

TA8004AS

5 V LOW DROPOUT REGULATOR WITH RESET TIMER

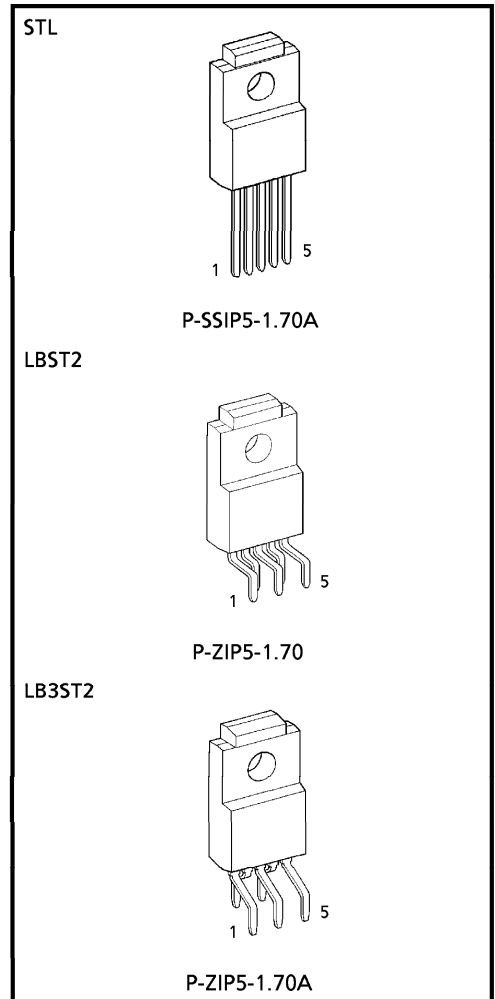
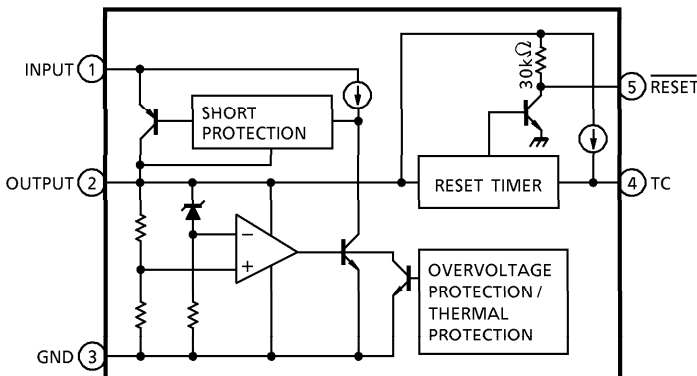
The TA8004AS is a 5 V regulator which handles 400mA Max. of output current.

This IC generates a reset signal to reset the system when power is supplied or the 5V output voltage lowers to 85% or less of normal output voltage due to the external disturbances.

FEATURES

- Maximum Output Current : 400 mA (Max.)
- Low Input-Output Dropout Voltage : 0.6 V (Max.)
- Multi Protection
 - Power supply reverse connection
 - Function for over voltage
 - Thermal protection
 - Short protection
- Internal Power ON Reset Timer
- TO-220 (IS) 5 Pin Package

BLOCK DIAGRAM



Weight	
P-SSIP5-1.70A	: 2.2 g (Typ.)
P-ZIP5-1.70	: 2.2 g (Typ.)
P-ZIP5-1.70A	: 2.2 g (Typ.)

