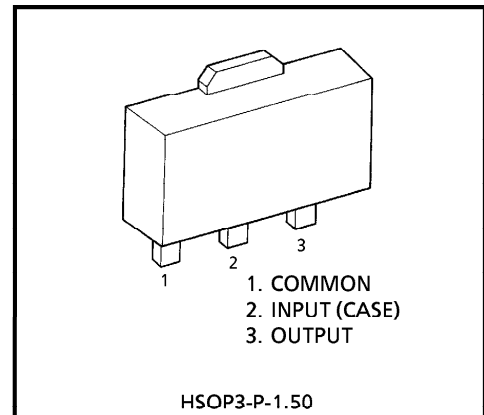


TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC  
**TA79L05F, TA79L06F, TA79L08F, TA79L09F, TA79L10F**  
**TA79L12F, TA79L15F, TA79L18F, TA79L20F, TA79L24F**

**3-TERMINAL NEGATIVE VOLTAGE REGULATORS**  
**5V, 6V, 8V, 9V, 10V, 12V, 15V, 18V, 20V, 24V**

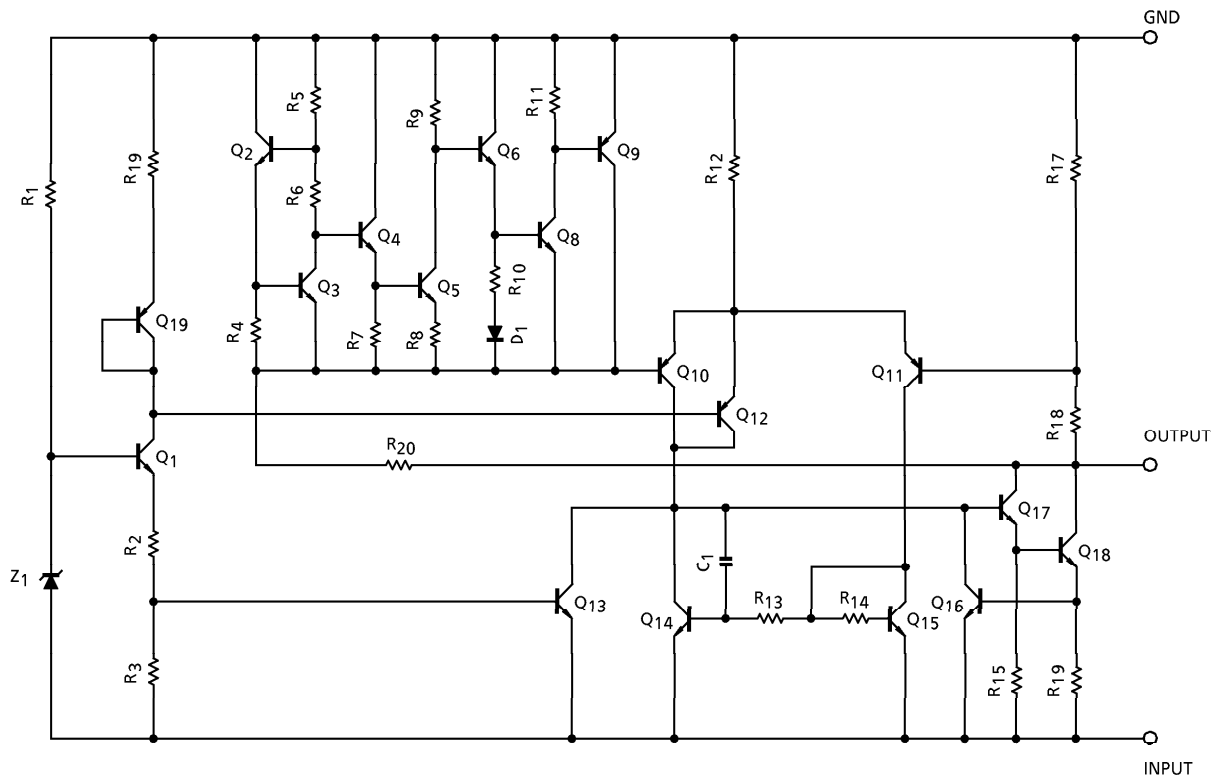
**FEATURES**

- Best suited to a power supply for TTL and C<sup>2</sup>MOS
- Built-in over current protective circuit
- Built-in thermal protective circuit
- Max. output current 150mA (T<sub>j</sub> = 25°C)
- Packaged in POWER MINI. (SOT-89)



Weight : 0.05g (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	TA79L05F	V <sub>IN</sub>	- 35	V
	TA79L06F			
	TA79L08F			
	TA79L09F			
	TA79L10F			
	TA79L12F			
	TA79L15F			
	TA79L18F			
	TA79L20F		- 40	
	TA79L24F			
Power Dissipation	(Ta = 25°C)	P <sub>D</sub>	500	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>	250	°C / W

