40			$11\text{V} \leq V_{IN} \leq 17\text{V}$ 2 80			mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 1.5\text{A}$ $250\text{mA} \leq I_{OUT} \leq 750\text{mA}$							mV
								mV
I_{CC}		4.3 6.0			4.3 8.0			mA
ΔI_{CC}	Over temp., ¹ with line With load, $5\text{mA} \leq I_{OUT} \leq 1.0\text{A}$	$11.5\text{V} \leq V_{IN} \leq 25\text{V}$ 0.8			$10.5\text{V} \leq V_{IN} \leq 25\text{V}$ 1.0			mA
								mA
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$	52			52			μV
Voltage drift	mV/1000hrs.	32			32			mV
Ripple rejection	Over temp., ¹ $f = 120\text{Hz}$	$11.5\text{V} \leq V_{IN} \leq 21.5\text{V}$ 62 72			$11.5\text{V} \leq V_{IN} \leq 21.5\text{V}$ 56 72			dB
Dropout voltage	$I_{OUT} = 1.0\text{A}$	2.0			2.0			V
Output resistance	$f = 1\text{kHz}$	16			16			m Ω
I_{SC}		450			450			mA
Peak output current		2.2			2.2			A
V_{OUT} Output temperature drift	$I_{OUT} = 5\text{mA}$	$0^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ -0.8			$0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ -0.8			mV/ $^\circ\text{C}$

NOTES

- $-55^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ for 78HV00
 $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ for 78HV00C

DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 500\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$ unless otherwise specified.

PARAMETER	TEST CONDITIONS	78HV12 ¹			78HV12C ¹			UNIT
		Min	Typ	Max	Min	Typ	Max	
V_{OUT} Output voltage		$V_{IN} = 19\text{V}$ 11.5 12.0 12.5			$V_{IN} = 19\text{V}$ 11.5 12.0 12.5			V
	Over temp., ¹ $5\text{mA} \leq I_{OUT} \leq 1.0\text{A}$, $P_D \leq 15\text{W}$	$15.5\text{V} \leq V_{IN} \leq 27\text{V}$ 11.4 12.6			$14.5\text{V} \leq V_{IN} \leq 27\text{V}$ 11.4 12.6			V
Line regulation		$14.5\text{V} \leq V_{IN} \leq 30\text{V}$ 10 120			$14.5\text{V} \leq V_{IN} \leq 30\text{V}$ 10 240			mV
		$16\text{V} \leq V_{IN} \leq 22\text{V}$ 3 60			$16\text{V} \leq V_{IN} \leq 22\text{V}$ 3 120			mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 1.5\text{A}$ $250\text{mA} \leq I_{OUT} \leq 750\text{mA}$	12 120			12 240			mV
		4 60			4 120			mV
I_{CC}		4.3 6.0			4.3 8.0			mA
ΔI_{CC}	Over temp., ¹ with line With load, $5\text{mA} \leq I_{OUT} \leq 1.0\text{A}$	$15\text{V} \leq V_{IN} \leq 30\text{V}$ 0.8			$14.5\text{V} \leq V_{IN} \leq 30\text{V}$ 1.0			mA
		0.5			0.5			mA
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$	75			75			μV
Voltage drift	mV/1000hrs.	48			48			mV
Ripple rejection	Over temp., ¹ $f = 120\text{Hz}$	$15\text{V} \leq V_{IN} \leq 25\text{V}$ 61 71			$15\text{V} \leq V_{IN} \leq 25\text{V}$ 55 71			dB
Dropout voltage	$I_{OUT} = 1.0\text{A}$	2.0			2.0			V
Output resistance	$f = 1\text{kHz}$	18			18			$\text{m}\Omega$
I_{SC}		350			350			mA
Peak output current		2.2			2.2			A
V_{OUT} Output temperature drift	$I_{OUT} = 5\text{mA}$	$0^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ -1.0			$0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ -1.0			$\text{mV}/^\circ\text{C}$

NOTES

- 1. $-55^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ for 78HV00
 $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ for 78HV00C



DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 500\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$ unless otherwise specified.

PARAMETER	TEST CONDITIONS	78HV14 ¹			78HV14C ¹			UNIT
		Min	Typ	Max	Min	Typ	Max	
V_{OUT} Output voltage		$V_{IN} = 22\text{V}$ 13.3 13.8 14.3			$V_{IN} = 22\text{V}$ 13.3 13.8 14.3			V
	Over temp., $1\text{mA} \leq I_{OUT} \leq 1.0\text{A}$, $P_D \leq 15\text{W}$	$17.5\text{V} \leq V_{IN} \leq 29\text{V}$ 13.15 14.45			$16.5\text{V} \leq V_{IN} \leq 29\text{V}$ 13.15 14.95			V
Line regulation		$16.5\text{V} \leq V_{IN} \leq 30\text{V}$ 10 140			$16.5\text{V} \leq V_{IN} \leq 30\text{V}$ 10 280			mV
		$19\text{V} \leq V_{IN} \leq 25\text{V}$ 3 70			$19\text{V} \leq V_{IN} \leq 25\text{V}$ 3 140			mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 1.5\text{A}$ $250\text{mA} \leq I_{OUT} \leq 750\text{mA}$		12	140		12	280	mV
			4	70		4	140	mV
I_{CC}			4.3	6.0		4.3	8.0	mA
ΔI_{CC}	Over temp., ¹ with line With load, $5\text{mA} \leq I_{OUT} \leq 1.0\text{A}$	$17\text{V} \leq V_{IN} \leq 30\text{V}$ 0.8 0.5			$16.5\text{V} \leq V_{IN} \leq 30\text{V}$ 1.0 0.5			mA mA
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$		85			85		μV
Voltage drift	mV/1000hrs.			56			56	mV
Ripple rejection	Over temp., ¹ $f = 120\text{Hz}$	$17\text{V} \leq V_{IN} \leq 27\text{V}$ 54 70			$17\text{V} \leq V_{IN} \leq 27\text{V}$ 60 70			dB
Dropout voltage	$I_{OUT} = 1.0\text{A}$		2.0			2.0		V
Output resistance	$f = 1\text{kHz}$		18			18		mΩ
I_{SC}			350			350		mA
Peak output current			2.2			2.2		A
V_{OUT} Output temperature drift	$I_{OUT} = 5\text{mA}$	$0^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ -1.0			$0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ -1.0			mV/°C

NOTES

- $-55^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ for 78HV00
 $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ for 78HV00C

DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 500\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$ unless otherwise specified.

PARAMETER	TEST CONDITIONS	78HV15 ¹			78HV15C ¹			UNIT
		Min	Typ	Max	Min	Typ	Max	
V_{OUT} Output voltage		$V_{IN} = 23\text{V}$ 14.4 15.0 15.6			$V_{IN} = 23\text{V}$ 14.4 15.0 15.6			V
	Over temp., ¹ $5\text{mA} \leq I_{OUT} \leq 1.0\text{A}$, $P_D \leq 15\text{W}$	$18.5\text{V} \leq V_{IN} \leq 30\text{V}$ 14.25 15.75			$17.5\text{V} \leq V_{IN} \leq 30\text{V}$ 14.25 15.75			V
Line regulation		$17.5\text{V} \leq V_{IN} \leq 30\text{V}$ 11 150			$17.5\text{V} \leq V_{IN} \leq 30\text{V}$ 11 300			mV
		$20\text{V} \leq V_{IN} \leq 26\text{V}$ 3 75			$20\text{V} \leq V_{IN} \leq 26\text{V}$ 3 150			mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 1.5\text{A}$ $250\text{mA} \leq I_{OUT} \leq 750\text{mA}$	12 150			12 300			mV
		4 75			4 150			mV
I_{CC}		4.4 6.0			4.4 8.0			mA
ΔI_{CC}	Over temp., ¹ with line With load, $5\text{mA} \leq I_{OUT} \leq 1.0\text{A}$	$18.5\text{V} \leq V_{IN} \leq 30\text{V}$ 0.8			$17.5\text{V} \leq V_{IN} \leq 30\text{V}$ 1.0			mA
		0.5			0.5			mA
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$	90			90			μV
Voltage drift	mV/1000hrs.	60			60			mV
Ripple rejection	Over temp., ¹ $f = 120\text{Hz}$	$18.5\text{V} \leq V_{IN} \leq 28.5\text{V}$ 60 70			$18.5\text{V} \leq V_{IN} \leq 28.5\text{V}$ 54 70			dB
Dropout voltage	$I_{OUT} = 1.0\text{A}$	2.0			2.0			V
Output resistance	$f = 1\text{kHz}$	19			19			$\text{m}\Omega$
I_{SC}		230			230			mA
Peak output current		2.1			2.1			A
V_{OUT} Output temperature drift	$I_{OUT} = 5\text{mA}$	$0^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ -1.0			$0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ -1.0			$\text{mV}/^\circ\text{C}$

