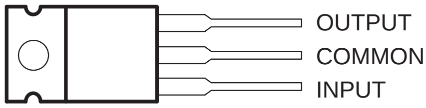
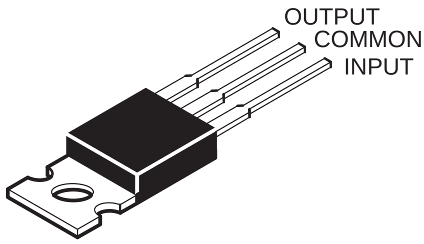
- **3-Terminal Regulators**
- **Output Current up to 500 mA**
- **No External Components**
- **Internal Thermal-Overload Protection**
- **High Power-Dissipation Capability**
- **Internal Short-Circuit Current Limiting**
- **Output Transistor Safe-Area Compensation**
- **Direct Replacements for Fairchild µA78M00 Series**

**KC PACKAGE
(TOP VIEW)**

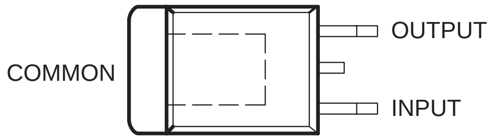


The COMMON terminal is in electrical contact with the mounting base.

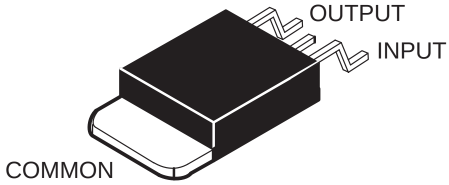
TO-220AB



**KTP PACKAGE
(TOP VIEW)**



The COMMON terminal is in electrical contact with the mounting base.



description

This series of fixed-voltage integrated-circuit voltage regulators is designed for a wide range of applications. These applications include on-card regulation for elimination of noise and distribution problems associated with single-point regulation. Each of these regulators can deliver up to 500 mA of output current. The internal current-limiting and thermal-shutdown features of these regulators essentially make them immune to overload. 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.

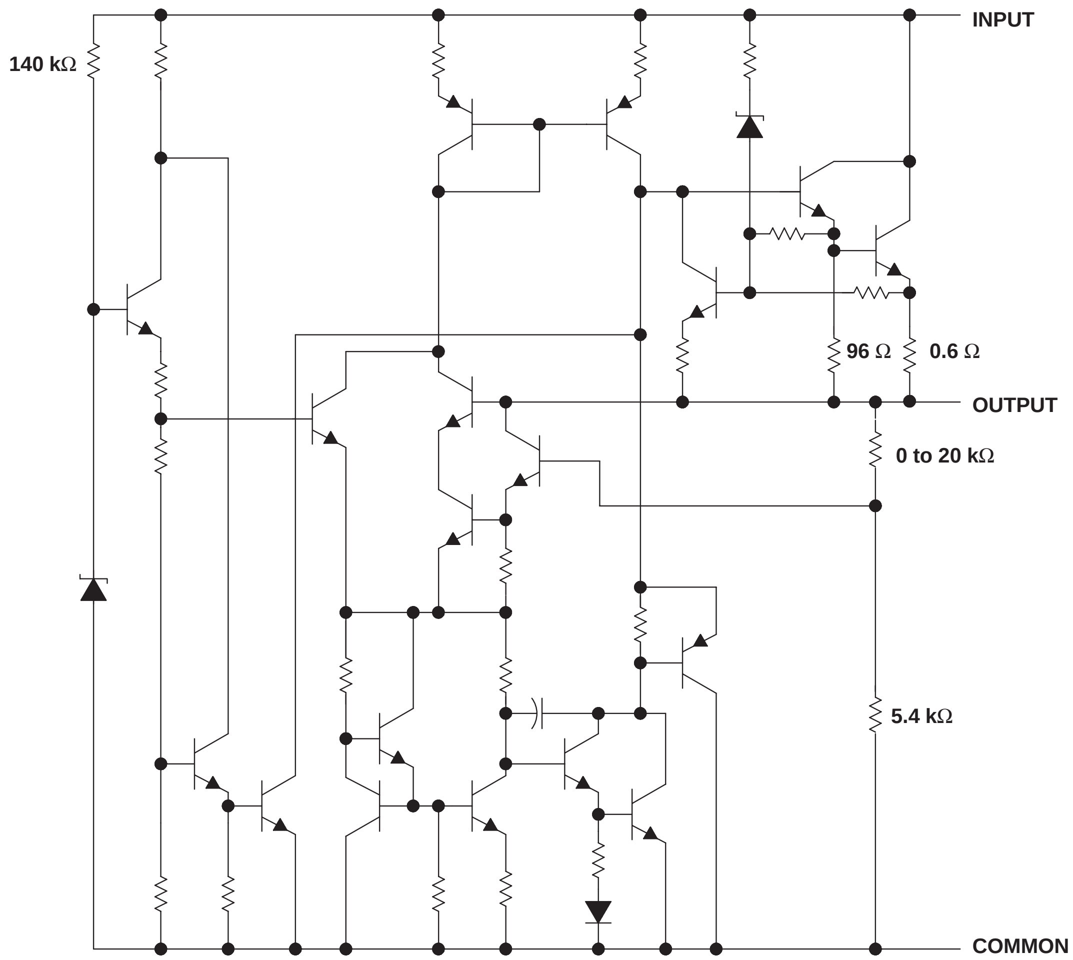
The µA78M00C series is characterized for operation over the virtual junction temperature range of 0°C to 125°C.

