Rochester Electronics

Datasheet

Rochester Electronics Manufactured Components

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All recreations are done with the approval of the OCM.

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceed the OCM data sheet.

Quality Overview

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-35835
    - Class Q Military
    - Class V Space Level
- Qualified Suppliers List of Distributors (QSLD)

- Rochester is a critical supplier to DLA and meets all industry and DLA standards.

Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OEM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.

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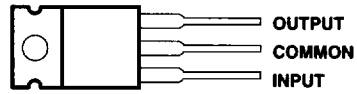
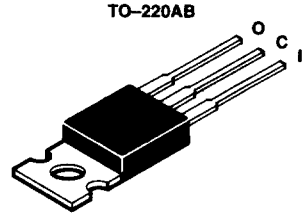
- **3-Terminal Regulators**
- **Output Current Up to 500 mA**
- **No External Components**
- **Internal Thermal Overload Protection**
- **High Power Dissipation Capability**
- **Internal Short-Circuit Current Limiting**
- **Output Transistor Safe-Area Compensation**
- **Direct Replacements for Fairchild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

KC PACKAGE
(TOP VIEW)

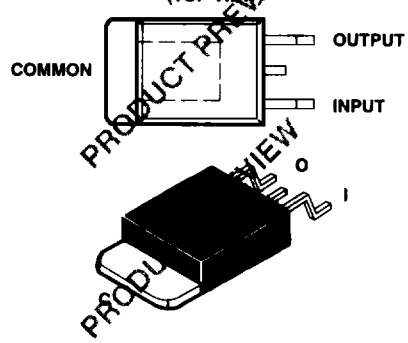


The common terminal is in electrical contact with the mounting base.

TO-220AB



KTP PACKAGE
(TOP VIEW)



description

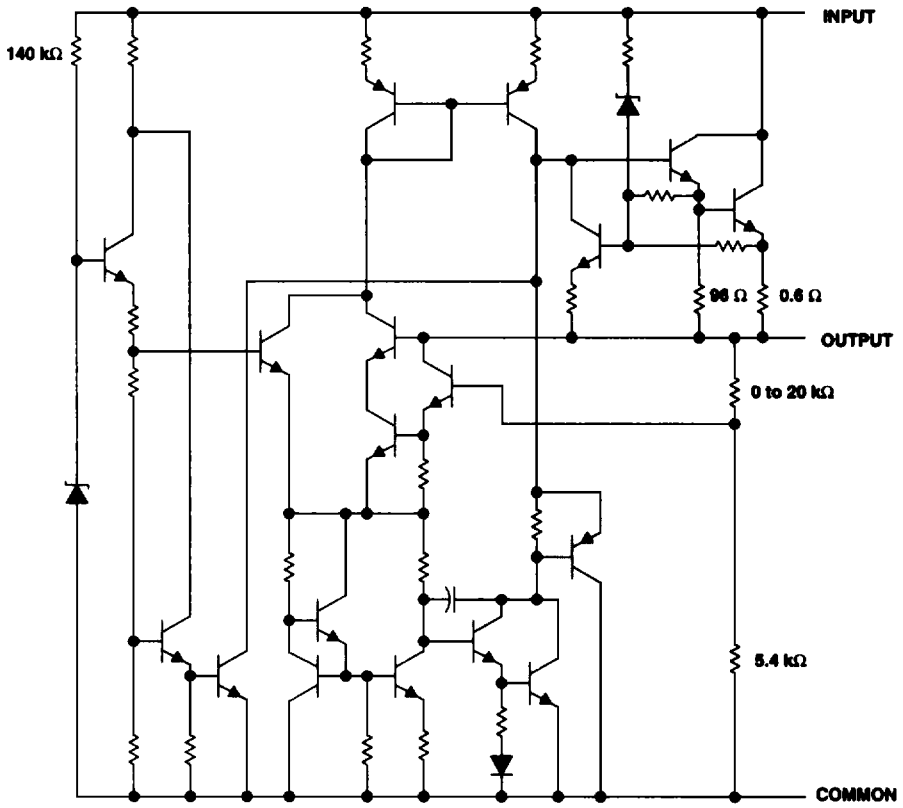
This series of fixed-voltage monolithic integrated-circuit voltage regulators is designed for a wide range of applications. These applications include on-card regulation for elimination of noise and distribution problems associated with single-point regulation. Each of these regulators can deliver up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

AVAILABLE OPTIONS

T_A	$V_{O(nom)}$ (V)	PACKAGED DEVICES		CHIP FORM (Y)
		HEAT-SINK MOUNTED (KC)	HEAT-SINK 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 in tape and reel.

schematic



Resistor values shown are nominal.

