

TOSHIBA Bipolar Linear Integrated Circuit Silicon Monolithic

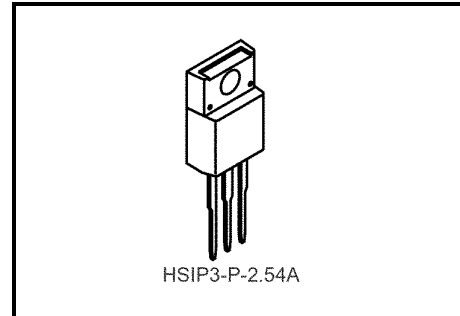
## TA79005S, TA79006S, TA79007S, TA79008S, TA79009S, TA79010S, TA79012S, TA79015S, TA79018S, TA79020S, TA79024S

Output Current of 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

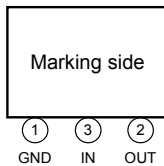
### Features

- Suitable for CMOS, TTL, and the power supply of other digital ICs
- Internal thermal overload protection
- Internal short circuit current limiting
- Maximum output current of 1.0 A
- Metal fin (tab) fully covered with mold resin (TO-220 NIS package)

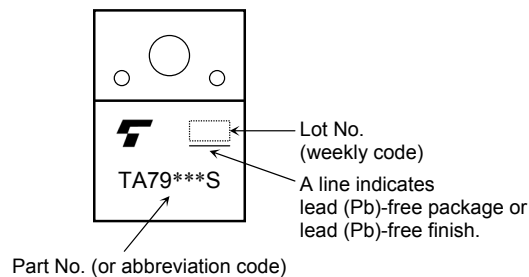


Weight: 1.7 g (typ.)

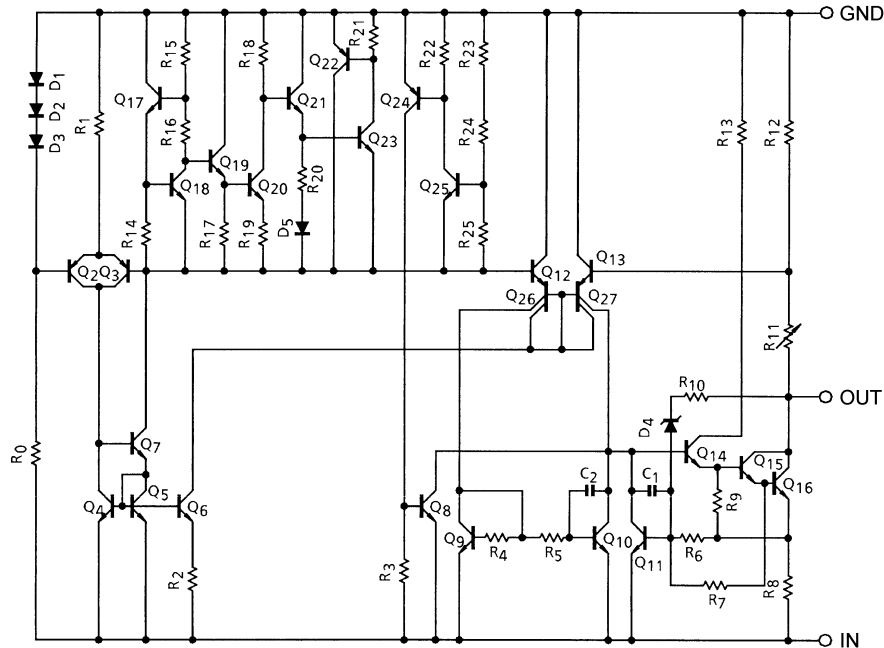
### Pin Assignment



### Marking



## Equivalent Circuit



## Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit			
Input voltage	V <sub>IN</sub>	-35	V			
		-40				
		2		W		
		20				
		Operating temperature		T <sub>opr</sub>	-30~85	°C
		Storage temperature		T <sub>stg</sub>	-55~150	°C
		Junction temperature		T <sub>j</sub>	150	°C
		Thermal resistance		R <sub>th(j-c)</sub>	6.25	°C/W
				R <sub>th(j-a)</sub>	62.5	

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings and the operating ranges.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

