

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

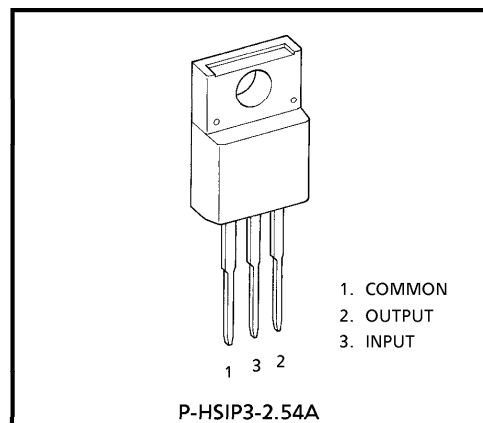
**TA79005S, TA79006S, TA79007S, TA79008S, TA79009S, TA79010S
TA79012S, TA79015S, TA79018S, TA79020S, TA79024S**

1A THREE TERMINAL NEGATIVE VOLTAGE REGULATORS

**-5 V, -6 V, -7 V, -8 V, -9 V, -10 V, -12 V, -15 V, -18 V,
-20 V, -24 V**

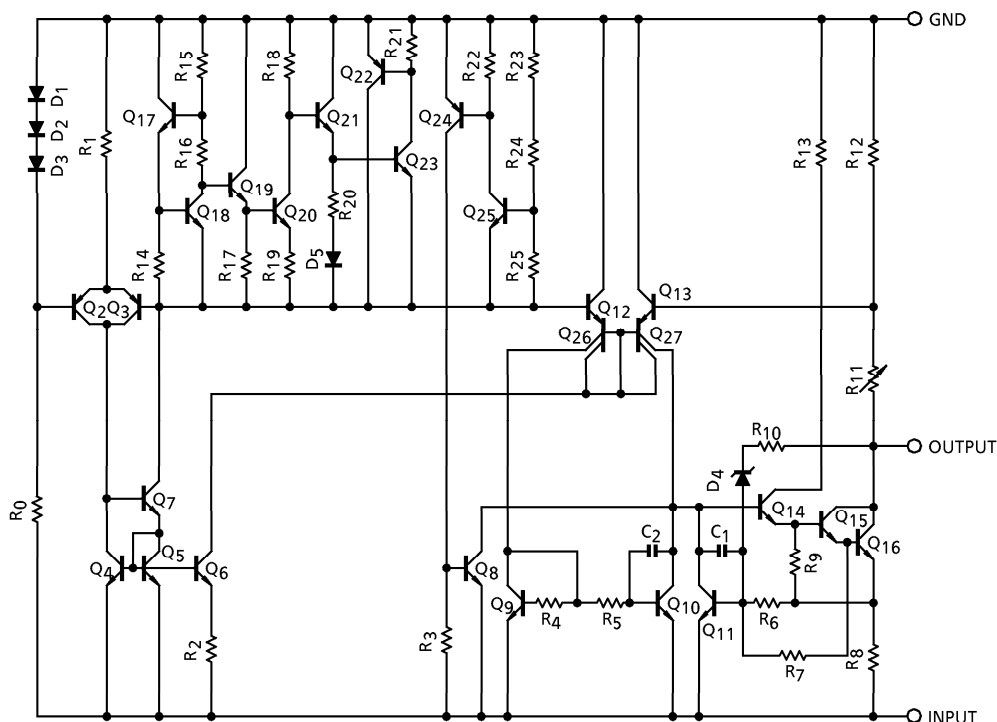
FEATURES

- Suitable for CMOS, TTL, and the other Digital IC Power Supply
- Internal Thermal Overload Protecting
- Internal Short Circuit Current Limiting
- Output Current in Excess of 1.0 A
- Metal Fin (Tab) is fully covered with Mold Resin.
(TO-220 NIS package)



Weight : 1.7 g (Typ.)

EQUIVALENT CIRCUIT



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- TOSHIBA is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc..
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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Input Voltage	TA79005S	V _{IN}	- 35	V
	TA79006S			
	TA79007S			
	TA79008S			
	TA79009S			
	TA79010S			
	TA79012S			
	TA79015S			
	TA79018S			
	TA79020S		- 40	
	TA79024S			
Power Dissipation	(Ta = 25°C)	P _D	2	W
	(Tc = 25°C)		20	
Operating Temperature		T _{opr}	- 30~85	°C
Storage Temperature		T _{stg}	- 55~150	°C
Junction Temperature		T _j	150	°C
Thermal Resistance		R _{th} (j-c)	6.25	°C / W
		R _{th} (j-a)	62.5	

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- The information contained herein is subject to change without notice.