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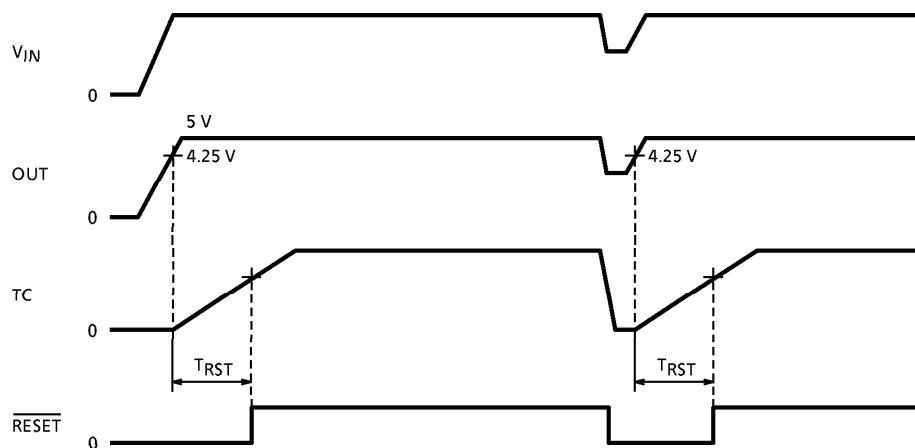
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PIN DESCRIPTIONS

PIN No.	SYMBOL	DESCRIPTION
1	IN	Power supply terminal.
2	OUT	The 5 V output terminal with maximum output current 400 mA.
3	GND	Ground terminal.
4	TC	Terminal to set the reset timer. A capacitor is connected between this terminal and GND.
5	$\overline{\text{RESET}}$	Collector output of an NPN transistor with built-in pull-up resistor. This pin is put at LOW level at output voltage below 85% of a prescribed level and after output voltage becomes above 85% of a prescribed level, a reset signal for the time set at the TC terminal.