## TA79005S

### Electrical Characteristics

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

Characteristics	Symbol	Test Circuit	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	$T_j = 25^\circ\text{C}$	$-12\text{ V} \leq V_{IN} \leq -8\text{ V}$	—	7	50	mV
				$-25\text{ V} \leq V_{IN} \leq -7\text{ V}$	—	35	100	
Load regulation	Reg-load	1	$T_j = 25^\circ\text{C}$	$5\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$	—	11	100	mV
				$250\text{ mA} \leq I_{OUT} \leq 750\text{ mA}$	—	4	50	
Output voltage	$V_{OUT}$	1	$T_j = 25^\circ\text{C}$	-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	$\Delta I_B$	1	$T_j = 25^\circ\text{C}$	—	—	1.3	mA
	Load							
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	—	$\mu\text{V}_{rms}$	
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,  $V_{IN} = -11\text{ V}$ ,  $I_{OUT} = 500\text{ mA}$ ,  $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$ ,  $C_{IN} = 0.33\ \mu\text{F}$ ,  $C_{OUT} = 0.1\ \mu\text{F}$ )

Characteristics	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	$T_j = 25^\circ\text{C}$	$-13\text{ V} \leq V_{IN} \leq -9\text{ V}$	—	9	60	mV
				$-25\text{ V} \leq V_{IN} \leq -8\text{ V}$	—	43	120	
Load regulation	Reg-load	1	$T_j = 25^\circ\text{C}$	$5\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$	—	13	120	mV
				$250\text{ mA} \leq I_{OUT} \leq 750\text{ mA}$	—	5	60	
Output voltage	$V_{OUT}$	1	$T_j = 25^\circ\text{C}$	-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	$\Delta I_B$	1	$T_j = 25^\circ\text{C}$	—	—	1.3	mA
	Load							
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	—	$\mu\text{V}_{rms}$	
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,  $V_{IN} = -12\text{ V}$ ,  $I_{OUT} = 500\text{ mA}$ ,  $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$ ,  $C_{IN} = 0.33\ \mu\text{F}$ ,  $C_{OUT} = 0.1\ \mu\text{F}$ )

Characteristics	Symbol	Test Circuit	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	$T_j = 25^\circ\text{C}$	$-15\text{ V} \leq V_{IN} \leq -10\text{ V}$	—	10	70	mV	
				$-25\text{ V} \leq V_{IN} \leq -9\text{ V}$	—	45	140		
Load regulation	Reg-load	1	$T_j = 25^\circ\text{C}$	$5\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$	—	20	140	mV	
				$250\text{ mA} \leq I_{OUT} \leq 750\text{ mA}$	—	7	70		
Output voltage	$V_{OUT}$	1	$T_j = 25^\circ\text{C}$	-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	$\Delta I_B$	1	$T_j = 25^\circ\text{C}$	$-25\text{ V} \leq V_{IN} \leq -9\text{ V}$	—	—	1.0	mA
	Load							1	
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	—	$\mu\text{V}_{\text{rms}}$		
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,  $V_{IN} = -14\text{ V}$ ,  $I_{OUT} = 500\text{ mA}$ ,  $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$ ,  $C_{IN} = 0.33\ \mu\text{F}$ ,  $C_{OUT} = 0.1\ \mu\text{F}$ )

Characteristics	Symbol	Test Circuit	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	$T_j = 25^\circ\text{C}$	$-17\text{ V} \leq V_{IN} \leq -11\text{ V}$	—	11	80	mV	
				$-25\text{ V} \leq V_{IN} \leq -10.5\text{ V}$	—	47	160		
Load regulation	Reg-load	1	$T_j = 25^\circ\text{C}$	$5\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$	—	26	160	mV	
				$250\text{ mA} \leq I_{OUT} \leq 750\text{ mA}$	—	9	80		
Output voltage	$V_{OUT}$	1	$T_j = 25^\circ\text{C}$	-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	$\Delta I_B$	1	$T_j = 25^\circ\text{C}$	$-25\text{ V} \leq V_{IN} \leq -10.5\text{ V}$	—	—	1.0	mA
	Load							1	
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	—	$\mu\text{V}_{\text{rms}}$		
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,  $V_{IN} = -15\text{ V}$ ,  $I_{OUT} = 500\text{ mA}$ ,  $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$ ,  $C_{IN} = 0.33\ \mu\text{F}$ ,  $C_{OUT} = 0.1\ \mu\text{F}$ )