AVAILABLE OPTIONS

T_J	V_O(NOM) (V)	PACKAGED DEVICES		CHIP FORM (Y)
		HEAT-SINK MOUNTED (KC)	PLASTIC FLANGE MOUNTED (KTP)	
0°C to 125°C	5	µA78M05CKC	µA78M05CKTP	µA78M05Y
	6	µA78M06CKC	µA78M06CKTP	µA78M06Y
	8	µA78M08CKC	µA78M08CKTP	µA78M08Y
	9	µA78M09CKC	µA78M09CKTP	µA78M09Y
	10	µA78M10CKC	µA78M10CKTP	µA78M10Y
	12	µA78M12CKC	µA78M12CKTP	µA78M12Y
	15	µA78M15CKC	µA78M15CKTP	µA78M15Y
	20	µA78M20CKC	µA78M20CKTP	µA78M20Y
	24	µA78M24CKC	µA78M24CKTP	µA78M24Y

The KTP package is only available taped and reeled. Add the suffix R to the device type (e.g., µA78M05CKTPR). Chip forms are tested at 25°C.

schematic



Resistor values shown are nominal.

absolute maximum ratings over operating temperature range (unless otherwise noted)†

		μA78Mxx	UNIT
Input voltage, V_I	μA78M20, μA78M24	40	V
	All others	35	
Package thermal impedance, θ_{JA} (see Notes 1 and 2)	KC package	22	°C
	KTP package	28	
Virtual junction temperature range, T_J		0 to 150	°C
Lead temperature 1,6 mm (1/16 inch) from case for 10 seconds		260	°C
Storage temperature range, T_{stg}		–65 to 150	°C

† Stresses beyond those listed under “absolute maximum ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under “recommended operating conditions” is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

NOTES: 1. Maximum power dissipation is a function of T_J(max), θ_{JA}, and T_A. The maximum allowable power dissipation at any allowable ambient temperature is $P_D = (T_J(max) – T_A)/\theta_{JA}$. Operating at the absolute maximum T_J of 150°C can impact reliability. Due to variations in individual device electrical characteristics and thermal resistance, the built-in thermal-overload protection may be activated at power levels slightly above or below the rated dissipation.

2. The package thermal impedance is calculated in accordance with JESD 51, except for through-hole packages, which use a trace length of zero.

