STEK

ET-79Lxxnd

Negative-Voltage Regulators

Series 79LXXnd

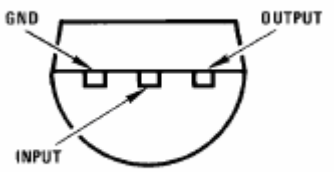
- **3-Terminal Regulators**
- **Output Current Up to 100mA**
- **No External Components**
- **Internal Thermal Overload Protection**
- **Internal Short-Circuit Limiting**
- **Direct Replacement for Motorola MC79L00 Series**

Nominal output voltage	Regulator	
-5V	79L05nd	КБ5009ЕН5-4/МВ
-6V	79L06nd	КБ5009ЕН6-4/МВ
-8V	79L08nd	КБ5009ЕН8-4/МВ
-9V	79L09nd	КБ5009ЕН9-4/МВ
-12V	79L12nd	КБ5009ЕН12-4/МВ
-15V	79L15nd	КБ5009ЕН15-4/МВ
-18V	79L18nd	КБ5009ЕН18-4/МВ
-24V	79L24nd	КБ5009ЕН24-4/МВ

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. In addition, they can be used with power-pass elements to make high-current voltage regulators. Each of these regulators can deliver up to 100mA of output current. The internal limiting and termal shutdown features of these regulators make them essentially immune to overload. When used as a replacement for a Zener diode-resistor combination , an effective improvement in output impedance can be obtained together with lower-bias current.

TO-92 Plastic Package



Absolute maximum ratings over operating temperature range (unless otherwise noted)

	79L05nd thru 79L09nd	79L12nd thru 79L18nd	79L24nd	UNIT
Input voltage	-30	-35	-40	V
Operating free-air, case, or virtual junction temperature range	0 to 150	0 to 150	0 to 150	^{0}C
Storage temperature range	-65 to 150	-65 to 150	-65 to 150	
Lead temperature 1.6 mm (1/16 inch) from case for 10 seconds	260	260	260	

Recommended operating conditions

Parameter		MIN	MAX	UNIT
Input voltage, V_I	79L05 nd	-7	-20	V
	79L06 nd	-8	-20	
	79L08 nd	-10.5	-23	
	79L09 nd	-12	-24	
	79L12 nd	-14.5	-27	
	79L15 nd	-17.5	-30	
	79L18 nd	-20.5	-33	
	79L24 nd	-27	-38	
Output current, Io			100	mA
Operating virtual junction temperature, T_J		0	125	^{0}C

79L05nd electrical characteristics at specified virtual junction temperature, V_I=-10V, I_O=40mA (unless otherwise noted)

PARAMETER	TEST CONDITIONS*		79L05nd			UNIT
			MIN	TYP	MAX	
Output voltage**		25°C	-4.8	-5	-5.2	V
	I_O=1mA to 40mA V_I=-7V to -20V	0 to 125 °C	-4.75	-5	-5.25	
	I_O=1mA to 70mA		-4.75	-5	-5.25	
Input regulation	V_I=-7V to -20V	25°C		15	150	mV
	V_I=-8V to -20V			12	100	
Ripple rejection	V_I=-8V to -18V, f=120Hz	25°C	41	49		dB
Output regulation	I_O=1mA to 100mA	25°C		20	60	mV
	I_O=1mA to 40mA			10	30	
Output noise voltage	f=10Hz-100Hz	25°C		40		μV
Dropout voltage		25°C		1.7		V
Bias current		25°C		3.8	6	mA
		125°C			5.5	
Bias current change	V_I=-8V to -20V	0 to 125 °C			1.5	
	I_O=1mA to 40mA				0.1	

79L06nd electrical characteristics at specified virtual junction temperature, V_I=-11V, I_O=40mA (unless otherwise noted)