TA79005S

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, $V_{IN} = -10\text{ V}$, $I_{OUT} = 500\text{ mA}$,
 $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $C_{IN} = 0.33\text{ }\mu\text{F}$, $C_{OUT} = 0.1\text{ }\mu\text{F}$)

CHARACTERISTIC	SYMBOL	TEST CIR- CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$	-5.2	-5.0	-4.8	V
Line Regulation	Reg·line	1	$T_j = 25^\circ\text{C}$	—	7	50	mV
			$-12\text{ V} \leq V_{IN} \leq -8\text{ V}$ $-25\text{ V} \leq V_{IN} \leq -7\text{ V}$	—	35	100	
Load Regulation	Reg·load	1	$T_j = 25^\circ\text{C}$	—	11	100	mV
			$5\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$ $250\text{ mA} \leq I_{OUT} \leq 750\text{ mA}$	—	4	50	
Output Voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$ $-20\text{ V} \leq V_{IN} \leq -7\text{ V}$ $5\text{ mA} \leq I_{OUT} \leq 1.0\text{ A}$	-5.25	—	-4.75	V
Quiescent Current	I_B	1	$T_j = 25^\circ\text{C}$	—	4.3	8.0	mA
Quiescent Current Change	Line	1	$-25\text{ V} \leq V_{IN} \leq -7\text{ V}$, $T_j = 25^\circ\text{C}$	—	—	1.3	mA
	Load		$5\text{ mA} \leq I_{OUT} \leq 1.0\text{ A}$, $T_j = 25^\circ\text{C}$	—	—	0.5	
Output Noise Voltage	V_{NO}	2	$T_a = 25^\circ\text{C}$, $I_{OUT} = 20\text{ mA}$, $10\text{ Hz} \leq f \leq 100\text{ kHz}$	—	40	—	μV_{rms}
Ripple Rejection	R.R.	3	$f = 120\text{ Hz}$, $I_{OUT} = 20\text{ mA}$, $T_j = 25^\circ\text{C}$	63	70	—	dB
Short Circuit Current Limit	I_{SC}	1	$T_j = 25^\circ\text{C}$	—	1.9	—	A
Dropout Voltage	V_D	1	$T_j = 25^\circ\text{C}$, $I_{OUT} = 1.0\text{ A}$	—	2.0	—	V
Average Temperature Coefficient Of Output Voltage	T_{CVO}	1	$I_{OUT} = 5.0\text{ mA}$	—	0.6	—	$\text{mV}/^\circ\text{C}$

TA79006S

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, $V_{IN} = -11\text{ V}$, $I_{OUT} = 500\text{ mA}$,
 $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $C_{IN} = 0.33\text{ }\mu\text{F}$, $C_{OUT} = 0.1\text{ }\mu\text{F}$)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$	-6.25	-6.0	-5.75	V
Line Regulation	Reg·line	1	$T_j = 25^\circ\text{C}$	—	9	60	mV
			$-13\text{ V} \leq V_{IN} \leq -9\text{ V}$ $-25\text{ V} \leq V_{IN} \leq -8\text{ V}$	—	43	120	
Load Regulation	Reg·load	1	$T_j = 25^\circ\text{C}$	—	13	120	mV
			$5\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$ $250\text{ mA} \leq I_{OUT} \leq 750\text{ mA}$	—	5	60	
Output Voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$ $-21\text{ V} \leq V_{IN} \leq -8\text{ V}$ $5\text{ mA} \leq I_{OUT} \leq 1.0\text{ A}$	-6.3	—	-5.7	V
Quiescent Current	I_B	1	$T_j = 25^\circ\text{C}$	—	4.3	8.0	mA
Quiescent Current Change	Line	1	$-25\text{ V} \leq V_{IN} \leq -8\text{ V}$, $T_j = 25^\circ\text{C}$	—	—	1.3	mA
	Load		$5\text{ mA} \leq I_{OUT} \leq 1.0\text{ A}$, $T_j = 25^\circ\text{C}$	—	—	0.5	
Output Noise Voltage	V_{NO}	2	$T_a = 25^\circ\text{C}$, $I_{OUT} = 20\text{ mA}$, $10\text{ Hz} \leq f \leq 100\text{ kHz}$	—	45	—	μV_{rms}
Ripple Rejection	R.R.	3	$f = 120\text{ Hz}$, $I_{OUT} = 20\text{ mA}$, $T_j = 25^\circ\text{C}$	61	68	—	dB
Short Circuit Current Limit	I_{SC}	1	$T_j = 25^\circ\text{C}$	—	1.9	—	A
Dropout Voltage	V_D	1	$T_j = 25^\circ\text{C}$, $I_{OUT} = 1.0\text{ A}$	—	2.0	—	V
Average Temperature Coefficient Of Output Voltage	T_{CVO}	1	$I_{OUT} = 5.0\text{ mA}$	—	0.7	—	$\text{mV}/^\circ\text{C}$

