

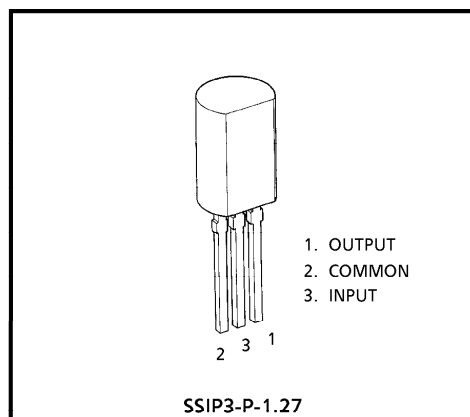
TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC  
**TA79L005P, TA79L006P, TA79L008P, TA79L009P, TA79L010P**  
**TA79L012P, TA79L015P, TA79L018P, TA79L020P, TA79L024P**

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

**3-TERMINAL NEGATIVE VOLTAGE REGULATORS**

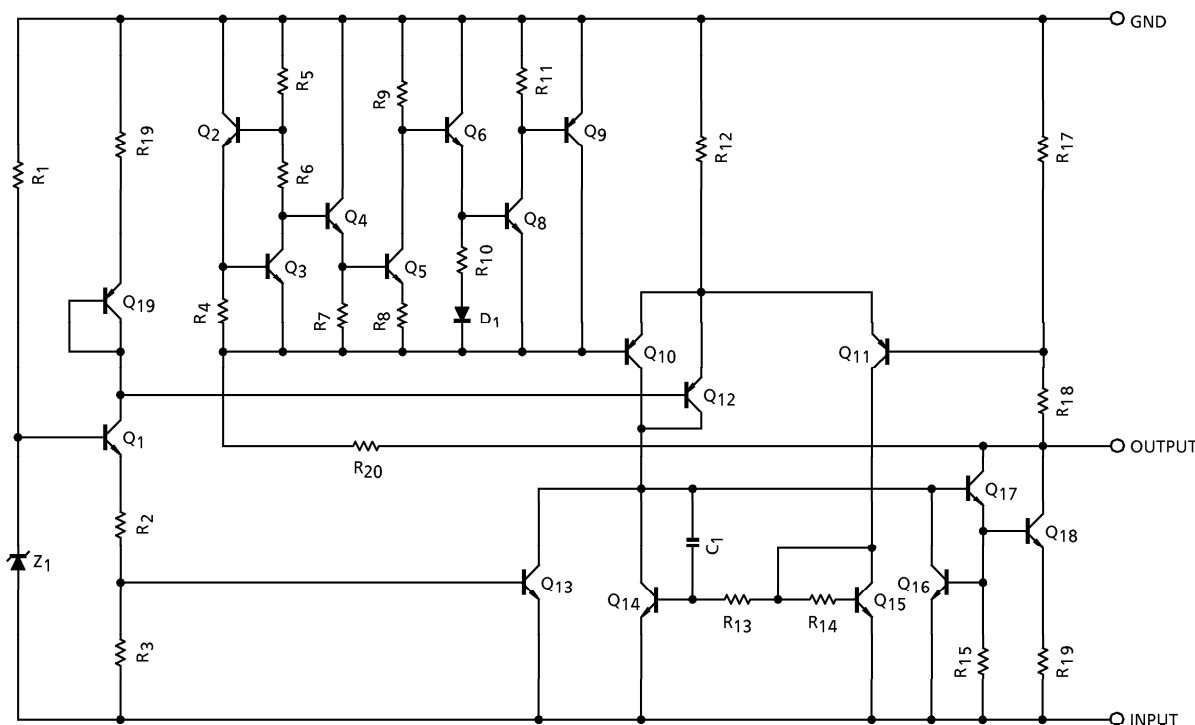
**FEATURES**

- Best suited to a power supply for TTL and C<sup>2</sup>MOS
- Built-in overcurrent protective circuit
- Built-in thermal protective circuit
- Max. output current 150mA (T<sub>j</sub> = 25°C)
- Packaged in TO-92MOD



Weight : 0.36g (Typ.)

**EQUIVALENT CIRCUIT**



961001EBA2

● TOSHIBA is continually working to improve the quality and the 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 observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product 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 products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

**MAXIMUM RATINGS (Ta = 25°C)**

CHARACTERISTIC		SYMBOL	RATING	UNIT
Input Voltage	TA79L005P	V <sub>IN</sub>	- 35	V
	TA79L006P			
	TA79L008P			
	TA79L009P			
	TA79L010P			
	TA79L012P			
	TA79L015P			
	TA79L018P		- 40	
	TA79L020P			
	TA79L024P			
Power Dissipation	(Ta = 25°C)	P <sub>D</sub>	800	mW
Operating Temperature		T <sub>opr</sub>	- 30~75	°C
Storage Temperature		T <sub>stg</sub>	- 55~150	°C
Operating Junction Temperature		T <sub>j</sub>	- 30~150	°C
Thermal Resistance		R <sub>th(j-a)</sub>	156	°C / W

961001EBA2'

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- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.