TIMING CHART

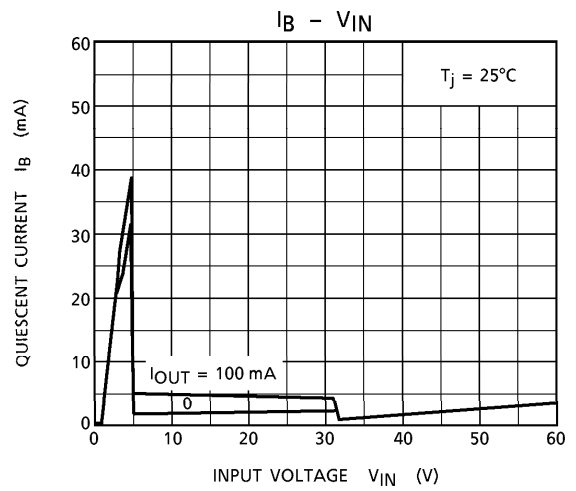
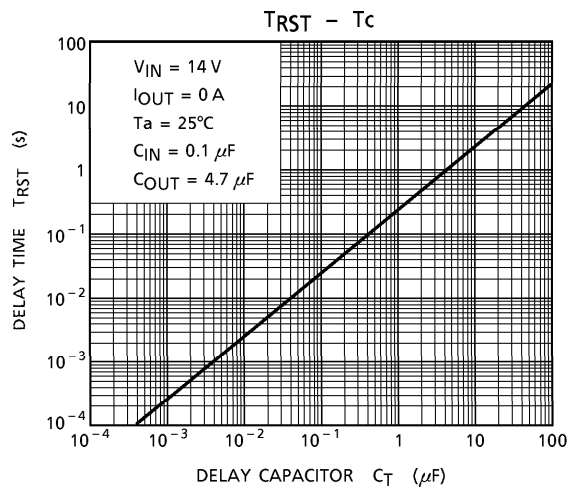
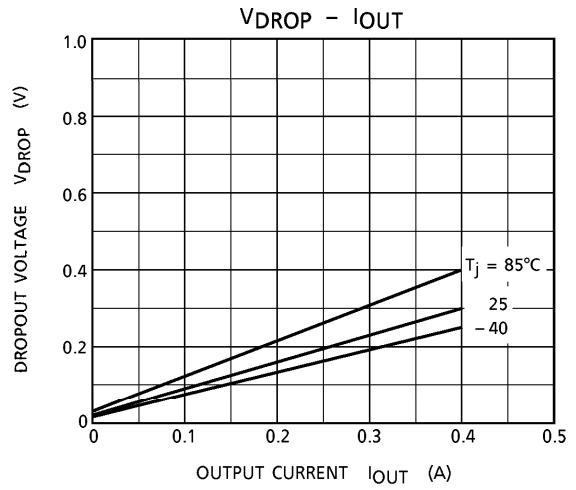
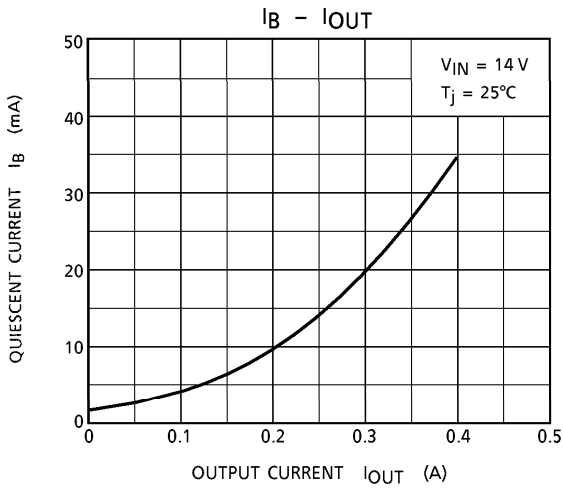
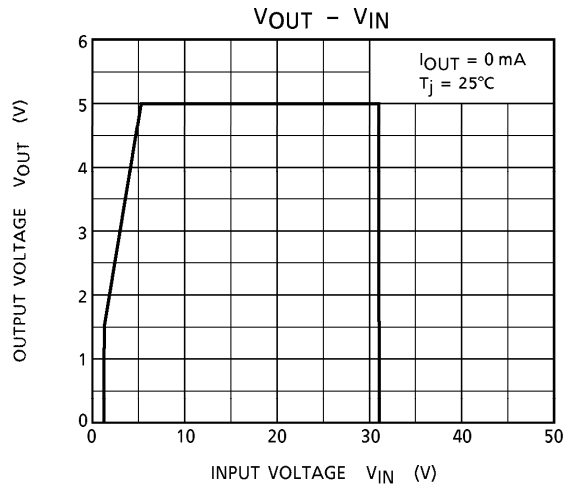
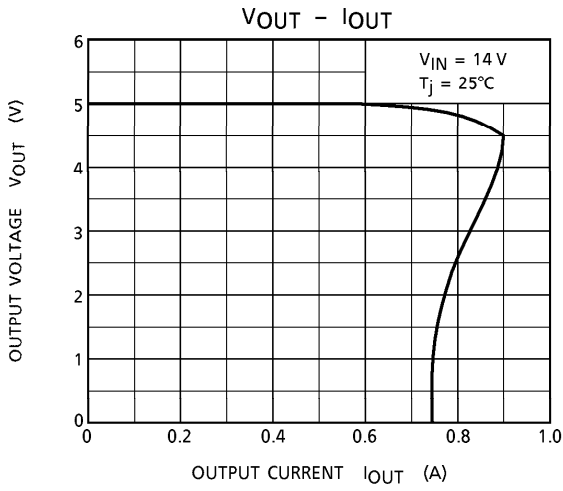