TA79007S

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, $V_{IN} = -12\text{ V}$, $I_{OUT} = 500\text{ mA}$,
 $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $C_{IN} = 0.33\text{ }\mu\text{F}$, $C_{OUT} = 0.1\text{ }\mu\text{F}$)

CHARACTERISTIC	SYMBOL	TEST CIR- CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$	-7.28	-7.0	-6.72	V
Line Regulation	Reg·line	1	$T_j = 25^\circ\text{C}$	—	10	70	mV
			$-15\text{ V} \leq V_{IN} \leq -10\text{ V}$ $-25\text{ V} \leq V_{IN} \leq -9\text{ V}$	—	45	140	
Load Regulation	Reg·load	1	$T_j = 25^\circ\text{C}$	—	20	140	mV
			$5\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$ $250\text{ mA} \leq I_{OUT} \leq 750\text{ mA}$	—	7	70	
Output Voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$ $-22\text{ V} \leq V_{IN} \leq -9\text{ V}$ $5\text{ mA} \leq I_{OUT} \leq 1.0\text{ A}$	-7.35	—	-6.65	V
Quiescent Current	I_B	1	$T_j = 25^\circ\text{C}$	—	4.3	8.0	mA
Quiescent Current Change	Line	ΔI_B	$-25\text{ V} \leq V_{IN} \leq -9\text{ V}$, $T_j = 25^\circ\text{C}$	—	—	1.0	mA
	Load		$5\text{ mA} \leq I_{OUT} \leq 1.0\text{ A}$, $T_j = 25^\circ\text{C}$	—	—	0.5	
Output Noise Voltage	V_{NO}	2	$T_a = 25^\circ\text{C}$, $I_{OUT} = 20\text{ mA}$, $10\text{ Hz} \leq f \leq 100\text{ kHz}$	—	49	—	μV_{rms}
Ripple Rejection	R.R.	3	$f = 120\text{ Hz}$, $I_{OUT} = 20\text{ mA}$, $T_j = 25^\circ\text{C}$	60	67	—	dB
Short Circuit Current Limit	I_{SC}	1	$T_j = 25^\circ\text{C}$	—	1.9	—	A
Dropout Voltage	V_D	1	$T_j = 25^\circ\text{C}$, $I_{OUT} = 1.0\text{ A}$	—	2.0	—	V
Average Temperature Coefficient Of Output Voltage	T_{CVO}	1	$I_{OUT} = 5.0\text{ mA}$	—	0.9	—	$\text{mV}/^\circ\text{C}$

TA79008S

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, $V_{IN} = -14\text{ V}$, $I_{OUT} = 500\text{ mA}$,
 $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $C_{IN} = 0.33\text{ }\mu\text{F}$, $C_{OUT} = 0.1\text{ }\mu\text{F}$)

