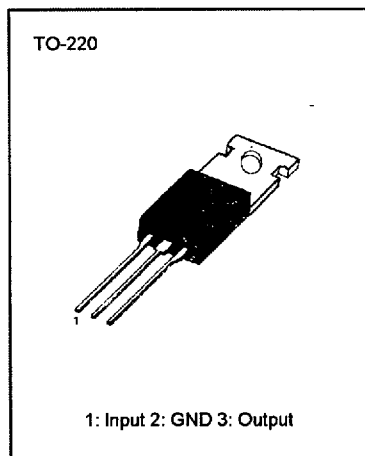


### 3-TERMINAL 1A POSITIVE VOLTAGE REGULATORS

The KA340XX series of three-terminal positive voltage regulators are available in TO-220 package and with several fixed output voltages, providing better performance than 78XX series regulators



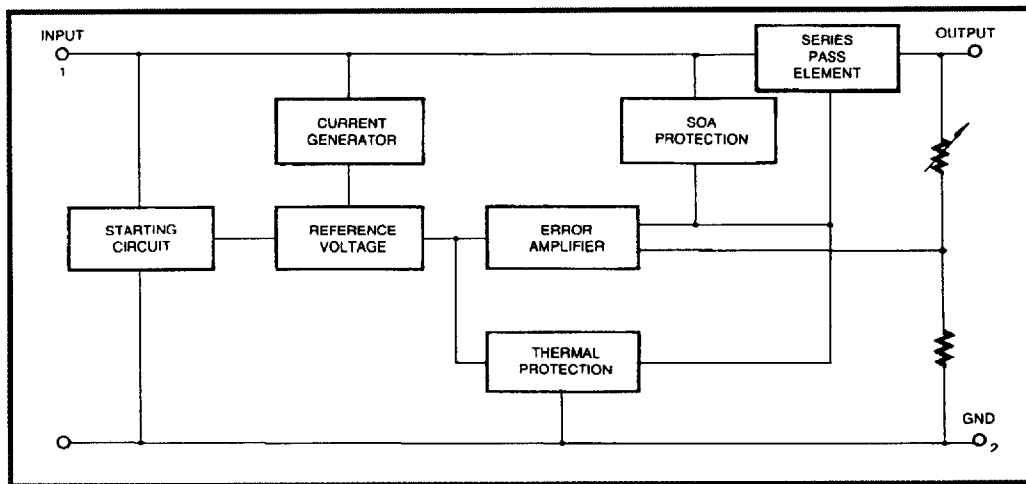
### FEATURES

- Maximum output current: 1.5A
- Output voltage of 5, 6, 8, 9, 10, 11, 12, 15, 18, 24V
- Superior line and load regulation than 78XX series
- Output transistor SOA protection
- Internal short-circuit current limit
- Thermal overload protection

### ORDERING INFORMATION

Device	Package	Operating Temperature
KA340TXX	TO-220	0 ~ + 125°C

### BLOCK DIAGRAM



**ABSOLUTE MAXIMUM RATINGS** ( $T_A=25^\circ\text{C}$  unless otherwise specified)

Characteristic	Symbol	Value	Unit
Input Voltage (for $V_O = 5\text{V}$ )	$V_I$	35	V
Thermal Resistance Junction-Cases	$R_{EJC}$	5	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction-Air	$R_{EJA}$	65	$^\circ\text{C}/\text{W}$
Operating Temperature Range	$T_{OPR}$	0 ~ +125	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-65 ~ + 150	$^\circ\text{C}$