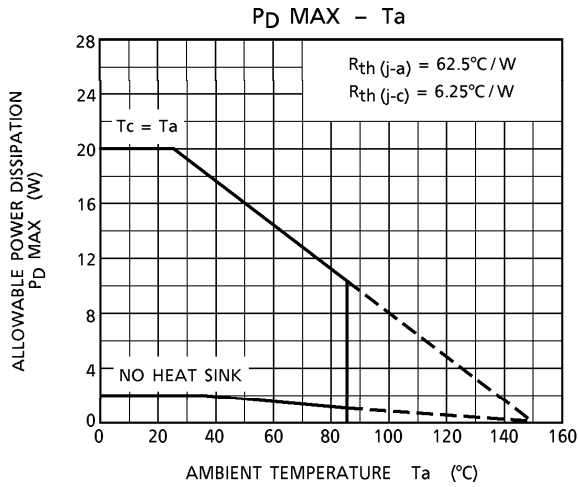
MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Input Voltage	V_{IN}	-20~60	V
Power Dissipation	P_D	($T_a = 25^\circ\text{C}$)	2
		($T_c = 25^\circ\text{C}$)	20
Operating Temperature	T_{opr}	-40~85	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~150	$^\circ\text{C}$
Soldering Temperature·Time	T_{sol}	260 (10 s)	$^\circ\text{C}$
Thermal Resistance	$R_{th(j-c)}$	6.25	$^\circ\text{C} / \text{W}$
	$R_{th(j-a)}$	62.5	

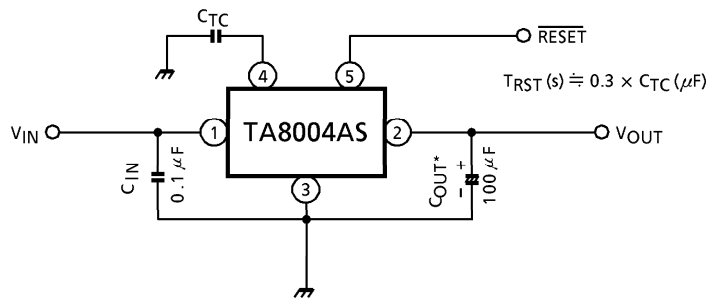
ELECTRICAL CHARACTERISTICS (Unless otherwise specified, $V_{IN} = 14\text{ V}$, $I_{OUT} = 10\text{ mA}$, $T_j = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	PIN	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT}	OUT	—	$5.35\text{ V} \leq V_{IN} \leq 26\text{ V}$ $I_{OUT} = 10\text{ mA}$	4.8	5.0	5.2	V
				$5.35\text{ V} \leq V_{IN} \leq 26\text{ V}$ $I_{OUT} = 10\text{ mA}$ $-40^\circ\text{C} \leq T_a \leq 85^\circ\text{C}$	4.5	5.0	5.5	
Line Regulation	Reg-Line	OUT	—	$10\text{ V} \leq V_{IN} \leq 17\text{ V}$ $I_{OUT} = 200\text{ mA}$	—	4	50	mV
				$7\text{ V} \leq V_{IN} \leq 26\text{ V}$ $I_{OUT} = 200\text{ mA}$	—	10	70	
Load Regulation	Reg-Load	OUT	—	$10\text{ mA} \leq I_{OUT} \leq 200\text{ mA}$	—	35	150	mV
Quiescent Current	I_B	GND	—	$6\text{ V} \leq V_{IN} \leq 26\text{ V}$, $I_{OUT} = 0$	—	1.7	3	mA
				$V_{IN} = 14\text{ V}$, $I_{OUT} = 200\text{ mA}$	—	10	—	
Dropout Voltage	V_{DROP}	IN / OUT	—	$I_{OUT} = 50\text{ mA}$	—	0.08	0.2	V
				$I_{OUT} = 400\text{ mA}$	—	0.3	0.6	
Max. Operating Input Voltage	V_{IN}	IN	—	—	29	32	—	V
Reset Voltage (H)	$V_{RST (H)}$	RST	—	—	4.5	5	5.5	V
Reset Voltage (L)	$V_{RST (L)}$	RST	—	$I_{SINK} = 2.5\text{ mA}$	—	0.15	0.4	V
Delay Time	T_{RST}	RST	—	—	—	$0.3 \times C_{TC} (\mu\text{F})$	—	s
TC Threshold	V_{TH}	TC	—	—	—	$V_{out} \times 60\%$	—	V
Delay Current	I_{TC}	TC	—	—	5	12	25	μA
V_{OUT} Threshold	V_{TH}	OUT	—	—	—	$V_{out} \times 85\%$	—	V