CHARACTERISTIC	SYMBOL	TEST CIR- CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$	-8.3	-8.0	-7.7	V
Line Regulation	Reg·line	1	$T_j = 25^\circ\text{C}$	-	11	80	mV
			$-17\text{ V} \leq V_{IN} \leq -11\text{ V}$ $-25\text{ V} \leq V_{IN} \leq -10.5\text{ V}$	-	47	160	
Load Regulation	Reg·load	1	$T_j = 25^\circ\text{C}$	-	26	160	mV
			$5\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$ $250\text{ mA} \leq I_{OUT} \leq 750\text{ mA}$	-	9	80	
Output Voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$ $-23\text{ V} \leq V_{IN} \leq -10.5\text{ V}$ $5\text{ mA} \leq I_{OUT} \leq 1.0\text{ A}$	-8.4	-	-7.6	V
Quiescent Current	I_B	1	$T_j = 25^\circ\text{C}$	-	4.3	8.0	mA
Quiescent Current Change	Line	1	$-25\text{ V} \leq V_{IN} \leq -10.5\text{ V}$, $T_j = 25^\circ\text{C}$	-	-	1.0	mA
	Load	1	$5\text{ mA} \leq I_{OUT} \leq 1.0\text{ A}$, $T_j = 25^\circ\text{C}$	-	-	0.5	
Output Noise Voltage	V_{NO}	2	$T_a = 25^\circ\text{C}$, $I_{OUT} = 20\text{ mA}$, $10\text{ Hz} \leq f \leq 100\text{ kHz}$	-	52	-	μV_{rms}
Ripple Rejection	R.R.	3	$f = 120\text{ Hz}$, $I_{OUT} = 20\text{ mA}$, $T_j = 25^\circ\text{C}$	59	66	-	dB
Short Circuit Current Limit	I_{SC}	1	$T_j = 25^\circ\text{C}$	-	1.9	-	A
Dropout Voltage	V_D	1	$T_j = 25^\circ\text{C}$, $I_{OUT} = 1.0\text{ A}$	-	2.0	-	V
Average Temperature Coefficient Of Output Voltage	T_{CVO}	1	$I_{OUT} = 5.0\text{ mA}$	-	1.0	-	$\text{mV}/^\circ\text{C}$

TA79009S

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, $V_{IN} = -15\text{ V}$, $I_{OUT} = 500\text{ mA}$,
 $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $C_{IN} = 0.33\text{ }\mu\text{F}$, $C_{OUT} = 0.1\text{ }\mu\text{F}$)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$	-9.3	-9.0	-8.7	V
Line Regulation	Reg·line	1	$T_j = 25^\circ\text{C}$	—	11	82	mV
			$-19\text{ V} \leq V_{IN} \leq -13\text{ V}$ $-26\text{ V} \leq V_{IN} \leq -11.5\text{ V}$	—	48	162	
Load Regulation	Reg·load	1	$T_j = 25^\circ\text{C}$	—	33	162	mV
			$5\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$ $250\text{ mA} \leq I_{OUT} \leq 750\text{ mA}$	—	11	82	
Output Voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$ $-24\text{ V} \leq V_{IN} \leq -11.5\text{ V}$ $5\text{ mA} \leq I_{OUT} \leq 1.0\text{ A}$	-9.4	—	-8.6	V
Quiescent Current	I_B	1	$T_j = 25^\circ\text{C}$	—	4.3	8.0	mA
Quiescent Current Change	Line	1	$-26.5\text{ V} \leq V_{IN} \leq -13\text{ V}$, $T_j = 25^\circ\text{C}$	—	—	1.0	mA
	Load	1	$5\text{ mA} \leq I_{OUT} \leq 1.0\text{ A}$, $T_j = 25^\circ\text{C}$	—	—	0.5	
Output Noise Voltage	V_{NO}	2	$T_a = 25^\circ\text{C}$, $I_{OUT} = 20\text{ mA}$, $10\text{ Hz} \leq f \leq 100\text{ kHz}$	—	60	—	μV_{rms}
Ripple Rejection	R.R.	3	$f = 120\text{ Hz}$, $I_{OUT} = 20\text{ mA}$, $T_j = 25^\circ\text{C}$	57	64	—	dB
Short Circuit Current Limit	I_{SC}	1	$T_j = 25^\circ\text{C}$	—	1.9	—	A
Dropout Voltage	V_D	1	$T_j = 25^\circ\text{C}$, $I_{OUT} = 1.0\text{ A}$	—	2.0	—	V
Average Temperature Coefficient Of Output Voltage	T_{CVO}	1	$I_{OUT} = 5.0\text{ mA}$	—	1.1	—	$\text{mV}/^\circ\text{C}$

TA79010S

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, $V_{IN} = -16\text{ V}$, $I_{OUT} = 500\text{ mA}$,
 $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $C_{IN} = 0.33\text{ }\mu\text{F}$, $C_{OUT} = 0.1\text{ }\mu\text{F}$)