**KA340T05 ELECTRICAL CHARACTERISTICS**

(Refer to test circuit,  $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$ ,  $V_I = 10\text{V}$ ,  $I_O = 0.5\text{A}$ , unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit	
Output Voltage	$V_O$	$T_J = 25^\circ\text{C}$ , $5\text{mA} \leq I_O \leq 1.0\text{A}$	4.80	5.00	5.20	V	
		$5\text{mA} \leq I_O \leq 1.0\text{A}$ , $\text{PD} \leq 15\text{W}$ $V_I = 7.5\text{V to } 20\text{V}$	4.75	—	5.25		
Line Regulation	$\Delta V_O$	$T_J = 25^\circ\text{C}$ , $V_I = 7\text{V to } 25\text{V}$	—	3	50	mV	
		$V_I = 8\text{V to } 20\text{V}$	—	—	50		
		$I_O \leq 1\text{A}$	$V_I = 8\text{V to } 12\text{V}$	—	—		25
			$V_I = 7.5\text{V to } 20\text{V}$ $T_J = 25^\circ\text{C}$	—	—		50
Load Regulation	$\Delta V_O$	$T_J = 25^\circ\text{C}$	$5\text{mA} \leq I_O \leq 1.5\text{A}$	—	10	mV	
			$0.25\text{A} \leq I_O \leq 0.75\text{A}$	—	—		25
		$5\text{mA} \leq I_O \leq 1\text{A}$	—	—	50		
Quiescent Current	$I_Q$	$I_O = 1\text{A}$	$T_J = 25^\circ\text{C}$	—	—	8	mA
			$0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$	—	—	8.5	
Quiescent Current Change	$\Delta I_Q$	$5\text{mA} \leq I_O \leq 1\text{A}$	—	—	0.5	mA	
		$T_J = 25^\circ\text{C}$ $I_O \leq 1\text{A}$ , $V_I = 7.5\text{V to } 20\text{V}$	—	—	1.0		
		$V_I = 7\text{V to } 25\text{V}$	—	—	1.0		
Output Noise Voltage	$V_N$	$T_A = 25^\circ\text{C}$ , $f = 10\text{Hz to } 100\text{kHz}$	—	40	—	$\mu\text{V}$	
Ripple Rejection	RR	$f = 120\text{Hz}$ , $V_I = 8\text{V to } 18\text{V}$ $T_J = 25^\circ\text{C}$	62	80	—	dB	
		$f = 120\text{Hz}$ , $V_I = 8\text{V to } 18\text{V}$ $0^\circ\text{C} \leq T_J \leq 125^\circ\text{C}$	62	—	—		
Dropout Voltage	$V_D$	$I_O = 1\text{A}$ , $T_J = 25^\circ\text{C}$	—	2.0	—	V	
Peak Output Current	$I_{PK}$	$T_J = 25^\circ\text{C}$	—	2.2	—	A	
Short-Circuit Current	$I_{SC}$	$V_I = 35\text{V}$ , $T_A = 25^\circ\text{C}$	—	250	—	mA	
Average $T_C$ of $V_O$	$\Delta V_O / \Delta T$	$I_O = 5\text{mA}$	—	$\pm 0.6$	—	$\text{mV}/^\circ\text{C}$	
Output Resistance	$R_O$	$f = 1\text{kHz}$	—	17	—	$\text{m}\Omega$	

\* Load and line regulation are specified at a constant junction temperature. Changes in  $V_O$  due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

### KA340T06 ELECTRICAL CHARACTERISTICS

(Refer to test circuit,  $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$ ,  $V_I = 11\text{V}$ ,  $I_O = 0.5\text{A}$ , unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit	
Output Voltage	$V_O$	$T_J = 25^{\circ}\text{C}$ , $5\text{mA} \leq I_O \leq 1.0\text{A}$	5.75	6.00	6.26	V	
		$5\text{mA} \leq I_O \leq 1.0\text{A}$ , $\text{PD} \leq 15\text{W}$ $V_I = 8.5\text{V to } 21\text{V}$	5.70	—	6.30		
Line Regulation	$\Delta V_O$	$T_J = 25^{\circ}\text{C}$ , $V_I = 7\text{V to } 25\text{V}$	—	3	60	mV	
		$V_I = 9\text{V to } 21\text{V}$	—	—	60		
		$I_O \leq 1\text{A}$	$V_I = 9\text{V to } 13\text{V}$	—	—		30
			$V_I = 8.5\text{V to } 21\text{V}$ $T_J = 25^{\circ}\text{C}$	—	—		60
Load Regulation	$\Delta V_O$	$T_J = 25^{\circ}\text{C}$	—	10	60	mV	
		$5\text{mA} \leq I_O \leq 1.5\text{A}$					
		$0.25\text{A} \leq I_O \leq 0.75\text{A}$	—	—	30		
Quiescent Current	$I_O$	$I_O = 1\text{A}$	—	—	8	mA	
					$0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$		8.5
Quiescent Current Change	$\Delta I_O$	$5\text{mA} \leq I_O \leq 1\text{A}$	—	—	0.5	mA	
		$T_J = 25^{\circ}\text{C}$	—	—	1.0		
		$I_O \leq 1\text{A}$ , $V_I = 8.5\text{V to } 22\text{V}$	—	—	1.0		
		$V_I = 8\text{V to } 25\text{V}$	—	—	1.0		
Output Noise Voltage	$V_N$	$T_A = 25^{\circ}\text{C}$ , $f = 10\text{Hz to } 100\text{kHz}$	—	45	—	$\mu\text{V}$	
Ripple Rejection	RR	$f = 120\text{Hz}$ , $V_I = 9\text{V to } 19\text{V}$ $T_J = 25^{\circ}\text{C}$	59	75	—	dB	
		$f = 120\text{Hz}$ , $V_I = 9\text{V to } 19\text{V}$ $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$	59	—	—		
Dropout Voltage	$V_D$	$I_O = 1\text{A}$ , $T_J = 25^{\circ}\text{C}$	—	2.0	—	V	
Peak Output Current	$I_{PK}$	$T_J = 25^{\circ}\text{C}$	—	2.2	—	A	
Short-Circuit Current	$I_{SC}$	$V_I = 35\text{V}$ , $T_A = 25^{\circ}\text{C}$	—	250	—	mA	
Average TC of $V_O$	$\Delta V_O / \Delta T$	$I_O = 5\text{mA}$	—	$\pm 0.7$	—	mV/ $^{\circ}\text{C}$	
Output Resistance	$R_O$	$f = 1\text{kHz}$	—	18	—	m $\Omega$	

