

TOSHIBA Bipolar Linear Integrated Circuit Silicon Monolithic

TA79L05F,TA79L06F,TA79L08F,TA79L09F,TA79L10F, TA79L12F,TA79L15F,TA79L18F,TA79L20F,TA79L24F

Three-Terminal Negative Voltage Regulators

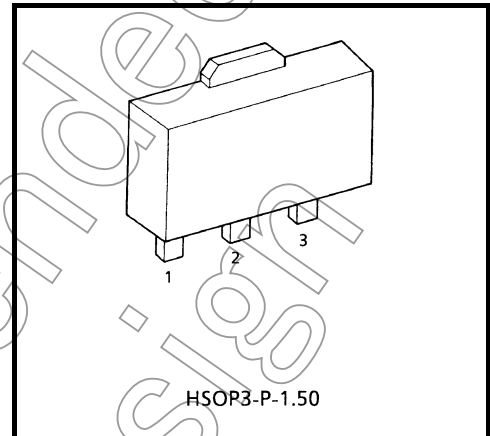
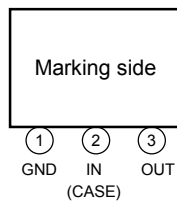
-5 V, -6 V, -8 V, -9 V, -10 V, -12 V, -15 V, -18 V, -20 V, -24 V

Features

Best suited to a power supply for TTL and C²MOS.

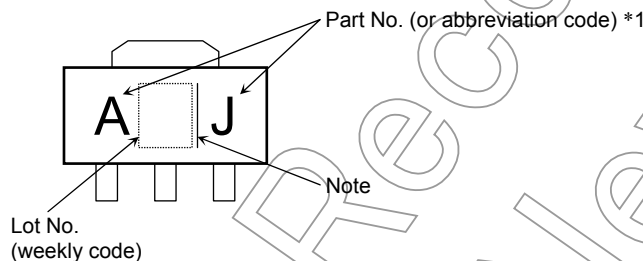
- Built-in overcurrent protection.
- Built-in overheating protection.
- Maximum output current of 150 mA ($T_j = 25^\circ\text{C}$).
- Packaged in Power Mini. (SOT-89).

Pin Assignment



Weight: 0.05 g (Typ.)

Marking



Part No. (or abbreviation code)	Part No.
AJ	TA79L05F
BJ	TA79L06F
CJ	TA79L08F
DJ	TA79L09F
EJ	TA79L10F
FJ	TA79L12F
GJ	TA79L15F
HJ	TA79L18F
IJ	TA79L20F
JJ	TA79L24F

Note: A line beside a Lot No. identifies the indication of product Labels.