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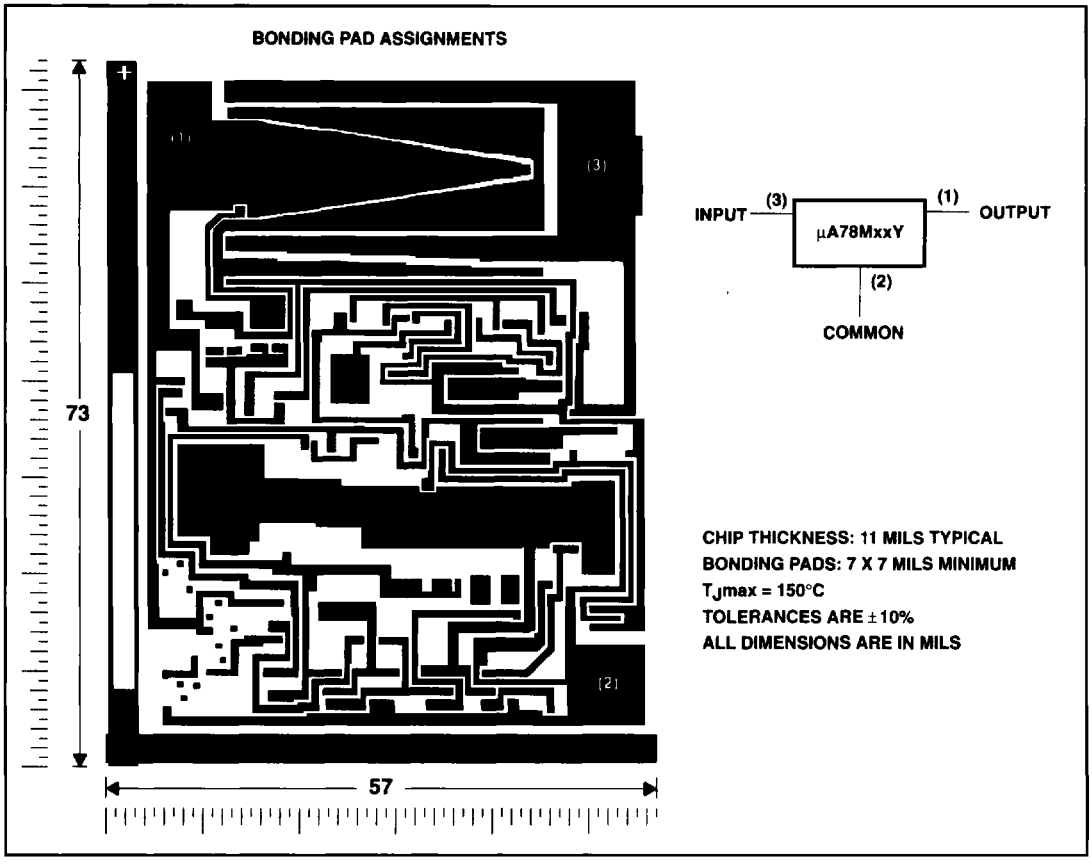
μA78MxxY chip information

This chip, when properly assembled, displays characteristics similar to the μA78MxxC. Thermal compression or ultrasonic bonding can be used on the doped aluminum bonding pads. The chip can be mounted with conductive epoxy or a gold-silicon preform.



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

		μA78Mxx	UNIT
Input voltage, V_I	μA78M20, μA78M24	−40	V
	All others	35	
Continuous total power dissipation (see Note 1)		See Dissipation Rating Tables 1 and 2	
Operating free-air (T_A), case (T_C), or virtual junction (T_J) temperature range		0 to 150	°C
Storage temperature range, T_{stg}		−65 to 150	°C
Lead temperature 1,6 mm (1/16 inch) from case for 10 seconds		260	°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.

NOTE 1: To avoid exceeding the design maximum virtual junction temperature, these ratings should not be exceeded. 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.

DISSIPATION RATING TABLE 1 – FREE-AIR TEMPERATURE

PACKAGE	$T_A \le 25°C$ POWER RATING	DERATING FACTOR ABOVE $T_A = 25°C$	$T_A = 70°C$ POWER RATING
KC	2000 mW	16 mW/°C	1280 mW
KTP†			

† The KTP package is product preview only and derating information is not yet available.