Characteristics	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	$T_j = 25^\circ\text{C}$	$-19\text{ V} \leq V_{IN} \leq -13\text{ V}$	—	11	82	mV
				$-26\text{ V} \leq V_{IN} \leq -11.5\text{ V}$	—	48	162	
Load regulation	Reg-load	1	$T_j = 25^\circ\text{C}$	$5\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$	—	33	162	mV
				$250\text{ mA} \leq I_{OUT} \leq 750\text{ mA}$	—	11	82	
Output voltage	$V_{OUT}$	1	$T_j = 25^\circ\text{C}$	-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	$\Delta I_B$	1	$T_j = 25^\circ\text{C}$	—	—	1.0	mA
	Load							
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	—	$\mu\text{V}_{rms}$	
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,  $V_{IN} = -16\text{ V}$ ,  $I_{OUT} = 500\text{ mA}$ ,  $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$ ,  $C_{IN} = 0.33\ \mu\text{F}$ ,  $C_{OUT} = 0.1\ \mu\text{F}$ )

Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit	
Output voltage	$V_{OUT}$	1	$T_j = 25^\circ\text{C}$	-10.4	-10.0	-9.6	V	
Line regulation	Reg-line	1	$T_j = 25^\circ\text{C}$	$-20\text{ V} \leq V_{IN} \leq -14\text{ V}$	—	12	90	mV
				$-27\text{ V} \leq V_{IN} \leq -12.5\text{ V}$	—	50	180	
Load regulation	Reg-load	1	$T_j = 25^\circ\text{C}$	$5\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$	—	40	180	mV
				$250\text{ mA} \leq I_{OUT} \leq 750\text{ mA}$	—	13	90	
Output voltage	$V_{OUT}$	1	$T_j = 25^\circ\text{C}$	-10.5	—	-9.5	V	
Quiescent current	$I_B$	1	$T_j = 25^\circ\text{C}$	—	4.4	8.0	mA	
Quiescent current change	Line	$\Delta I_B$	1	$T_j = 25^\circ\text{C}$	—	—	1.0	mA
	Load							
Output noise voltage	$V_{NO}$	2	$T_a = 25^\circ\text{C}$ , $I_{OUT} = 20\text{ mA}$ , $10\text{ Hz} \leq f \leq 100\text{ kHz}$	—	65	—	$\mu\text{V}_{rms}$	
Ripple rejection	R.R.	3	$f = 120\text{ Hz}$ , $I_{OUT} = 20\text{ mA}$ , $T_j = 25^\circ\text{C}$	57	63	—	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	$I_{OUT} = 5.0\text{ mA}$	—	1.3	—	$\text{mV}/^\circ\text{C}$	

## TA79012S

### Electrical Characteristics

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

Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit	
Output voltage	$V_{OUT}$	1	$T_j = 25^\circ\text{C}$	-12.5	-12.0	-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	$\Delta I_B$	1	$T_j = 25^\circ\text{C}$	—	—	1.0	mA
	Load							
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	—	$\mu\text{V}_{rms}$	
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,  $V_{IN} = -23\text{ V}$ ,  $I_{OUT} = 500\text{ mA}$ ,  $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$ ,  $C_{IN} = 0.33\ \mu\text{F}$ ,  $C_{OUT} = 0.1\ \mu\text{F}$ )

Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit	
Output voltage	$V_{OUT}$	1	$T_j = 25^\circ\text{C}$	-15.6	-15.0	-14.4	V	
Line regulation	Reg-line	1	$T_j = 25^\circ\text{C}$	$-26\text{ V} \leq V_{IN} \leq -20\text{ V}$	—	14	150	mV
				$-30\text{ V} \leq V_{IN} \leq -17.5\text{ V}$	—	57	300	
Load regulation	Reg-load	1	$T_j = 25^\circ\text{C}$	$5\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$	—	68	300	mV
				$250\text{ mA} \leq I_{OUT} \leq 750\text{ mA}$	—	25	150	
Output voltage	$V_{OUT}$	1	$T_j = 25^\circ\text{C}$	-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	$\Delta I_B$	1	$T_j = 25^\circ\text{C}$	—	—	1.0	mA
	Load							
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	—	$\mu\text{V}_{rms}$	
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,  $V_{IN} = -27\text{ V}$ ,  $I_{OUT} = 500\text{ mA}$ ,  $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$ ,  $C_{IN} = 0.33\ \mu\text{F}$ ,  $C_{OUT} = 0.1\ \mu\text{F}$ )

Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit		
Output voltage	$V_{OUT}$	1	$T_j = 25^\circ\text{C}$	-18.7	-18.0	-17.3	V		
Line regulation	Reg-line	1	$T_j = 25^\circ\text{C}$	$-30\text{ V} \leq V_{IN} \leq -24\text{ V}$	—	25	180	mV	
				$-33\text{ V} \leq V_{IN} \leq -21\text{ V}$	—	80	360		
Load regulation	Reg-load	1	$T_j = 25^\circ\text{C}$	$5\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$	—	110	360	mV	
				$250\text{ mA} \leq I_{OUT} \leq 750\text{ mA}$	—	55	180		
Output voltage	$V_{OUT}$	1	$T_j = 25^\circ\text{C}$	-18.85	—	-17.15	V		
Quiescent current	$I_B$	1	$T_j = 25^\circ\text{C}$	—	4.5	8.0	mA		
Quiescent current change	Line	$\Delta I_B$	1	$T_j = 25^\circ\text{C}$	$-33\text{ V} \leq V_{IN} \leq -21\text{ V}$	—	—	1.0	mA
	Load							1	
Output noise voltage	$V_{NO}$	2	$T_a = 25^\circ\text{C}$ , $I_{OUT} = 20\text{ mA}$ , $10\text{ Hz} \leq f \leq 100\text{ kHz}$	—	110	—	$\mu\text{V}_{\text{rms}}$		
Ripple rejection	R.R.	3	$f = 120\text{ Hz}$ , $I_{OUT} = 20\text{ mA}$ , $T_j = 25^\circ\text{C}$	52	59	—	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	$I_{OUT} = 5.0\text{ mA}$	—	2.5	—	$\text{mV}/^\circ\text{C}$		

## TA79020S

### Electrical Characteristics

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

Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit		
Output voltage	$V_{OUT}$	1	$T_j = 25^\circ\text{C}$	-20.8	-20.0	-19.2	V		
Line regulation	Reg-line	1	$T_j = 25^\circ\text{C}$	$-32\text{ V} \leq V_{IN} \leq -26\text{ V}$	—	28	180	mV	
				$-35\text{ V} \leq V_{IN} \leq -24\text{ V}$	—	104	360		
Load regulation	Reg-load	1	$T_j = 25^\circ\text{C}$	$5\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$	—	130	360	mV	
				$250\text{ mA} \leq I_{OUT} \leq 750\text{ mA}$	—	70	180		
Output voltage	$V_{OUT}$	1	$T_j = 25^\circ\text{C}$	-21.0	—	-19.0	V		
Quiescent current	$I_B$	1	$T_j = 25^\circ\text{C}$	—	4.6	8.0	mA		
Quiescent current change	Line	$\Delta I_B$	1	$T_j = 25^\circ\text{C}$	$-36.5\text{ V} \leq V_{IN} \leq -25\text{ V}$	—	—	1.0	mA
	Load							1	
Output noise voltage	$V_{NO}$	2	$T_a = 25^\circ\text{C}$ , $I_{OUT} = 20\text{ mA}$ , $10\text{ Hz} \leq f \leq 100\text{ kHz}$	—	140	—	$\mu\text{V}_{\text{rms}}$		
Ripple rejection	R.R.	3	$f = 120\text{ Hz}$ , $I_{OUT} = 20\text{ mA}$ , $T_j = 25^\circ\text{C}$	50	57	—	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	$I_{OUT} = 5.0\text{ mA}$	—	3.0	—	$\text{mV}/^\circ\text{C}$		