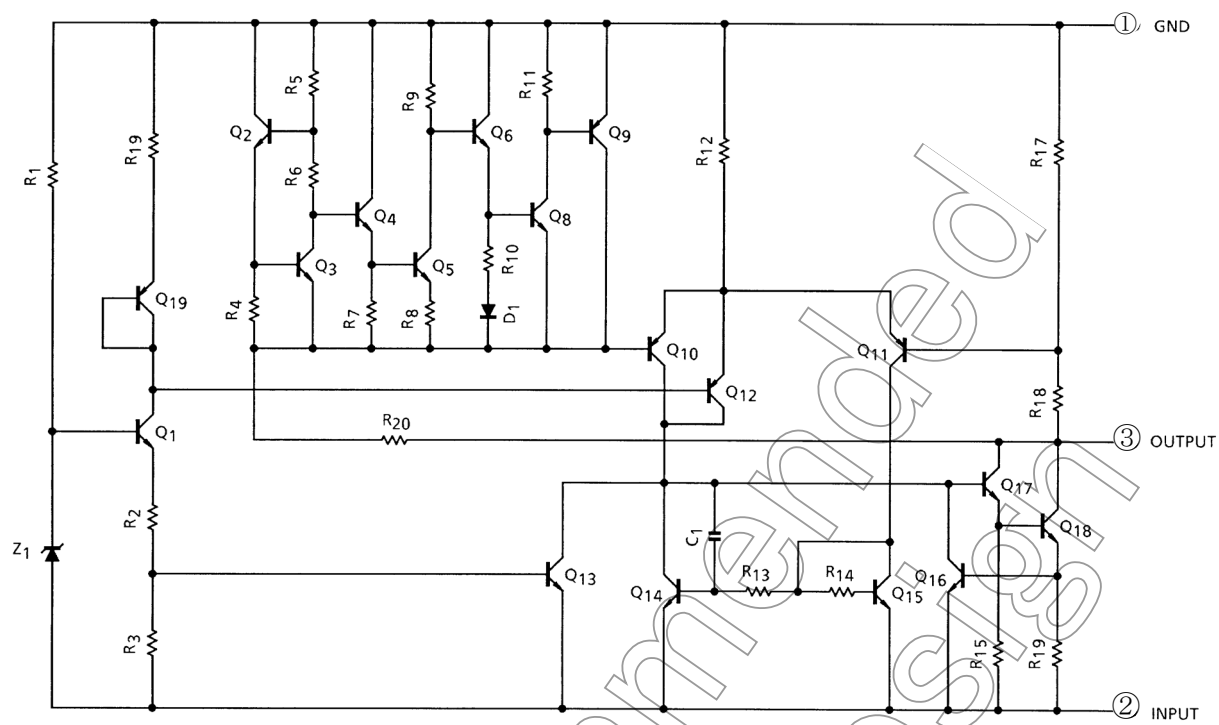
Without a line: [[Pb]]/INCLUDES > MCV

With a line: [[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product. The RoHS is the Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

The product(s) in this document ("Product") contain functions intended to protect the Product from temporary small overloads such as minor short-term overcurrent or overheating. The protective functions do not necessarily protect Product under all circumstances. When incorporating Product into your system, please design the system (1) to avoid such overloads upon the Product, and (2) to shut down or otherwise relieve the Product of such overload conditions immediately upon occurrence. For details, please refer to the notes appearing below in this document and other documents referenced in this document.

Equivalent Circuit



Absolute Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Input voltage	TA79L05F	V_{IN}	-35	V
	TA79L06F			
	TA79L08F			
	TA79L09F			
	TA79L10F			
	TA79L12F			
	TA79L15F			
	TA79L18F			
	TA79L20F			
	TA79L24F		-40	
Output current		I_{OUT}	0.15	A
Power dissipation (Ta = 25°C)		P_D	500	mW
Operating temperature		T_{opr}	-30 to 85	°C
Storage temperature		T_{stg}	-55 to 150	°C
Junction temperature		T_j	150	°C
Thermal resistance		$R_{th(j-a)}$	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

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).

TA79L05F

Electrical Characteristics

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

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	$T_j = 25^\circ\text{C}$	-	55	150	mV
			$-20\text{ V} \leq V_{IN} \leq -8.0\text{ V}$	-	45	100	
Load regulation	Reg.load	1	$T_j = 25^\circ\text{C}$	-	11	100	mV
			$1.0\text{ mA} \leq I_{OUT} \leq 40\text{ mA}$	-	5.0	50	
Output voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$	-5.25	-	-4.75	V
			$-20\text{ V} \leq V_{IN} \leq -7.0\text{ V}$, $1.0\text{ mA} \leq I_{OUT} \leq 40\text{ mA}$	-5.25	-	-4.75	
Quiescent current	I_B	1	$T_j = 25^\circ\text{C}$	-	3.1	6.0	mA
			$T_j = 125^\circ\text{C}$	-	-	5.5	
Quiescent current change	ΔI_B	1	$T_j = 25^\circ\text{C}$	-	-	1.5	mA
	ΔI_{BO}	1	$-20\text{ V} \leq V_{IN} \leq -8.0\text{ V}$ $1.0\text{ mA} \leq I_{OUT} \leq 40\text{ mA}$	-	-	0.1	
Output noise voltage	V_{NO}	2	$T_a = 25^\circ\text{C}$, $10\text{ Hz} \leq f \leq 100\text{ kHz}$	-	40	-	μV_{rms}
Long term stability	$\Delta V_{OUT}/\Delta t$	1	-	-	12	-	mV/kh
Ripple rejection ratio	R.R.	3	$-18\text{ V} \leq V_{IN} \leq -8.0\text{ V}$, $T_j = 25^\circ\text{C}$, $f = 120\text{ Hz}$	41	49	-	dB
Dropout voltage	V_D	1	$T_j = 25^\circ\text{C}$	-	1.7	-	V
Average temperature coefficient of output voltage	T_{CVO}	1	$I_{OUT} = 5\text{ mA}$	-	0.6	-	mV/ $^\circ\text{C}$