NOTES

1. $-55^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ for 78HV00
 $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ for 78HV00C

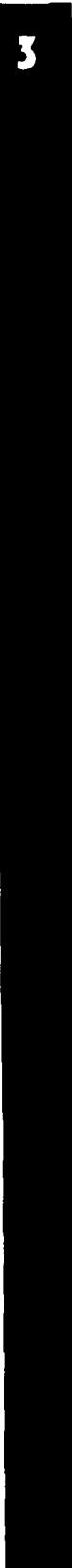
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DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 500\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$
unless otherwise specified.

PARAMETER	TEST CONDITIONS	78HV18 ¹			78HV18C ¹			UNIT
		Min	Typ	Max	Min	Typ	Max	
V_{OUT} Output voltage	Over temp., $1\text{mA} \leq I_{OUT} \leq 1.0\text{A}$, $P_D \leq 15\text{W}$	$V_{IN} = 27\text{V}$			$V_{IN} = 27\text{V}$			V
		17.3	18.0	18.7	17.3	18.0	18.7	V
Line regulation		$22\text{V} \leq V_{IN} \leq 33\text{V}$			$21\text{V} \leq V_{IN} \leq 33\text{V}$			mV
		17.1		18.9	17.1		18.9	mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 1.5\text{A}$ $250\text{mA} \leq I_{OUT} \leq 750\text{mA}$	$21\text{V} \leq V_{IN} \leq 33\text{V}$			$21\text{V} \leq V_{IN} \leq 33\text{V}$			mV
			15	180		15	360	mV
I_{CC}		$24\text{V} \leq V_{IN} \leq 30\text{V}$			$24\text{V} \leq V_{IN} \leq 30\text{V}$			mV
			5	90		5	180	mV
ΔI_{CC}	Over temp., ¹ with line With load, $5\text{mA} \leq I_{OUT} \leq 1.0\text{A}$							mV
			12	180		12	360	mV
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$							mV
			4	90		4	180	mV
Voltage drift	mV/1000hrs.							mA
			4.5	6.0		4.5	8.0	mA
Ripple rejection	Over temp., ¹ $f = 120\text{Hz}$	$22\text{V} \leq V_{IN} \leq 33\text{V}$			$21\text{V} \leq V_{IN} \leq 33\text{V}$			mA
				0.8			1.0	mA
Dropout voltage	$I_{OUT} = 1.0\text{A}$							mA
				0.5			0.5	mA
Output resistance	$f = 1\text{kHz}$							μV
			110			110		μV
I_{SC}	Peak output current							mV
				72			72	mV
V_{OUT} Output temperature drift	$I_{OUT} = 5\text{mA}$	$22\text{V} \leq V_{IN} \leq 32\text{V}$			$22\text{V} \leq V_{IN} \leq 32\text{V}$			dB
		59	69		53	69		dB
Output resistance	$f = 1\text{kHz}$							V
			2.0			2.0		V
Peak output current								$\text{m}\Omega$
			22			22		$\text{m}\Omega$
Output temperature drift	$I_{OUT} = 5\text{mA}$							mA
			200			200		mA
Output temperature drift	$I_{OUT} = 5\text{mA}$							A
			2.1			2.1		A
Output temperature drift	$I_{OUT} = 5\text{mA}$	$0^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$			$0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$			$\text{mV}/^\circ\text{C}$
			-1.0			-1.0		$\text{mV}/^\circ\text{C}$

NOTES

- $-55^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ for 78HV00
 $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ for 78HV00C



DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 500\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$
unless otherwise specified.

PARAMETER	TEST CONDITIONS	78HV24 ¹			78HV24C ¹			UNIT
		Min	Typ	Max	Min	Typ	Max	
V _{OUT} Output voltage	Over temp., $1\text{mA} \leq I_{OUT} \leq 1.0\text{A}$, $P_D \leq 15\text{W}$	$V_{IN} = 33\text{V}$ 23.0 24.0 25.0			$V_{IN} = 33\text{V}$ 23.0 24.0 25.0			V
		$28\text{V} \leq V_{IN} \leq 38\text{V}$ 22.8 25.2			$28\text{V} \leq V_{IN} \leq 38\text{V}$ 22.8 25.2			V
Line regulation		$27\text{V} \leq V_{IN} \leq 38\text{V}$ 18 240			$27\text{V} \leq V_{IN} \leq 38\text{V}$ 18 480			mV
		$30\text{V} \leq V_{IN} \leq 36\text{V}$ 6 120			$30\text{V} \leq V_{IN} \leq 36\text{V}$ 6 240			mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 1.5\text{A}$ $250\text{mA} \leq I_{OUT} \leq 750\text{mA}$	12 240			12 480			mV
		4 120			4 240			mV
I _{CC}		4.6 6.0			4.6 8.0			mA
ΔI _{CC}	Over temp., 1 with line With load, $5\text{mA} \leq I_{OUT} \leq 1.0\text{A}$	$28\text{V} \leq V_{IN} \leq 38\text{V}$ 0.8			$27\text{V} \leq V_{IN} \leq 38\text{V}$ 1.0			mA
		0.5			0.5			mA
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$	170			170			μV
Voltage drift	mV/1000hrs.	96			96			mV
Ripple rejection	Over temp., 1 $f = 120\text{Hz}$	$28\text{V} \leq V_{IN} \leq 38\text{V}$ 56 66			$28\text{V} \leq V_{IN} \leq 38\text{V}$ 50 66			dB
Dropout voltage	$I_{OUT} = 1.0\text{A}$	2.0			2.0			V
Output resistance	$f = 1\text{kHz}$	28			28			mΩ
I _{SC}		150			150			mA
Peak output current		2.1			2.1			A
V _{OUT} Output temperature drift	$I_{OUT} = 5\text{mA}$	$0^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ -1.5			$0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ -1.5			mV/°C

NOTES

- 55°C ≤ T_J ≤ 150°C for 78HV00
0°C ≤ T_J ≤ 125°C for 78HV00C

DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 500\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$
unless otherwise specified.

