

μA79M00 SERIES NEGATIVE-VOLTAGE REGULATORS

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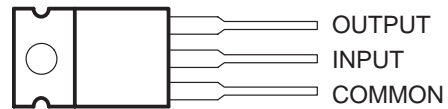
- 3-Terminal Regulators
- Output Current up to 500 mA
- No External Components
- High Power-Dissipation Capability
- Internal Short-Circuit Current Limiting
- Output Transistor Safe-Area Compensation
- Direct Replacements for Fairchild μA79M00 Series

description

This series of fixed-negative-voltage monolithic integrated-circuit voltage regulators is designed to complement the μA78M00 series in 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 delivers 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.

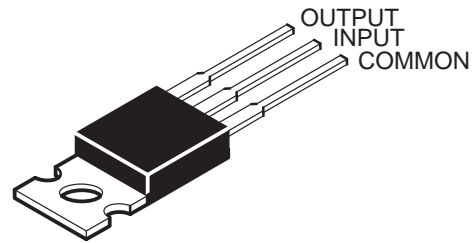
The μA79M00C series is characterized for operation over the virtual junction temperature range of 0°C to 125°C.

KC PACKAGE
(TOP VIEW)

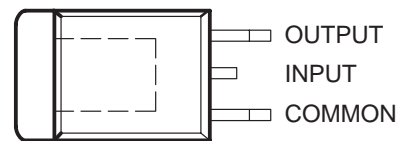


The INPUT terminal is in electrical contact with the mounting base.

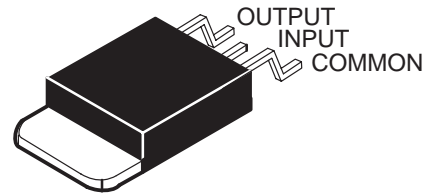
TO-220AB



KTP PACKAGE
(TOP VIEW)



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



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	μA79M05CKC	μA79M05CKTP	μA79M05Y
	-6	—	μA79M06CKTP	μA79M06Y
	-8	—	μA79M08CKTP	μA79M08Y
	-12	—	μA79M12CKTP	μA79M12Y
	-15	—	μA79M15CKTP	μA79M15Y
	-20	—	μA79M20CKTP	μA79M20Y
	-24	—	μA79M24CKTP	μA79M24Y

The KTP package also is available in tape and reel. Add the suffix R to device type (e.g., μA79M05CKTPR). Chip forms are tested at 25°C.