TA79L06F

Electrical Characteristics

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

Characteristics	Symbol	Test Circuit	Test Condition		Min	Typ.	Max	Unit
Output voltage	V _{OUT}	1	T _j = 25°C		-6.24	-6.0	-5.76	V
Line regulation	Reg.line	1	T _j = 25°C	-21 V ≤ V _{IN} ≤ -8.1 V	—	50	150	mV
				-21 V ≤ V _{IN} ≤ -9.0 V	—	45	110	
Load regulation	Reg.load	1	T _j = 25°C	1.0 mA ≤ I _{OUT} ≤ 100 mA	—	12	120	mV
				1.0 mA ≤ I _{OUT} ≤ 40 mA	—	5.5	60	
Output voltage	V _{OUT}	1	T _j = 25°C	-21 V ≤ V _{IN} ≤ -8.1 V, 1.0 mA ≤ I _{OUT} ≤ 40 mA	-6.3	—	-5.7	V
				1.0 mA ≤ I _{OUT} ≤ 70 mA	-6.3	—	-5.7	
Quiescent current	I _B	1	T _j = 25°C		—	3.1	6.0	mA
			T _j = 125°C		—	—	5.5	
Quiescent current change	ΔI _B	1	T _j = 25°C	-20 V ≤ V _{IN} ≤ -9.0 V	—	—	1.5	mA
	ΔI _{BO}	1		1.0 mA ≤ I _{OUT} ≤ 40 mA	—	—	0.1	
Output noise voltage	V _{NO}	2	T _a = 25°C, 10 Hz ≤ f ≤ 100 kHz		—	40	—	μV _{rms}
Long term stability	ΔV _{OUT} /Δt	1	—		—	14	—	mV/kh
Ripple rejection ratio	R.R.	3	-19 V ≤ V _{IN} ≤ -9.0 V, T _j = 25°C, f = 120 Hz		39	47	—	dB
Dropout voltage	V _D	1	T _j = 25°C		—	1.7	—	V
Average temperature coefficient of output voltage	T _{CVO}	1	I _{OUT} = 5 mA		—	0.7	—	mV/°C

TA79L08F

Electrical Characteristics

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

Characteristics	Symbol	Test Circuit	Test Condition		Min	Typ.	Max	Unit
Output voltage	V _{OUT}	1	T _j = 25°C		-8.3	-8.0	-7.7	V
Line regulation	Reg-line	1	T _j = 25°C	-23 V ≤ V _{IN} ≤ -10.5 V	—	20	175	mV
				-23 V ≤ V _{IN} ≤ -11 V	—	12	125	
Load regulation	Reg-load	1	T _j = 25°C	1.0 mA ≤ I _{OUT} ≤ 100 mA	—	15	155	mV
				1.0 mA ≤ I _{OUT} ≤ 40 mA	—	7.0	75	
Output voltage	V _{OUT}	1	T _j = 25°C	-23 V ≤ V _{IN} ≤ -10.5 V, 1.0 mA ≤ I _{OUT} ≤ 40 mA	-8.4	—	-7.6	V
				1.0 mA ≤ I _{OUT} ≤ 70 mA	-8.4	—	-7.6	
Quiescent current	I _B	1	T _j = 25°C		—	3.1	6.5	mA
			T _j = 125°C		—	—	6.0	
Quiescent current change	ΔI _B	1	T _j = 25°C	-23 V ≤ V _{IN} ≤ -11 V	—	—	1.5	mA
	ΔI _{BO}	1		1.0 mA ≤ I _{OUT} ≤ 40 mA	—	—	0.1	
Output noise voltage	V _{NO}	2	T _a = 25°C, 10 Hz ≤ f ≤ 100 kHz		—	60	—	μV _{rms}
Long term stability	ΔV _{OUT} /Δt	1	—		—	20	—	mV/kh
Ripple rejection ratio	R.R.	3	-23 V ≤ V _{IN} ≤ -12 V, T _j = 25°C, f = 120 Hz		37	45	—	dB
Dropout voltage	V _D	1	T _j = 25°C		—	1.7	—	V
Average temperature coefficient of output voltage	T _{CV0}	1	I _{OUT} = 5 mA		—	0.8	—	mV/°C