TA79L005P

**ELECTRICAL CHARACTERISTICS**

(Unless otherwise specified,  $V_{IN} = -10V$ ,  $I_{OUT} = 40mA$ ,  $C_{IN} = 0.33\mu F$ ,  $C_{OUT} = 0.1\mu F$ ,  $0^\circ C \leq T_j \leq 125^\circ C$ )

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Output Voltage	$V_{OUT}$	1	$T_j = 25^\circ C$	-5.2	-5.0	-4.8	V	
Line Regulation	Reg. Line	1	$T_j = 25^\circ C$	$-20V \leq V_{IN} \leq -7.0V$	—	55	150	mV
				$-20V \leq V_{IN} \leq -8.0V$	—	45	100	
Load Regulation	Reg. Load	1	$T_j = 25^\circ C$	$1.0mA \leq I_{OUT} \leq 100mA$	—	11	60	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	5.0	30	
Output Voltage	$V_{OUT}$	1	$T_j = 25^\circ C$	$-20V \leq V_{IN} \leq -7.0V$	-5.25	—	-4.75	V
				$1.0mA \leq I_{OUT} \leq 40mA$	—	—	—	
				$1.0mA \leq I_{OUT} \leq 70mA$	-5.25	—	-4.75	
Quiescent Current	$I_B$	1	$T_j = 25^\circ C$	—	3.1	6.0	mA	
			$T_j = 125^\circ C$	—	—	5.5		
Quiescent Current Change	$\Delta I_B$	1	$-20V \leq V_{IN} \leq -8.0V$	—	—	1.5	mA	
	$\Delta I_{BO}$	1	$1.0mA \leq I_{OUT} \leq 40mA$	—	—	0.1		
Output Noise Voltage	$V_{NO}$	2	$T_a = 25^\circ C$ $10Hz \leq f \leq 100kHz$	—	40	—	$\mu V_{rms}$	
Long Term Stability	$\Delta V_{OUT} / \Delta t$	1	—	—	12	—	mV / 1.0kh	
Ripple Rejection Ratio	R.R.	3	$-18V \leq V_{IN} \leq -8.0V$ $T_j = 25^\circ C, f = 120Hz$	41	49	—	dB	
Dropout Voltage	$ V_{IN} - V_{OUT} $	1	$T_j = 25^\circ C$	—	1.7	—	V	
Average Temperature Coefficient of Output Voltage	$T_{CVO}$	1	$I_{OUT} = 5mA$	—	0.6	—	mV / °C	

TA79L006P

**ELECTRICAL CHARACTERISTICS**

(Unless otherwise specified,  $V_{IN} = -11V$ ,  $I_{OUT} = 40mA$ ,  $C_{IN} = 0.33\mu F$ ,  $C_{OUT} = 0.1\mu F$ ,  $0^\circ C \leq T_j \leq 125^\circ C$ )

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Output Voltage	$V_{OUT}$	1	$T_j = 25^\circ C$	-6.24	-6.0	-5.76	V	
Line Regulation	Reg. Line	1	$T_j = 25^\circ C$	$-21V \leq V_{IN} \leq -8.1V$	—	50	150	mV
				$-21V \leq V_{IN} \leq -9.0V$	—	45	110	
Load Regulation	Reg. Load	1	$T_j = 25^\circ C$	$1.0mA \leq I_{OUT} \leq 100mA$	—	12	70	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	5.5	35	
Output Voltage	$V_{OUT}$	1	$T_j = 25^\circ C$	$-21V \leq V_{IN} \leq -8.1V$	-6.3	—	-5.7	V
				$1.0mA \leq I_{OUT} \leq 40mA$	—	—	—	
				$1.0mA \leq I_{OUT} \leq 70mA$	-6.3	—	-5.7	
Quiescent Current	$I_B$	1	$T_j = 25^\circ C$	—	3.1	6.0	mA	
			$T_j = 125^\circ C$	—	—	5.5		
Quiescent Current Change	$\Delta I_B$	1	$-21V \leq V_{IN} \leq -9.0V$	—	—	1.5	mA	
	$\Delta I_{BO}$	1	$1.0mA \leq I_{OUT} \leq 40mA$	—	—	0.1		
Output Noise Voltage	$V_{NO}$	2	$T_a = 25^\circ C$ $10Hz \leq f \leq 100kHz$	—	40	—	$\mu V_{rms}$	
Long Term Stability	$\Delta V_{OUT} / \Delta t$	1	—	—	14	—	mV / 1.0kh	
Ripple Rejection Ratio	R.R.	3	$-19V \leq V_{IN} \leq -9.0V$ $T_j = 25^\circ C, f = 120Hz$	39	47	—	dB	
Dropout Voltage	$ V_{IN} - V_{OUT} $	1	$T_j = 25^\circ C$	—	1.7	—	V	
Average Temperature Coefficient of Output Voltage	$T_{CVO}$	1	$I_{OUT} = 5mA$	—	0.7	—	mV / °C	

