

DESCRIPTION

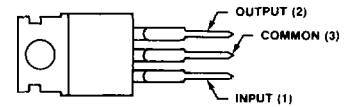
The LM340 series of 3-terminal regulators is available with several fixed output voltages making them useful in a wide range of applications. One of these is local on card regulation, eliminating the distribution problems associated with single point regulation. The voltages available allow these regulators to be used in logic systems, instrumentation, HiFi, and other solid state electronic equipment. Although designed primarily as fixed voltage regulators these devices can be used with external components to obtain adjustable voltages.

FEATURES

- Output current in excess of 1A
- Internal thermal overload protection
- No external components required
- Output transistor safe area protection
- Internal short circuit current limit
- Available in plastic TO-220 and metal TO-3 packages

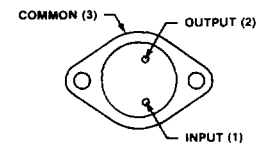
PIN CONFIGURATION

U PACKAGE (TO-220) (Top View)



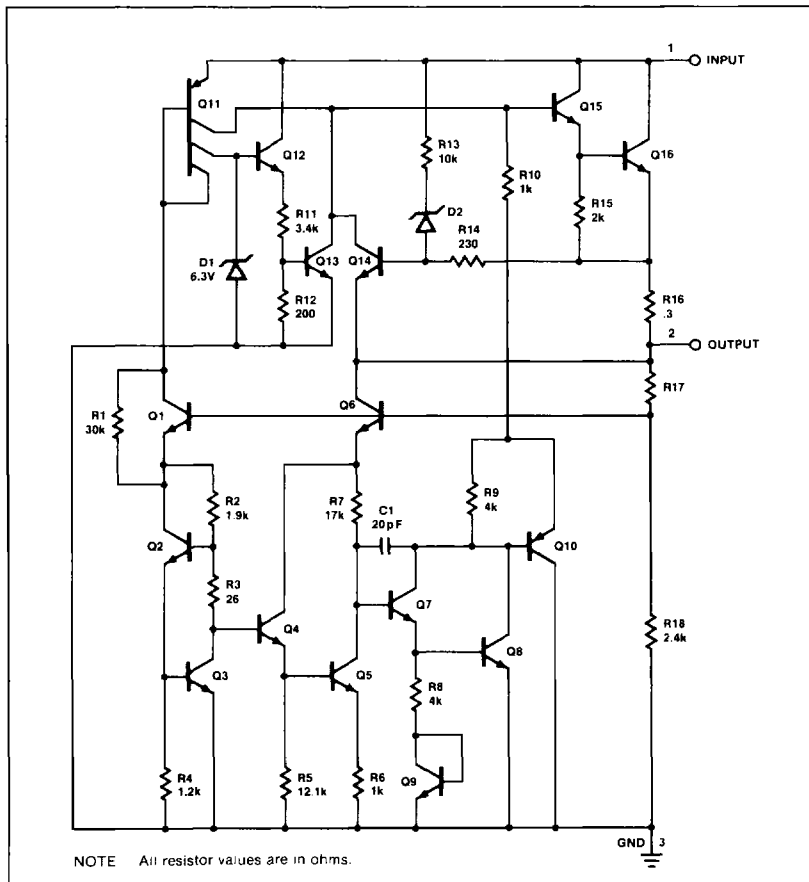
ORDER INFORMATION	
OUTPUT VOLTAGE	ORDER PART NO.
5V	LM340-5U
6V	LM340-6U
8V	LM340-8U
12V	LM340-12U
15V	LM340-15U
18V	LM340-18U
24V	LM340-24U

DA PACKAGE (TO-3) (Top View)



ORDER INFORMATION	
OUTPUT VOLTAGE	ORDER PART NO.
5V	LM340-5DA
6V	LM340-6DA
8V	LM340-8DA
12V	LM340-12DA
15V	LM340-15DA
18V	LM340-18DA
24V	LM340-24DA

EQUIVALENT SCHEMATIC



ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING	UNIT
Input voltage	35	V
$V_0 = 5V$ through $18V$	40	V
$V_0 = 24V$	Internally limited	
Internal power dissipation ¹	0 to 70	°C
Operating temperature range		
Maximum junction temperature		
TO-3 package	150	°C
TO-220 package	150	°C
Storage temperature range	-65 to +150	°C
Lead temperature		
TO-3 package (soldering 10sec)	300	°C
TO-220 package (soldering, 10sec)	230	°C

NOTE

- Thermal resistance without a heat sink for junction to case temperature is 4°C/W for the TO-3 package and 6°C/W for the TO-220 package. Thermal resistance for case to ambient temperature is 35°C/W for the TO-3 package and 50°C/W for the TO-220 package.