recommended operating conditions

		MIN	MAX	UNIT
Input voltage, V_I	μA78M05	7	25	V
	μA78M06	8	25	
	μA78M08	10.5	25	
	μA78M09	11.5	26	
	μA78M10	12.5	28	
	μA78M12	14.5	30	
	μA78M15	17.5	30	
	μA78M20	23	35	
	μA78M24	27	38	
Output current, I_O			500	mA
Operating virtual junction temperature, T_J		0	125	°C

electrical characteristics at specified virtual junction temperature, V_I = 10 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		μA78M05C MIN	μA78M05C TYP	μA78M05C MAX	UNIT
Output voltage	V_I = 7 V to 20 V		4.8	5	5.2	V
		T_J = 0°C to 125°C	4.75		5.25	
Input voltage regulation	I_O = 200 mA	V_I = 7 V to 25 V		3	100	mV
		V_I = 8 V to 20 V				
		V_I = 8 V to 25 V		1	50	
Ripple rejection	V_I = 8 V to 18 V, f = 120 Hz	I_O = 100 mA, T_J = 0°C to 125°C	62			dB
		I_O = 300 mA	62	80		
Output voltage regulation	I_O = 5 mA to 500 mA			20	100	mV
	I_O = 5 mA to 200 mA			10	50	
Temperature coefficient of output voltage	I_O = 5 mA,	T_J = 0°C to 125°C		–1		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz			40	200	μV
Dropout voltage				2		V
Bias current				4.5	6	mA
Bias current change	I_O = 200 mA,	V_I = 8 V to 25 V, T_J = 0°C to 125°C			0.8	mA
	I_O = 5 mA to 350 mA	T_J = 0°C to 125°C			0.5	
Short-circuit output current	V_I = 35 V			300		mA
Peak output current				0.7		A

† All characteristics are measured with a 0.33-μF capacitor across the input and a 0.1-μF capacitor across the output. Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately.

electrical characteristics at specified virtual junction temperature, V_I = 11 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†			μA78M06C MIN	μA78M06C TYP	μA78M06C MAX	UNIT
Output voltage	I_O = 5 mA to 350 mA,	V_I = 8 V to 21 V		5.75	6	6.25	V
			T_J = 0°C to 125°C	5.7		6.3	
Input voltage regulation	I_O = 200 mA	V_I = 8 V to 25 V			5	100	mV
		V_I = 9 V to 25 V			1.5	50	
Ripple rejection	V_I = 9 V to 19 V,	f = 120 Hz	I_O = 100 mA, T_J = 0°C to 125°C	59			dB
			I_O = 300 mA	59	80		
Output voltage regulation	I_O = 5 mA to 500 mA				20	120	mV
	I_O = 5 mA to 200 mA				10	60	
Temperature coefficient of output voltage	I_O = 5 mA,	T_J = 0°C to 125°C			–1		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz				45		μV
Dropout voltage					2		V
Bias current					4.5	6	mA
Bias current change	V_I = 9 V to 25 V,	I_O = 200 mA,	T_J = 0°C to 125°C			0.8	mA
	I_O = 5 mA to 350 mA,	T_J = 0°C to 125°C				0.5	
Short-circuit output current	V_I = 35 V				270		mA
Peak output current					0.7		A

† All characteristics are measured with a 0.33-μF capacitor across the input and a 0.1-μF capacitor across the output. Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately.

electrical characteristics at specified virtual junction temperature, V_I = 14 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†			µA78M08C MIN	TYP	MAX	UNIT
Output voltage	V_I = 10.5 V to 23 V,	I_O = 5 mA to 350 mA		7.7	8	8.3	V
			T_J = 0°C to 125°C	7.6		8.4	
Input voltage regulation	I_O = 200 mA	V_I = 10.5 V to 25 V			6	100	mV
		V_I = 11 V to 25 V			2	50	
Ripple rejection	V_I = 11.5 V to 21.5 V, f = 120 Hz	I_O = 100 mA,	T_J = 0°C to 125°C	56			dB
		I_O = 300 mA		56	80		
Output voltage regulation	I_O = 5 mA to 500 mA				25	160	mV
	I_O = 5 mA to 200 mA				10	80	
Temperature coefficient of output voltage	I_O = 5 mA,	T_J = 0°C to 125°C			–1		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz				52		µV
Dropout voltage					2		V
Bias current					4.6	6	mA
Bias current change	V_I = 10.5 V to 25 V,	I_O = 200 mA,	T_J = 0°C to 125°C			0.8	mA
	I_O = 5 mA to 350 mA,	T_J = 0°C to 125°C				0.5	
Short-circuit output current	V_I = 35 V				250		mA
Peak output current					0.7		A

† All characteristics are measured with a 0.33-µF capacitor across the input and a 0.1-µF capacitor across the output. Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately.