★ Load and line regulation are specified at a constant junction temperature. Changes in  $V_O$  due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

**KA340T08 ELECTRICAL CHARACTERISTICS**

(Refer to test circuit,  $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$ ,  $V_i = 14\text{V}$ ,  $I_o = 0.5\text{A}$ , unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit	
Output Voltage	$V_o$	$T_J = 25^{\circ}\text{C}$ , $5\text{mA} \leq I_o \leq 1.0\text{A}$	7.70	8.00	8.30	V	
		$5\text{mA} \leq I_o \leq 1.0\text{A}$ , $\text{PD} \leq 15\text{W}$ $V_i = 10.5\text{V to } 23\text{V}$	7.60	—	8.40		
Line Regulation	$\Delta V_o$	$T_J = 25^{\circ}\text{C}$ , $V_i = 7\text{V to } 25\text{V}$	—	3	80	mV	
		$V_i = 11\text{V to } 23\text{V}$	—	—	80		
		$I_o \leq 1\text{A}$	$V_i = 11.5\text{V to } 17\text{V}$	—	—		40
			$V_i = 10.5\text{V to } 23\text{V}$ $T_J = 25^{\circ}\text{C}$	—	—		80
Load Regulation	$\Delta V_o$	$T_J = 25^{\circ}\text{C}$	$5\text{mA} \leq I_o \leq 1.5\text{A}$	—	10	80	mV
			$0.25\text{A} \leq I_o \leq 0.75\text{A}$	—	—	40	
		$5\text{mA} \leq I_o \leq 1\text{A}$	—	—	80		
Quiescent Current	$I_o$	$I_o = 1\text{A}$	$T_J = 25^{\circ}\text{C}$	—	—	8	mA
			$0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$	—	—	8.5	
Quiescent Current Change	$\Delta I_o$	$5\text{mA} \leq I_o \leq 1\text{A}$	—	—	0.5	mA	
		$T_J = 25^{\circ}\text{C}$ $I_o \leq 1\text{A}$ , $V_i = 10.5\text{V to } 23\text{V}$	—	—	1.0		
		$V_i = 10.5\text{V to } 25\text{V}$	—	—	1.0		
Output Noise Voltage	$V_N$	$T_A = 25^{\circ}\text{C}$ , $f = 10\text{Hz to } 100\text{kHz}$	—	52	—	$\mu\text{V}$	
Ripple Rejection	RR	$f = 120\text{Hz}$ , $V_i = 11.5\text{V to } 21.5\text{V}$ $T_J = 25^{\circ}\text{C}$	56	72	—	dB	
		$f = 120\text{Hz}$ , $V_i = 11\text{V to } 21.5\text{V}$ $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$	56	—	—		
Dropout Voltage	$V_D$	$I_o = 1\text{A}$ , $T_J = 25^{\circ}\text{C}$	—	2.0	—	V	
Peak Output Current	$I_{PK}$	$T_J = 25^{\circ}\text{C}$	—	2.2	—	A	
Short-Circuit Current	$I_{SC}$	$V_i = 35\text{V}$ , $T_A = 25^{\circ}\text{C}$	—	250	—	mA	
Average TC of $V_o$	$\Delta V_o / \Delta T$	$I_o = 5\text{mA}$	—	$\pm 0.9$	—	mV/ $^{\circ}\text{C}$	
Output Resistance	$R_o$	$f = 1\text{kHz}$	—	20	—	m $\Omega$	

\* Load and line regulation are specified at a constant junction temperature. Changes in  $V_o$  due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