TA79L008P

**ELECTRICAL CHARACTERISTICS**

(Unless otherwise specified,  $V_{IN} = -14V$ ,  $I_{OUT} = 40mA$ ,  $C_{IN} = 0.33\mu F$ ,  $C_{OUT} = 0.1\mu F$ ,  $0^{\circ}C \leq T_j \leq 125^{\circ}C$ )

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Output Voltage	$V_{OUT}$	1	$T_j = 25^{\circ}C$	-8.3	-8.0	-7.7	V	
Line Regulation	Reg. Line	1	$T_j = 25^{\circ}C$	$-23V \leq V_{IN} \leq -10.5V$	—	20	175	mV
				$-23V \leq V_{IN} \leq -11V$	—	12	125	
Load Regulation	Reg. Load	1	$T_j = 25^{\circ}C$	$1.0mA \leq I_{OUT} \leq 100mA$	—	15	80	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	7.0	40	
Output Voltage	$V_{OUT}$	1	$T_j = 25^{\circ}C$	$-23V \leq V_{IN} \leq -10.5V$	-8.4	—	-7.6	V
				$1.0mA \leq I_{OUT} \leq 40mA$	—	—	—	
				$1.0mA \leq I_{OUT} \leq 70mA$	-8.4	—	-7.6	
Quiescent Current	$I_B$	1	$T_j = 25^{\circ}C$	—	3.1	6.5	mA	
			$T_j = 125^{\circ}C$	—	—	6.0		
Quiescent Current Change	$\Delta I_B$	1	$-23V \leq V_{IN} \leq -11V$	—	—	1.5	mA	
	$\Delta I_{BO}$	1	$1.0mA \leq I_{OUT} \leq 40mA$	—	—	0.1		
Output Noise Voltage	$V_{NO}$	2	$T_a = 25^{\circ}C$ $10Hz \leq f \leq 100kHz$	—	60	—	$\mu V_{rms}$	
Long Term Stability	$\Delta V_{OUT} / \Delta t$	1	—	—	20	—	mV / 1.0kh	
Ripple Rejection Ratio	R.R.	3	$-23V \leq V_{IN} \leq -12V$ $T_j = 25^{\circ}C$ , $f = 120Hz$	37	45	—	dB	
Dropout Voltage	$ V_{IN} - V_{OUT} $	1	$T_j = 25^{\circ}C$	—	1.7	—	V	
Average Temperature Coefficient of Output Voltage	$T_{CVO}$	1	$I_{OUT} = 5mA$	—	0.8	—	mV / $^{\circ}C$	

TA79L009P

**ELECTRICAL CHARACTERISTICS**

(Unless otherwise specified,  $V_{IN} = -15V$ ,  $I_{OUT} = 40mA$ ,  $C_{IN} = 0.33\mu F$ ,  $C_{OUT} = 0.1\mu F$ ,  $0^\circ C \leq T_j \leq 125^\circ C$ )

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Output Voltage	$V_{OUT}$	1	$T_j = 25^\circ C$	-9.36	-9.0	-8.64	V	
Line Regulation	Reg. Line	1	$T_j = 25^\circ C$	$-24V \leq V_{IN} \leq -11.4V$	—	80	200	mV
				$-24V \leq V_{IN} \leq -12V$	—	20	160	
Load Regulation	Reg. Load	1	$T_j = 25^\circ C$	$1.0mA \leq I_{OUT} \leq 100mA$	—	17	90	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	8.0	45	
Output Voltage	$V_{OUT}$	1	$T_j = 25^\circ C$	$-24V \leq V_{IN} \leq -11.4V$	-9.45	—	-8.55	V
				$1.0mA \leq I_{OUT} \leq 40mA$	-9.45	—	-8.55	
				$1.0mA \leq I_{OUT} \leq 70mA$	-9.45	—	-8.55	
Quiescent Current	$I_B$	1	$T_j = 25^\circ C$	—	3.2	6.5	mA	
			$T_j = 125^\circ C$	—	—	6.0		
Quiescent Current Change	$\Delta I_B$	1	$-24V \leq V_{IN} \leq -12V$	—	—	1.5	mA	
	$\Delta I_{BO}$	1	$1.0mA \leq I_{OUT} \leq 40mA$	—	—	0.1		
Output Noise Voltage	$V_{NO}$	2	$T_a = 25^\circ C$ $10Hz \leq f \leq 100kHz$	—	65	—	$\mu V_{rms}$	
Long Term Stability	$\Delta V_{OUT} / \Delta t$	1	—	—	21	—	mV / 1.0kh	
Ripple Rejection Ratio	R.R.	3	$-24V \leq V_{IN} \leq -12V$ $T_j = 25^\circ C, f = 120Hz$	36	44	—	dB	
Dropout Voltage	$ V_{IN} - V_{OUT} $	1	$T_j = 25^\circ C$	—	1.7	—	V	
Average Temperature Coefficient of Output Voltage	$T_{CVO}$	1	$I_{OUT} = 5mA$	—	0.85	—	mV / °C	