PARAMETER	TEST CONDITIONS	SA78HV05C ²			SA78HV06C ²			UNIT
		Min.	Typ	Max	Min	Typ	Max	
V _{OUT} Output voltage	Over temp., ² $5\text{mA} \leq I_{OUT} \leq 1.0\text{A}$, $P_D \leq 15\text{W}$	$V_{IN} = 10\text{V}$ 4.8 4.0 5.2			$V_{IN} = 11\text{V}$ 5.75 6.0 6.25			V
		$7\text{V} \leq V_{IN} \leq 25\text{V}$ 4.65 5.35			$8\text{V} \leq V_{IN} \leq 25\text{V}$ 5.65 6.35			V
Line regulation		$7\text{V} \leq V_{IN} \leq 25\text{V}$ 3 100			$8\text{V} \leq V_{IN} \leq 25\text{V}$ 5 120			mV
		$8\text{V} \leq V_{IN} \leq 12\text{V}$ 1 50			$9\text{V} \leq V_{IN} \leq 13\text{V}$ 1.5 60			mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 1.5\text{A}$ $250\text{mA} \leq I_{OUT} \leq 750\text{mA}$	15 100			14 120			mV
		5 50			4 60			mV
I _{CC}		4.2 8.0			4.3 8.0			mA
ΔI _{CC}	Over temp., ² with line With load, $5\text{mA} \leq I_{OUT} \leq 1.0\text{A}$	$7\text{V} \leq V_{IN} \leq 25\text{V}$ 0.8			$8\text{V} \leq V_{IN} \leq 25\text{V}$ 0.8			mA
		0.3			0.3			mA
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$	40			45			μV
Voltage drift	mV/1000hrs.	20			24			mV
Ripple rejection	Over temp., ² $f = 120\text{Hz}$	$8\text{V} \leq V_{IN} \leq 18\text{V}$ 62 78			$9\text{V} \leq V_{IN} \leq 19\text{V}$ 59 75			dB
Dropout voltage	$I_{OUT} = 1.0\text{A}$	2.0			2.0			V
Output resistance	$f = 1\text{kHz}$	17			19			mΩ
I _{SC}		750			550			mA
Peak output current		2.2			2.2			A
V _{OUT} Output temperature drift	$0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ $I_{OUT} = 5\text{mA}$	-1.1			-0.8			mV/°C

NOTES

2. $-40^\circ\text{C} \leq T_J \leq +125^\circ\text{C}$ for SA78HV00C

DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 500\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$ unless otherwise specified.

PARAMETER	TEST CONDITIONS	SA78HV08C ²			SA78HV12C ²			UNIT
		Min	Typ	Max	Min	Typ	Max	
V_{OUT} Output voltage	Over temp., ² $5\text{mA} \leq I_{OUT} \leq 1.0\text{A}$, $P_D \leq 15\text{W}$	$V_{IN} = 14\text{V}$ 7.7 8.0 8.3			$V_{IN} = 19\text{V}$ 11.5 12.0 12.5			V
		$10.5\text{V} \leq V_{IN} \leq 23\text{V}$ 7.6 8.4			$14.5\text{V} \leq V_{IN} \leq 27\text{V}$ 11.4 12.6			V
Line regulation		$10.5\text{V} \leq V_{IN} \leq 25\text{V}$ 6 160			$14.5\text{V} \leq V_{IN} \leq 30\text{V}$ 10 240			mV
		$11\text{V} \leq V_{IN} \leq 17\text{V}$ 2 80			$16\text{V} \leq V_{IN} \leq 22\text{V}$ 3 120			mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 1.5\text{A}$ $250\text{mA} \leq I_{OUT} \leq 750\text{mA}$							mV
								mV
I_{CC}								mA
ΔI_{CC}	Over temp., ² with line With load, $5\text{mA} \leq I_{OUT} \leq 1.0\text{A}$	$10.5\text{V} \leq V_{IN} \leq 25\text{V}$ 0.8			$14.5\text{V} \leq V_{IN} \leq 30\text{V}$ 0.8			mA
								mA
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$				75			μV
Voltage drift	mV/1000hrs.				48			mV
Ripple rejection	Over temp., ² $f = 120\text{Hz}$	$11.5\text{V} \leq V_{IN} \leq 21.5\text{V}$ 56 72			$15\text{V} \leq V_{IN} \leq 25\text{V}$ 61 71			dB
Dropout voltage	$I_{OUT} = 1.0\text{A}$				2.0			V
Output resistance	$f = 1\text{kHz}$				18			mΩ
I_{SC}					350			mA
Peak output current					2.2			A
V_{OUT} Output temperature drift	$0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ $I_{OUT} = 5\text{mA}$				-1.0			mV/°C

NOTES
2. $-40^\circ\text{C} \leq T_J \leq +125^\circ\text{C}$ for SA78HV00C

3

DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 5mA$ $C_{IN} = 0.33\mu F$, $C_{OUT} = 0.1\mu F$, $T_J = 25^\circ C$ unless otherwise specified.

PARAMETER	TEST CONDITIONS	SA78HV14C ²			SA78HV15C ²			UNIT
		Min	Typ	Max	Min	Typ	Max	
V _{OUT} Output voltage	Over temp., 2.5mA ≤ I _{OUT} ≤ 1.0A, P _D ≤ 15W	V _{IN} = 22V			V _{IN} = 23V			V
		13.3	13.8	14.3	14.4	15.0	15.6	V
Line regulation		16.5V ≤ V _{IN} ≤ 29V			17.5V ≤ V _{IN} ≤ 30V			mV
		13.15		14.95	14.25		15.75	mV
Load regulation	5mA ≤ I _{OUT} ≤ 1.5A 250mA ≤ I _{OUT} ≤ 750mA	16.5V ≤ V _{IN} ≤ 30V			17.5V ≤ V _{IN} ≤ 30V			mV
			10	280		11	300	mV
I _{CC}	Over temp., ² with line With load, 5mA ≤ I _{OUT} ≤ 1.0A	16.5V ≤ V _{IN} ≤ 30V			17.5V ≤ V _{IN} ≤ 30V			mA
			0.8			0.8		mA
Output noise voltage	10Hz ≤ f ≤ 100kHz		85		90		μV	
Voltage drift	mV/1000hrs.			56		60	mV	
Ripple rejection	Over temp., ² f = 120Hz	17V ≤ V _{IN} ≤ 27V			18.5V ≤ V _{IN} ≤ 28.5V			dB
Dropout voltage	I _{OUT} = 1.0A	60	70		60	70	V	
Output resistance	f = 1kHz		18		19		mΩ	
I _{SC}			350		230		mA	
Peak output current			2.2		2.1		A	
V _{OUT} Output temperature drift	0°C ≤ T _J ≤ 125°C I _{OUT} = 5mA		-1.0		-1.0		mV/°C	

NOTES

2. -40°C ≤ T_J ≤ +125°C for SA78HV00C

DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 5mA$, $C_{IN} = 0.33\mu F$, $C_{OUT} = 0.1\mu F$, $T_J = 25^\circ C$
unless otherwise specified.

PARAMETER	TEST CONDITIONS	SA78HV18C ²			SA78HV24C ²			UNIT
		Min	Typ	Max	Min	Typ	Max	
V _{OUT} Output voltage	Over temp., ² $5mA \leq I_{OUT} \leq 1.0A$, $P_D \leq 15W$	$V_{IN} = 27V$			$V_{IN} = 33V$			V
		17.3	18.0	18.7	23.0	24.0	25.0	V
		$21V \leq V_{IN} \leq 33V$			$28V \leq V_{IN} \leq 38V$			
		17.1		18.9	22.8		25.2	
Line regulation		$21V \leq V_{IN} \leq 33V$			$27V \leq V_{IN} \leq 38V$			mV
			15	360		18	480	
Load regulation	$5mA \leq I_{OUT} \leq 1.5A$ $250mA \leq I_{OUT} \leq 750mA$	$24V \leq V_{IN} \leq 30V$			$30V \leq V_{IN} \leq 36V$			mV
			5	180		6	240	
			12	360		12	480	mV
			4	180		4	240	mV
I _{CC}			4.5	8.0		4.6	8.0	mA
I _{CC}	Over temp., ² with line With load, $5mA \leq I_{OUT} \leq 1.0A$	$21V \leq V_{IN} \leq 33V$			$27V \leq V_{IN} \leq 38V$			mA
			0.8			0.8		mA
			0.3			0.3		
Output noise voltage	$10Hz \leq f \leq 100kHz$		110			170		μV
Voltage drift	mV/1000hrs.			72			96	mV
Ripple rejection	Over temp., ² $f = 120Hz$	$22V \leq V_{IN} \leq 32V$			$28V \leq V_{IN} \leq 38V$			dB
		59	69		56	66		
Dropout voltage	$I_{OUT} = 1.0A$		2.0			2.0		V
Output resistance	$f = 1kHz$		22			28		mΩ
I _{SC}			200			150		mA
Peak output current			2.1			2.1		A
V _{OUT} Output temperature drift	$0^\circ C \leq T_J \leq 125^\circ C$ $I_{OUT} = 5mA$		-1.0			-1.5		mV/°C

NOTES

2. $-40^\circ C \leq T_J \leq +125^\circ C$ for SA78HV00C

DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 350\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$ unless otherwise specified.