PARAMETER	TEST CONDITIONS*		79L06nd			UNIT
			MIN	TYP	MAX	
Output voltage**		25°C	-5.75	-6	-6.25	V
	I_O=1mA to 40mA V_I=-8V to -20V	0 to 125 °C	-5.7	-6	-6.3	
	I_O=1mA to 70mA		-5.7	-6	-6.3	
Input regulation	V_I=-8V to -20V	25°C		20	175	mV
	V_I=-9V to -20V			15	125	
Ripple rejection	V_I=-9V to -19V, f=120Hz	25°C	40	48		dB
Output regulation	I_O=1mA to 100mA	25°C		21	80	mV
	I_O=1mA to 40mA			11	40	
Output noise voltage	f=10Hz-100Hz	25°C		44		μV
Dropout voltage		25°C		1.7		V
Bias current		25°C			6	mA
		125°C			5.5	
Bias current change	V_I=-9V to -20V	0 to 125 °C			1.5	
	I_O=1mA to 40mA				0.1	

*Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 0.33μF capacitor across the input and a 0.1μF capacitor across the output.

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

79L08nd electrical characteristics at specified virtual junction temperature, V_I=-14V, I_O=40mA (unless otherwise noted)

PARAMETER	TEST CONDITIONS*		79L08nd			UNIT
			MIN	TYP	MAX	
Output voltage**		25°C	-7.7	-8	-8.3	V
	I_O=1mA to 40mA V_I=-10.5V to -23V	0 to 125 °C	-7.6	-8	-8.4	
	I_O=1mA to 70mA		-7.6	-8	-8.4	
Input regulation	V_I=-10.5V to -23V	25°C		42	200	mV
	V_I=-11V to -23V			36	150	
Ripple rejection	V_I=-13V to -23V, f=120Hz	25°C	37	46		dB
Output regulation	I_O=1mA to 100mA	25°C		30	100	mV
	I_O=1mA to 40mA			15	50	
Output noise voltage	f=10Hz-100Hz	25°C		54		μV
Dropout voltage		25°C		1.7		V
Bias current		25°C			6	mA
		125°C			5.5	
Bias current change	V_I=-11V to -23V	0 to 125 °C			1.5	
	I_O=1mA to 40mA				0.1	

79L09nd electrical characteristics at specified virtual junction temperature, V_I=-16V, I_O=40mA (unless otherwise noted)

PARAMETER	TEST CONDITIONS*		79L09nd			UNIT
			MIN	TYP	MAX	
Output voltage**		25°C	-8.6	-9	-9.4	V
	I_O=1mA to 40mA V_I=-12V to -24V	0 to 125 °C	-8.55	-9	-9.45	
	I_O=1mA to 70mA		-8.55	-9	-9.45	
Input regulation	V_I=-12V to -24V	25°C		45	175	mV
	V_I=-13V to -24V			40	125	
Ripple rejection	V_I=-15V to -24V, f=120Hz	25°C	40	45		dB
Output regulation	I_O=1mA to 100mA	25°C		30	100	mV
	I_O=1mA to 40mA			15	50	
Output noise voltage	f=10Hz-100Hz	25°C		62		μV
Dropout voltage		25°C		1.7		V
Bias current		25°C			6.2	mA
		125°C			5.7	
Bias current change	V_I=-13V to -24V	0 to 125 °C			1.5	
	I_O=1mA to 40mA				0.1	

*Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 0.33μF capacitor across the input and a 0.1μF capacitor across the output.

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

79L12 electrical characterist ics at specified virtual junction temperature, V_I=-19V, I_O=40mA (unless otherw ise noted)

PARAMETER	TEST CONDITIONS*		79L12			UNIT
			MIN	TYP	MAX	
Output voltage**		25°C	-11.5	-12	-12.5	V
	I_O=1mA to 40mA V_I=-14V to -27V	0 to 125 °C	-11.4	-12	-12.6	
	I_O=1mA to 70mA		-11.4	-12	-12.6	
Input regulation	V_I=-14V to -27V	25°C		50	250	mV
	V_I=-16V to -27V			40	200	
Ripple rejection	V_I=-15V to -25V, f=120Hz	25°C	37	42		dB
Output regulation	I_O=1mA to 100mA	25°C		24	100	mV
	I_O=1mA to 40mA			15	50	
Output noise voltage	f=10Hz-100Hz	25°C		80		μV
Dropout voltage		25°C		1.7		V
Bias current		25°C			6.5	mA
		125°C			6	
Bias current change	V_I=-16V to -27V	0 to 125 °C			1.5	
	I_O=1mA to 40mA				0.1	