**KA340T09 ELECTRICAL CHARACTERISTICS**

(Refer to test circuit,  $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$ ,  $V_I = 15\text{V}$ ,  $I_O = 0.5\text{A}$ , unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	$V_O$	$T_J = 25^{\circ}\text{C}$ , $5\text{mA} \leq I_O \leq 1.0\text{A}$	8.65	9.00	9.35	V
		$5\text{mA} \leq I_O \leq 1.0\text{A}$ , $\text{PD} \leq 15\text{W}$ $V_I = 11.5\text{V to } 24\text{V}$	8.60	—	9.40	
Line Regulation	$\Delta V_O$	$T_J = 25^{\circ}\text{C}$ , $V_I = 11.5\text{V to } 25\text{V}$	—	3	90	mV
		$V_I = 12\text{V to } 24\text{V}$	—	—	90	
		$I_O \leq 1\text{A}$ , $V_I = 12\text{V to } 19\text{V}$	—	—	45	
Load Regulation	$\Delta V_O$	$T_J = 25^{\circ}\text{C}$ , $5\text{mA} \leq I_O \leq 1.5\text{A}$	—	10	90	mV
		$0.25\text{A} \leq I_O \leq 0.75\text{A}$	—	—	45	
		$5\text{mA} \leq I_O \leq 1\text{A}$	—	—	90	
Quiescent Current	$I_Q$	$I_O = 1\text{A}$ , $T_J = 25^{\circ}\text{C}$	—	—	8	mA
		$0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$	—	—	8.5	
Quiescent Current Change	$\Delta I_Q$	$5\text{mA} \leq I_O \leq 1\text{A}$	—	—	0.5	mA
		$T_J = 25^{\circ}\text{C}$	—	—	1.0	
		$I_O \leq 1\text{A}$ , $V_I = 11.5\text{V to } 24\text{V}$ $V_I = 11.5\text{V to } 25\text{V}$	—	—	1.0	
Output Noise Voltage	$V_N$	$T_A = 25^{\circ}\text{C}$ , $f = 10\text{Hz to } 100\text{KHz}$	—	58	—	$\mu\text{V}$
Ripple Rejection	RR	$f = 120\text{Hz}$ , $V_I = 12.5\text{V to } 22.5\text{V}$ $T_J = 25^{\circ}\text{C}$	56	72	—	dB
		$f = 120\text{Hz}$ , $V_I = 12.5\text{V to } 22.5\text{V}$ $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$	56	—	—	
Dropout Voltage	$V_D$	$I_O = 1\text{A}$ , $T_J = 25^{\circ}\text{C}$	—	2.0	—	V
Peak Output Current	$I_{PK}$	$T_J = 25^{\circ}\text{C}$	—	2.2	—	A
Short-Circuit Current	$I_{SC}$	$V_I = 35\text{V}$ , $T_A = 25^{\circ}\text{C}$	—	250	—	mA
Average TC of $V_O$	$\Delta V_O / \Delta T$	$I_O = 5\text{mA}$	—	$\pm 1.0$	—	$\text{mV}/^{\circ}\text{C}$
Output Resistance	$R_O$	$f = 1\text{KHz}$	—	22	—	$\text{m}\Omega$

\*Load and line regulation are specified at a constant junction temperature. Changes in  $V_O$  due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