electrical characteristics at specified virtual junction temperature, V_I = 16 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†			µA78M09C MIN	TYP	MAX	UNIT
Output voltage	V_I = 11.5 V to 24 V,	I_O = 5 mA to 350 mA		8.6	9	9.4	V
			T_J = 0°C to 125°C	8.5		9.5	
Input voltage regulation	I_O = 200 mA	V_I = 11.5 V to 26 V			6	100	mV
		V_I = 12 V to 26 V			2	50	
Ripple rejection	V_I = 13 V to 23 V, f = 120 Hz	I_O = 100 mA,	T_J = 0°C to 125°C	56			dB
		I_O = 300 mA		56	80		
Output voltage regulation	I_O = 5 mA to 500 mA				25	180	mV
	I_O = 5 mA to 200 mA				10	90	
Temperature coefficient of output voltage	I_O = 5 mA,	T_J = 0°C to 125°C			–1		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz				58		µV
Dropout voltage					2		V
Bias current					4.6	6	mA
Bias current change	V_I = 11.5 V to 26 V,	I_O = 200 mA,	T_J = 0°C to 125°C			0.8	mA
	I_O = 5 mA to 350 mA,	T_J = 0°C to 125°C				0.5	
Short-circuit output current	V_I = 35 V				250		mA
Peak output current					0.7		A

† All characteristics are measured with a 0.33-µF capacitor across the input and a 0.1-µF capacitor across the output. Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately.

electrical characteristics at specified virtual junction temperature, V_I = 17 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†			μA78M10C MIN	TYP	MAX	UNIT
Output voltage	V_I = 12.5 V to 25 V,	I_O = 5 mA to 350 mA		9.6	10	10.4	V
			T_J = 0°C to 125°C	9.5		10.5	
Input voltage regulation	I_O = 200 mA	V_I = 12.5 V to 28 V			7	100	mV
		V_I = 14 V to 28 V			2	50	
Ripple rejection	V_I = 15 V to 25 V, f = 120 Hz	I_O = 100 mA,	T_J = 0°C to 125°C	59			dB
		I_O = 300 mA		55	80		
Output voltage regulation	I_O = 5 mA to 500 mA				25	200	mV
	I_O = 5 mA to 200 mA				10	100	
Temperature coefficient of output voltage	I_O = 5 mA,	T_J = 0°C to 125°C			–1		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz				64		μV
Dropout voltage					2		V
Bias current					4.7	6	mA
Bias current change	V_I = 12.5 V to 28 V,	I_O = 200 mA,	T_J = 0°C to 125°C			0.8	mA
	I_O = 5 mA to 350 mA,	T_J = 0°C to 125°C				0.5	
Short-circuit output current	V_I = 35 V				245		mA
Peak output current					0.7		A

† All characteristics are measured with a 0.33-μF capacitor across the input and a 0.1-μF capacitor across the output. Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately.

electrical characteristics at specified virtual junction temperature, V_I = 19 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†			μA78M12C MIN	TYP	MAX	UNIT
Output voltage	V_I = 14.5 V to 27 V,	I_O = 5 mA to 350 mA		11.5	12	12.5	V
			T_J = 0°C to 125°C	11.4		12.6	
Input voltage regulation	I_O = 200 mA	V_I = 14.5 V to 30 V			8	100	mV
		V_I = 16 V to 30 V			2	50	
Ripple rejection	V_I = 15 V to 25 V, f = 120 Hz	I_O = 100 mA,	T_J = 0°C to 125°C	55			dB
		I_O = 300 mA		55	80		
Output voltage regulation	I_O = 5 mA to 500 mA				25	240	mV
	I_O = 5 mA to 200 mA				10	120	
Temperature coefficient of output voltage	I_O = 5 mA				–1		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz				75		μV
Dropout voltage					2		V
Bias current					4.8	6	mA
Bias current change	V_I = 14.5 V to 30 V,	I_O = 200 mA,	T_J = 0°C to 125°C			0.8	mA
	I_O = 5 mA to 350 mA,	T_J = 0°C to 125°C				0.5	
Short-circuit output current	V_I = 35 V				240		mA
Peak output current					0.7		A