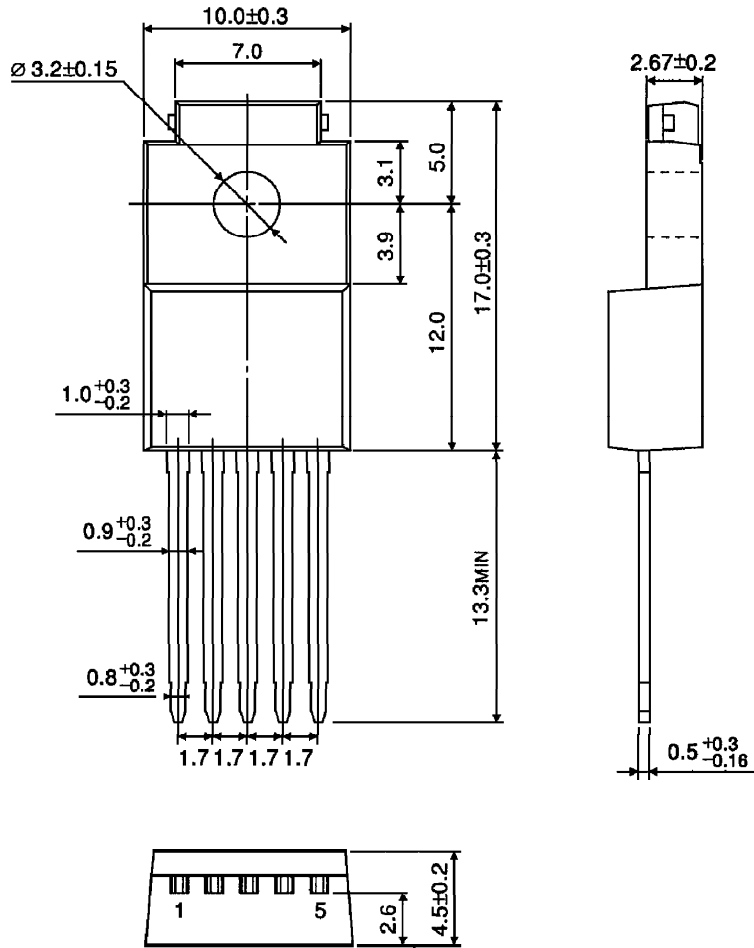
APPLICATION CIRCUIT



(*) : Capacitor C_{OUT} must be guaranteed to operate of the temperature range that the regulator should be operated correctly.
 100 μF is a suitable value to suppress the oscillation phenomenon at the output terminal.

PACKAGE DIMENSIONS
P-SSIP5-1.70A (STL)