**KA340T10 ELECTRICAL CHARACTERISTICS**

(Refer to test circuit,  $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$ ,  $V_I = 16\text{V}$ ,  $I_O = 0.5\text{A}$ , unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	$V_O$	$T_J = 25^{\circ}\text{C}$ , $5\text{mA} \leq I_O \leq 1.0\text{A}$	9.60	10.00	10.40	V
		$5\text{mA} \leq I_O \leq 1.0\text{A}$ , $\text{PD} \leq 15\text{W}$ $V_I = 12.5\text{V to } 25\text{V}$	9.50	—	10.50	
Line Regulation	$\Delta V_O$	$T_J = 25^{\circ}\text{C}$ , $V_I = 11.5\text{V to } 25\text{V}$	—	3	100	mV
		$V_I = 13\text{V to } 25\text{V}$	—	—	100	
		$I_O \leq 1\text{A}$ , $V_I = 13\text{V to } 20\text{V}$	—	—	50	
		$V_I = 12.5\text{V to } 25\text{V}$ $T_J = 25^{\circ}\text{C}$	—	—	100	
Load Regulation	$\Delta V_O$	$T_J = 25^{\circ}\text{C}$	—	10	100	mV
		$5\text{mA} \leq I_O \leq 1.5\text{A}$	—	—	50	
		$0.25\text{A} \leq I_O \leq 0.75\text{A}$	—	—	100	
Quiescent Current	$I_O$	$I_O = 1\text{A}$	—	—	8	mA
		$0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$	—	—	8.5	
Quiescent Current Change	$\Delta I_O$	$5\text{mA} \leq I_O \leq 1\text{A}$	—	—	0.5	mA
		$T_J = 25^{\circ}\text{C}$	—	—	1.0	
		$I_O \leq 1\text{A}$ , $V_I = 12.6\text{V to } 25\text{V}$	—	—	1.0	
		$V_I = 12.6\text{V to } 25\text{V}$	—	—	1.0	
Output Noise Voltage	$V_N$	$T_A = 25^{\circ}\text{C}$ , $f = 10\text{Hz to } 100\text{KHz}$	—	58	—	$\mu\text{V}$
Ripple Rejection	RR	$f = 120\text{Hz}$ , $V_I = 13\text{V to } 23\text{V}$ $T_J = 25^{\circ}\text{C}$	56	72	—	dB
		$f = 120\text{Hz}$ , $V_I = 13\text{V to } 23\text{V}$ $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$	56	—	—	
Dropout Voltage	$V_D$	$I_O = 1\text{A}$ , $T_J = 25^{\circ}\text{C}$	—	2.0	—	V
Peak Output Current	$I_{PK}$	$T_J = 25^{\circ}\text{C}$	—	2.2	—	A
Short-Circuit Current	$I_{SC}$	$V_I = 35\text{V}$ , $T_A = 25^{\circ}\text{C}$	—	250	—	mA
Average TC of $V_O$	$\Delta V_O / \Delta T$	$I_O = 5\text{mA}$	—	$\pm 1.1$	—	mV/ $^{\circ}\text{C}$
Output Resistance	$R_O$	$f = 1\text{KHz}$	—	24	—	m $\Omega$

**KA340T11 ELECTRICAL CHARACTERISTICS**

(Refer to test circuit,  $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$ ,  $V_I = 18\text{V}$ ,  $I_O = 0.5\text{A}$ , unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	$V_O$	$T_J = 25^{\circ}\text{C}$ , $5\text{mA} \leq I_O \leq 1.0\text{A}$	11.60	11.00	11.40	V
		$5\text{mA} \leq I_O \leq 1.0\text{A}$ , $\text{PD} \leq 15\text{W}$ $V_I = 13.5\text{V to } 26\text{V}$	10.50	—	11.50	
Line Regulation	$\Delta V_O$	$T_J = 25^{\circ}\text{C}$ , $V_I = 13.5\text{V to } 25\text{V}$	—	3	110	mV
		$V_I = 14\text{V to } 26\text{V}$	—	—	110	
		$I_O \leq 1\text{A}$ , $V_I = 14\text{V to } 21\text{V}$	—	—	55	
		$V_I = 13.5\text{V to } 26\text{V}$ $T_J = 25^{\circ}\text{C}$	—	—	110	
Load Regulation	$\Delta V_O$	$T_J = 25^{\circ}\text{C}$ , $5\text{mA} \leq I_O \leq 1.5\text{A}$	—	10	110	mV
		$0.25\text{A} \leq I_O \leq 0.75\text{A}$	—	—	55	
		$5\text{mA} \leq I_O \leq 1\text{A}$	—	—	110	
Quiescent Current	$I_Q$	$I_O = 1\text{A}$ , $T_J = 25^{\circ}\text{C}$	—	—	8	mA
		$0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$	—	—	8.5	
Quiescent Current Change	$\Delta I_Q$	$5\text{mA} \leq I_O \leq 1\text{A}$	—	—	0.5	mA
		$T_J = 25^{\circ}\text{C}$ $I_O \leq 1\text{A}$ , $V_I = 13.7\text{V to } 26\text{V}$	—	—	1.0	
		$V_I = 13.5\text{V to } 25\text{V}$	—	—	1.0	
Output Noise Voltage	$V_N$	$T_A = 25^{\circ}\text{C}$ , $f = 10\text{Hz to } 100\text{KHz}$	—	70	—	$\mu\text{A}$
Ripple Rejection	RR	$f = 120\text{Hz}$ , $V_I = 14\text{V to } 24\text{V}$ $T_J = 25^{\circ}\text{C}$	55	72	—	dB
		$f = 120\text{Hz}$ , $V_I = 14\text{V to } 24\text{V}$ $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$	55	—	—	
Dropout Voltage	$V_D$	$I_O = 1\text{A}$ , $T_J = 25^{\circ}\text{C}$	—	2.0	—	V
Peak Output Current	$I_{PK}$	$T_J = 25^{\circ}\text{C}$	—	2.2	—	A
Short-Circuit Current	$I_{SC}$	$V_I = 35\text{V}$ , $T_A = 25^{\circ}\text{C}$	—	250	—	mA
Average $T_c$ of $V_O$	$\Delta V_O / \Delta T$	$I_O = 5\text{mA}$	—	$\pm 1.3$	—	$\text{mV}/^{\circ}\text{C}$
Output Resistance	$R_O$	$f = 1\text{KHz}$	—	26	—	$\text{m}\Omega$

