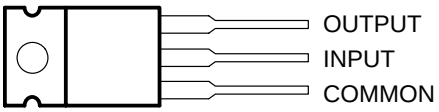
SLVS060G – JUNE 1976 – REVISED OCTOBER 2001

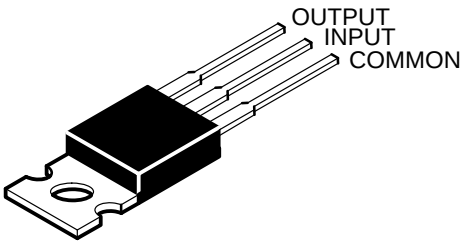
- **3-Terminal Regulators**
- **Output Current up to 500 mA**
- **No External Components**
- **High Power-Dissipation Capability**
- **Internal Short-Circuit Current Limiting**
- **Output Transistor Safe-Area Compensation**
- **Direct Replacements for Fairchild μA79M00 Series**

KC PACKAGE
(TOP VIEW)

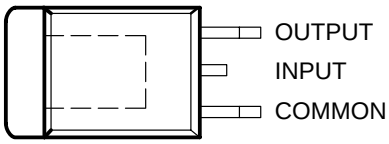


The INPUT terminal is in electrical contact with the mounting base.

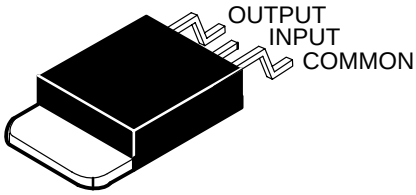
TO-220AB



KTP PACKAGE
(TOP VIEW)



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



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.

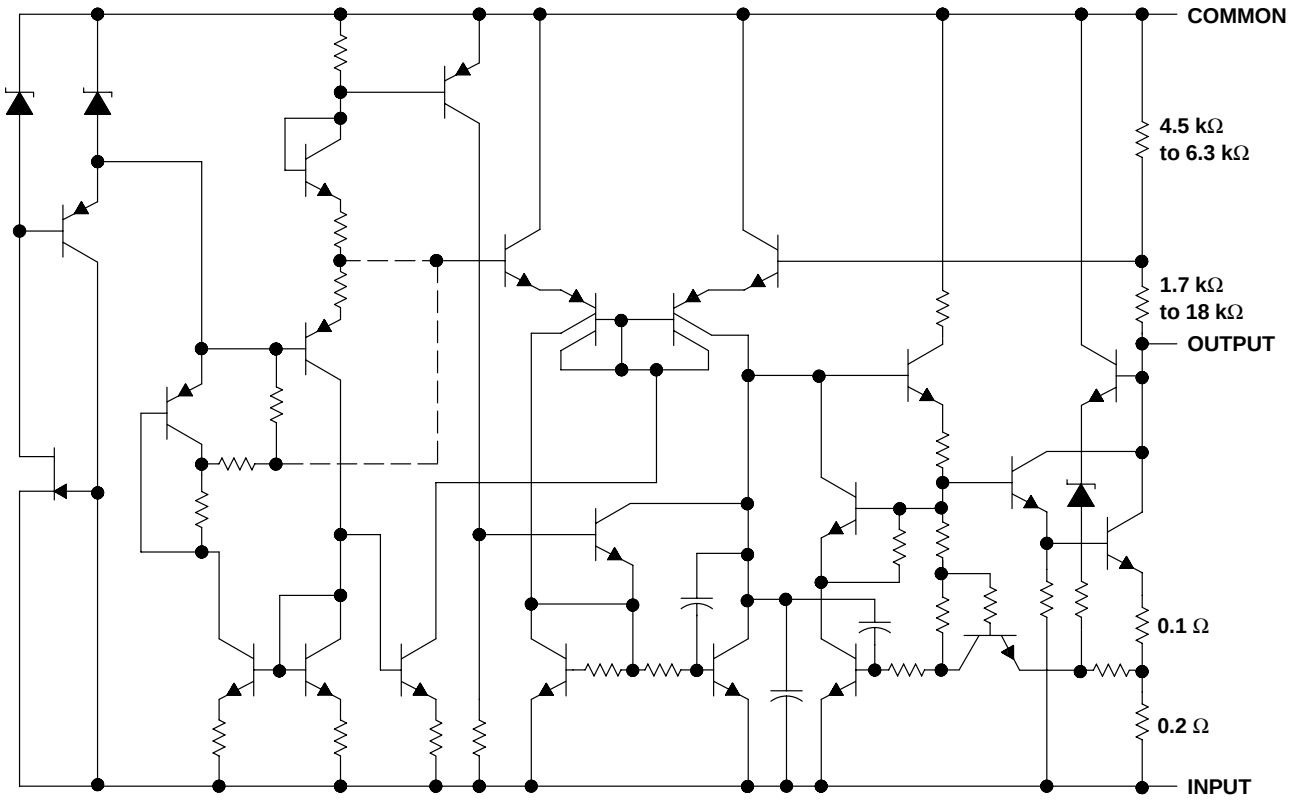
The μA79M00C series is characterized for operation over the virtual junction temperature range of 0°C to 125°C.