TA79L09F

Electrical Characteristics

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

Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Output voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$	-9.36	-9.0	-8.64	V
Line regulation	Reg.line	1	$T_j = 25^\circ\text{C}$	-	80	200	mV
			$-24\text{ V} \leq V_{IN} \leq -11.4\text{ V}$	-	20	160	
Load regulation	Reg.load	1	$T_j = 25^\circ\text{C}$	-	17	175	mV
			$1.0\text{ mA} \leq I_{OUT} \leq 100\text{ mA}$	-	8.0	80	
Output voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$	-9.45	-	-8.55	V
			$-24\text{ V} \leq V_{IN} \leq -11.4\text{ V}$, $1.0\text{ mA} \leq I_{OUT} \leq 40\text{ mA}$	-9.45	-	-8.55	
Quiescent current	I_B	1	$T_j = 25^\circ\text{C}$	-	3.2	6.5	mA
			$T_j = 125^\circ\text{C}$	-	-	6.0	
Quiescent current change	ΔI_B	1	$T_j = 25^\circ\text{C}$	-	-	1.5	mA
	ΔI_{BO}	1	$-24\text{ V} \leq V_{IN} \leq -12\text{ V}$	-	-	0.1	
Output noise voltage	V_{NO}	2	$T_a = 25^\circ\text{C}$, $10\text{ Hz} \leq f \leq 100\text{ kHz}$	-	65	-	μV_{rms}
Long term stability	$\Delta V_{OUT}/\Delta t$	1	-	-	21	-	mV/kh
Ripple rejection ratio	R.R.	3	$-24\text{ V} \leq V_{IN} \leq -12\text{ V}$, $T_j = 25^\circ\text{C}$, $f = 120\text{ Hz}$	36	44	-	dB
Dropout voltage	V_D	1	$T_j = 25^\circ\text{C}$	-	1.7	-	V
Average temperature coefficient of output voltage	T_{CVO}	1	$I_{OUT} = 5\text{ mA}$	-	0.85	-	mV/ $^\circ\text{C}$

TA79L10F

Electrical Characteristics

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

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	$T_j = 25^\circ\text{C}$	-	80	230	mV
			$-25\text{ V} \leq V_{IN} \leq -13\text{ V}$	-	30	170	
Load regulation	Reg.load	1	$T_j = 25^\circ\text{C}$	-	18	190	mV
			$1.0\text{ mA} \leq I_{OUT} \leq 40\text{ mA}$	-	8.5	90	
Output voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$	-10.5	-	-9.5	V
			$-25\text{ V} \leq V_{IN} \leq -12.5\text{ V}$, $1.0\text{ mA} \leq I_{OUT} \leq 40\text{ mA}$	-10.5	-	-9.5	
Quiescent current	I_B	1	$T_j = 25^\circ\text{C}$	-	3.2	6.5	mA
			$T_j = 125^\circ\text{C}$	-	-	6.0	
Quiescent current change	ΔI_B	1	$T_j = 25^\circ\text{C}$	-	-	1.5	mA
	ΔI_{BO}	1	$-25\text{ V} \leq V_{IN} \leq -13\text{ V}$ $1.0\text{ mA} \leq I_{OUT} \leq 40\text{ mA}$	-	-	0.1	
Output noise voltage	V_{NO}	2	$T_a = 25^\circ\text{C}$, $10\text{ Hz} \leq f \leq 100\text{ kHz}$	-	70	-	μV_{rms}
Long term stability	$\Delta V_{OUT}/\Delta t$	1	-	-	22	-	mV/kh
Ripple rejection ratio	R.R.	3	$-24\text{ V} \leq V_{IN} \leq -13\text{ V}$, $T_j = 25^\circ\text{C}$, $f = 120\text{ Hz}$	36	43	-	dB
Dropout voltage	V_D	1	$T_j = 25^\circ\text{C}$	-	1.7	-	V
Average temperature coefficient of output voltage	T_{CVO}	1	$I_{OUT} = 5\text{ mA}$	-	0.9	-	mV/ $^\circ\text{C}$

TA79L12F
Electrical Characteristics

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

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	$T_j = 25^\circ\text{C}$	-	120	250	mV
			$-27\text{ V} \leq V_{IN} \leq -14.5\text{ V}$	-	100	200	
Load regulation	Reg.load	1	$T_j = 25^\circ\text{C}$	-	20	225	mV
			$1.0\text{ mA} \leq I_{OUT} \leq 100\text{ mA}$	-	10	105	
Output voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$	-12.6	-	-11.4	V
			$-27\text{ V} \leq V_{IN} \leq -14.5\text{ V}$, $1.0\text{ mA} \leq I_{OUT} \leq 40\text{ mA}$	-12.6	-	-11.4	
Quiescent current	I_B	1	$T_j = 25^\circ\text{C}$	-	3.2	6.5	mA
			$T_j = 125^\circ\text{C}$	-	-	6.0	
Quiescent current change	ΔI_B	1	$T_j = 25^\circ\text{C}$	-	-	1.5	mA
	ΔI_{BO}	1	$-27\text{ V} \leq V_{IN} \leq -16\text{ V}$	-	-	0.1	
Output noise voltage	V_{NO}	2	$T_a = 25^\circ\text{C}$, $10\text{ Hz} \leq f \leq 100\text{ kHz}$	-	80	-	μV_{rms}
Long term stability	$\Delta V_{OUT}/\Delta t$	1	-	-	24	-	mV/kh
Ripple rejection ratio	R.R.	3	$-25\text{ V} \leq V_{IN} \leq -15\text{ V}$, $T_j = 25^\circ\text{C}$, $f = 120\text{ Hz}$	37	42	-	dB
Dropout voltage	V_D	1	$T_j = 25^\circ\text{C}$	-	1.7	-	V
Average temperature coefficient of output voltage	T_{CVO}	1	$I_{OUT} = 5\text{ mA}$	-	1.0	-	mV/ $^\circ\text{C}$