PARAMETER	TEST CONDITIONS	78MHV05 ³			78MHV05C ³			UNIT
		Min	Typ	Max	Min	Typ	Max	
V_{OUT} Output voltage	Over temp., ³ $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	$V_{IN} = 10\text{V}$ 4.8 5.0 5.2			$V_{IN} = 10\text{V}$ 4.8 5.0 5.2			V
		$8\text{V} \leq V_{IN} \leq 20\text{V}$ 4.7 5.3			$7\text{V} \leq V_{IN} \leq 20\text{V}$ 4.75 5.25			V
Line regulation	$I_{OUT} = 200\text{mA}$	$7\text{V} \leq V_{IN} \leq 25\text{V}$ 3 50			$7\text{V} \leq V_{IN} \leq 25\text{V}$ 3 100			mV
		$8\text{V} \leq V_{IN} \leq 20\text{V}$ 1 25			$8\text{V} \leq V_{IN} \leq 25\text{V}$ 1 50			mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 500\text{mA}$	20 50			20 100			mV
	$5\text{mA} \leq I_{OUT} \leq 200\text{mA}$	10 25			10 50			mV
I_{CC}		4.5 6.0			4.5 6.0			mA
ΔI_{CC} With line	Over temp., ³ $I_{OUT} = 200\text{mA}$	$8\text{V} \leq V_{IN} \leq 25\text{V}$			$8\text{V} \leq V_{IN} \leq 25\text{V}$			mA
		0.8			0.8			mA
ΔI_{CC} With load	$5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	0.5			0.5			mA
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$	40			40			μV
Voltage drift	mV/1000hrs.	20			20			mV
Ripple rejection	Over temp., ³ $f = 120\text{Hz}$	$8\text{V} \leq V_{IN} \leq 18\text{V}$ 68 80			$8\text{V} \leq V_{IN} \leq 18\text{V}$ 62 80			dB
		Dropout voltage			2.0			V
I_{SC}	$V_{IN} = 35\text{V}$	300			300			mA
Peak output current		700			700			mA
V_{OUT} Output temperature drift	$I_{OUT} = 5\text{mA}$	$0^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ -1.0			$0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ -1.0			mV/°C

NOTE

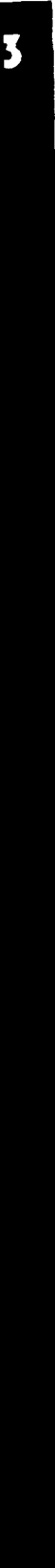
- 3. $-55^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ for 78MHV00
 $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ for 78MHV00C

DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 350\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$ unless otherwise specified.

PARAMETER	TEST CONDITIONS	78MHV06 ³			78MHV06C ³			UNIT
		Min	Typ	Max	Min	Typ	Max	
V_{OUT} Output voltage	Over temp., ³ $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	$V_{IN} = 11\text{V}$ 5.75 6.0 6.25			$V_{IN} = 11\text{V}$ 5.75 6.0 6.25			V
		$9\text{V} \leq V_{IN} \leq 21\text{V}$ 5.7 6.3			$8.0\text{V} \leq V_{IN} \leq 21\text{V}$ 5.7 6.3			V
Line regulation	$I_{OUT} = 200\text{mA}$	$8\text{V} \leq V_{IN} \leq 25\text{V}$ 5 60			$8\text{V} \leq V_{IN} \leq 25\text{V}$ 5 100			mV
		$9\text{V} \leq V_{IN} \leq 20\text{V}$ 1.5 30			$9\text{V} \leq V_{IN} \leq 25\text{V}$ 1.5 50			mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 500\text{mA}$		20	60		20	120	mV
	$5\text{mA} \leq I_{OUT} \leq 200\text{mA}$		10	30		10	60	mV
I_{CC}			4.5	6.0		4.5	8.0	mA
ΔI_{CC} With line ΔI_{CC} With load	Over temp., ³ $I_{OUT} = 200\text{mA}$ $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	$9\text{V} \leq V_{IN} \leq 25\text{V}$ 0.8			$9\text{V} \leq V_{IN} \leq 25\text{V}$ 0.8			mA
		0.5			0.5			mA
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$		45			45		μV
Voltage drift	mV/1000hrs.			24			24	mV
Ripple rejection	Over temp., ³ $f = 120\text{Hz}$	$9\text{V} \leq V_{IN} \leq 19\text{V}$ 59 80			$9\text{V} \leq V_{IN} \leq 19\text{V}$ 59 80			dB
Dropout voltage			2.0			2.0		V
I_{SC}	$V_{IN} = 35\text{V}$		270			270		mA
Peak output current			700			700		mA
V_{OUT} Output temperature drift	$I_{OUT} = 5\text{mA}$	$0^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ -0.5			$0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ -0.5			mV/ $^\circ\text{C}$

NOTE

- 3. $-55^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ for 78MHV00
 $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ for 78MHV00C



DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 350\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$ unless otherwise specified.

PARAMETER	TEST CONDITIONS	78MHV08 ³			78MHV08C ³			UNIT
		Min	Typ	Max	Min	Typ	Max	
V_{OUT} Output voltage	Over temp., ³ $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	$V_{IN} = 14\text{V}$ 7.7 8.0 8.3			$V_{IN} = 14\text{V}$ 7.7 8.0 8.3			V
		$11.5\text{V} \leq V_{IN} \leq 23\text{V}$ 7.6 8.4			$10.5\text{V} \leq V_{IN} \leq 23\text{V}$ 7.6 8.4			V
Line regulation	$I_{OUT} = 200\text{mA}$	$10.5\text{V} \leq V_{IN} \leq 25\text{V}$ 6 60			$10.5 \leq V_{IN} \leq 25\text{V}$ 6 100			mV
		$11\text{V} \leq V_{IN} \leq 20\text{V}$ 2 30			$11\text{V} \leq V_{IN} \leq 25\text{V}$ 2 50			mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 500\text{mA}$		25	80		25	160	mV
	$5\text{mA} \leq I_{OUT} \leq 200\text{mA}$		10	40		10	80	mV
I_{CC}			4.6	6.0		4.6	6.0	mA
ΔI_{CC} With line ΔI_{CC} With load	Over temp., ³ $I_{OUT} = 200\text{mA}$ $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	$11.5\text{V} \leq V_{IN} \leq 25\text{V}$			$10.5\text{V} \leq V_{IN} \leq 25\text{V}$			mA
				0.8			0.8	mA
				0.5			0.5	mA
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$		52			52		μV
Voltage drift	mV/1000hrs.			32			32	mV
Ripple rejection	Over temp., ³ $f = 120\text{Hz}$	$11.5\text{V} \leq V_{IN} \leq 21.5\text{V}$ 56 80			$11.5\text{V} \leq V_{IN} \leq 21.5\text{V}$ 56 80			dB
Dropout voltage			2.0			2.0		V
I_{SC}	$V_{IN} = 35\text{V}$		250			250		mA
Peak output current			700			700		mA
V_{OUT} Output temperature drift	$I_{OUT} = 5\text{mA}$	$0^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ -0.5			$0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ -0.5			mV/ $^\circ\text{C}$

NOTE

3. $-55^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ for 78MHV00
 $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ for 78MHV00C

DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 350\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$ unless otherwise specified.