TYPE NO.	MARKING
TA79L05F	AJ
TA79L06F	BJ
TA79L08F	CJ
TA79L09F	DJ
TA79L10F	EJ
TA79L12F	FJ
TA79L15F	GJ
TA79L18F	HJ
TA79L20F	IJ
TA79L24F	JJ

961001EBA2'

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

TA79L05F

**ELECTRICAL CHARACTERISTICS**

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

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	100	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	5.0	50	
Output Voltage	$V_{OUT}$	1	$T_j = 25^{\circ}C$	$-20V \leq V_{IN} \leq -7.0V$	-5.25	—	-4.75	V
				$1.0mA \leq I_{OUT} \leq 40mA$	-5.25	—	-4.75	
				$1.0mA \leq I_{OUT} \leq 70mA$	-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 / $^{\circ}C$	

TA79L06F

**ELECTRICAL CHARACTERISTICS**

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

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	120	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	5.5	60	
Output Voltage	$V_{OUT}$	1	$T_j = 25^{\circ}C$	$-21V \leq V_{IN} \leq -8.1V$	-6.3	—	-5.7	V
				$1.0mA \leq I_{OUT} \leq 40mA$	-6.3	—	-5.7	
				$1.0mA \leq I_{OUT} \leq 70mA$	-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	$-20V \leq V_{IN} \leq -9.0V$	—	—	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 / $^{\circ}C$	

TA79L08F

**ELECTRICAL CHARACTERISTICS**

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

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	155	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	7.0	75	
Output Voltage	$V_{OUT}$	1	$T_j = 25^{\circ}C$	$-23V \leq V_{IN} \leq -10.5V$	-8.4	—	-7.6	V
				$1.0mA \leq I_{OUT} \leq 40mA$	-8.4	—	-7.6	
				$1.0mA \leq I_{OUT} \leq 70mA$	-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 / $^{\circ}C$	

TA79L09F

**ELECTRICAL CHARACTERISTICS**

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

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	175	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	8.0	80	
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 / $^{\circ}C$	

TA79L10F

**ELECTRICAL CHARACTERISTICS**

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

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	190	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	8.5	90	
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 / $^{\circ}C$	

TA79L12F

**ELECTRICAL CHARACTERISTICS**

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

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	225	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	10	105	
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 / $^{\circ}C$	



TA79L15F

**ELECTRICAL CHARACTERISTICS**

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

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	280	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	12	130	
Output Voltage	$V_{OUT}$	1	$T_j = 25^{\circ}C$	$-30V \leq V_{IN} \leq -17.5V$	-15.75	—	-14.25	V
				$1.0mA \leq I_{OUT} \leq 40mA$	—	—	—	
				$1.0mA \leq I_{OUT} \leq 70mA$	-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 / $^{\circ}C$	

TA79L18F

**ELECTRICAL CHARACTERISTICS**

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

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	335	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	15	155	
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 / $^{\circ}C$	

TA79L20F

**ELECTRICAL CHARACTERISTICS**

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

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	370	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	17	170	
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	$1.0mA \leq I_{OUT} \leq 40mA$	—	—	0.1		
Output Noise Voltage	$V_{NO}$	2	$T_a = 25^{\circ}C$ , $10Hz \leq f \leq 100kHz$	—	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 / $^{\circ}C$	

TA79L24F

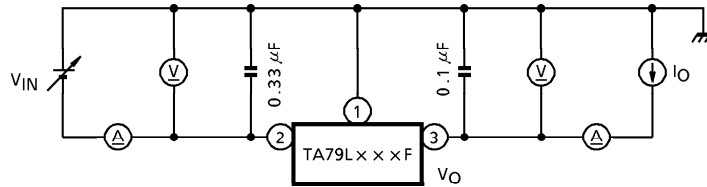
**ELECTRICAL CHARACTERISTICS**

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

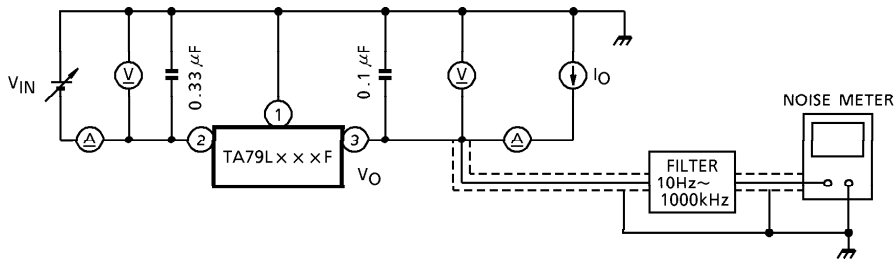
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Output Voltage	$V_{OUT}$	1	$T_j = 25^{\circ}C$	- 25.0	- 24.0	- 23.0	V	
Line Regulation	Reg.Line	1	$T_j = 25^{\circ}C$	$- 38V \leq V_{IN} \leq - 27V$	—	35	350	mV
				$- 38V \leq V_{IN} \leq - 28V$	—	30	300	
Load Regulation	Reg.Load	1	$T_j = 25^{\circ}C$	$1.0mA \leq I_{OUT} \leq 100mA$	—	40	440	mV
				$1.0mA \leq I_{OUT} \leq 40mA$	—	20	200	
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 / $^{\circ}C$	