CHARACTERISTIC		SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Output Voltage		V _{OUT}	1	T _j = 25°C	− 10.4	− 10	− 9.6	V	
Line Regulation		Reg·line	1	T _j = 25°C	− 20 V ≤ V _{IN} ≤ − 14 V	—	12	90	
				− 27 V ≤ V _{IN} ≤ − 12.5 V	—	50	180		
Load Regulation		Reg·load	1	T _j = 25°C	5 mA ≤ I _{OUT} ≤ 1.5 A	—	40	180	
				250 mA ≤ I _{OUT} ≤ 750 mA	—	13	90		
Output Voltage		V _{OUT}	1	T _j = 25°C	− 25 V ≤ V _{IN} ≤ − 12.5 V 5 mA ≤ I _{OUT} ≤ 1.0 A	− 10.5	—	− 9.5	V
Quiescent Current		I _B	1	T _j = 25°C	—	4.4	8.0	mA	
Quiescent Current Change	Line	ΔI _B	1	− 27.5 V ≤ V _{IN} ≤ − 14 V, T _j = 25°C	—	—	1.0	mA	
	Load		1	5 mA ≤ I _{OUT} ≤ 1.0 A, T _j = 25°C	—	—	0.5		
Output Noise Voltage		V _{NO}	2	T _a = 25°C, I _{OUT} = 20 mA, 10 Hz ≤ f ≤ 100 kHz	—	65	—	μV _{rms}	
Ripple Rejection		R.R.	3	f = 120 Hz, I _{OUT} = 20 mA, T _j = 25°C	57	63	—	dB	
Short Circuit Current Limit		I _{SC}	1	T _j = 25°C	—	1.9	—	A	
Dropout Voltage		V _D	1	T _j = 25°C, I _{OUT} = 1.0 A	—	2.0	—	V	
Average Temperature Coefficient Of Output Voltage		T _{CVO}	1	I _{OUT} = 5.0 mA	—	1.3	—	mV / °C	

TA79012S

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, $V_{IN} = -19\text{ V}$, $I_{OUT} = 500\text{ mA}$,
 $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $C_{IN} = 0.33\text{ }\mu\text{F}$, $C_{OUT} = 0.1\text{ }\mu\text{F}$)

CHARACTERISTIC	SYMBOL	TEST CIR- CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$	-12.5	-12	-11.5	V
Line Regulation	Reg·line	1	$T_j = 25^\circ\text{C}$				
			$-22\text{ V} \leq V_{IN} \leq -16\text{ V}$	—	13	120	mV
			$-30\text{ V} \leq V_{IN} \leq -14.5\text{ V}$	—	55	240	
Load Regulation	Reg·load	1	$T_j = 25^\circ\text{C}$				
			$5\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$	—	46	240	mV
			$250\text{ mA} \leq I_{OUT} \leq 750\text{ mA}$	—	17	120	
Output Voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$	-12.6	—	-11.4	V
Quiescent Current	I_B	1	$T_j = 25^\circ\text{C}$	—	4.4	8.0	mA
Quiescent Current Change	Line	1	$-30\text{ V} \leq V_{IN} \leq -14.5\text{ V}$, $T_j = 25^\circ\text{C}$	—	—	1.0	mA
	Load	1	$5\text{ mA} \leq I_{OUT} \leq 1.0\text{ A}$, $T_j = 25^\circ\text{C}$	—	—	0.5	
Output Noise Voltage	V_{NO}	2	$T_a = 25^\circ\text{C}$, $I_{OUT} = 20\text{ mA}$, $10\text{ Hz} \leq f \leq 100\text{ kHz}$	—	75	—	μV_{rms}
Ripple Rejection	R.R.	3	$f = 120\text{ Hz}$, $I_{OUT} = 20\text{ mA}$, $T_j = 25^\circ\text{C}$	54	61	—	dB
Short Circuit Current Limit	I_{SC}	1	$T_j = 25^\circ\text{C}$	—	1.9	—	A
Dropout Voltage	V_D	1	$T_j = 25^\circ\text{C}$, $I_{OUT} = 1.0\text{ A}$	—	2.0	—	V
Average Temperature Coefficient Of Output Voltage	T_{CVO}	1	$I_{OUT} = 5.0\text{ mA}$	—	1.6	—	$\text{mV}/^\circ\text{C}$