TA79L010P

**ELECTRICAL CHARACTERISTICS**

(Unless otherwise specified,  $V_{IN} = -16V$ ,  $I_{OUT} = 40mA$ ,  $C_{IN} = 0.33\mu F$ ,  $C_{OUT} = 0.1\mu F$ ,  $0^\circ C \leq T_j \leq 125^\circ C$ )

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Output Voltage	$V_{OUT}$	1	$T_j = 25^\circ C$	-10.4	-10.0	-9.6	V	
Line Regulation	Reg. Line	1	$T_j = 25^\circ C$	$-25V \leq V_{IN} \leq -12.5V$	—	80	230	mV
				$-25V \leq V_{IN} \leq -13V$	—	30	170	
Load Regulation	Reg. Load	1	$T_j = 25^\circ C$	$1.0mA \leq I_{OUT} \leq 100mA$	—	18	90	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	8.5	45	
Output Voltage	$V_{OUT}$	1	$T_j = 25^\circ C$	$-25V \leq V_{IN} \leq -12.5V$	-10.5	—	-9.5	V
				$1.0mA \leq I_{OUT} \leq 40mA$	-10.5	—	-9.5	
				$1.0mA \leq I_{OUT} \leq 70mA$	-10.5	—	-9.5	
Quiescent Current	$I_B$	1	$T_j = 25^\circ C$	—	3.2	6.5	mA	
			$T_j = 125^\circ C$	—	—	6.0		
Quiescent Current Change	$\Delta I_B$	1	$-25V \leq V_{IN} \leq -13V$	—	—	1.5	mA	
	$\Delta I_{BO}$	1	$1.0mA \leq I_{OUT} \leq 40mA$	—	—	0.1		
Output Noise Voltage	$V_{NO}$	2	$T_a = 25^\circ C$ $10Hz \leq f \leq 100kHz$	—	70	—	$\mu V_{rms}$	
Long Term Stability	$\Delta V_{OUT} / \Delta t$	1	—	—	22	—	mV / 1.0kh	
Ripple Rejection Ratio	R.R.	3	$-24V \leq V_{IN} \leq -13V$ $T_j = 25^\circ C, f = 120Hz$	36	43	—	dB	
Dropout Voltage	$ V_{IN} - V_{OUT} $	1	$T_j = 25^\circ C$	—	1.7	—	V	
Average Temperature Coefficient of Output Voltage	$T_{CVO}$	1	$I_{OUT} = 5mA$	—	0.9	—	mV / °C	

TA79L012P

**ELECTRICAL CHARACTERISTICS**

(Unless otherwise specified,  $V_{IN} = -19V$ ,  $I_{OUT} = 40mA$ ,  $C_{IN} = 0.33\mu F$ ,  $C_{OUT} = 0.1\mu F$ ,  $0^\circ C \leq T_j \leq 125^\circ C$ )

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Output Voltage	$V_{OUT}$	1	$T_j = 25^\circ C$	-12.5	-12.0	-11.5	V	
Line Regulation	Reg. Line	1	$T_j = 25^\circ C$	$-27V \leq V_{IN} \leq -14.5V$	—	120	250	mV
				$-27V \leq V_{IN} \leq -16V$	—	100	200	
Load Regulation	Reg. Load	1	$T_j = 25^\circ C$	$1.0mA \leq I_{OUT} \leq 100mA$	—	20	100	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	10	50	
Output Voltage	$V_{OUT}$	1	$T_j = 25^\circ C$	$-27V \leq V_{IN} \leq -14.5V$	-12.6	—	-11.4	V
				$1.0mA \leq I_{OUT} \leq 40mA$	-12.6	—	-11.4	
				$1.0mA \leq I_{OUT} \leq 70mA$	-12.6	—	-11.4	
Quiescent Current	$I_B$	1	$T_j = 25^\circ C$	—	3.2	6.5	mA	
			$T_j = 125^\circ C$	—	—	6.0		
Quiescent Current Change	$\Delta I_B$	1	$-27V \leq V_{IN} \leq -16V$	—	—	1.5	mA	
	$\Delta I_{BO}$	1	$1.0mA \leq I_{OUT} \leq 40mA$	—	—	0.1		
Output Noise Voltage	$V_{NO}$	2	$T_a = 25^\circ C$ $10Hz \leq f \leq 100kHz$	—	80	—	$\mu V_{rms}$	
Long Term Stability	$\Delta V_{OUT} / \Delta t$	1	—	—	24	—	mV / 1.0kh	
Ripple Rejection Ratio	R.R.	3	$-25V \leq V_{IN} \leq -15V$ $T_j = 25^\circ C, f = 120Hz$	37	42	—	dB	
Dropout Voltage	$ V_{IN} - V_{OUT} $	1	$T_j = 25^\circ C$	—	1.7	—	V	
Average Temperature Coefficient of Output Voltage	$T_{CVO}$	1	$I_{OUT} = 5mA$	—	1.0	—	mV / °C	