TA79L15F

Electrical Characteristics

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

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	$T_j = 25^\circ\text{C}$	-	130	300	mV
			$-30\text{ V} \leq V_{IN} \leq -20\text{ V}$	-	110	250	
Load regulation	Reg.load	1	$T_j = 25^\circ\text{C}$	-	25	280	mV
			$1.0\text{ mA} \leq I_{OUT} \leq 40\text{ mA}$	-	12	130	
Output voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$	-15.75	-	-14.25	V
			$-30\text{ V} \leq V_{IN} \leq -17.5\text{ V}$, $1.0\text{ mA} \leq I_{OUT} \leq 40\text{ mA}$	-15.75	-	-14.25	
Quiescent current	I_B	1	$T_j = 25^\circ\text{C}$	-	3.3	6.5	mA
			$T_j = 125^\circ\text{C}$	-	-	6.0	
Quiescent current change	ΔI_B	1	$T_j = 25^\circ\text{C}$	-	-	1.5	mA
	ΔI_{BO}	1	$-30\text{ V} \leq V_{IN} \leq -20\text{ V}$ $1.0\text{ mA} \leq I_{OUT} \leq 40\text{ mA}$	-	-	0.1	
Output noise voltage	V_{NO}	2	$T_a = 25^\circ\text{C}$, $10\text{ Hz} \leq f \leq 100\text{ kHz}$	-	90	-	μV_{rms}
Long term stability	$\Delta V_{OUT}/\Delta t$	1	-	-	30	-	mV/kh
Ripple rejection ratio	R.R.	3	$-28.5\text{ V} \leq V_{IN} \leq -18.5\text{ V}$, $T_j = 25^\circ\text{C}$, $f = 120\text{ Hz}$	34	39	-	dB
Dropout voltage	V_D	1	$T_j = 25^\circ\text{C}$	-	1.7	-	V
Average temperature coefficient of output voltage	T_{CVO}	1	$I_{OUT} = 5\text{ mA}$	-	1.3	-	mV/ $^\circ\text{C}$

TA79L18F

Electrical Characteristics

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

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	$T_j = 25^\circ\text{C}$	-	32	325	mV
			$-33\text{ V} \leq V_{IN} \leq -20.7\text{ V}$	-	27	275	
Load regulation	Reg.load	1	$T_j = 25^\circ\text{C}$	-	30	335	mV
			$1.0\text{ mA} \leq I_{OUT} \leq 100\text{ mA}$	-	15	155	
Output voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$	-18.9	-	-17.1	V
			$-33\text{ V} \leq V_{IN} \leq -20.9\text{ V}$, $1.0\text{ mA} \leq I_{OUT} \leq 40\text{ mA}$	-18.9	-	-17.1	
Quiescent current	I_B	1	$T_j = 25^\circ\text{C}$	-	3.3	6.5	mA
			$T_j = 125^\circ\text{C}$	-	-	6.0	
Quiescent current change	ΔI_B	1	$T_j = 25^\circ\text{C}$	-	-	1.5	mA
	ΔI_{BO}	1	$-33\text{ V} \leq V_{IN} \leq -21\text{ V}$	-	-	0.1	
Output noise voltage	V_{NO}	2	$T_a = 25^\circ\text{C}$, $10\text{ Hz} \leq f \leq 100\text{ kHz}$	-	150	-	μV_{rms}
Long term stability	$\Delta V_{OUT}/\Delta t$	1	-	-	45	-	mV/kh
Ripple rejection ratio	R.R.	3	$-33\text{ V} \leq V_{IN} \leq -23\text{ V}$, $T_j = 25^\circ\text{C}$, $f = 120\text{ Hz}$	33	48	-	dB
Dropout voltage	V_D	1	$T_j = 25^\circ\text{C}$	-	1.7	-	V
Average temperature coefficient of output voltage	T_{CVO}	1	$I_{OUT} = 5\text{ mA}$	-	1.5	-	mV/ $^\circ\text{C}$