### KA340T12 ELECTRICAL CHARACTERISTICS

(Refer to test circuit,  $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$ ,  $V_I = 189\text{V}$ ,  $I_O = 0.5\text{A}$ , unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit	
Output Voltage	$V_O$	$T_J = 25^{\circ}\text{C}$ , $5\text{mA} \leq I_O \leq 1.0\text{A}$	11.50	12.00	12.50	V	
		$5\text{mA} \leq I_O \leq 1.0\text{A}$ , $P_D \leq 15\text{W}$ $V_I = 14.5\text{V to } 27\text{V}$	11.40	—	12.60		
Line Regulation	$\Delta V_O$	$T_J = 25^{\circ}\text{C}$ , $V_I = 14.5\text{V to } 30\text{V}$	—	4	120	mV	
		$V_I = 15\text{V to } 27\text{V}$	—	—	120		
		$I_O \leq 1\text{A}$	$V_I = 16\text{V to } 22\text{V}$	—	—		55
			$V_I = 14.6\text{V to } 27\text{V}$ $T_J = 25^{\circ}\text{C}$	—	—		120
Load Regulation	$\Delta V_O$	$T_J = 25^{\circ}\text{C}$	—	12	120	mV	
		$5\text{mA} \leq I_O \leq 1.5\text{A}$	—	—	60		
		$0.25\text{A} \leq I_O \leq 0.75\text{A}$	—	—	120		
Quiescent Current	$I_O$	$I_O = 1\text{A}$	$T_J = 25^{\circ}\text{C}$	—	8	mA	
			$0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$	—	—		8.5
Quiescent Current Change	$\Delta I_O$	$5\text{mA} \leq I_O \leq 1\text{A}$	—	—	0.5	mA	
		$T_J = 25^{\circ}\text{C}$	—	—	1.0		
		$I_O \leq 1\text{A}$ , $V_I = 14.8\text{V to } 27\text{V}$	—	—	1.0		
		$V_I = 14.5\text{V to } 30\text{V}$	—	—	1.0		
Output Noise Voltage	$V_N$	$T_A = 25^{\circ}\text{C}$ , $f = 10\text{Hz to } 100\text{KHz}$	—	75	—	$\mu\text{A}$	
Ripple Rejection	RR	$f = 120\text{Hz}$ , $V_I = 15\text{V to } 25\text{V}$ $T_J = 25^{\circ}\text{C}$	55	72	—	dB	
		$f = 120\text{Hz}$ , $V_I = 15\text{V to } 25\text{V}$ $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$	55	—	—		
Dropout Voltage	$V_D$	$I_O = 1\text{A}$ , $T_J = 25^{\circ}\text{C}$	—	2.0	—	V	
Peak Output Current	$I_{PK}$	$T_J = 25^{\circ}\text{C}$	—	2.2	—	A	
Short-Circuit Current	$I_{SC}$	$V_I = 35\text{V}$ , $T_A = 25^{\circ}\text{C}$	—	250	—	mA	
Average $T_C$ of $V_O$	$\Delta V_O / \Delta T$	$I_O = 5\text{mA}$	—	$\pm 1.5$	—	mV/ $^{\circ}\text{C}$	
Output Resistance	$R_O$	$f = 1\text{KHz}$	—	28	—	m $\Omega$	