† All characteristics are measured with a 0.33-μF capacitor across the input and a 0.1-μF capacitor across the output. Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately.

electrical characteristics at specified virtual junction temperature, V_I = 23 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†			µA78M15C MIN	µA78M15C TYP	µA78M15C MAX	UNIT
Output voltage	V_I = 17.5 V to 30 V,	I_O = 5 mA to 350 mA		14.4	15	15.6	V
			T_J = 0°C to 125°C	14.25		15.75	
Input voltage regulation	I_O = 200 mA	V_I = 17.5 V to 30 V			10	100	mV
		V_I = 20 V to 30 V			3	50	
Ripple rejection	V_I = 18.5 V to 28.5 V, f = 120 Hz	I_O = 100 mA,	T_J = 0°C to 125°C	54			dB
		I_O = 300 mA		54	70		
Output voltage regulation	I_O = 5 mA to 500 mA				25	300	mV
	I_O = 5 mA to 200 mA				10	150	
Temperature coefficient of output voltage	I_O = 5 mA,	T_J = 0°C to 125°C			–1		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz				90		µV
Dropout voltage					2		V
Bias current					4.8	6	mA
Bias current change	V_I = 17.5 V to 30 V,	I_O = 200 mA,	T_J = 0°C to 125°C			0.8	mA
	I_O = 5 mA to 350 mA,	T_J = 0°C to 125°C				0.5	
Short-circuit output current	V_I = 35 V				240		mA
Peak output current					0.7		A

† All characteristics are measured with a 0.33-µF capacitor across the input and a 0.1-µF capacitor across the output. Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately.

electrical characteristics at specified virtual junction temperature, V_I = 29 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†			µA78M20C MIN	µA78M20C TYP	µA78M20C MAX	UNIT
Output voltage	V_I = 23 V to 35 V,	I_O = 5 mA to 350 mA		19.2	20	20.8	V
			T_J = 0°C to 125°C	19		21	
Input voltage regulation	I_O = 200 mA	V_I = 23 V to 35 V			10	100	mV
		V_I = 24 V to 35 V			5	50	
Ripple rejection	V_I = 24 V to 34 V, f = 120 Hz	I_O = 100 mA,	T_J = 0°C to 125°C	53			dB
		I_O = 300 mA		53	70		
Output voltage regulation	I_O = 5 mA to 500 mA				30	400	mV
	I_O = 5 mA to 200 mA				10	200	
Temperature coefficient of output voltage	I_O = 5 mA,	T_J = 0°C to 125°C			–1.1		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz				110		µV
Dropout voltage					2		V
Bias current					4.9	6	mA
Bias current change	V_I = 23 V to 35 V,	I_O = 200 mA,	T_J = 0°C to 125°C			0.8	mA
	I_O = 5 mA to 350 mA,	T_J = 0°C to 125°C				0.5	
Short-circuit output current	V_I = 35 V				240		mA
Peak output current					0.7		A

† All characteristics are measured with a 0.33-µF capacitor across the input and a 0.1-µF capacitor across the output. Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately.

electrical characteristics at specified virtual junction temperature, V_I = 33 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		µA78M24C MIN	µA78M24C TYP	µA78M24C MAX	UNIT
Output voltage	V_I = 27 V to 38 V, I_O = 5 mA to 350 mA		23	24	25	V
		T_J = 0°C to 125°C	22.8		25.2	
Input voltage regulation	I_O = 200 mA	V_I = 27 V to 38 V		10	100	mV
		V_I = 28 V to 38 V		5	50	
Ripple rejection	V_I = 28 V to 38 V, f = 120 Hz	I_O = 100 mA, T_J = 0°C to 125°C	50			dB
		I_O = 300 mA	50	70		
Output voltage regulation	I_O = 5 mA to 500 mA			30	480	mV
	I_O = 5 mA to 200 mA			10	240	
Temperature coefficient of output voltage	I_O = 5 mA, T_J = 0°C to 125°C			–1.2		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz			170		µV
Dropout voltage				2		V
Bias current				5	6	mA
Bias current change	V_I = 27 V to 38 V, I_O = 200 mA, T_J = 0°C to 125°C				0.8	mA
	I_O = 5 mA to 350 mA, T_J = 0°C to 125°C				0.5	
Short-circuit output current	V_I = 35 V			240		mA
Peak output current				0.7		A