PARAMETER	TEST CONDITIONS	78MHV12 ³			78MHV12C ³			UNIT
		Min	Typ	Max	Min	Typ	Max	
V_{OUT} Output voltage	Over temp., ³ $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	$V_{IN} = 19\text{V}$ 11.5 12.0 12.5			$V_{IN} = 19\text{V}$ 11.5 12.0 12.5			V
		$15.5\text{V} \leq V_{IN} \leq 27\text{V}$ 11.4 12.6			$14.5\text{V} \leq V_{IN} \leq 27\text{V}$ 11.4 12.6			V
Line regulation	$I_{OUT} = 200\text{mA}$	$14.5\text{V} \leq V_{IN} \leq 30\text{V}$ 8 60 $16\text{V} \leq V_{IN} \leq 25\text{V}$			$14.5\text{V} \leq V_{IN} \leq 30\text{V}$ 8 100 $16\text{V} \leq V_{IN} \leq 30\text{V}$			mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 500\text{mA}$		25	120		25	240	mV
	$5\text{mA} \leq I_{OUT} \leq 200\text{mA}$		10	60		10	120	mV
I_{CC}			4.8	6.0		4.8	6.0	mA
ΔI_{CC} With line ΔI_{CC} With load	Over temp., ³ $I_{OUT} = 200\text{mA}$ $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	$15\text{V} \leq V_{IN} \leq 30\text{V}$			$14.5\text{V} \leq V_{IN} \leq 30\text{V}$			0.8
				0.5			0.5	0.5
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$		75			75		μV
Voltage drift	mV/1000hrs.			48			48	mV
Ripple rejection	Over temp., ³ $f = 120\text{Hz}$	$15\text{V} \leq V_{IN} \leq 25\text{V}$ 55 80			$15\text{V} \leq V_{IN} \leq 25\text{V}$ 55 80			dB
Dropout voltage			2.0			2.0		V
I_{SC}	$V_{IN} = 35\text{V}$		240			240		mA
Peak output current			700			700		mA
V_{OUT} Output temperature drift	$I_{OUT} = 5\text{mA}$	$0^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$			$0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$			
				-1.0			-1.0	mV/°C

NOTE

- 3. $-55^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ for 78MHV00
 $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ for 78MHV00C



DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 350\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$ unless otherwise specified.

PARAMETER	TEST CONDITIONS	78MHV15 ³			78MHV15C ³			UNIT
		Min	Typ	Max	Min	Typ	Max	
V _{OUT} Output voltage	Over temp., ³ $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	$V_{IN} = 23\text{V}$ 14.4 15.0 15.6			$V_{IN} = 23\text{V}$ 14.4 15.0 15.6			V
		$18.5\text{V} \leq V_{IN} \leq 30\text{V}$ 14.25 15.75			$17.5\text{V} \leq V_{IN} \leq 30\text{V}$ 14.25 15.75			V
Line regulation	$I_{OUT} = 200\text{mA}$	$17.5\text{V} \leq V_{IN} \leq 30\text{V}$ 10 60			$17.5\text{V} \leq V_{IN} \leq 30\text{V}$ 10 100			mV
		$20\text{V} \leq V_{IN} \leq 30\text{V}$ 3 30			$20\text{V} \leq V_{IN} \leq 30\text{V}$ 3 50			mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 500\text{mA}$		25	150		25	150	mV
	$5\text{mA} \leq I_{OUT} \leq 200\text{mA}$		10	75		10	75	mV
I _{CC}			4.8	6.0		4.8	6.0	mA
ΔI _{CC} With line	Over temp., ³ $I_{OUT} = 200\text{mA}$	$18.5\text{V} \leq V_{IN} \leq 30\text{V}$			$17.5\text{V} \leq V_{IN} \leq 30\text{V}$			mA
		0.8			0.8			mA
ΔI _{CC} With load	$5\text{mA} \leq I_{OUT} \leq 350\text{mA}$			0.5			0.5	mA
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$		90			90		μV
Voltage drift	mV/1000hrs.			60			60	mV
Ripple rejection	Over temp., ³ $f = 120\text{Hz}$	$18.5\text{V} \leq V_{IN} \leq 28.5\text{V}$ 54 70			$18.5\text{V} \leq V_{IN} \leq 28.5\text{V}$ 54 70			dB
Dropout voltage			2.0			2.0		V
I _{SC}	$V_{IN} = 35\text{V}$		240			240		mA
Peak output current			700			700		mA
V _{OUT} Output temperature drift	$I_{OUT} = 5\text{mA}$	$0^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ -1.0			$0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ -1.0			mV/°C

NOTE

- 3. $-55^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ for 78MHV00
- $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ for 78MHV00C

DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 350\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$
unless otherwise specified.

PARAMETER	TEST CONDITIONS	78MHV20 ³			78MHV20C ³			UNIT
		Min	Typ	Max	Min	Typ	Max	
V_{OUT} Output voltage	Over temp., ³ $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	$V_{IN} = 29\text{V}$ 19.2 20 20.3			$V_{IN} = 29\text{V}$ 19.2 20 20.8			V
		$24\text{V} \leq V_{IN} \leq 35\text{V}$ 19 21			$23\text{V} \leq V_{IN} \leq 35\text{V}$ 19 21			V
Line regulation	$I_{OUT} = 200\text{mA}$	$23\text{V} \leq V_{IN} \leq 35\text{V}$ 10 60			$23\text{V} \leq V_{IN} \leq 35\text{V}$ 10 100			mV
		$24\text{V} \leq V_{IN} \leq 35\text{V}$ 5 30			$24\text{V} \leq V_{IN} \leq 35\text{V}$ 5 50			mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 500\text{mA}$		30	200		30	400	mV
	$5\text{mA} \leq I_{OUT} \leq 200\text{mA}$		10	100		10	200	mV
I_{CC}			4.9	6.0		4.9	6.0	mA
ΔI_{CC} With line ΔI_{CC} With load	Over temp., ³ $I_{OUT} = 200\text{mA}$ $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	$24\text{V} \leq V_{IN} \leq 35\text{V}$			$23\text{V} \leq V_{IN} \leq 35\text{V}$			mA
				0.8			0.8	mA
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$		110			110	μV	
Voltage drift	mV/1000hrs.			80			80	mV
Ripple rejection	Over temp., ³ $f = 120\text{Hz}$	$24\text{V} \leq V_{IN} \leq 34\text{V}$ 53 70			$24\text{V} \leq V_{IN} \leq 34\text{V}$ 53 70			dB
Dropout voltage			2.0			2.0	V	
I_{SC}	$V_{IN} = 35\text{V}$		240			240	mA	
Peak output current			700			700	mA	
V_{OUT} Output temperature drift	$I_{OUT} = 5\text{mA}$	$0^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ -1.1			$0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ -1.1			mV/ $^\circ\text{C}$

NOTE

3. $-55^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ for 78MHV00
 $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ for 78MHV00C

DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 350\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$ unless otherwise specified.