TA79L015P

**ELECTRICAL CHARACTERISTICS**

(Unless otherwise specified,  $V_{IN} = -23V$ ,  $I_{OUT} = 40mA$ ,  $C_{IN} = 0.33\mu F$ ,  $C_{OUT} = 0.1\mu F$ ,  $0^\circ C \leq T_j \leq 125^\circ C$ )

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Output Voltage	$V_{OUT}$	1	$T_j = 25^\circ C$	-15.6	-15.0	-14.4	V	
Line Regulation	Reg. Line	1	$T_j = 25^\circ C$	$-30V \leq V_{IN} \leq -17.5V$	—	130	300	mV
				$-30V \leq V_{IN} \leq -20V$	—	110	250	
Load Regulation	Reg. Load	1	$T_j = 25^\circ C$	$1.0mA \leq I_{OUT} \leq 100mA$	—	25	150	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	12	75	
Output Voltage	$V_{OUT}$	1	$T_j = 25^\circ C$	$-30V \leq V_{IN} \leq -17.5V$	-15.75	—	-14.25	V
				$1.0mA \leq I_{OUT} \leq 40mA$	-15.75	—	-14.25	
				$1.0mA \leq I_{OUT} \leq 70mA$	-15.75	—	-14.25	
Quiescent Current	$I_B$	1	$T_j = 25^\circ C$	—	3.3	6.5	mA	
			$T_j = 125^\circ C$	—	—	6.0		
Quiescent Current Change	$\Delta I_{BI}$	1	$-30V \leq V_{IN} \leq -20V$	—	—	1.5	mA	
	$\Delta I_{BO}$	1	$1.0mA \leq I_{OUT} \leq 40mA$	—	—	0.1		
Output Noise Voltage	$V_{NO}$	2	$T_a = 25^\circ C$ $10Hz \leq f \leq 100kHz$	—	90	—	$\mu V_{rms}$	
Long Term Stability	$\Delta V_{OUT} / \Delta t$	1	—	—	30	—	mV / 1.0kh	
Ripple Rejection Ratio	R.R.	3	$-28.5V \leq V_{IN} \leq -18.5V$ $T_j = 25^\circ C$ , $f = 120Hz$	34	39	—	dB	
Dropout Voltage	$ V_{IN} - V_{OUT} $	1	$T_j = 25^\circ C$	—	1.7	—	V	
Average Temperature Coefficient of Output Voltage	$T_{CVO}$	1	$I_{OUT} = 5mA$	—	1.3	—	mV / $^\circ C$	

TA79L018P

**ELECTRICAL CHARACTERISTICS**

(Unless otherwise specified,  $V_{IN} = -27V$ ,  $I_{OUT} = 40mA$ ,  $C_{IN} = 0.33\mu F$ ,  $C_{OUT} = 0.1\mu F$ ,  $0^\circ C \leq T_j \leq 125^\circ C$ )

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Output Voltage	$V_{OUT}$	1	$T_j = 25^\circ C$	- 18.7	- 18.0	- 17.3	V	
Line Regulation	Reg. Line	1	$T_j = 25^\circ C$	$- 33V \leq V_{IN} \leq 20.7V$	—	32	325	mV
				$- 33V \leq V_{IN} \leq - 21V$	—	27	275	
Load Regulation	Reg. Load	1	$T_j = 25^\circ C$	$1.0mA \leq I_{OUT} \leq 100mA$	—	30	170	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	15	75	
Output Voltage	$V_{OUT}$	1	$T_j = 25^\circ C$	$- 33V \leq V_{IN} \leq - 20.9V$	- 18.9	—	- 17.1	V
				$1.0mA \leq I_{OUT} \leq 40mA$	- 18.9	—	- 17.1	
				$1.0mA \leq I_{OUT} \leq 70mA$	- 18.9	—	- 17.1	
Quiescent Current	$I_B$	1	$T_j = 25^\circ C$	—	3.3	6.5	mA	
			$T_j = 125^\circ C$	—	—	6.0		
Quiescent Current Change	$\Delta I_B$	1	$- 33V \leq V_{IN} \leq - 21V$	—	—	1.5	mA	
	$\Delta I_{BO}$	1	$1.0mA \leq I_{OUT} \leq 40mA$	—	—	0.1		
Output Noise Voltage	$V_{NO}$	2	$T_a = 25^\circ C$ $10Hz \leq f \leq 100kHz$	—	150	—	$\mu V_{rms}$	
Long Term Stability	$\Delta V_{OUT} / \Delta t$	1	—	—	45	—	mV / 1.0kh	
Ripple Rejection Ratio	R.R.	3	$- 33V \leq V_{IN} \leq - 23V$ $T_j = 25^\circ C, f = 120Hz$	33	48	—	dB	
Dropout Voltage	$ V_{IN} - V_{OUT} $	1	$T_j = 25^\circ C$	—	1.7	—	V	
Average Temperature Coefficient of Output Voltage	$T_{CVO}$	1	$I_{OUT} = 5mA$	—	1.5	—	mV / °C	