† All characteristics are measured with a 0.33-µF capacitor across the input and a 0.1-µF capacitor across the output. Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately.

electrical characteristics at specified virtual junction temperature, V_I = 10 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		µA78M05Y MIN	µA78M05Y TYP	µA78M05Y MAX	UNIT
Output voltage				5		V
Input voltage regulation	I_O = 200 mA	V_I = 7 V to 25 V		3		mV
		V_I = 8 V to 25 V		1		
Ripple rejection	V_I = 8 V to 18 V, I_O = 300 mA, f = 120 Hz			80		dB
Output voltage regulation	I_O = 5 mA to 500 mA			20		mV
	I_O = 5 mA to 200 mA			10		
Temperature coefficient of output voltage	I_O = 5 mA			–1		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz			40		µV
Dropout voltage				2		V
Bias current				4.5		mA
Short-circuit output current	V_I = 35 V			300		mA
Peak output current				0.7		A

† All characteristics are measured with a 0.33-µF capacitor across the input and a 0.1-µF capacitor across the output. Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately.

electrical characteristics at specified virtual junction temperature, V_I = 11 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		μA78M06Y MIN	TYP	MAX	UNIT
Output voltage				6		V
Input voltage regulation	I_O = 200 mA	V_I = 8 V to 25 V		5		mV
		V_I = 9 V to 25 V		1.5		
Ripple rejection	V_I = 9 V to 19 V, I_O = 300 mA, f = 120 Hz			80		dB
Output voltage regulation	I_O = 5 mA to 500 mA			20		mV
	I_O = 5 mA to 200 mA			10		
Temperature coefficient of output voltage	I_O = 5 mA			–1		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz			45		μV
Dropout voltage				2		V
Bias current				4.5		mA
Short-circuit output current	V_I = 35 V			270		mA
Peak output current				0.7		A

† All characteristics are measured with a 0.33-μF capacitor across the input and a 0.1-μF capacitor across the output. Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately.

electrical characteristics at specified virtual junction temperature, V_I = 14 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		μA78M08Y MIN	TYP	MAX	UNIT
Output voltage				8		V
Input voltage regulation	I_O = 200 mA	V_I = 10.5 V to 25 V		6		mV
		V_I = 11 V to 25 V		2		
Ripple rejection	V_I = 11.5 V to 21.5 V, I_O = 300 mA, f = 120 Hz			80		dB
Output voltage regulation	I_O = 5 mA to 500 mA			25		mV
	I_O = 5 mA to 200 mA			10		
Temperature coefficient of output voltage	I_O = 5 mA			–1		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz			52		μV
Dropout voltage				2		V
Bias current				4.6		mA
Short-circuit output current	V_I = 35 V			250		mA
Peak output current				0.7		A

† All characteristics are measured with a 0.33-μF capacitor across the input and a 0.1-μF capacitor across the output. Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately.

electrical characteristics at specified virtual junction temperature, V_I = 16 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		μA78M09Y MIN	TYP	MAX	UNIT
Output voltage				9		V
Input voltage regulation	I_O = 200 mA	V_I = 11.5 V to 26 V		6		mV
		V_I = 12 V to 26 V		2		
Ripple rejection	V_I = 13 V to 23 V, I_O = 300 mA, f = 120 Hz			80		dB
Output voltage regulation	I_O = 5 mA to 500 mA			25		mV
	I_O = 5 mA to 200 mA			10		
Temperature coefficient of output voltage	I_O = 5 mA, T_J = 0°C to 125°C			–1		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz			58		μV
Dropout voltage				2		V
Bias current				4.6		mA
Short-circuit output current	V_I = 35 V			250		mA
Peak output current				0.7		A

† All characteristics are measured with a 0.33-μF capacitor across the input and a 0.1-μF capacitor across the output. Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately.