DC ELECTRICAL CHARACTERISTICS $I_{OUT} = 500mA$, $(0^\circ C \leq T_A \leq 70^\circ C)$ unless otherwise specified.

PARAMETER	TEST CONDITIONS	LM340-5			LM340-6			LM340-8			UNIT
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
Output voltage	$T_J = 25^\circ C$	$V_{IN} = 10V$			$V_{IN} = 11V$			$V_{IN} = 14V$			V
	$P_D \leq 15W$ $5mA \leq I_{OUT} \leq 1.0A$	4.8	5	5.2	5.75	6	6.25	7.7	8	8.3	V
Line regulation	$T_J = 25^\circ C$ $I_{OUT} = 100mA$ $I_{OUT} = 500mA$	$7V \leq V_{IN} \leq 20V$			$8V \leq V_{IN} \leq 21V$			$10.5V \leq V_{IN} \leq 23V$			mV
		4.75		5.25	5.7		6.3	7.6		8.4	
Load regulation	$T_J = 25^\circ C$ $5mA \leq I_{OUT} \leq 1.5A$			100			120			160	mV
Quiescent current	$T_J = 25^\circ C$		4.2	10		4.2	10		4.2	10	mA
Quiescent current change		$7V \leq V_{IN} \leq 25V$			$8V \leq V_{IN} \leq 25V$			$10.5V \leq V_{IN} \leq 25V$			mA
	$5mA \leq I_{OUT} \leq 1.5A$			1.3			1.3			1	mA
Output noise voltage	$T_J = 25^\circ C$ $10Hz \leq f \leq 100kHz$.5			.5			.5	µA
Voltage drift	mV/1000 Hrs.			20			24			32	mV
Ripple rejection	$I_{OUT} = 20mA$ $f = 120Hz$		60			57			55		dB
Dropout voltage	$T_J = 25^\circ C$	2			2			2.5			V

DC ELECTRICAL CHARACTERISTICS (Cont'd) $I_{OUT} = 500\text{mA}$, ($0^\circ\text{C} \leq T_A \leq 70^\circ\text{C}$) unless otherwise specified.

PARAMETER	TEST CONDITIONS	LM340-12			LM340-15			LM340-18			LM340-24			UNIT
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
Output voltage	$T_J = 25^\circ\text{C}$	$V_{IN} = 19\text{V}$ 11.5 12 12.5			$V_{IN} = 23\text{V}$ 14.4 15 15.6			$V_{IN} = 27\text{V}$ 17.3 18 18.7			$V_{IN} = 33\text{V}$ 23 24 25			V
	$P_D \leq 15\text{W}$ $5\text{mA} \leq I_{OUT} \leq 1.0\text{A}$	$14.5\text{V} \leq V_{IN} \leq 27\text{V}$ 11.4 12.6			$17.5\text{V} \leq V_{IN} \leq 30\text{V}$ 14.25 15.75			$21\text{V} \leq V_{IN} \leq 33\text{V}$ 17.1 18.9			$27\text{V} \leq V_{IN} \leq 38\text{V}$ 22.8 25.2			V
Line regulation	$T_J = 25^\circ\text{C}$ $I_{OUT} = 100\text{mA}$ $I_{OUT} = 500\text{mA}$	$14.5\text{V} \leq V_{IN} \leq 30\text{V}$			$17.5\text{V} \leq V_{IN} \leq 30\text{V}$			$21\text{V} \leq V_{IN} \leq 33\text{V}$			$27\text{V} \leq V_{IN} \leq 38\text{V}$			mV
				120 240			150 300			180 360			240 480	mV
Load regulation	$T_J = 25^\circ\text{C}$ $5\text{mA} \leq I_{OUT} \leq 1.5\text{A}$			240			300			360			480	mV
Quiescent current	$T_J = 25^\circ\text{C}$		4.2	10		4.2	10		4.2	10		4.2	10	mA
Quiescent current change		$14.5\text{V} \leq V_{IN} \leq 30\text{V}$			$17.5\text{V} \leq V_{IN} \leq 30\text{V}$			$21\text{V} \leq V_{IN} \leq 33\text{V}$			$27\text{V} \leq V_{IN} \leq 38\text{V}$			mA
	$5\text{mA} \leq I_{OUT} \leq 1.5\text{A}$			1 .4			1 .5			1 .5			1 .5	mA
Output noise voltage	$T_J = 25^\circ\text{C}$ $10\text{Hz} \leq f \leq 100\text{kHz}$		75			90			110			170	μV	
voltage drift	mV/1000 Hrs.			48			60			72			96	mV
Ripple rejection	$I_{OUT} = 20\text{mA}$ $f = 120\text{Hz}$		52			50			48			44	dB	
Dropout voltage	$T_J = 25^\circ\text{C}$	2.5			2.5			3			3			V