TA79L020P

**ELECTRICAL CHARACTERISTICS**

(Unless otherwise specified,  $V_{IN} = -29V$ ,  $I_{OUT} = 40mA$ ,  $C_{IN} = 0.33\mu F$ ,  $C_{OUT} = 0.1\mu F$ ,  $0^\circ C \leq T_j \leq 125^\circ C$ )

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Output Voltage	$V_{OUT}$	1	$T_j = 25^\circ C$	-20.8	-20.0	-19.2	V	
Line Regulation	Reg. Line	1	$T_j = 25^\circ C$	$-35V \leq V_{IN} \leq -23.5V$	—	33	330	mV
				$-35V \leq V_{IN} \leq -24V$	—	28	285	
Load Regulation	Reg. Load	1	$T_j = 25^\circ C$	$1.0mA \leq I_{OUT} \leq 100mA$	—	33	180	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	17	90	
Output Voltage	$V_{OUT}$	1	$T_j = 25^\circ C$	$-35V \leq V_{IN} \leq -23.5V$	-21.0	—	-19.0	V
				$1.0mA \leq I_{OUT} \leq 40mA$	-21.0	—	-19.0	
				$1.0mA \leq I_{OUT} \leq 70mA$	-21.0	—	-19.0	
Quiescent Current	$I_B$	1	$T_j = 25^\circ C$	—	3.3	6.5	mA	
			$T_j = 125^\circ C$	—	—	6.0		
Quiescent Current Change	$\Delta I_B$	1	$-35V \leq V_{IN} \leq -24V$	—	—	1.5	mA	
	$\Delta I_{BO}$	1	$10mA \leq I_{OUT} \leq 40mA$	—	—	0.1		
Output Noise Voltage	$V_{NO}$	2	$T_a = 25^\circ C$ $10Hz \leq f \leq 100kHz$	—	170	—	$\mu V_{rms}$	
Long Term Stability	$\Delta V_{OUT} / \Delta t$	1	—	—	49	—	mV / 1.0kh	
Ripple Rejection Ratio	R.R.	3	$-35V \leq V_{IN} \leq -27V$ $T_j = 25^\circ C, f = 120Hz$	31	37	—	dB	
Dropout Voltage	$ V_{IN} - V_{OUT} $	1	$T_j = 25^\circ C$	—	1.7	—	V	
Average Temperature Coefficient of Output Voltage	$T_{CVO}$	1	$I_{OUT} = 5mA$	—	1.7	—	mV / °C	

TA79L024P

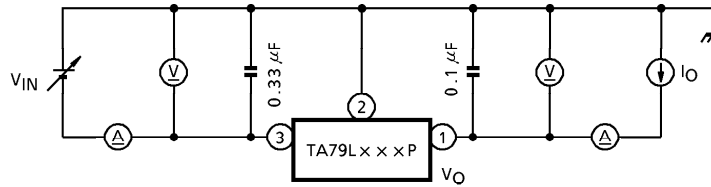
**ELECTRICAL CHARACTERISTICS**

(Unless otherwise specified,  $V_{IN} = -33V$ ,  $I_{OUT} = 40mA$ ,  $C_{IN} = 0.33\mu F$ ,  $C_{OUT} = 0.1\mu F$ ,  $0^\circ C \leq T_j \leq 125^\circ C$ )