**TEST CIRCUIT**

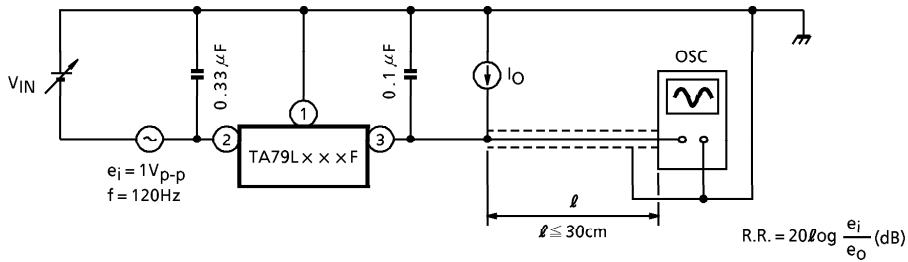
1.  $V_{OUT}$ , Reg.line, Reg.load,  $I_B$ ,  $\Delta I_B$ ,  $\Delta V_{OUT} / \Delta t$ ,  $|V_{IN}-V_{OUT}|$ ,  $T_{CVO}$

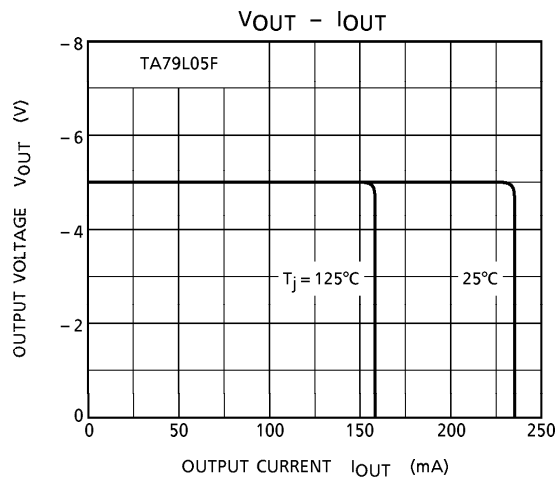
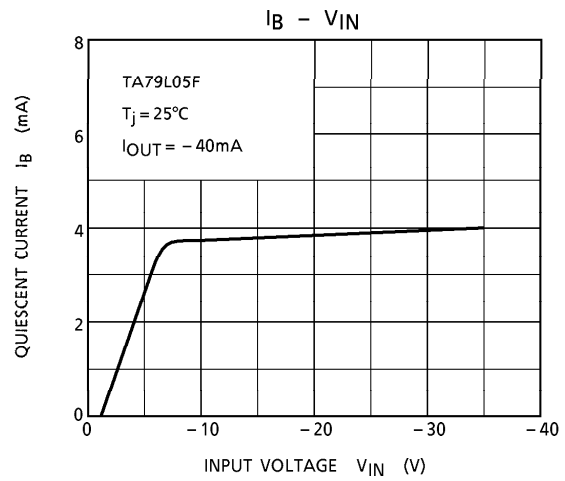
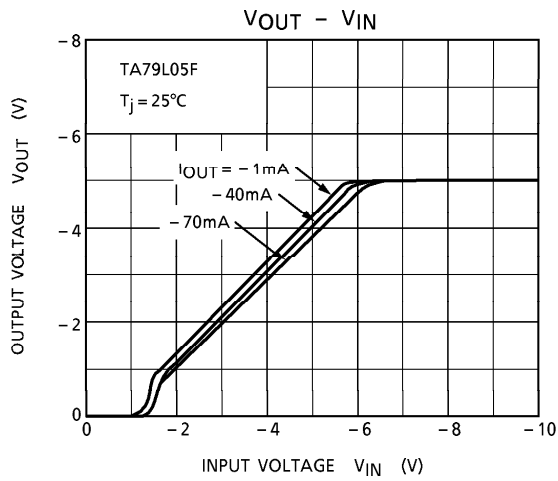
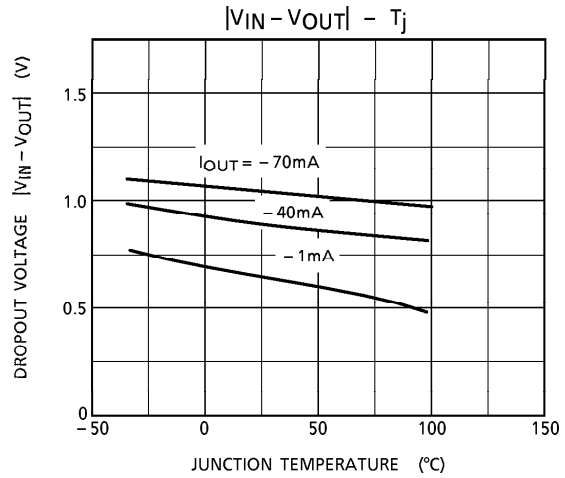
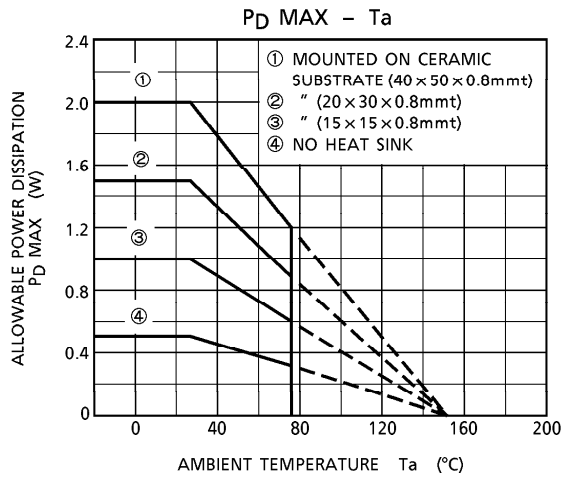