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

**TEXAS
INSTRUMENTS**

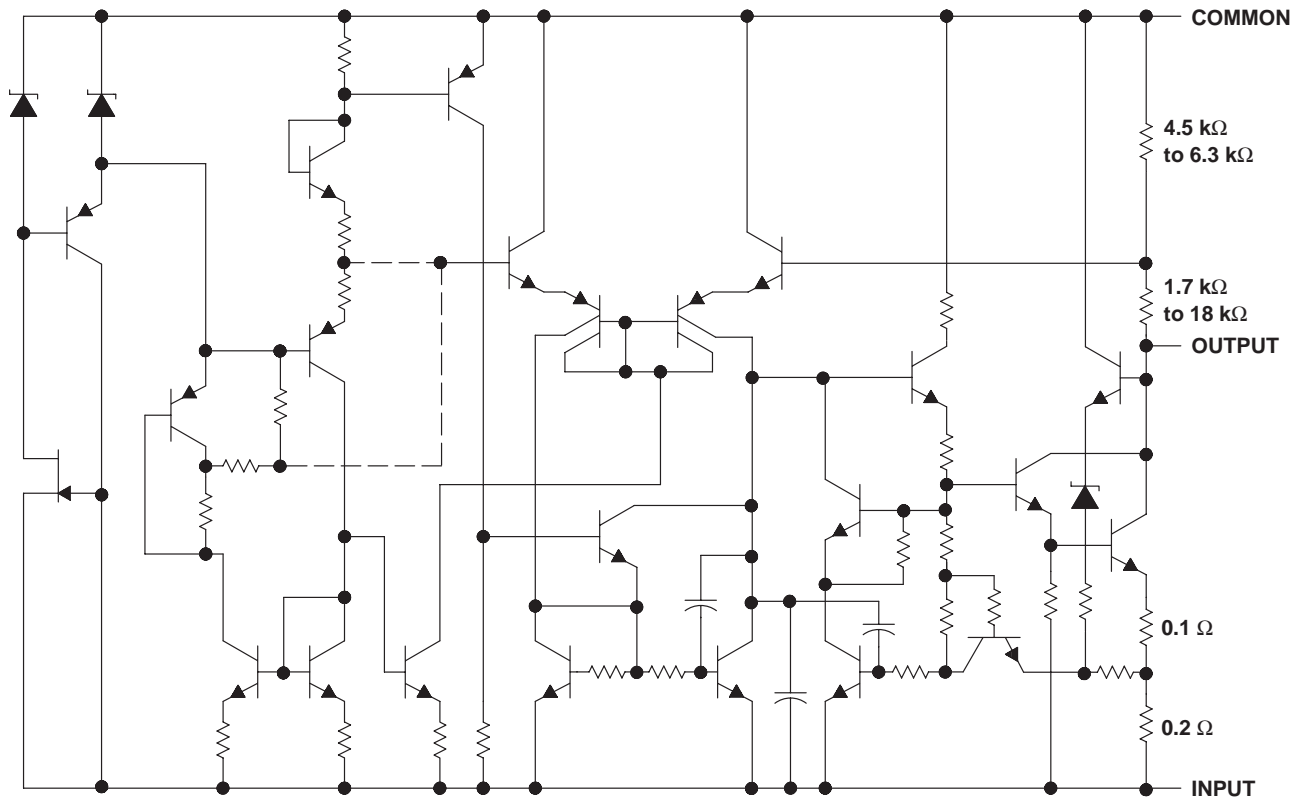
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schematic



Resistor values shown are nominal.

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

		μA79MxxC	UNIT
Input voltage	μA79M20C, μA79M24C	-40	V
	All others	-35	
Package thermal impedance, θ_{JA} (see Notes 1 and 2)	KC package	22	°C/W
	KTP package	28	
Operating free-air, T_A ; case, T_C ; or virtual junction, T_J , temperature range		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 affect 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.

recommended operating conditions

		MIN	MAX	UNIT
Input voltage, V_I	μA79M05C	-7	-25	V
	μA79M06C	-8	-25	
	μA79M08C	-10.5	-25	
	μA79M12C	-14.5	30	
	μA79M15C	-17.5	-30	
	μA79M20C	-23	-35	
	μA79M24C	-27	-38	
Output current, I_O		500		mA
Operating virtual junction temperature, T_J		0	125	°C



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electrical characteristics at specified virtual junction temperature, $V_I = -10\text{ V}$, $I_O = 350\text{ mA}$, $T_J = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITION†	μA79M05C			UNIT
		MIN	TYP	MAX	
Output voltage	$V_I = -7\text{ V to } -25\text{ V}$, $I_O = 5\text{ mA to } 350\text{ mA}$ $T_J = 0^\circ\text{C to } 125^\circ\text{C}$	-4.8	-5	-5.2	V
		-4.75		-5.25	
Input voltage regulation	$V_I = -7\text{ V to } -25\text{ V}$		7	50	mV
	$V_I = -8\text{ V to } -18\text{ V}$		3	30	
Ripple rejection	$V_I = -8\text{ V to } -18\text{ V}$, $f = 120\text{ Hz}$ $I_O = 100\text{ mA}$, $I_O = 300\text{ mA}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$	50			dB
		54	60		
Output voltage regulation	$I_O = 5\text{ mA to } 500\text{ mA}$		75	100	mV
	$I_O = 5\text{ mA to } 350\text{ mA}$		50		
Temperature coefficient of output voltage	$I_O = 5\text{ mA}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$		-0.4		mV/°C
Output noise voltage	$f = 10\text{ Hz to } 100\text{ kHz}$		125		μV
Dropout voltage			1.1		V
Bias current			1	2	mA
Bias current change	$V_I = -8\text{ V to } -18\text{ V}$, $I_O = 5\text{ mA to } 350\text{ mA}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$			0.4	mA
	$T_J = 0^\circ\text{C to } 125^\circ\text{C}$			0.4	
Short-circuit output current	$V_I = -30\text{ V}$		140		mA
Peak output current			0.65		A

† Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 2-μF capacitor across the input and a 1-μF capacitor across the output.

electrical characteristics at specified virtual junction temperature, $V_I = -11\text{ V}$, $I_O = 350\text{ mA}$, $T_J = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITION†	μA79M06C			UNIT
		MIN	TYP	MAX	
Output voltage	$V_I = -8\text{ V to } -25\text{ V}$, $I_O = 5\text{ mA to } 350\text{ mA}$ $T_J = 0^\circ\text{C to } 125^\circ\text{C}$	-5.75	-6	-6.25	V
		-5.7		-6.3	
Input voltage regulation	$V_I = -8\text{ V to } -25\text{ V}$		7	60	mV
	$V_I = -9\text{ V to } -19\text{ V}$		3	40	
Ripple rejection	$V_I = -9\text{ V to } -19\text{ V}$, $f = 120\text{ Hz}$ $I_O = 100\text{ mA}$, $I_O = 300\text{ mA}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$	50			dB
		54	60		
Output voltage regulation	$I_O = 5\text{ mA to } 500\text{ mA}$		80	120	mV
	$I_O = 5\text{ mA to } 350\text{ mA}$		55		
Temperature coefficient of output voltage	$I_O = 5\text{ mA}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$		-0.4		mV/°C
Output noise voltage	$f = 10\text{ Hz to } 100\text{ kHz}$		150		μV
Dropout voltage			1.1		V
Bias current			1	2	mA
Bias current change	$V_I = -9\text{ V to } -25\text{ V}$, $I_O = 5\text{ mA to } 350\text{ mA}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$			0.4	mA
	$T_J = 0^\circ\text{C to } 125^\circ\text{C}$			0.4	
Short-circuit output current	$V_I = -30\text{ V}$		140		mA
Peak output current			0.65		A

† Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 2-μF capacitor across the input and a 1-μF capacitor across the output.



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electrical characteristics at specified virtual junction temperature, $V_I = -19\text{ V}$, $I_O = 350\text{ mA}$, $T_J = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		μA79M08C			UNIT	
			MIN	TYP	MAX		
Output voltage	$V_I = -10.5\text{ V to }-25\text{ V}$, $I_O = 5\text{ mA to }350\text{ mA}$		-7.7	-8	-8.3	V	
		$T_J = 0^\circ\text{C to }125^\circ\text{C}$	-7.6		-8.4		
Input voltage regulation	$V_I = -10.5\text{ V to }-25\text{ V}$		8			mV	
	$V_I = -11\text{ V to }-21\text{ V}$		4				
Ripple rejection	$V_I = -11.5\text{ V to }-21.5\text{ V}$, $f = 120\text{ Hz}$	$I_O = 100\text{ mA}$, $T_J = 0^\circ\text{C to }125^\circ\text{C}$	50			dB	
		$I_O = 300\text{ mA}$	54	59			
Output voltage regulation	$I_O = 5\text{ mA to }500\text{ mA}$		90			mV	
	$I_O = 5\text{ mA to }350\text{ mA}$		60				
Temperature coefficient of output voltage	$I_O = 5\text{ mA}$,	$T_J = 0^\circ\text{C to }125^\circ\text{C}$	-0.6			mV/°C	
Output noise voltage	$f = 10\text{ Hz to }100\text{ kHz}$		200			μV	
Dropout voltage	$I_O = 5\text{ mA}$		1.1			V	
Bias current			1			2	mA
Bias current change	$V_I = -10.5\text{ V to }-25\text{ V}$, $T_J = 0^\circ\text{C to }125^\circ\text{C}$					0.4	mA
	$I_O = 5\text{ mA to }350\text{ mA}$, $T_J = 0^\circ\text{C to }125^\circ\text{C}$					0.4	
Short-circuit output current	$V_I = -30\text{ V}$		140			mA	
Peak output current			0.65			A	

† Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 2-μF capacitor across the input and a 1-μF capacitor across the output.

electrical characteristics at specified virtual junction temperature, $V_I = -19\text{ V}$, $I_O = 350\text{ mA}$, $T_J = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		μA79M12C			UNIT	
			MIN	TYP	MAX		
Output voltage	$V_I = -14.5\text{ V to }-30\text{ V}$, $I_O = 5\text{ mA to }350\text{ mA}$		-11.5	-12	-12.5	V	
		$T_J = 0^\circ\text{C to }125^\circ\text{C}$	-11.4		-12.6		
Input voltage regulation	$V_I = -14.5\text{ V to }-30\text{ V}$		9			mV	
	$V_I = -15\text{ V to }-25\text{ V}$		5				
Ripple rejection	$V_I = -15\text{ V to }-25\text{ V}$, $f = 120\text{ Hz}$	$I_O = 100\text{ mA}$, $T_J = 0^\circ\text{C to }125^\circ\text{C}$	50			dB	
		$I_O = 300\text{ mA}$	54	60			
Output voltage regulation	$I_O = 5\text{ mA to }500\text{ mA}$		65			mV	
	$I_O = 5\text{ mA to }350\text{ mA}$		45				
Temperature coefficient of output voltage	$I_O = 5\text{ mA}$,	$T_J = 0^\circ\text{C to }125^\circ\text{C}$	-0.8			mV/°C	
Output noise voltage	$f = 10\text{ Hz to }100\text{ kHz}$		300			μV	
Dropout voltage			1.1			V	
Bias current			1.5			3	mA
Bias current change	$V_I = -14.5\text{ V to }-30\text{ V}$, $T_J = 0^\circ\text{C to }125^\circ\text{C}$					0.4	mA
	$I_O = 5\text{ mA to }350\text{ mA}$, $T_J = 0^\circ\text{C to }125^\circ\text{C}$					0.4	
Short-circuit output current	$V_I = -30\text{ V}$		140			mA	
Peak output current			0.65			A	

† Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 2-μF capacitor across the input and a 1-μF capacitor across the output.



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electrical characteristics at specified virtual junction temperature, $V_I = -23\text{ V}$, $I_O = 350\text{ mA}$, $T_J = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITIONST	μA79M15C			UNIT	
		MIN	TYP	MAX		
Output voltage	$V_I = -17.5\text{ V to } -30\text{ V}$, $I_O = 5\text{ mA to } 350\text{ mA}$		-14.4	-15	-15.6	V
		$T_J = 0^\circ\text{C to } 125^\circ\text{C}$	-14.25		-15.75	
Input voltage regulation	$V_I = -17.5\text{ V to } -30\text{ V}$		9	80	mV	
	$V_I = -18\text{ V to } -28\text{ V}$		7	50		
Ripple rejection	$V_I = -18.5\text{ V to } -28.5\text{ V}$, $f = 120\text{ Hz}$	$I_O = 100\text{ mA}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$	50		dB	
		$I_O = 300\text{ mA}$	54	59		
Output voltage regulation	$I_O = 5\text{ mA to } 500\text{ mA}$		65	240	mV	
	$I_O = 5\text{ mA to } 350\text{ mA}$		45			
Temperature coefficient of output voltage	$I_O = 5\text{ mA}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$		-1		mV/°C	
Output noise voltage	$f = 10\text{ Hz to } 100\text{ kHz}$		375		μV	
Dropout voltage	$I_O = 5\text{ mA}$		1.1		V	
Bias current			1.5	3	mA	
Bias current change	$V_I = -17.5\text{ V to } -30\text{ V}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$			0.4	mA	
	$I_O = 5\text{ mA to } 350\text{ mA}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$			0.4		
Short-circuit output current	$V_I = -30\text{ V}$		140		mA	
Peak output current			0.65		A	

† Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 2-μF capacitor across the input and a 1-μF capacitor across the output.

electrical characteristics at specified virtual junction temperature, $V_I = -29\text{ V}$, $I_O = 350\text{ mA}$, $T_J = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITIONST	μA79M20C			UNIT	
		MIN	TYP	MAX		
Output voltage	$V_I = -23\text{ V to } -35\text{ V}$, $I_O = 5\text{ mA to } 350\text{ mA}$		-19.2	-20	-20.8	V
		$T_J = 0^\circ\text{C to } 125^\circ\text{C}$	-19		-21	
Input voltage regulation	$V_I = -23\text{ V to } -35\text{ V}$		12	80	mV	
	$V_I = -24\text{ V to } -34\text{ V}$		10	70		
Ripple rejection	$V_I = -24\text{ V to } -34\text{ V}$, $f = 120\text{ Hz}$	$I_O = 100\text{ mA}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$	50		dB	
		$I_O = 300\text{ mA}$	54	58		
Output voltage regulation	$I_O = 5\text{ mA to } 500\text{ mA}$		75	300	mV	
	$I_O = 5\text{ mA to } 350\text{ mA}$		50			
Temperature coefficient of output voltage	$I_O = 5\text{ mA}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$		-1		mV/°C	
Output noise voltage	$f = 10\text{ Hz to } 100\text{ kHz}$		500		μV	
Dropout voltage			1.1		V	
Bias current			1.5	3.5	mA	
Bias current change	$V_I = -23\text{ V to } -35\text{ V}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$			0.4	mA	
	$I_O = 5\text{ mA to } 350\text{ mA}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$			0.4		
Short-circuit output current	$V_I = -30\text{ V}$		140		mA	
Peak output current			0.65		A	

† Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 2-μF capacitor across the input and a 1-μF capacitor across the output.



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electrical characteristics at specified virtual junction temperature, $V_I = -33\text{ V}$, $I_O = 350\text{ mA}$, $T_J = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS†	μA79M24C			UNIT
		MIN	TYP	MAX	
Output voltage	$V_I = -27\text{ V to } -38\text{ V}$, $I_O = 5\text{ mA to } 350\text{ mA}$ $T_J = 0^\circ\text{C to } 125^\circ\text{C}$	-23	-24	-25	V
		-22.8		-25.2	
Input voltage regulation	$V_I = -27\text{ V to } -38\text{ V}$		12	80	mV
	$V_I = -28\text{ V to } -38\text{ V}$		12	70	
Ripple rejection	$V_I = -28\text{ V to } -38\text{ V}$, $f = 120\text{ Hz}$	$I_O = 100\text{ mA}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$	50		dB
		$I_O = 300\text{ mA}$	54	58	
Output voltage regulation	$I_O = 5\text{ mA to } 500\text{ mA}$		75	300	mV
	$I_O = 5\text{ mA to } 350\text{ mA}$		50		
Temperature coefficient of output voltage	$I_O = 5\text{ mA}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$		-1		mV/°C
Output noise voltage	$f = 10\text{ Hz to } 100\text{ kHz}$		600		μV
Dropout voltage			1.1		V
Bias current			1.5	3.5	mA
Bias current change	$V_I = -27\text{ V to } -38\text{ V}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$			0.4	mA
	$I_O = 5\text{ mA to } 350\text{ mA}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$			0.4	
Short-circuit output current	$V_I = -30\text{ V}$		140		mA
Peak output current			0.65		A

† Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 2-μF capacitor across the input and a 1-μF capacitor across the output.