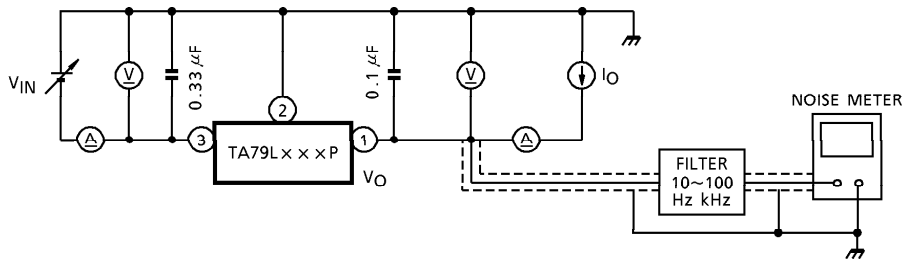
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Output Voltage	$V_{OUT}$	1	$T_j = 25^\circ C$	-25.0	-24.0	-23.0	V	
Line Regulation	Reg. Line	1	$T_j = 25^\circ C$	$-38V \leq V_{IN} \leq -27V$	—	35	350	mV
				$-38V \leq V_{IN} \leq -28V$	—	30	300	
Load Regulation	Reg. Load	1	$T_j = 25^\circ C$	$1.0mA \leq I_{OUT} \leq 100mA$	—	40	200	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	20	100	
Output Voltage	$V_{OUT}$	1	$T_j = 25^\circ C$	$-38V \leq V_{IN} \leq -27V$	-25.2	—	-22.8	V
				$1.0mA \leq I_{OUT} \leq 40mA$	-25.2	—	-22.8	
				$1.0mA \leq I_{OUT} \leq 70mA$	-25.2	—	-22.8	
Quiescent Current	$I_B$	1	$T_j = 25^\circ C$	—	3.5	6.5	mA	
			$T_j = 125^\circ C$	—	—	6.0		
Quiescent Current Change	$\Delta I_B$	1	$-38V \leq V_{IN} \leq -28V$	—	—	1.5	mA	
	$\Delta I_{BO}$	1	$1.0mA \leq I_{OUT} \leq 40mA$	—	—	0.1		
Output Noise Voltage	$V_{NO}$	2	$T_a = 25^\circ C$ $10Hz \leq f \leq 100kHz$	—	200	—	$\mu V_{rms}$	
Long Term Stability	$\Delta V_{OUT} / \Delta t$	1	—	—	56	—	mV / 1.0kh	
Ripple Rejection Ratio	R.R.	3	$-35V \leq V_{IN} \leq -29V$ $T_j = 25^\circ C, f = 120Hz$	31	47	—	dB	
Dropout Voltage	$ V_{IN} - V_{OUT} $	1	$T_j = 25^\circ C$	—	1.7	—	V	
Average Temperature Coefficient of Output Voltage	$T_{CVO}$	1	$I_{OUT} = 5mA$	—	2.0	—	mV / °C	

**TEST CIRCUIT**

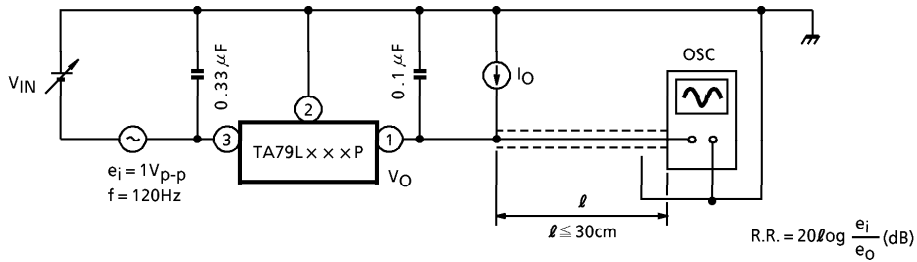
1.  $V_{OUT}$ , Reg.line, Reg.load,  $I_B$ ,  $\Delta I_B$ ,  $\Delta V_{OUT} / \Delta t$ ,  $|V_{IN}-V_{OUT}|$ ,  $T_{CVO}$