## TA79024S

### Electrical Characteristics

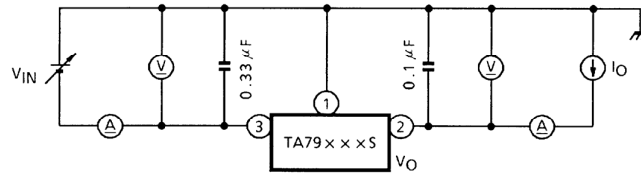
(Unless otherwise specified,  $V_{IN} = -33\text{ V}$ ,  $I_{OUT} = 500\text{ mA}$ ,  $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$ ,  $C_{IN} = 0.33\ \mu\text{F}$ ,  $C_{OUT} = 0.1\ \mu\text{F}$ )

Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit	
Output voltage	$V_{OUT}$	1	$T_j = 25^\circ\text{C}$	-25.0	-24.0	-23.0	V	
Line regulation	Reg-line	1	$T_j = 25^\circ\text{C}$	$-36\text{ V} \leq V_{IN} \leq -30\text{ V}$	—	31	240	mV
				$-38\text{ V} \leq V_{IN} \leq -27\text{ V}$	—	118	480	
Load regulation	Reg-load	1	$T_j = 25^\circ\text{C}$	$5\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$	—	150	480	mV
				$250\text{ mA} \leq I_{OUT} \leq 750\text{ mA}$	—	85	240	
Output voltage	$V_{OUT}$	1	$T_j = 25^\circ\text{C}$	-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	$T_j = 25^\circ\text{C}$	$-38\text{ V} \leq V_{IN} \leq -27\text{ V}$	—	—	1.0	mA
	Load	1			$5\text{ mA} \leq I_{OUT} \leq 1.0\text{ A}$	—	—	
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	—	$\mu\text{V}_{rms}$	
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	—	$\text{mV}/^\circ\text{C}$	