2.  $V_{NO}$



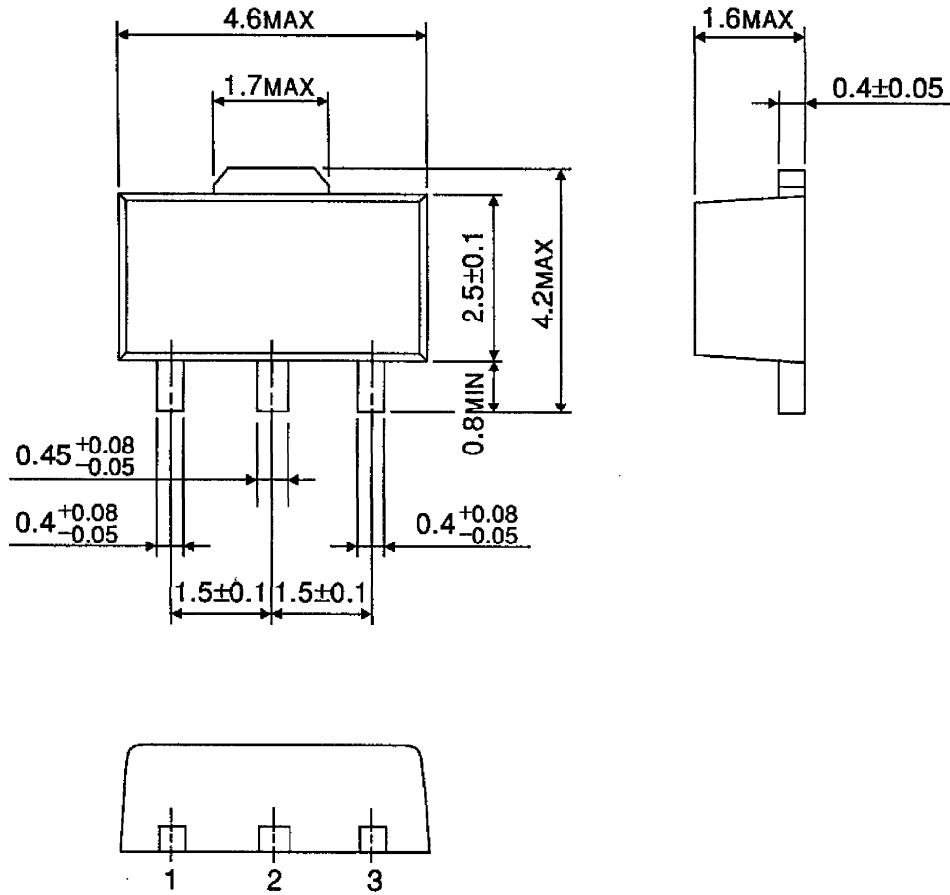
3. R.R.





OUTLINE DRAWING  
HSOP3-P-1.50

Unit : mm



Weight : 0.05g (Typ.)