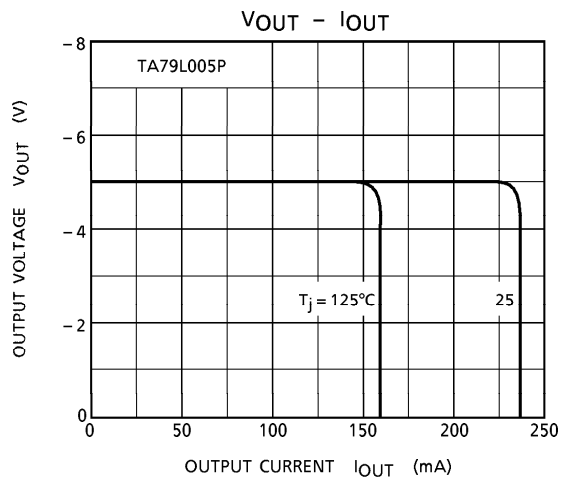
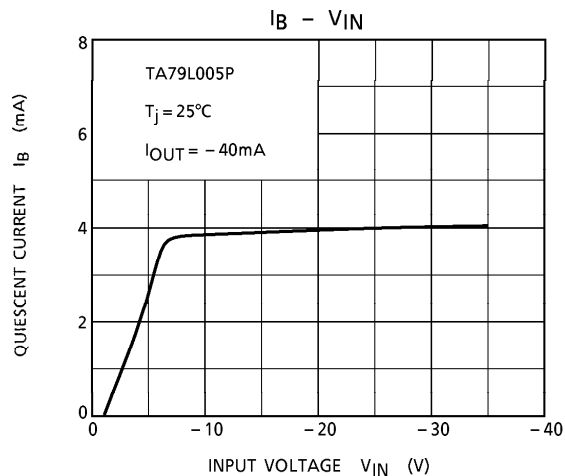
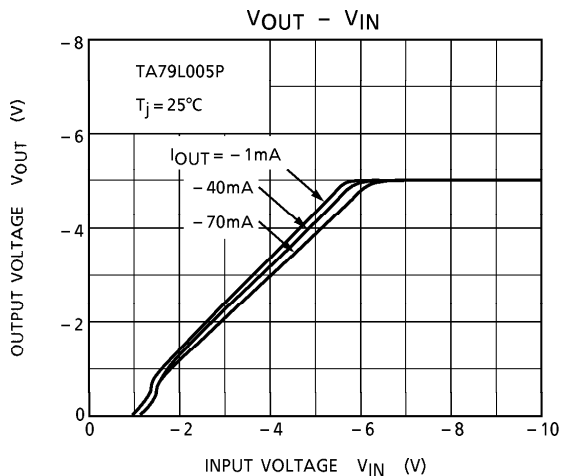
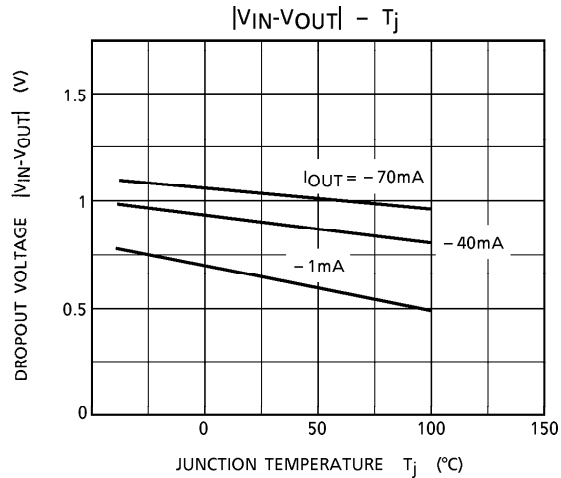
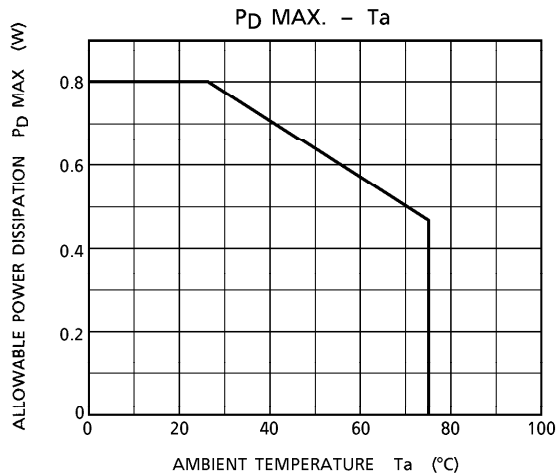


2.  $V_{NO}$



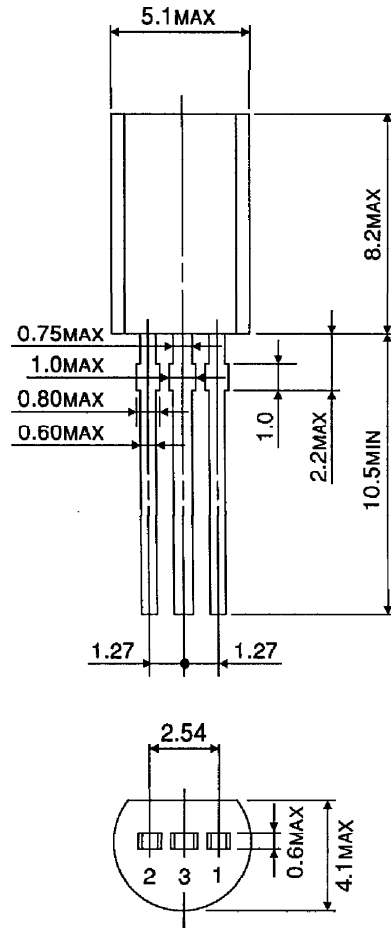
3. R.R.





**OUTLINE DRAWING**  
SSIP3-P-1.27

Unit : mm



Weight : 0.36g (Typ.)