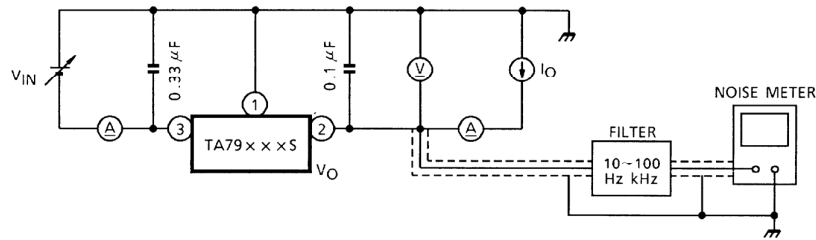
**Test Circuit 1**

$V_{OUT}$ , Reg-line, Reg-load,  $I_B$ ,  $\Delta I_B$ ,  $V_D$ ,  $T_{cvo}$



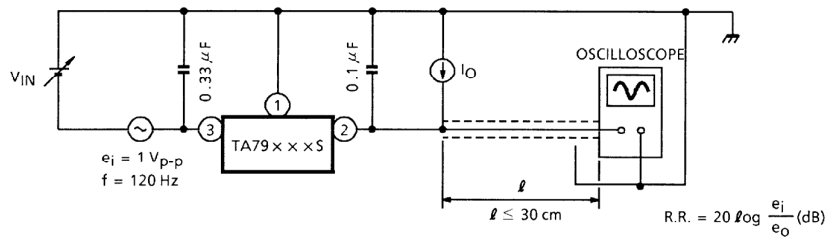
**Test Circuit 2**

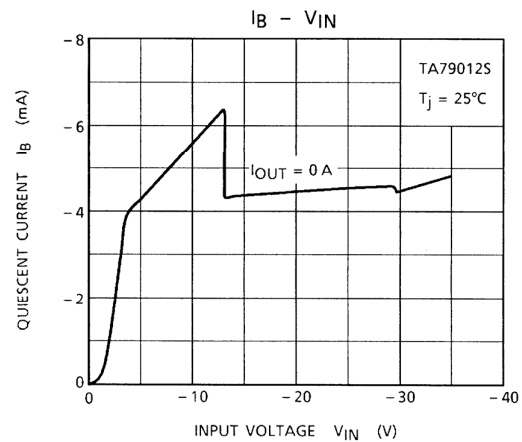
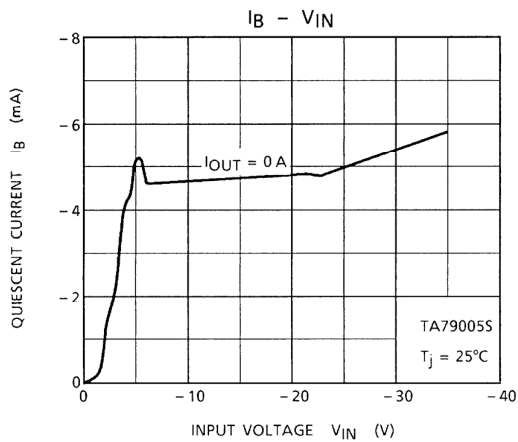
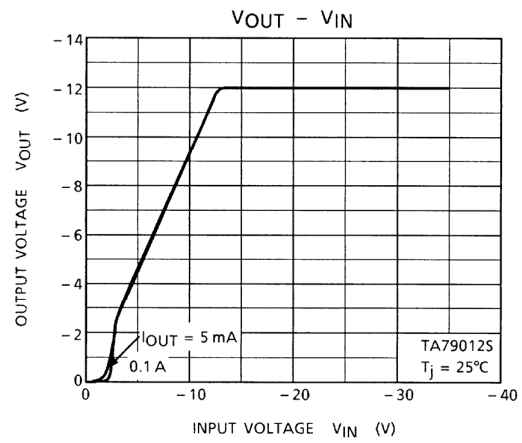
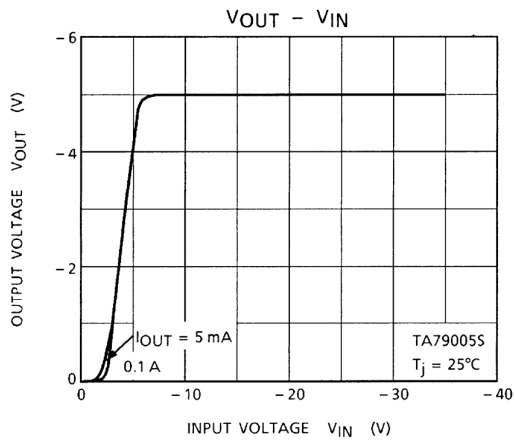
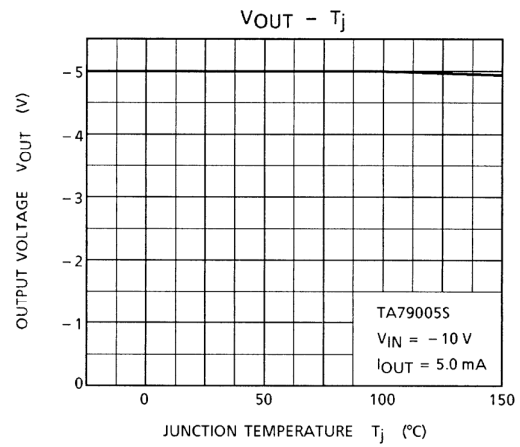
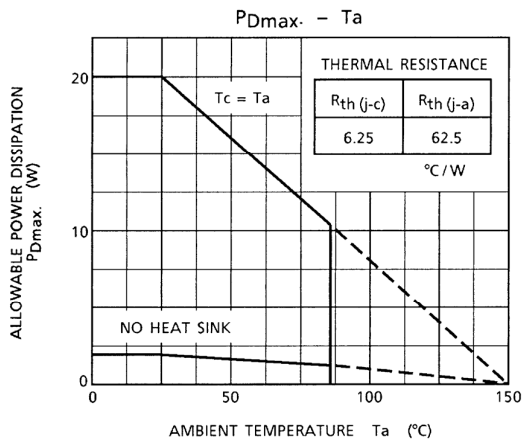
$V_{NO}$