TA79015S

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, $V_{IN} = -23\text{ V}$, $I_{OUT} = 500\text{ mA}$,
 $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $C_{IN} = 0.33\text{ }\mu\text{F}$, $C_{OUT} = 0.1\text{ }\mu\text{F}$)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$	-15.6	-15	-14.4	V
Line Regulation	Reg·line	1	$T_j = 25^\circ\text{C}$	-	14	150	mV
			$-26\text{ V} \leq V_{IN} \leq -20\text{ V}$ $-30\text{ V} \leq V_{IN} \leq -17.5\text{ V}$	-	57	300	
Load Regulation	Reg·load	1	$T_j = 25^\circ\text{C}$	-	68	300	mV
			$5\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$ $250\text{ mA} \leq I_{OUT} \leq 750\text{ mA}$	-	25	150	
Output Voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$ $-30\text{ V} \leq V_{IN} \leq -17.5\text{ V}$ $5\text{ mA} \leq I_{OUT} \leq 1.0\text{ A}$	-15.75	-	-14.25	V
Quiescent Current	I_B	1	$T_j = 25^\circ\text{C}$	-	4.4	8.0	mA
Quiescent Current Change	Line	1	$-30\text{ V} \leq V_{IN} \leq -17.5\text{ V}$, $T_j = 25^\circ\text{C}$	-	-	1.0	mA
	Load	1	$5\text{ mA} \leq I_{OUT} \leq 1.0\text{ A}$, $T_j = 25^\circ\text{C}$	-	-	0.5	
Output Noise Voltage	V_{NO}	2	$T_a = 25^\circ\text{C}$, $I_{OUT} = 20\text{ mA}$, $10\text{ Hz} \leq f \leq 100\text{ kHz}$	-	90	-	μV_{rms}
Ripple Rejection	R.R.	3	$f = 120\text{ Hz}$, $I_{OUT} = 20\text{ mA}$, $T_j = 25^\circ\text{C}$	53	60	-	dB
Short Circuit Current Limit	I_{SC}	1	$T_j = 25^\circ\text{C}$	-	1.9	-	A
Dropout Voltage	V_D	1	$T_j = 25^\circ\text{C}$, $I_{OUT} = 1.0\text{ A}$	-	2.0	-	V
Average Temperature Coefficient Of Output Voltage	T_{CVO}	1	$I_{OUT} = 5.0\text{ mA}$	-	2.0	-	$\text{mV}/^\circ\text{C}$

TA79018S

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, $V_{IN} = -27\text{ V}$, $I_{OUT} = 500\text{ mA}$,
 $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $C_{IN} = 0.33\text{ }\mu\text{F}$, $C_{OUT} = 0.1\text{ }\mu\text{F}$)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Output Voltage	V _{OUT}	1	T _j = 25°C		− 18.7	− 18	− 17.3	V
Line Regulation	Reg·line	1	T _j = 25°C	− 30V ≤ V _{IN} ≤ − 24V	—	25	180	mV
				− 33 V ≤ V _{IN} ≤ − 21 V	—	80	360	
Load Regulation	Reg·load	1	T _j = 25°C	5 mA ≤ I _{OUT} ≤ 1.5 A	—	110	360	mV
				250 mA ≤ I _{OUT} ≤ 750 mA	—	55	180	
Output Voltage	V _{OUT}	1	T _j = 25°C	− 33 V ≤ V _{IN} ≤ − 21 V 5 mA ≤ I _{OUT} ≤ 1.0 A	− 18.85	—	− 17.15	V
Quiescent Current		I _B	1	T _j = 25°C	—	4.5	8.0	mA
Quiescent Current Change	Line	ΔI _B	1	− 33 V ≤ V _{IN} ≤ − 21 V, T _j = 25°C	—	—	1.0	mA
	Load		1	5 mA ≤ I _{OUT} ≤ 1.0 A, T _j = 25°C	—	—	0.5	
Output Noise Voltage	V _{NO}	2	T _a = 25°C, I _{OUT} = 20 mA, 10 Hz ≤ f ≤ 100 kHz		—	110	—	μV _{rms}
Ripple Rejection	R.R.	3	f = 120 Hz, I _{OUT} = 20 mA, T _j = 25°C		52	59	—	dB
Short Circuit Current Limit	I _{SC}	1	T _j = 25°C		—	1.9	—	A
Dropout Voltage	V _D	1	T _j = 25°C, I _{OUT} = 1.0 A		—	2.0	—	V
Average Temperature Coefficient Of Output Voltage	T _{CVO}	1	I _{OUT} = 5.0 mA		—	2.5	—	mV / °C

TA79020S

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, $V_{IN} = -30\text{ V}$, $I_{OUT} = 500\text{ mA}$,
 $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $C_{IN} = 0.33\text{ }\mu\text{F}$, $C_{OUT} = 0.1\text{ }\mu\text{F}$)