electrical characteristics at specified virtual junction temperature, V_I = 17 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		μA78M10Y MIN	TYP	MAX	UNIT
Output voltage				10		V
Input voltage regulation	I_O = 200 mA	V_I = 12.5 V to 28 V		7		mV
		V_I = 14 V to 28 V		2		
Ripple rejection	V_I = 15 V to 25 V, I_O = 300 mA, f = 120 Hz			80		dB
Output voltage regulation	I_O = 5 mA to 500 mA			25		mV
	I_O = 5 mA to 200 mA			10		
Temperature coefficient of output voltage	I_O = 5 mA			–1		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz			64		μV
Dropout voltage				2		V
Bias current				4.7		mA
Short-circuit output current	V_I = 35 V			245		mA
Peak output current				0.7		A

† All characteristics are measured with a 0.33-μF capacitor across the input and a 0.1-μF capacitor across the output. Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately.

electrical characteristics at specified virtual junction temperature, V_I = 19 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		µA78M12Y MIN	TYP	MAX	UNIT
Output voltage				12		V
Input voltage regulation	I_O = 200 mA	V_I = 14.5 V to 30 V		8		mV
		V_I = 16 V to 30 V		2		
Ripple rejection	V_I = 15 V to 25 V, I_O = 300 mA, f = 120 Hz			80		dB
Output voltage regulation	I_O = 5 mA to 500 mA			25		mV
	I_O = 5 mA to 200 mA			10		
Temperature coefficient of output voltage	I_O = 5 mA			–1		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz			75		µV
Dropout voltage				2		V
Bias current				4.8		mA
Short-circuit output current	V_I = 35 V			240		mA
Peak output current				0.7		A

† All characteristics are measured with a 0.33-µF capacitor across the input and a 0.1-µF capacitor across the output. Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately.

electrical characteristics at specified virtual junction temperature, V_I = 23 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		µA78M15C MIN	TYP	MAX	UNIT
Output voltage				15		V
Input voltage regulation	I_O = 200 mA	V_I = 17.5 V to 30 V		10		mV
		V_I = 20 V to 30 V		3		
Ripple rejection	V_I = 18.5 V to 28.5 V, I_O = 300 mA, f = 120 Hz			70		dB
Output voltage regulation	I_O = 5 mA to 500 mA			25		mV
	I_O = 5 mA to 200 mA			10		
Temperature coefficient of output voltage	I_O = 5 mA			–1		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz			90		µV
Dropout voltage				2		V
Bias current				4.8		mA
Short-circuit output current	V_I = 35 V			240		mA
Peak output current				0.7		A

† All characteristics are measured with a 0.33-µF capacitor across the input and a 0.1-µF capacitor across the output. Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately.

electrical characteristics at specified virtual junction temperature, V_I = 29 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		μA78M20C MIN	TYP	MAX	UNIT
Output voltage				20		V
Input voltage regulation	I_O = 200 mA	V_I = 23 V to 35 V		10		mV
		V_I = 24 V to 35 V		5		
Ripple rejection	V_I = 24 V to 34 V, f = 120 Hz, I_O = 300 mA			70		dB
Output voltage regulation	I_O = 5 mA to 500 mA			30		mV
	I_O = 5 mA to 200 mA			10		
Temperature coefficient of output voltage	I_O = 5 mA			–1.1		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz			110		μV
Dropout voltage				2		V
Bias current				4.9		mA
Short-circuit output current	V_I = 35 V			240		mA
Peak output current				0.7		A

† All characteristics are measured with a 0.33-μF capacitor across the input and a 0.1-μF capacitor across the output. Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately.

electrical characteristics at specified virtual junction temperature, V_I = 33 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		μA78M24Y MIN	TYP	MAX	UNIT
Output voltage				24		V
Input voltage regulation	I_O = 200 mA	V_I = 27 V to 38 V		10		mV
		V_I = 28 V to 38 V		5		
Ripple rejection	V_I = 28 V to 38 V, I_O = 300 mA, f = 120 Hz			70		dB
Output voltage regulation	I_O = 5 mA to 500 mA			30		mV
	I_O = 5 mA to 200 mA			10		
Temperature coefficient of output voltage	I_O = 5 mA			–1.2		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz			170		μV
Dropout voltage				2		V
Bias current				5		mA
Short-circuit output current	V_I = 35 V			240		mA
Peak output current				0.7		A

† All characteristics are measured with a 0.33-μF capacitor across the input and a 0.1-μF capacitor across the output. Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately.

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