electrical characteristics at specified virtual junction temperature, $V_I = -10\text{ V}$, $I_O = 350\text{ mA}$, $T_J = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITION†	μA79M05Y			UNIT
		MIN	TYP	MAX	
Output voltage			-5		V
Input voltage regulation	$V_I = -7\text{ V to } -25\text{ V}$		7		mV
	$V_I = -8\text{ V to } -18\text{ V}$		3		
Ripple rejection	$V_I = -8\text{ V to } -18\text{ V}$, $I_O = 300\text{ mA}$, $f = 120\text{ Hz}$		60		dB
Output voltage regulation	$I_O = 5\text{ mA to } 500\text{ mA}$		75		mV
	$I_O = 5\text{ mA to } 350\text{ mA}$		50		
Temperature coefficient of output voltage	$I_O = 5\text{ mA}$		-0.4		mV/°C
Output noise voltage	$f = 10\text{ Hz to } 100\text{ kHz}$		125		μV
Dropout voltage			1.1		V
Bias current			1		mA
Short-circuit output current	$V_I = -30\text{ V}$		140		mA
Peak output current			0.65		A

† Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 2-μF capacitor across the input and a 1-μF capacitor across the output.



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electrical characteristics at specified virtual junction temperature, $V_I = -11\text{ V}$, $I_O = 350\text{ mA}$, $T_J = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS†	μA79M06Y			UNIT
		MIN	TYP	MAX	
Output voltage			-6		V
Input voltage regulation	$V_I = -8\text{ V to }-25\text{ V}$		7		mV
	$V_I = -9\text{ V to }-19\text{ V}$		3		
Ripple rejection	$V_I = -9\text{ V to }-19\text{ V}$, $I_O = 300\text{ mA}$, $f = 120\text{ Hz}$		60		dB
Output voltage regulation	$I_O = 5\text{ mA to }500\text{ mA}$		80		mV
	$I_O = 5\text{ mA to }350\text{ mA}$		55		
Temperature coefficient of output voltage	$I_O = 5\text{ mA}$		-0.4		mV/°C
Output noise voltage	$f = 10\text{ Hz to }100\text{ kHz}$		150		μV
Dropout voltage			1.1		V
Bias current			1		mA
Short-circuit output current	$V_I = -30\text{ V}$		140		mA
Peak output current			0.65		A

† Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 2-μF capacitor across the input and a 1-μF capacitor across the output.

electrical characteristics at specified virtual junction temperature, $V_I = -19\text{ V}$, $I_O = 350\text{ mA}$, $T_J = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS†	μA79M08Y			UNIT
		MIN	TYP	MAX	
Output voltage			-8		V
Input voltage regulation	$V_I = -10.5\text{ V to }-25\text{ V}$		8		mV
	$V_I = -11\text{ V to }-21\text{ V}$		4		
Ripple rejection	$V_I = -11.5\text{ V to }-21.5\text{ V}$, $I_O = 300\text{ mA}$, $f = 120\text{ Hz}$		59		dB
Output voltage regulation	$I_O = 5\text{ mA to }500\text{ mA}$		90		mV
	$I_O = 5\text{ mA to }350\text{ mA}$		60		
Temperature coefficient of output voltage	$I_O = 5\text{ mA}$		-0.6		mV/°C
Output noise voltage	$f = 10\text{ Hz to }100\text{ kHz}$		200		μV
Dropout voltage	$I_O = 5\text{ mA}$		1.1		V
Bias current			1		mA
Short-circuit output current	$V_I = -30\text{ V}$		140		mA
Peak output current			0.65		A

† Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 2-μF capacitor across the input and a 1-μF capacitor across the output.



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electrical characteristics at specified virtual junction temperature, $V_I = -19\text{ V}$, $I_O = 350\text{ mA}$, $T_J = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITION†	μA79M12Y			UNIT
		MIN	TYP	MAX	
Output voltage			-12		V
Input voltage regulation	$V_I = -14.5\text{ V to }-30\text{ V}$		9		mV
	$V_I = -15\text{ V to }-25\text{ V}$		5		
Ripple rejection	$V_I = -15\text{ V to }-25\text{ V}$, $I_O = 300\text{ mA}$, $f = 120\text{ Hz}$		60		dB
Output voltage regulation	$I_O = 5\text{ mA to }500\text{ mA}$		65		mV
	$I_O = 5\text{ mA to }350\text{ mA}$		45		
Temperature coefficient of output voltage	$I_O = 5\text{ mA}$		-0.8		mV/°C
Output noise voltage	$f = 10\text{ Hz to }100\text{ kHz}$		300		μV
Dropout voltage			1.1		V
Bias current			1.5		mA
Short-circuit output current	$V_I = -30\text{ V}$		140		mA
Peak output current			0.65		A

† Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 2-μF capacitor across the input and a 1-μF capacitor across the output.

electrical characteristics at specified virtual junction temperature, $V_I = -23\text{ V}$, $I_O = 350\text{ mA}$, $T_J = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITION†	μA79M15Y			UNIT
		MIN	TYP	MAX	
Output voltage			-15		V
Input voltage regulation	$V_I = -17.5\text{ V to }-30\text{ V}$		9		mV
	$V_I = -18\text{ V to }-28\text{ V}$		7		
Ripple rejection	$V_I = -18.5\text{ V to }-28.5\text{ V}$, $I_O = 300\text{ mA}$, $f = 120\text{ Hz}$		59		dB
Output voltage regulation	$I_O = 5\text{ mA to }500\text{ mA}$		65		mV
	$I_O = 5\text{ mA to }350\text{ mA}$		45		
Temperature coefficient of output voltage	$I_O = 5\text{ mA}$		-1		mV/°C
Output noise voltage	$f = 10\text{ Hz to }100\text{ kHz}$		375		μV
Dropout voltage	$I_O = 5\text{ mA}$		1.1		V
Bias current			1.5		mA
Short-circuit output current	$V_I = -30\text{ V}$		140		mA
Peak output current			0.65		A

† Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 2-μF capacitor across the input and a 1-μF capacitor across the output.

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electrical characteristics at specified virtual junction temperature, $V_I = -29\text{ V}$, $I_O = 350\text{ mA}$, $T_J = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS†	μA79M20Y			UNIT
		MIN	TYP	MAX	
Output voltage			-20		V
Input voltage regulation	$V_I = -23\text{ V to } -35\text{ V}$		12		mV
	$V_I = -24\text{ V to } -34\text{ V}$		10		
Ripple rejection	$V_I = -24\text{ V to } -34\text{ V}$, $I_O = 300\text{ mA}$, $f = 120\text{ Hz}$		58		dB
Output voltage regulation	$I_O = 5\text{ mA to } 500\text{ mA}$		75		mV
	$I_O = 5\text{ mA to } 350\text{ mA}$		50		
Temperature coefficient of output voltage	$I_O = 5\text{ mA}$		-1		mV/°C
Output noise voltage	$f = 10\text{ Hz to } 100\text{ kHz}$		500		μV
Dropout voltage			1.1		V
Bias current			1.5		mA
Short-circuit output current	$V_I = -30\text{ V}$		140		mA
Peak output current			0.65		A

† Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 2-μF capacitor across the input and a 1-μF capacitor across the output.

electrical characteristics at specified virtual junction temperature, $V_I = -33\text{ V}$, $I_O = 350\text{ mA}$, $T_J = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS†	μA79M24Y			UNIT
		MIN	TYP	MAX	
Output voltage			-24		V
Input voltage regulation	$V_I = -27\text{ V to } -38\text{ V}$		12		mV
	$V_I = -28\text{ V to } -38\text{ V}$		12		
Ripple rejection	$V_I = -28\text{ V to } -38\text{ V}$, $I_O = 300\text{ mA}$, $f = 120\text{ Hz}$		58		dB
Output voltage regulation	$I_O = 5\text{ mA to } 500\text{ mA}$		75		mV
	$I_O = 5\text{ mA to } 350\text{ mA}$		50		
Temperature coefficient of output voltage	$I_O = 5\text{ mA}$, $T_J = 0^\circ\text{C to } 125^\circ\text{C}$		-1		mV/°C
Output noise voltage	$f = 10\text{ Hz to } 100\text{ kHz}$		600		μV
Dropout voltage			1.1		V
Bias current			1.5		mA
Short-circuit output current	$V_I = -30\text{ V}$		140		mA
Peak output current			0.65		A

† Pulse-testing techniques maintain T_J as close to T_A as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 2-μF capacitor across the input and a 1-μF capacitor across the output.



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