CHARACTERISTIC	SYMBOL	TEST CIR- CUIT	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Output Voltage	V _{OUT}	1	T _j = 25°C		- 20.8	- 20	- 19.2	V
Line Regulation	Reg·line	1	T _j = 25°C	- 32 V ≤ V _{IN} ≤ - 26 V	—	28	180	mV
				- 35 V ≤ V _{IN} ≤ - 24 V	—	104	360	
Load Regulation	Reg·load	1	T _j = 25°C	5 mA ≤ I _{OUT} ≤ 1.5 A	—	130	360	mV
				250 mA ≤ I _{OUT} ≤ 750 mA	—	70	180	
Output Voltage	V _{OUT}	1	T _j = 25°C	- 35 V ≤ V _{IN} ≤ - 24 V 5 mA ≤ I _{OUT} ≤ 1.0 A	- 21.0	—	- 19.0	V
Quiescent Current		I _B	1	T _j = 25°C	—	4.6	8.0	mA
Quiescent Current Change	Line	ΔI _B	1	- 36.5 V ≤ V _{IN} ≤ - 25 V, T _j = 25°C	—	—	1.0	mA
	Load		1	5 mA ≤ I _{OUT} ≤ 1.0 A, T _j = 25°C	—	—	0.5	
Output Noise Voltage	V _{NO}	2	T _a = 25°C, I _{OUT} = 20 mA, 10 Hz ≤ f ≤ 100 kHz		—	140	—	μV _{rms}
Ripple Rejection	R.R.	3	f = 120 Hz, I _{OUT} = 20 mA, T _j = 25°C		50	57	—	dB
Short Circuit Current Limit	I _{SC}	1	T _j = 25°C		—	1.9	—	A
Dropout Voltage	V _D	1	T _j = 25°C, I _{OUT} = 1.0 A		—	2.0	—	V
Average Temperature Coefficient Of Output Voltage	T _{CVO}	1	I _{OUT} = 5.0 mA		—	3.0	—	mV / °C

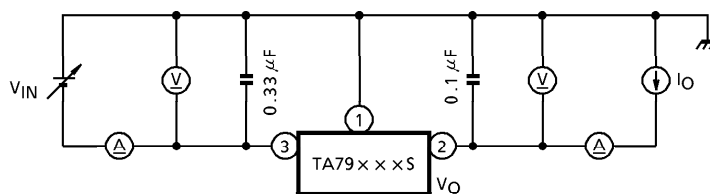
TA79024S

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, $V_{IN} = -33\text{ V}$, $I_{OUT} = 500\text{ mA}$,
 $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $C_{IN} = 0.33\text{ }\mu\text{F}$, $C_{OUT} = 0.1\text{ }\mu\text{F}$)

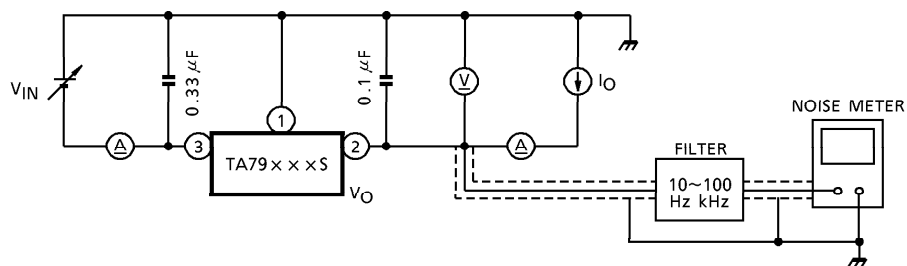
CHARACTERISTIC	SYMBOL	TEST CIR- CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$	-25.0	-24	-23.0	V
Line Regulation	Reg·line	1	$T_j = 25^\circ\text{C}$	—	31	240	mV
			$-36\text{ V} \leq V_{IN} \leq -30\text{ V}$ $-38\text{ V} \leq V_{IN} \leq -27\text{ V}$	—	118	480	
Load Regulation	Reg·load	1	$T_j = 25^\circ\text{C}$	—	150	480	mV
			$5\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$ $250\text{ mA} \leq I_{OUT} \leq 750\text{ mA}$	—	85	240	
Output Voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$ $-38\text{ V} \leq V_{IN} \leq -27\text{ V}$ $5\text{ mA} \leq I_{OUT} \leq 1.0\text{ A}$	-25.2	—	-22.8	V
Quiescent Current	I_B	1	$T_j = 25^\circ\text{C}$	—	4.6	8.0	mA
Quiescent Current Change	Line	1	$-38\text{ V} \leq V_{IN} \leq -27\text{ V}$, $T_j = 25^\circ\text{C}$	—	—	1.0	mA
	Load	1	$5\text{ mA} \leq I_{OUT} \leq 1.0\text{ A}$, $T_j = 25^\circ\text{C}$	—	—	0.5	
Output Noise Voltage	V_{NO}	2	$T_a = 25^\circ\text{C}$, $I_{OUT} = 20\text{ mA}$, $10\text{ Hz} \leq f \leq 100\text{ kHz}$	—	170	—	μV_{rms}
Ripple Rejection	R.R.	3	$f = 120\text{ Hz}$, $I_{OUT} = 20\text{ mA}$, $T_j = 25^\circ\text{C}$	49	56	—	dB
Short Circuit Current Limit	I_{SC}	1	$T_j = 25^\circ\text{C}$	—	1.9	—	A
Dropout Voltage	V_D	1	$T_j = 25^\circ\text{C}$, $I_{OUT} = 1.0\text{ A}$	—	2.0	—	V
Average Temperature Coefficient Of Output Voltage	T_{CVO}	1	$I_{OUT} = 5.0\text{ mA}$	—	3.5	—	$\text{mV}/^\circ\text{C}$