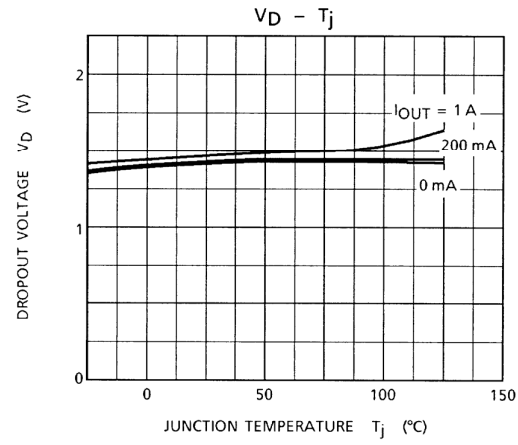
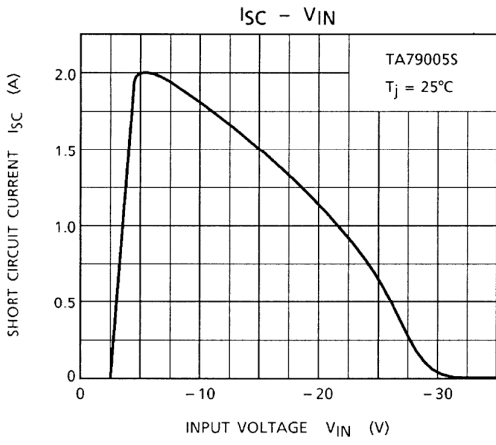
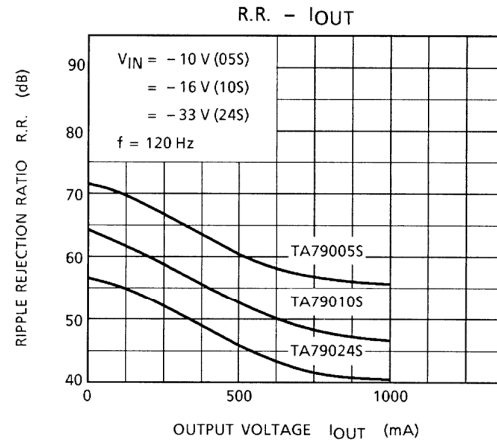
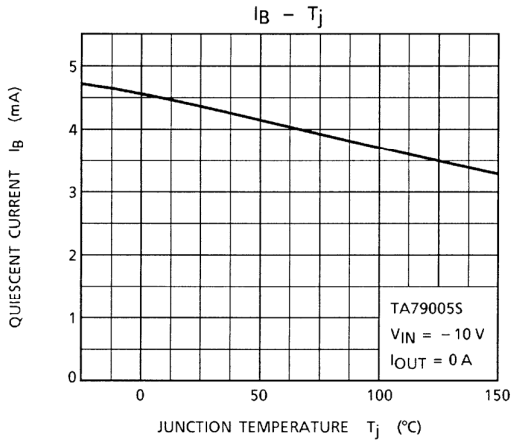


**Test Circuit 3**

R.R.



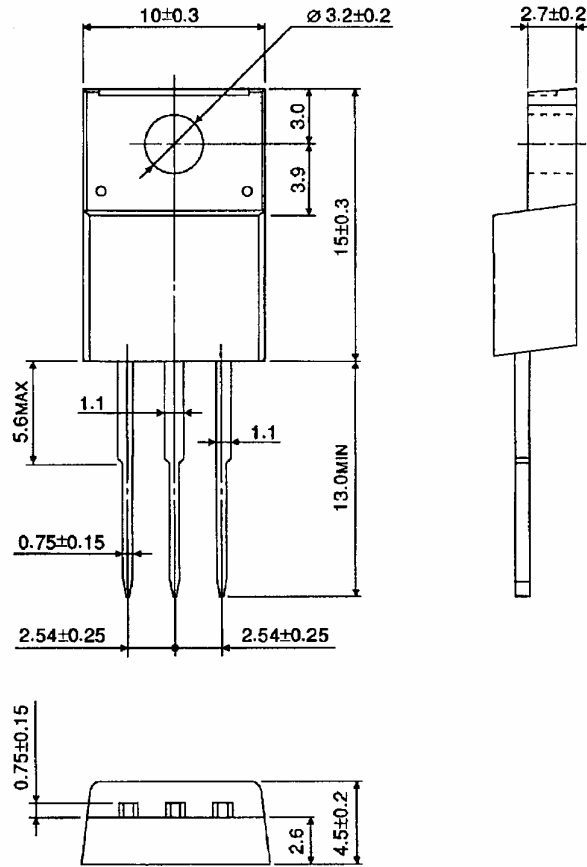




## Package Dimensions

HSIP3-P-2.54A

Unit: mm



Weight: 1.7 g (typ.)

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20070701-EN

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