PARAMETER	TEST CONDITIONS	78MHV24 ³			78MHV24C ³			UNIT
		Min	Typ	Max	Min	Typ	Max	
V_{OUT} Output voltage	Over temp., ³ $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	$V_{IN} = 33\text{V}$ 23.0 24.0 25.0			$V_{IN} = 33\text{V}$ 23.0 24.0 25.0			V
		$28\text{V} \leq V_{IN} \leq 38\text{V}$ 22.8 25.2			$27\text{V} \leq V_{IN} \leq 38\text{V}$ 22.8 25.2			V
Line regulation	$I_{OUT} = 200\text{mA}$	$27\text{V} \leq V_{IN} \leq 38\text{V}$ 10 60			$27\text{V} \leq V_{IN} \leq 38\text{V}$ 10 100			mV
		$30\text{V} \leq V_{IN} \leq 36\text{V}$ 5 30			$28\text{V} \leq V_{IN} \leq 38\text{V}$ 5 50			mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 500\text{mA}$		30	240		30	480	mV
	$5\text{mA} \leq I_{OUT} \leq 200\text{mA}$		10	120		10	240	mV
I_{CC}			5	6.0		5	6.0	mA
ΔI_{CC} With line ΔI_{CC} With load	Over temp., ³ $I_{OUT} = 200\text{mA}$ $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	$28\text{V} \leq V_{IN} \leq 38\text{V}$			$27\text{V} \leq V_{IN} \leq 38\text{V}$			mA
				0.8			0.8	mA
				0.5			0.5	mA
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$		170			170		μV
Voltage drift	mV/1000hrs.			96			96	mV
Ripple rejection	Over temp., ³ $f = 120\text{Hz}$	$28\text{V} \leq V_{IN} \leq 38\text{V}$ 50 70			$28\text{V} \leq V_{IN} \leq 38\text{V}$ 50 70			dB
Dropout voltage			2.0			2.0		V
I_{SC}	$V_{IN} = 35\text{V}$		240			240		mA
Peak output current			700			700		mA
V_{OUT} Output temperature drift	$I_{OUT} = 5\text{mA}$	$0^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ -1.2			$0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ -1.2			mV/°C

NOTE

- 3. $-55^\circ\text{C} \leq T_J \leq 150^\circ\text{C}$ for 78MHV00
 $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ for 78MHV00C

DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 350\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$ unless otherwise specified.

PARAMETER	TEST CONDITIONS	SA78MHV05C ⁴			SA78MHV06C ⁴			UNIT
		Min	Typ	Max	Min	Typ	Max	
V _{OUT} Output voltage	Over temp., $4\text{mA} \leq I_{OUT} \leq 350\text{mA}$	$V_{IN} = 10\text{V}$			$V_{IN} = 11\text{V}$			V
		4.8	5.0	5.2	5.75	6.0	6.25	V
		$7\text{V} \leq V_{IN} \leq 25\text{V}$			$8.0\text{V} \leq V_{IN} \leq 21\text{V}$			V
		4.7		5.3	5.7		6.3	V
Line regulation	$I_{OUT} = 200\text{mA}$	$7\text{V} \leq V_{IN} \leq 25\text{V}$			$8\text{V} \leq V_{IN} \leq 25\text{V}$			mV
			3	100		5	100	mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 500\text{mA}$ $5\text{mA} \leq I_{OUT} \leq 200\text{mA}$	$8\text{V} \leq V_{IN} \leq 25\text{V}$			$9\text{V} \leq V_{IN} \leq 25\text{V}$			mV
			1	50		1.5	50	mV
I _{CC}								mV
			20	100		20	120	mV
I _{CC}								mV
			10	50		10	60	mV
I _{CC}			4.5	6.0		4.5	8.0	mA
ΔI _{CC} With line	Over temp., $I_{OUT} = 200\text{mA}$	$8\text{V} \leq V_{IN} \leq 25\text{V}$			$9\text{V} \leq V_{IN} \leq 25\text{V}$			mA
			0.6			0.6		mA
ΔI _{CC} With load	$5\text{mA} \leq I_{OUT} \leq 350\text{mA}$		0.3			0.3		mA
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$		40			45		μV
Voltage drift	mV/1000hrs.			20			24	mV
Ripple rejection	Over temp., $f = 120\text{Hz}$	$8\text{V} \leq V_{IN} \leq 18\text{V}$			$9\text{V} \leq V_{IN} \leq 19\text{V}$			dB
		62	80		59	80		dB
Dropout voltage			2.0			2.0		V
I _{SC}	$V_{IN} = 35\text{V}$		300			270		mA
Peak output current			700			700		mA
V _{OUT} Output temperature drift	$0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$, $I_{OUT} = 5\text{mA}$		-1.0			-0.5		mV/°C

NOTE

4. $-40^\circ\text{C} \leq T_J \leq +125^\circ\text{C}$ for SA78MHV00C

DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 350\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$ unless otherwise specified.

PARAMETER	TEST CONDITIONS	SA78MHV08C ⁴			SA78MHV12C ⁴			UNIT
		Min	Typ	Max	Min	Typ	Max	
V_{OUT} Output voltage	Over temp., ⁴ $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	$V_{IN} = 14\text{V}$ 7.7 8.0 8.3			$V_{IN} = 19\text{V}$ 11.5 12.0 12.5			V
		$10.5\text{V} \leq V_{IN} \leq 23\text{V}$ 7.6 8.4			$14.5\text{V} \leq V_{IN} \leq 27\text{V}$ 11.4 12.6			V
Line regulation	$I_{OUT} = 200\text{mA}$	$10.5\text{V} \leq V_{IN} \leq 25\text{V}$ 6 100			$14.5\text{V} \leq V_{IN} \leq 30\text{V}$ 8 100			mV
		$11\text{V} \leq V_{IN} \leq 25\text{V}$ 2 50			$16\text{V} \leq V_{IN} \leq 30\text{V}$ 2 50			mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 500\text{mA}$		25	160		25	240	mV
	$5\text{mA} \leq I_{OUT} \leq 200\text{mA}$		10	80		10	120	mV
I_{CC}			4.6	8.0		4.8	8.0	mA
ΔI_{CC} With line ΔI_{CC} With load	Over temp., ⁴ $I_{OUT} = 200\text{mA}$ $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	$10.5\text{V} \leq V_{IN} \leq 25\text{V}$			$14.5\text{V} \leq V_{IN} \leq 30\text{V}$			mA
			0.6		0.6			mA
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$		52			75		μV
Voltage drift	mV/1000hrs.			32			48	mV
Ripple rejection	Over temp., ⁴ $f = 120\text{Hz}$	$11.5\text{V} \leq V_{IN} \leq 21.5\text{V}$ 56 80			$15\text{V} \leq V_{IN} \leq 25\text{V}$ 55 80			dB
Dropout voltage			2.0			2.0		V
I_{SC}	$V_{IN} = 35\text{V}$		250			240		mA
Peak output current			700			700		mA
V_{OUT} Output temperature drift	$0^\circ\text{C} \leq T_J \leq +125^\circ\text{C}$, $I_{OUT} = 5\text{mA}$		-0.5			-1.0		mV/ $^\circ\text{C}$

NOTE

4. $-40^\circ\text{C} \leq T_J \leq +125^\circ\text{C}$ for SA78MHV00C

DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 350\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$
unless otherwise specified.

PARAMETER	TEST CONDITIONS	SA78MHV15C ⁴			SA78MHV20C ⁴			UNIT
		Min	Typ	Max	Min	Typ	Max	
V _{OUT} Output voltage	Over temp., ⁴ $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	$V_{IN} = 23\text{V}$ 14.4 15.0 15.6			$V_{IN} = 29\text{V}$ 19.2 20 20.8			V
		$17.5\text{V} \leq V_{IN} \leq 30\text{V}$ 14.25 15.75			$23\text{V} \leq V_{IN} \leq 35\text{V}$ 19 21			V
Line regulation	$I_{OUT} = 200\text{mA}$	$17.5\text{V} \leq V_{IN} \leq 30\text{V}$ 10 100			$23\text{V} \leq V_{IN} \leq 35\text{V}$ 10 100			mV
		$20\text{V} \leq V_{IN} \leq 30\text{V}$ 3 50			$24\text{V} \leq V_{IN} \leq 35\text{V}$ 5 50			mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 500\text{mA}$		25	150		30	400	mV
	$5\text{mA} \leq I_{OUT} \leq 200\text{mA}$		10	75		10	200	mV
I _{CC}			4.8	8.0		4.9	6.5	mA
ΔI _{CC} With line	Over temp., ⁴ $I_{OUT} = 200\text{mA}$	$17.5\text{V} \leq V_{IN} \leq 30\text{V}$			$23\text{V} \leq V_{IN} \leq 35\text{V}$			mA
								0.6
ΔI _{CC} With load	$5\text{mA} \leq I_{OUT} \leq 350\text{mA}$		0.3			0.3		mA
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$		90			110		μV
Voltage drift	mV/1000hrs.			60			80	mV
Ripple rejection	Over temp., ⁴ $f = 120\text{Hz}$	$18.5\text{V} \leq V_{IN} \leq 28.5\text{V}$ 54 70			$24\text{V} \leq V_{IN} \leq 34\text{V}$ 53 70			dB
Dropout voltage			2.0			2.0		V
I _{SC}	$V_{IN} = 35\text{V}$		240			240		mA
Peak output current			700			700		mA
V _{OUT} Output temperature drift	$0^\circ\text{C} \leq T_J \leq +125^\circ\text{C}$, $I_{OUT} = 5\text{mA}$		-1.0			-1.1		mV/°C