**KA340T15 ELECTRICAL CHARACTERISTICS**

(Refer to test circuit,  $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$ ,  $V_I = 23\text{V}$ ,  $I_O = 0.5\text{A}$ , unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit	
Output Voltage	$V_O$	$T_J = 25^{\circ}\text{C}$ , $5\text{mA} \leq I_O \leq 1.0\text{A}$	14.40	15.00	15.60	V	
		$5\text{mA} \leq I_O \leq 1.0\text{A}$ , $\text{PD} \leq 15\text{W}$ $V_I = 17.5\text{V to } 30\text{V}$	14.25	—	15.75		
Line Regulation	$\Delta V_O$	$T_J = 25^{\circ}\text{C}$ , $V_I = 17.5\text{V to } 30\text{V}$	—	4	150	mV	
		$V_I = 18.5\text{V to } 30\text{V}$	—	—	150		
		$I_O \leq 1\text{A}$	$V_I = 20\text{V to } 26\text{V}$	—	—		60
			$V_I = 17.7\text{V to } 30\text{V}$ $T_J = 25^{\circ}\text{C}$	—	—		120
Load Regulation	$\Delta V_O$	$T_J = 25^{\circ}\text{C}$	—	12	150	mV	
		$5\text{mA} \leq I_O \leq 1.5\text{A}$	—	—	75		
		$0.25\text{A} \leq I_O \leq 0.75\text{A}$	—	—	150		
Quiescent Current	$I_O$	$I_O = 1\text{A}$	—	—	8	mA	
		$T_J = 25^{\circ}\text{C}$ $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$	—	—	8.5		
Quiescent Current Change	$\Delta I_O$	$5\text{mA} \leq I_O \leq 1\text{A}$	—	—	0.5	mA	
		$T_J = 25^{\circ}\text{C}$	—	—	1.0		
		$I_O \leq 1\text{A}$ , $V_I = 17.5\text{V to } 30\text{V}$	—	—	1.0		
		$V_I = 11.5\text{V to } 25\text{V}$	—	—	1.0		
Output Noise Voltage	$V_N$	$T_A = 25^{\circ}\text{C}$ , $f = 10\text{Hz to } 100\text{KHz}$	—	90	—	$\mu\text{A}$	
Ripple Rejection	RR	$f = 120\text{Hz}$ , $V_I = 18.5\text{V to } 28.5\text{V}$ $T_J = 25^{\circ}\text{C}$	54	70	—	dB	
		$f = 120\text{Hz}$ , $V_I = 15\text{V to } 25\text{V}$ $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$	54	—	—		
			—	—	—		
Dropout Voltage	$V_D$	$I_O = 1\text{A}$ , $T_J = 25^{\circ}\text{C}$	—	2.0	—	V	
Peak Output Current	$I_{PK}$	$T_J = 25^{\circ}\text{C}$	—	2.2	—	A	
Short-Circuit Current	$I_{SC}$	$V_I = 35\text{V}$ , $T_A = 25^{\circ}\text{C}$	—	250	—	mA	
Average $T_C$ of $V_O$	$\Delta V_O / \Delta T$	$I_O = 5\text{mA}$	—	$\pm 1.8$	—	$\text{mV}/^{\circ}\text{C}$	
Output Resistance	$R_O$	$f = 1\text{KHz}$	—	29	—	$\text{m}\Omega$	

### KA340T18 ELECTRICAL CHARACTERISTICS

(Refer to test circuit,  $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$ ,  $V_I = 27\text{V}$ ,  $I_O = 0.5\text{A}$ , unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit	
Output Voltage	$V_O$	$T_J = 25^{\circ}\text{C}$ , $5\text{mA} \leq I_O \leq 1.0\text{A}$	17.30	18.00	18.70	V	
		$5\text{mA} \leq I_O \leq 1.0\text{A}$ , $\text{PD} \leq 15\text{W}$ $V_I = 21\text{V to } 33\text{V}$	17.10	—	18.90		
Line Regulation	$\Delta V_O$	$T_J = 25^{\circ}\text{C}$ , $V_I = 21\text{V to } 33\text{V}$	—	5	180	mV	
		$V_I = 22\text{V to } 33\text{V}$	—	—	180		
		$I_O \leq 1\text{A}$	$V_I = 24\text{V to } 30\text{V}$	—	—		90
			$V_I = 21\text{V to } 33\text{V}$ $T_J = 25^{\circ}\text{C}$	—	—		180
Load Regulation	$\Delta V_O$	$T_J = 25^{\circ}\text{C}$	$5\text{mA} \leq I_O \leq 1.5\text{A}$	—	12	180	mV
			$0.25\text{A} \leq I_O \leq 0.75\text{A}$	—	—	90	
		$5\text{mA} \leq I_O \leq 1\text{A}$	—	—	180		
Quiescent Current	$I_Q$	$I_O = 1\text{A}$	$T_J = 25^{\circ}\text{C}$	—	—	8	mA
			$0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$	—	—	8.5	
Quiescent Current Change	$\Delta I_Q$	$5\text{mA} \leq I_O \leq 1\text{A}$	—	—	0.5	mA	
		$T_J = 25^{\circ}\text{C}$	—	—	1.0		
		$I_O \leq 1\text{A}$ , $V_I = 21.5\text{V to } 33\text{V}$	—	—	1.0		
		$V_I = 21\text{V to } 33\text{V}$	—	—	1.0		
Output Noise Voltage	$V_N$	$T_A = 25^{\circ}\text{C}$ , $f = 10\text{Hz to } 100\text{KHz}$	—	110	—	$\mu\text{A}$	
Ripple Rejection	RR	$f = 120\text{Hz}$ , $V_I = 22\text{V to } 32\text{V}$ $T_J = 25^{\circ}\text{C}$	53	69	—	dB	
		$f = 120\text{Hz}$ , $V_I = 22\text{V to } 32\text{V}$ $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$	53	—	—		
Dropout Voltage	$V_D$	$I_O = 1\text{A}$ , $T_J = 25^{\circ}\text{C}$	—	2.0	—	V	
Peak Output Current	$I_{PK}$	$T_J = 25^{\circ}\text{C}$	—	2.2	—	A	
Short-Circuit Current	$I_{SC}$	$V_I = 35\text{V}$ , $T_A = 25^{\circ}\text{C}$	—	250	—	mA	
Average $T_C$ of $V_O$	$\Delta V_O / \Delta T$	$I_O = 5\text{mA}$	—	$\pm 2.2$	—	mV/ $^{\circ}\text{C}$	
Output Resistance	$R_O$	$f = 1\text{KHz}$	—	32	—	$\text{m}\Omega$	