TEST CIRCUIT

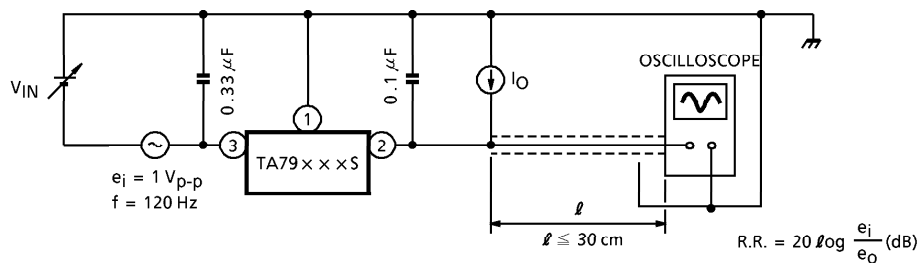
1. V_{OUT} , Reg.line, Reg.load, I_B , ΔI_B , V_D , T_{CVO}



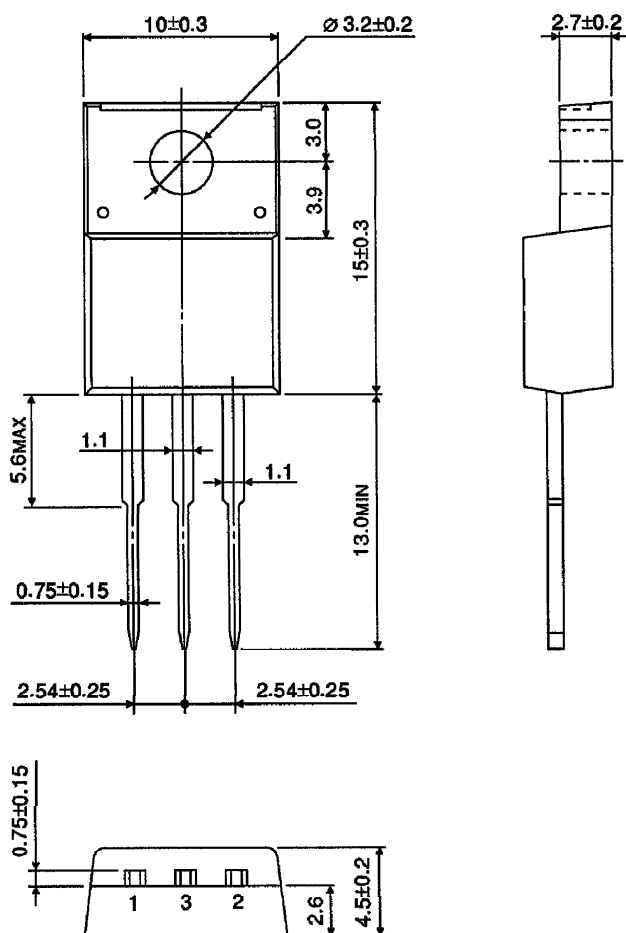
2. V_{NO}



3. R.R.



Unit : mm



Weight : 1.7 g (Typ.)