AVAILABLE OPTIONS

T_J	$V_{O(NOM)}$ (V)	PACKAGED DEVICES	
		HEAT-SINK MOUNTED (KC)	PLASTIC FLANGE MOUNTED (KTP)
0°C to 125°C	–5	μA79M05CKC	μA79M05CKTP
	–8	—	μA79M08CKTP

The KTP package also is available in tape and reel. Add the suffix R to device type (e.g., μA79M05CKTPR).

schematic



Resistor values shown are nominal.

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

Input voltage, V_I . . . . . 35 V
Package thermal impedance, θ_{JA} (see Notes 1 and 2): KC package . . . . . 22°C/W
(see Notes 1 and 3): KTP package . . . . . 28°C/W
Lead temperature 1,6 mm (1/16 inch) from case for 10 seconds . . . . . 260°C
Virtual junction temperature range, T_J . . . . . 0°C to 150°C
Storage temperature range, T_{stg} . . . . . –65°C 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 $P_D = (T_J(max) – T_A)/\theta_{JA}$. Selecting the maximum of 150°C can impact reliability.
2. The package thermal impedance is calculated in accordance with JESD 51-7.
3. The package thermal impedance is calculated in accordance with JESD 51-5.

recommended operating conditions

			MIN	MAX	UNIT
V_I	Input voltage	μA79M05C	–7	–25	V
		μA79M08C	–10.5	–25	
I_O	Output current			500	mA
T_J	Operating virtual junction temperature		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†			μA79M05C			UNIT
				MIN	TYP	MAX	
Output voltage	V_I = –7 V to –25 V,	I_O = 5 mA to 350 mA		–4.8	–5	–5.2	V
			T_J = 0°C to 125°C	–4.75		–5.25	
Input voltage regulation	V_I = –7 V to –25 V				7	50	mV
	V_I = –8 V to –18 V				3	30	
Ripple rejection	V_I = –8 V to –18 V, f = 120 Hz	I_O = 100 mA,	T_J = 0°C to 125°C	50			dB
		I_O = 300 mA		54	60		
Output voltage regulation	I_O = 5 mA to 500 mA				75	100	mV
	I_O = 5 mA to 350 mA				50		
Temperature coefficient of output voltage	I_O = 5 mA,	T_J = 0°C to 125°C			–0.4		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz				125		μV
Dropout voltage					1.1		V
Bias current					1	2	mA
Bias current change	V_I = –8 V to –18 V,	T_J = 0°C to 125°C				0.4	mA
	I_O = 5 mA to 350 mA,	T_J = 0°C to 125°C				0.4	
Short-circuit output current	V_I = –30 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 V, I_O = 350 mA, T_J = 25°C (unless otherwise noted)

PARAMETER	TEST CONDITIONS†			μA79M08C			UNIT
				MIN	TYP	MAX	
Output voltage	V_I = –10.5 V to –25 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	V_I = –10.5 V to –25 V				8	80	mV
	V_I = –11 V to –21 V				4	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	50			dB
		I_O = 300 mA		54	59		
Output voltage regulation	I_O = 5 mA to 500 mA				90	160	mV
	I_O = 5 mA to 350 mA				60		
Temperature coefficient of output voltage	I_O = 5 mA,	T_J = 0°C to 125°C			–0.6		mV/°C
Output noise voltage	f = 10 Hz to 100 kHz				200		μV
Dropout voltage	I_O = 5 mA				1.1		V
Bias current					1	2	mA
Bias current change	V_I = –10.5 V to –25 V,	T_J = 0°C to 125°C				0.4	mA
	I_O = 5 mA to 350 mA,	T_J = 0°C to 125°C				0.4	
Short-circuit output current	V_I = –30 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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