TA79L20F

Electrical Characteristics

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

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	$T_j = 25^\circ\text{C}$	-	33	330	mV
			$-35\text{ V} \leq V_{IN} \leq -24\text{ V}$	-	28	285	
Load regulation	Reg.load	1	$T_j = 25^\circ\text{C}$	-	33	370	mV
			$1.0\text{ mA} \leq I_{OUT} \leq 40\text{ mA}$	-	17	170	
Output voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$	-21.0	-	-19.0	V
			$-35\text{ V} \leq V_{IN} \leq -23.5\text{ V}$, $1.0\text{ mA} \leq I_{OUT} \leq 40\text{ mA}$	-21.0	-	-19.0	
Quiescent current	I_B	1	$T_j = 25^\circ\text{C}$	-	3.3	6.5	mA
			$T_j = 125^\circ\text{C}$	-	-	6.0	
Quiescent current change	ΔI_B	1	$T_j = 25^\circ\text{C}$	-	-	1.5	mA
	ΔI_{BO}	1	$-35\text{ V} \leq V_{IN} \leq -24\text{ V}$ $1.0\text{ mA} \leq I_{OUT} \leq 40\text{ mA}$	-	-	0.1	
Output noise voltage	V_{NO}	2	$T_a = 25^\circ\text{C}$, $10\text{ Hz} \leq f \leq 100\text{ kHz}$	-	170	-	μV_{rms}
Long term stability	$\Delta V_{OUT}/\Delta t$	1	-	-	49	-	mV/kh
Ripple rejection ratio	R.R.	3	$-35\text{ V} \leq V_{IN} \leq -27\text{ V}$, $T_j = 25^\circ\text{C}$, $f = 120\text{ Hz}$	31	37	-	dB
Dropout voltage	V_D	1	$T_j = 25^\circ\text{C}$	-	1.7	-	V
Average temperature coefficient of output voltage	T_{CVO}	1	$I_{OUT} = 5\text{ mA}$	-	1.7	-	mV/ $^\circ\text{C}$

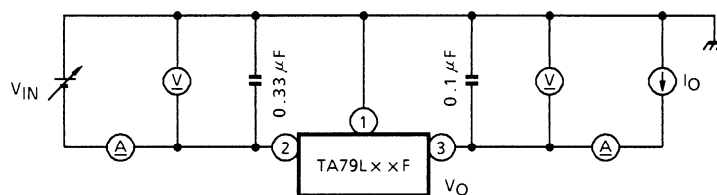
TA79L24F
Electrical Characteristics

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

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	$T_j = 25^\circ\text{C}$	—	35	350	mV
			$T_j = 25^\circ\text{C}$	—	30	300	
Load regulation	Reg.load	1	$T_j = 25^\circ\text{C}$	—	40	440	mV
			$T_j = 25^\circ\text{C}$	—	20	200	
Output voltage	V_{OUT}	1	$T_j = 25^\circ\text{C}$	-25.2	—	-22.8	V
			$T_j = 25^\circ\text{C}$	-25.2	—	-22.8	
Quiescent current	I_B	1	$T_j = 25^\circ\text{C}$	—	3.5	6.5	mA
			$T_j = 125^\circ\text{C}$	—	—	6.0	
Quiescent current change	ΔI_B	1	$T_j = 25^\circ\text{C}$	—	—	1.5	mA
	ΔI_{BO}	1	$T_j = 25^\circ\text{C}$	—	—	0.1	
Output noise voltage	V_{NO}	2	$T_a = 25^\circ\text{C}$, $10\text{ Hz} \leq f \leq 100\text{ kHz}$	—	200	—	μV_{rms}
Long term stability	$\Delta V_{OUT}/\Delta t$	1	—	—	56	—	mV/kh
Ripple rejection ratio	R.R.	3	$-35\text{ V} \leq V_{IN} \leq -29\text{ V}$, $T_j = 25^\circ\text{C}$, $f = 120\text{ Hz}$	31	47	—	dB
Dropout voltage	V_D	1	$T_j = 25^\circ\text{C}$	—	1.7	—	V
Average temperature coefficient of output voltage	T_{CVO}	1	$I_{OUT} = 5\text{ mA}$	—	2.0	—	mV/ $^\circ\text{C}$

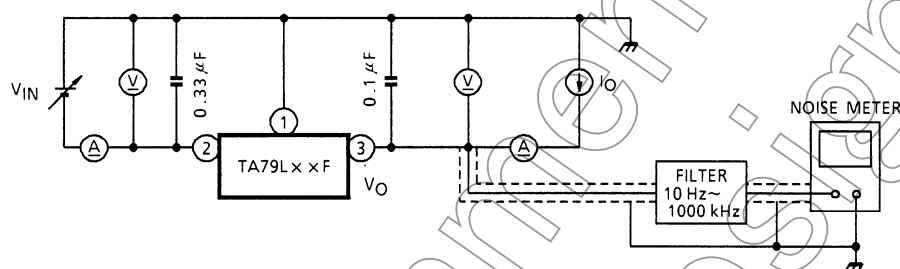
Test Circuit 1

V_{OUT} , Reg·line, Reg·load, I_B , ΔI_B , $\Delta V_{OUT}/\Delta t$, V_D , T_{CVO}