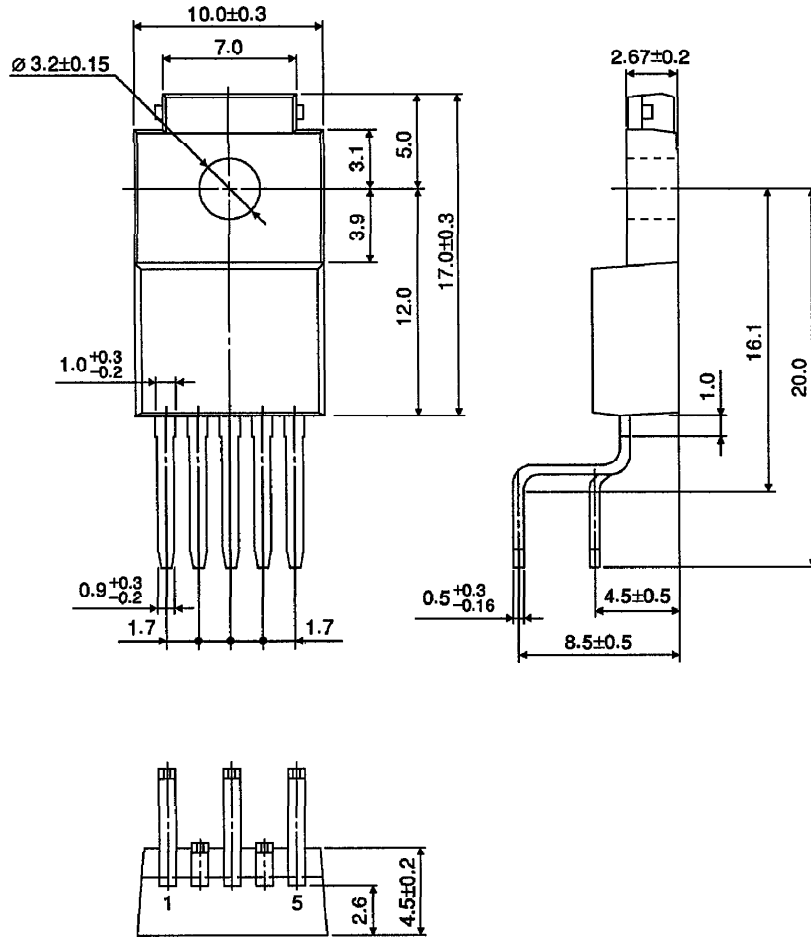
Unit : mm



Weight : 2.2 g (Typ.)

PACKAGE DIMENSIONS
P-ZIP5-1.70 (LBST2)

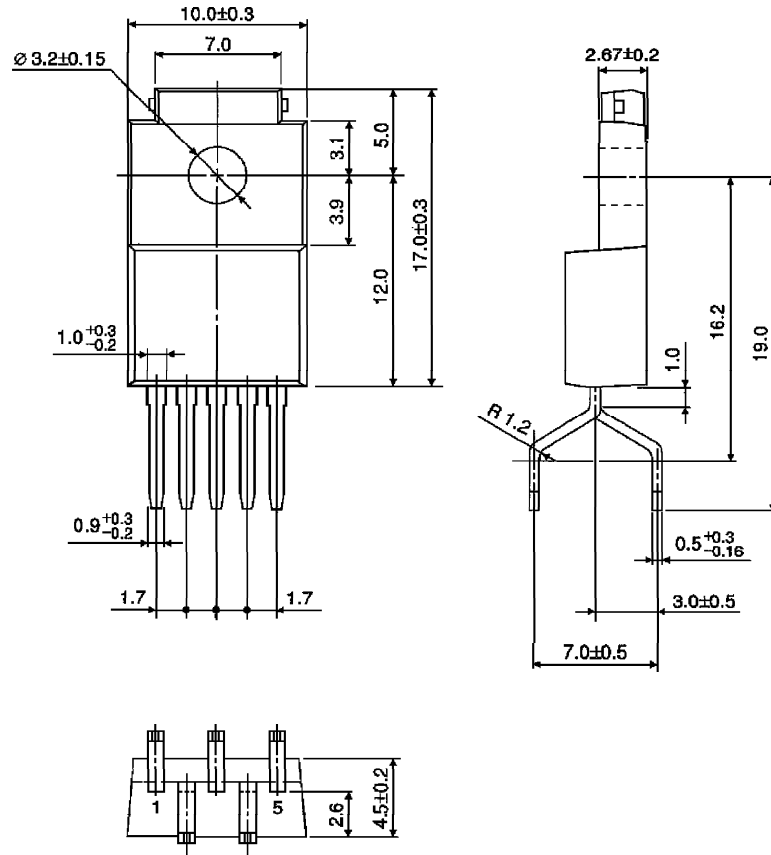
Unit : mm



Weight : 2.2 g (Typ.)

PACKAGE DIMENSIONS
P-ZIP5-1.70A (LB3ST2)

Unit : mm



Weight : 2.2g (Typ.)