**KA340T24 ELECTRICAL CHARACTERISTICS**

(Refer to test circuit,  $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$ ,  $V_I = 33\text{V}$ ,  $I_O = 0.5\text{A}$ , unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	$V_O$	$T_J = 25^{\circ}\text{C}$ , $5\text{mA} \leq I_O \leq 1.0\text{A}$	23.00	24.00	25.00	V
		$5\text{mA} \leq I_O \leq 1.0\text{A}$ , $P_D \leq 15\text{W}$ $V_I = 27\text{V to } 38\text{V}$	22.80	—	25.20	
Line Regulation	$\Delta V_O$	$T_J = 25^{\circ}\text{C}$ , $V_I = 27\text{V to } 38\text{V}$	—	5	240	mV
		$V_I = 28\text{V to } 38\text{V}$	—	—	240	
		$I_O \leq 1\text{A}$ , $V_I = 30\text{V to } 36\text{V}$	—	—	120	
Load Regulation	$\Delta V_O$	$T_J = 25^{\circ}\text{C}$ , $5\text{mA} \leq I_O \leq 1.5\text{A}$	—	12	240	mV
		$0.25\text{A} \leq I_O \leq 0.75\text{A}$	—	—	120	
		$5\text{mA} \leq I_O \leq 1\text{A}$	—	—	240	
Quiescent Current	$I_Q$	$I_O = 1\text{A}$ , $T_J = 25^{\circ}\text{C}$	—	—	8	mA
		$0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$	—	—	8.5	
Quiescent Current Change	$\Delta I_Q$	$5\text{mA} \leq I_O \leq 1\text{A}$	—	—	0.5	mA
		$T_J = 25^{\circ}\text{C}$ , $I_O \leq 1\text{A}$ , $V_I = 28\text{V to } 38\text{V}$	—	—	1.0	
		$V_I = 27\text{V to } 38\text{V}$	—	—	1.0	
Output Noise Voltage	$V_N$	$T_A = 25^{\circ}\text{C}$ , $f = 10\text{Hz to } 100\text{kHz}$	—	170	—	$\mu\text{A}$
Ripple Rejection	RR	$f = 120\text{Hz}$ , $V_I = 28\text{V to } 38\text{V}$ $T_J = 25^{\circ}\text{C}$	50	66	—	dB
		$f = 120\text{Hz}$ , $V_I = 28\text{V to } 38\text{V}$ $0^{\circ}\text{C} \leq T_J \leq 125^{\circ}\text{C}$	50	—	—	
Dropout Voltage	$V_D$	$I_O = 1\text{A}$ , $T_J = 25^{\circ}\text{C}$	—	2.0	—	V
Peak Output Current	$I_{PK}$	$T_J = 25^{\circ}\text{C}$	—	2.2	—	A
Short-Circuit Current	$I_{SC}$	$V_I = 35\text{V}$ , $T_A = 25^{\circ}\text{C}$	—	250	—	mA
Average $T_C$ of $V_O$	$\Delta V_O / \Delta T$	$I_O = 5\text{mA}$	—	$\pm 2.8$	—	mV/ $^{\circ}\text{C}$
Output Resistance	$R_O$	$f = 1\text{kHz}$	—	37	—	m $\Omega$

Dimensions in Millimeters