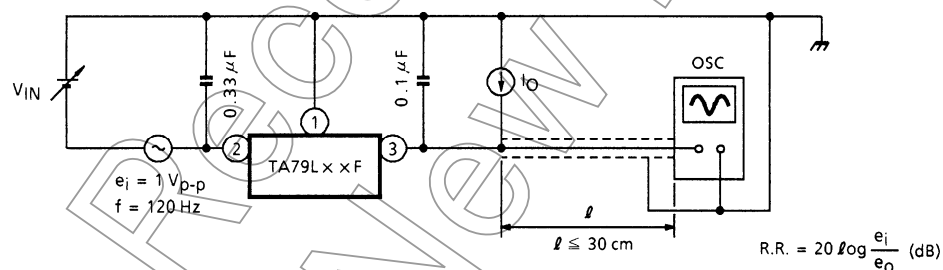
Test Circuit 2

V_{NO}



Test Circuit 3

R.R.



Usage Precautions

- Low voltage

Do not apply voltage to the Product that is lower than the minimum operating voltage, or the Product's protective functions will not operate properly and the Product may be permanently damaged.

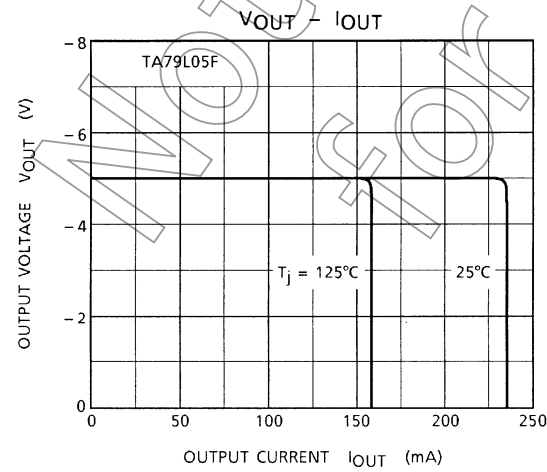
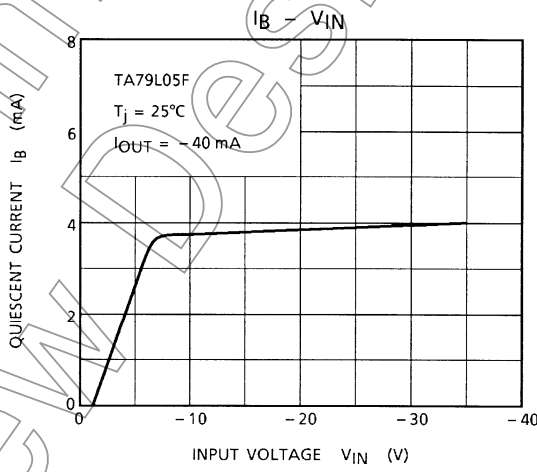
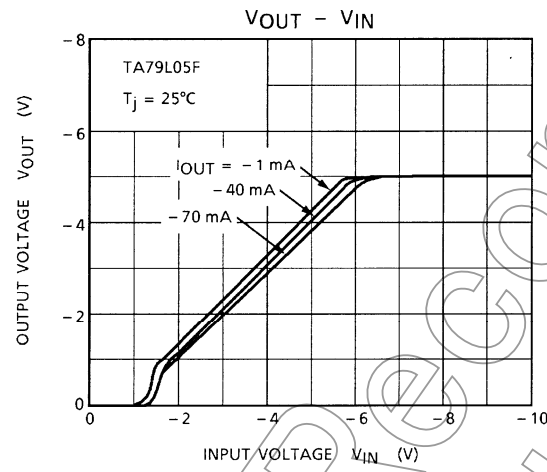
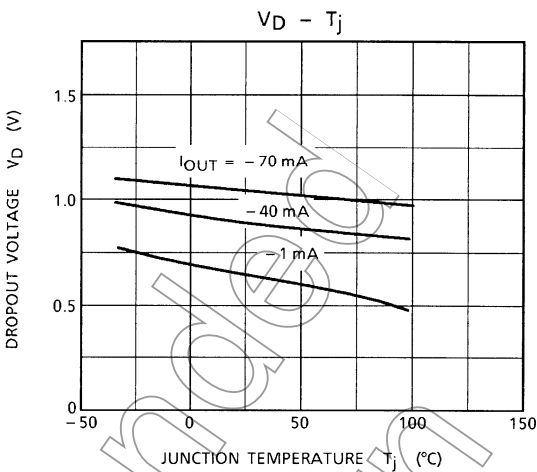
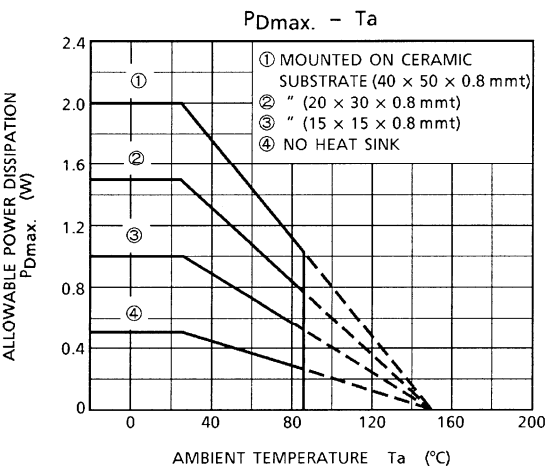
- Overcurrent Protection