DISSIPATION RATING TABLE 2 – CASE TEMPERATURE

PACKAGE	$T_C \le 50°C$ POWER RATING	DERATING FACTOR ABOVE $T_C = 50°C$	$T_C = 125°C$ POWER RATING
KC	20 W	200 mW/°C	5 W
KTP†			

† The KTP package is product preview only and derating information is not yet available.

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‡			4.8	5	5.2	V
	V_I = 7 V to 20 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	2.5	V
Bias current				4.5	6	mA
Bias current change	I_O = 200 mA, T_J = 0°C to 125°C	V_I = 8 V to 25 V,			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.
‡ This specification applies only for dc power dissipation permitted by absolute maximum ratings.

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‡			5.75	6	6.25	V
	I_O = 5 mA to 350 mA, V_I = 8 V to 21 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.
‡ This specification applies only for dc power dissipation permitted by absolute maximum ratings.

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			UNIT
			MIN	TYP	MAX	
Output voltage‡			7.7	8	8.3	V
	V_I = 10.5 V to 23 V, I_O = 5 mA to 350 mA, 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.
‡ This specification applies only for dc power dissipation permitted by absolute maximum ratings.

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			UNIT
			MIN	TYP	MAX	
Output voltage‡			8.6	9	9.4	V
	V_I = 11.5 V to 24 V, I_O = 5 mA to 350 mA, 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.
‡ This specification applies only for dc power dissipation permitted by absolute maximum ratings.

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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			UNIT
			MIN	TYP	MAX	
Output voltage‡			9.6	10	10.4	V
	V_I = 12.5 V to 25 V, I_O = 5 mA to 350 mA, 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.
‡ This specification applies only for dc power dissipation permitted by absolute maximum ratings.

electrical characteristics at specified virtual junction temperature, V_I = 9 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		μA78M12C			UNIT
			MIN	TYP	MAX	
Output voltage‡			11.5	12	12.5	V
	V_I = 14.5 V to 27 V, I_O = 5 mA to 350 mA, 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.
‡ This specification applies only for dc power dissipation permitted by absolute maximum ratings.

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			UNIT
			MIN	TYP	MAX	
Output voltage‡			14.4	15	15.6	V
	V_I = 17.5 V to 30 V, I_O = 5 mA to 350 mA, 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.
‡ This specification applies only for dc power dissipation permitted by absolute maximum ratings.

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			UNIT
			MIN	TYP	MAX	
Output voltage‡			19.2	20	20.8	V
	V_I = 23 V to 35 V, I_O = 5 mA to 350 mA, 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.
‡ This specification applies only for dc power dissipation permitted by absolute maximum ratings.

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			UNIT
			MIN	TYP	MAX	
Output voltage‡			23	24	25	V
	V_I = 27 V to 38 V, I_O = 5 mA to 350 mA, 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.

‡ This specification applies only for dc power dissipation permitted by absolute maximum ratings.

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			UNIT
			MIN	TYP	MAX	
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.
‡ This specification applies only for dc power dissipation permitted by absolute maximum ratings.

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			UNIT
			MIN	TYP	MAX	
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.
‡ This specification applies only for dc power dissipation permitted by absolute maximum ratings.

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			UNIT
			MIN	TYP	MAX	
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.
‡ This specification applies only for dc power dissipation permitted by absolute maximum ratings.

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			UNIT
			MIN	TYP	MAX	
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.
‡ This specification applies only for dc power dissipation permitted by absolute maximum ratings.

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			UNIT
			MIN	TYP	MAX	
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.
‡ This specification applies only for dc power dissipation permitted by absolute maximum ratings.

electrical characteristics at specified virtual junction temperature, V_I = 9 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		μA78M12Y			UNIT
			MIN	TYP	MAX	
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.
‡ This specification applies only for dc power dissipation permitted by absolute maximum ratings.

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			UNIT
			MIN	TYP	MAX	
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.
‡ This specification applies only for dc power dissipation permitted by absolute maximum ratings.

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			UNIT
			MIN	TYP	MAX	
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.
‡ This specification applies only for dc power dissipation permitted by absolute maximum ratings.

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			UNIT
			MIN	TYP	MAX	
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.

‡ This specification applies only for dc power dissipation permitted by absolute maximum ratings.