NOTE

4. $-40^\circ\text{C} \leq T_J \leq +125^\circ\text{C}$ for SA78MHV00C

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μ A78HV00/SA78HV00/78MHV00/78MHV00C-DA,DB,U**DC ELECTRICAL CHARACTERISTICS** (Cont'd) $I_{OUT} = 350\text{mA}$, $C_{IN} = 0.33\mu\text{F}$, $C_{OUT} = 0.1\mu\text{F}$, $T_J = 25^\circ\text{C}$ unless otherwise specified.

PARAMETER	TEST CONDITIONS	SA78MHV24C ⁴			UNIT
		Min	Typ	Max	
V_{OUT} Output voltage	Over temp., ⁴ $5\text{mA} \leq I_{OUT} \leq 350\text{mA}$	$V_{IN} = 33\text{V}$			V
		23.0	24.0	25.0	V
Line regulation	$I_{OUT} = 200\text{mA}$	$27\text{V} \leq V_{IN} \leq 38\text{V}$			mV
		22.8		25.2	mV
Load regulation	$5\text{mA} \leq I_{OUT} \leq 500\text{mA}$ $5\text{mA} \leq I_{OUT} \leq 200\text{mA}$	$27\text{V} \leq V_{IN} \leq 38\text{V}$			mV
			10	100	mV
I_{CC}		$30\text{V} \leq V_{IN} \leq 38\text{V}$			mV
			5	50	mV
ΔI_{CC} With line	Over temp., ⁴ $I_{OUT} = 200\text{mA}$				mV
			30	480	mV
ΔI_{CC} With load	$5\text{mA} \leq I_{OUT} \leq 350\text{mA}$				mV
			10	240	mV
Output noise voltage	$10\text{Hz} \leq f \leq 100\text{kHz}$		170		μV
Voltage drift	mV/1000hrs.			96	mV
Ripple rejection	Over temp., ⁴ $f = 120\text{Hz}$	$28\text{V} \leq V_{IN} \leq 38\text{V}$			dB
Dropout voltage		50	70		V
I_{SC}	$V_{IN} = 35\text{V}$		240		mA
Peak output current			700		mA
V_{OUT} Output temperature drift	$0^\circ\text{C} \leq T_J \leq +125^\circ\text{C}$, $I_{OUT} = 5\text{mA}$		-1.2		mV/ $^\circ\text{C}$

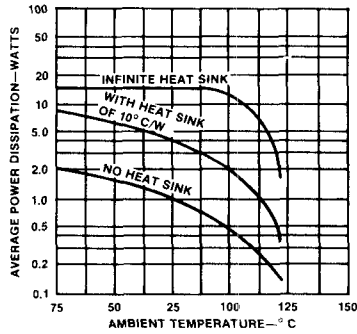
NOTE

4. $-40^\circ\text{C} \leq T_J \leq +125^\circ\text{C}$ for SA78MHV00C

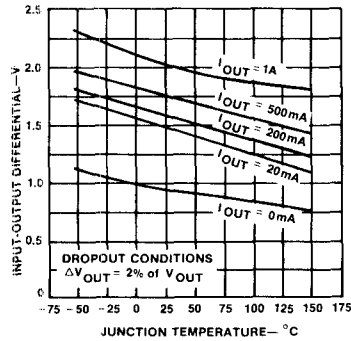
TYPICAL PERFORMANCE CHARACTERISTICS 78HV00

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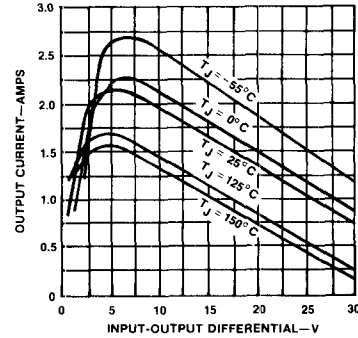
MAXIMUM AVERAGE POWER DISSIPATION AS A FUNCTION OF AMBIENT TEMPERATURE (TO-220, 7800C)