The overcurrent protection circuits in the Product are designed to temporarily protect Product from minor overcurrent of brief duration. When the overcurrent protective function in the Product activates, immediately cease application of overcurrent to Product. Improper usage of Product, such as application of current to Product exceeding the absolute maximum ratings, could cause the overcurrent protection circuit not to operate properly and/or damage Product permanently even before the protection circuit starts to operate.

- Overheating Protection

The thermal shutdown circuits in the Product are designed to temporarily protect Product from minor overheating of brief duration. When the overheating protective function in the Product activates, immediately correct the overheating situation. Improper usage of Product, such as the application of heat to Product exceeding the absolute maximum ratings, could cause the overheating protection circuit not to operate properly and/or damage Product permanently even before the protection circuit starts to operate.

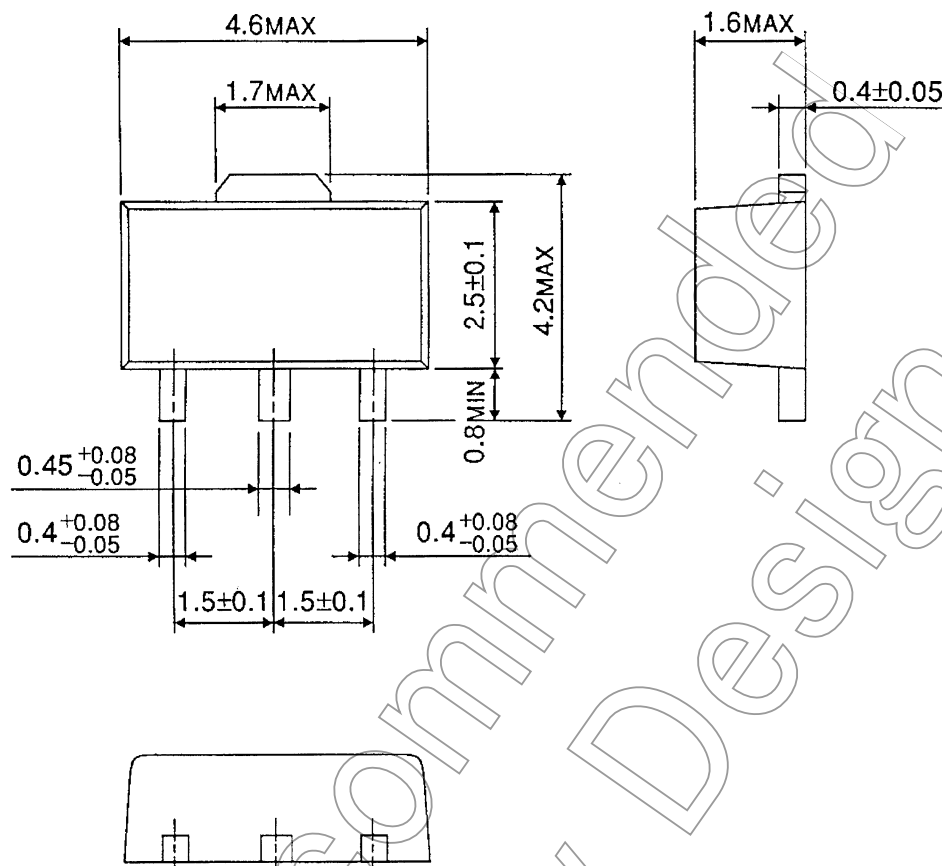
Not Recommended
for New Design



Package Dimensions

HSOP3-P-1.50

Unit : mm



Weight : 0.05 g (Typ.)

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