79L15 electrical characteristic s at specified virtual junction temperature, V_I=-23V, I_O=40mA (unless otherw ise noted)

PARAMETER	TEST CONDITIONS*		79L15			UNIT
			MIN	TYP	MAX	
Output voltage**		25°C	-14.4	-15	-15.6	V
	I_O=1mA to 40mA V_I=-17.5V to -30V	0 to 125 °C	-14.25	-15	-15.75	
	I_O=1mA to 70mA		-14.25	-15	-15.75	
Input regulation	V_I=-17.5V to -30V	25°C		65	300	mV
	V_I=-19V to -30V			50	250	
Ripple rejection	V_I=-18.5V to -28.5V, f=120Hz	25°C	34	39		dB
Output regulation	I_O=1mA to 100mA	25°C		25	150	mV
	I_O=1mA to 40mA			15	75	
Output noise voltage	f=10Hz-100Hz	25°C		90		μV
Dropout voltage		25°C		1.7		V
Bias current		25°C			6.5	mA
		125°C			6	
Bias current change	V_I=-19V to -30V	0 to 125 °C			1.5	
	I_O=1mA to 40mA				0.1	

*Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 0.33μF capacitor across the input and a 0.1μF capacitor across the output.

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

79L18 electrical characteristics at specified virtual junction temperature, V_I=-26V, I_O=40mA (unless otherwise noted)

PARAMETER	TEST CONDITIONS*		79L18			UNIT
			MIN	TYP	MAX	
Output voltage**		25°C	-17.3	-18	-18.7	V
	I_O=1mA to 40mA V_I=-20.5V to -33V	0 to 125 °C	-17.1	-18	-18.9	
	I_O=1mA to 70mA		-17.1	-18	-18.9	
Input regulation	V_I=-20.5V to -33V	25°C		70	325	mV
	V_I=-22V to -33V			60	275	
Ripple rejection	V_I=-21.5V to -31.5V, f=120Hz	25°C	33	48		dB
Output regulation	I_O=1mA to 100mA	25°C		27	170	mV
	I_O=1mA to 40mA			19	85	
Output noise voltage	f=10Hz-100Hz	25°C		150		μV
Dropout voltage		25°C		1.7		V
Bias current		25°C			6.5	mA
		125°C			6	
Bias current change	V_I=-22V to -33V	0 to 125 °C			1.5	
	I_O=1mA to 40mA				0.1	

*Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 0.33μF capacitor across the input and a 0.1μF capacitor across the output.

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

79L24 electrical characteristics at specified virtual junction temperature, V_I=-33V, I_O=40mA (unless otherwise noted)

PARAMETER	TEST CONDITIONS*		79L24			UNIT
			MIN	TYP	MAX	
Output voltage**		25°C	-23	-24	-25	V
	I_O=1mA to 40mA V_I=-27V to -38V	0 to 125 °C	-22.8	-24	-25.2	
	I_O=1mA to 70mA		-22.8	-24	-25.2	
Input regulation	V_I=-27 V to -38V	25°C		90	350	mV
	V_I=-28V to -38V			75	300	
Ripple rejection	V_I=-29V to -35V, f=120Hz	25°C	31	47		dB
Output regulation	I_O=1mA to 100mA	25°C		40	200	mV
	I_O=1mA to 40mA			25	100	
Output noise voltage	f=10Hz-100Hz	25°C		200		μV
Dropout voltage		25°C		1.7		V
Bias current		25°C			6.5	mA
		125°C			6	
Bias current change	V_I=-28V to -38V	0 to 125 °C			1.5	
	I_O=1mA to 40mA				0.1	

*Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 0.33μF capacitor across the input and a 0.1μF capacitor across the output.

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