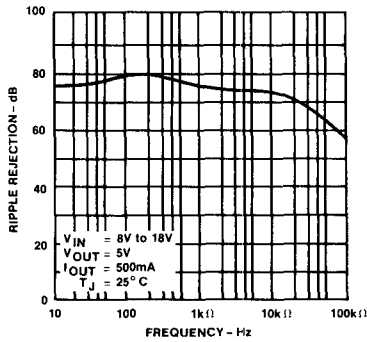
DROPOUT VOLTAGE AS A FUNCTION OF JUNCTION TEMPERATURE



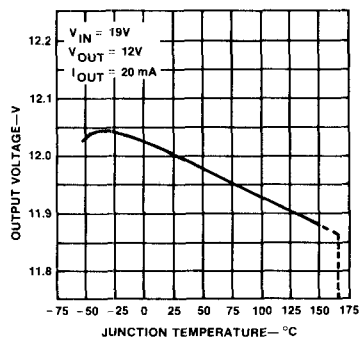
PEAK OUTPUT CURRENT AS A FUNCTION OF INPUT/OUTPUT DIFFERENTIAL VOLTAGE



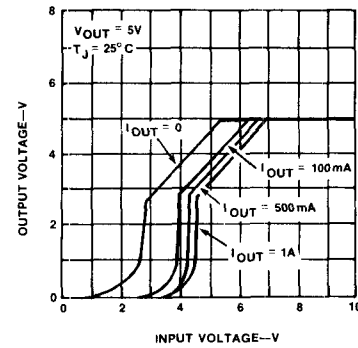
RIPPLE REJECTION AS A FUNCTION OF FREQUENCY



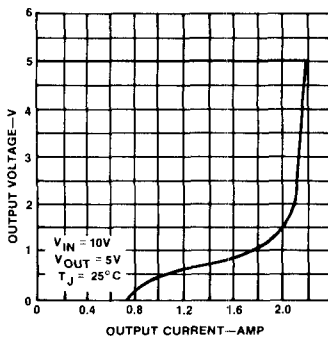
OUTPUT VOLTAGE AS A FUNCTION OF JUNCTION TEMPERATURE



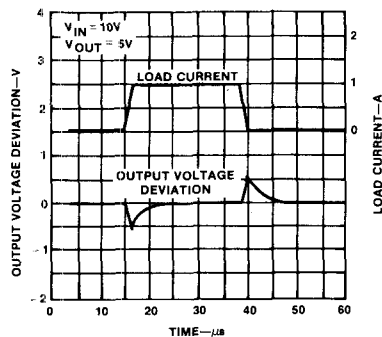
DROPOUT CHARACTERISTICS



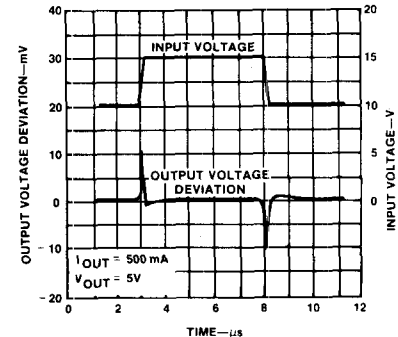
CURRENT LIMITING CHARACTERISTICS



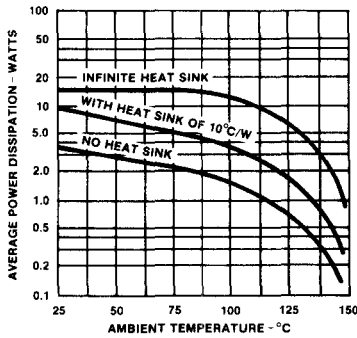
LOAD TRANSIENT RESPONSE



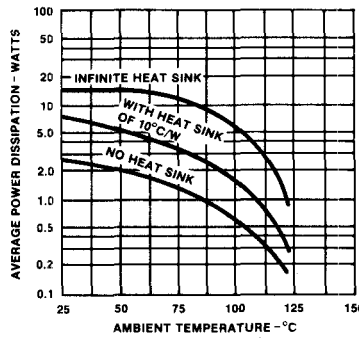
LINE TRANSIENT RESPONSE



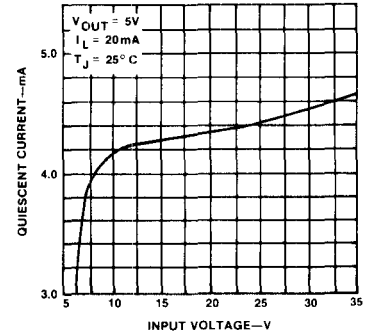
MAXIMUM AVERAGE POWER DISSIPATION AS A FUNCTION OF AMBIENT TEMPERATURE (TO-3, 78HV00)



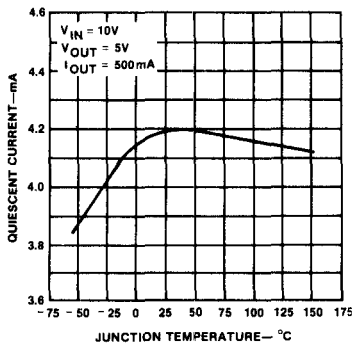
MAXIMUM AVERAGE POWER DISSIPATION AS A FUNCTION OF AMBIENT TEMPERATURE (TO-3, 78HV00C, SA78HV00C)



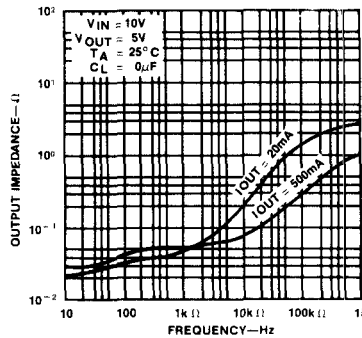
QUIESCENT CURRENT AS A FUNCTION OF INPUT VOLTAGE



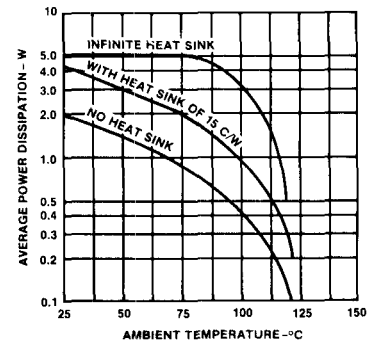
QUIESCENT CURRENT AS A FUNCTION OF TEMPERATURE



OUTPUT IMPEDANCE AS A FUNCTION OF FREQUENCY

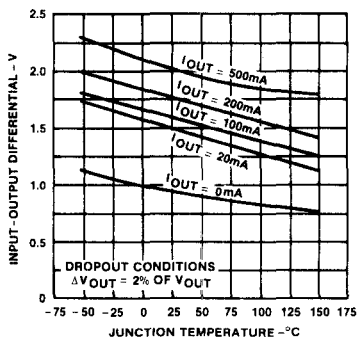


MAXIMUM AVERAGE POWER DISSIPATION AS A FUNCTION OF AMBIENT TEMPERATURE (TO-220, 78M00C)

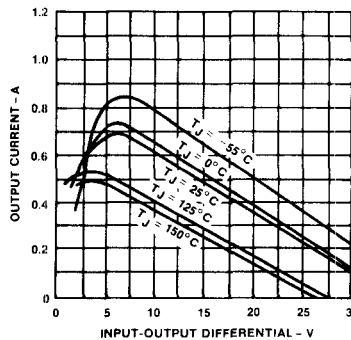


78MHV

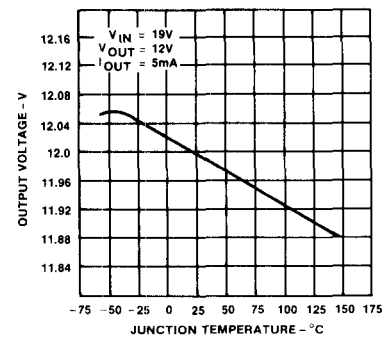
DROPOUT VOLTAGE AS A FUNCTION OF JUNCTION TEMPERATURE



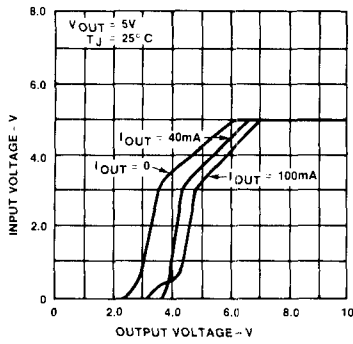
PEAK OUTPUT CURRENT AS A FUNCTION OF INPUT/OUTPUT DIFFERENTIAL VOLTAGE



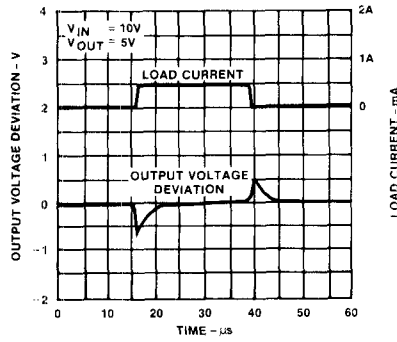
OUTPUT VOLTAGE AS A FUNCTION OF JUNCTION TEMPERATURE



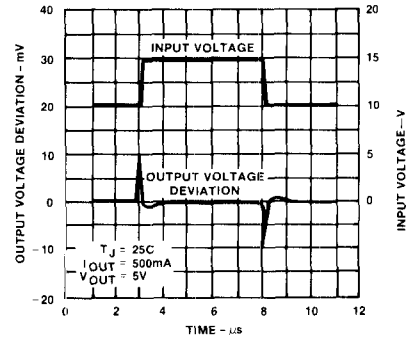
DROPOUT CHARACTERISTICS



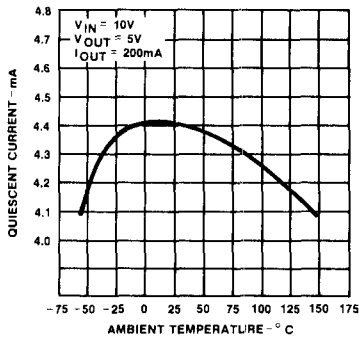
78MHV
LOAD TRANSIENT
RESPONSE



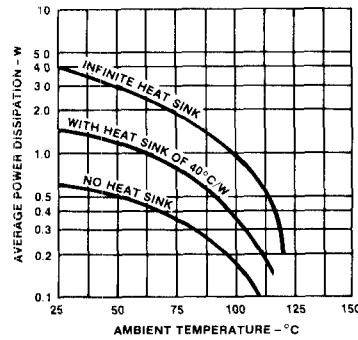
LINE TRANSIENT
RESPONSE



QUIESCENT CURRENT
AS A FUNCTION OF
TEMPERATURE



MAXIMUM AVERAGE POWER
DISSIPATION AS A FUNCTION OF
AMBIENT TEMPERATURE
(TO-39, 78M00C)



MAXIMUM AVERAGE POWER
DISSIPATION AS A FUNCTION OF
AMBIENT TEMPERATURE
(TO-39, 78M00)

