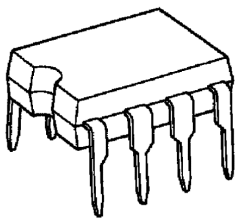
TOSHIBA Bipolar Linear Integrated Circuit Silicon Monolithic

TA8505P

Supply Voltage Supervisor

TA8505P is a bipolar monolithic IC developed for reset controller in digital systems, especially in microcomputer systems.
Wide range detecting voltage can be set freely by a few external parts.



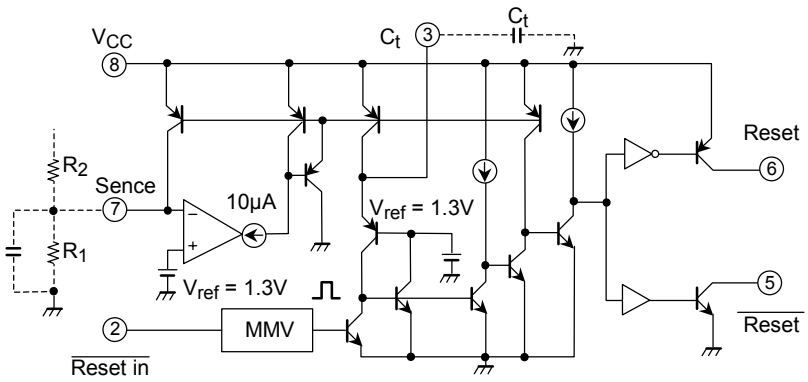
DIP8-P-300-2.54A

Weight: 0.5g (typ.)

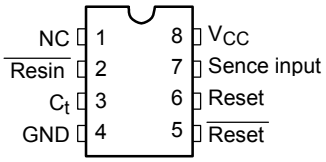
Features

- A detected voltage and hysteresis can be set with 2 external resistances.
- Provided the 2 outputs of Reset and $\overline{\text{Reset}}$.
- $\overline{\text{Reset}}$–IN signal can reset two outputs' voltage.
- Wide operating voltage range: 1.8~32V
- Output current: I_{OL} = 20mA (max.)

Block Diagram



Pin Connection (top view)



Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Supply voltage	V_{CC}	36	V
Breakdown voltage	$\overline{\text{RESIN}}$	36	V
	SENCE		
Output current	I_{OH}	−1	mA
	I_{OL}	20	
Power dissipation	P_D	0.6	W
Operating temperature	T_{opr}	−40~85	°C
Storage temperature	T_{stg}	−55~150	°C

Recommended Operating Condition

Characteristic			Symbol	Test Condition	Min.	Typ.	Max.	Unit
Supply voltage			V_{CC}	—	1.8	—	32	V
Input voltage			V_{IN}	—	0	—	V_{CC}	V
Input voltage	"H" level	$\overline{\text{RESIN}}$	V_{IH}	—	2.0	—	V_{CC}	V
	"L" level	$\overline{\text{RESIN}}$	V_{IL}	—	0	—	0.6	
Output current		RESET	I_{OH}	—	0	—	−1	mA
		$\overline{\text{RESET}}$	I_{OL}	—	0	—	16	
Operation temperature			T_{opr}	—	0	—	70	°C

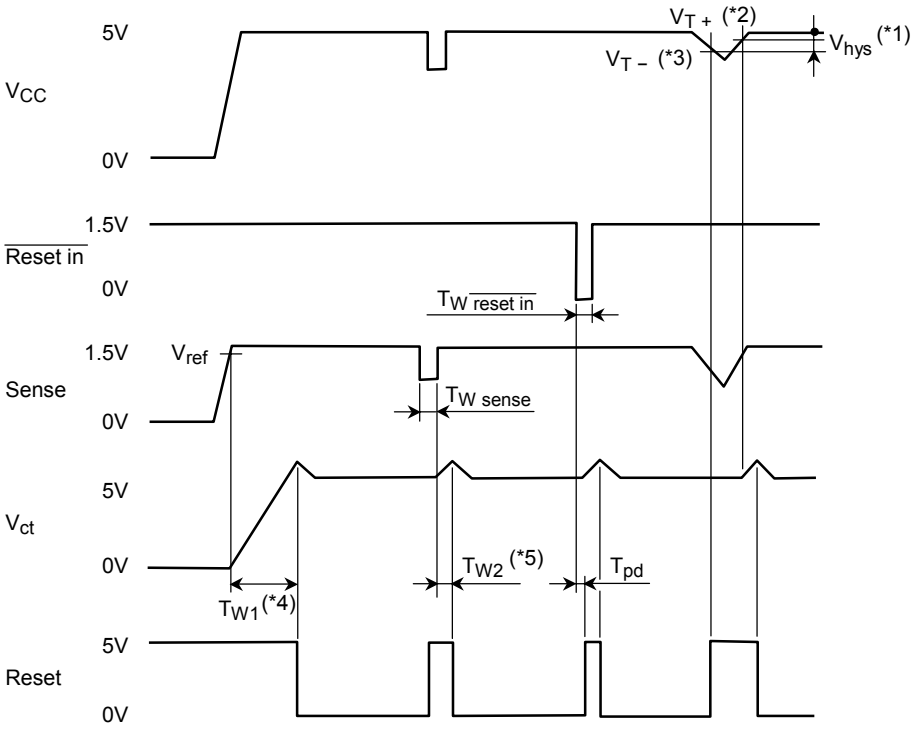
Electrical Characteristics (Ta = 25°C)

Characteristic			Symbol	Test Cir-cuit	Test Condition		Min.	Typ.	Max.	Unit
Input current	"H" level	$\overline{\text{RESIN}}$	I_{IH}	—	V_{CC} = 5.0V	V_{IN} = 2.0V	—	—	2	μA
		SENSE				V_{IN} = 1.5V	−8	−12	−16	
	"L" level	$\overline{\text{RESIN}}$	I_{IL}			V_{IN} = 0.4V	0	−0.8	−6	
		SENSE				V_{IN} = 1V	0	—	±2	
C_t change current			I_{ct}	—	V_{CC} = 5.0V , V_{ct} = 0V		−12	−19	−26	μA
Output voltage		RESET	V_{OH}	—	V_{CC} = 5.0V	I_{OL} = −1mA	4.5	4.8	—	V
		$\overline{\text{RESET}}$	V_{OL}			I_{OH} = 16mA	—	0.1	0.4	
Output current		RESET	I_{OL}	—	V_{CC} = 5.0V	V_{OL} = 0V	—	—	−2	μA
		$\overline{\text{RESET}}$	I_{OH}			V_{OH} = 5.0V	—	—	2	
Reference voltage			V_{ref}	—	V_{CC} = 5.0V		1.24	1.31	1.38	V
Supply current			I_{CC}	—	V_{CC} = 5.0V, all inputs and outputs open		—	1.6	3.0	mA

AC Characteristics (V_{CC} = 5V, Ta = 25°C)

Characteristic	Symbol	Test Circuit	Test Condition		Min.	Typ.	Max.	Unit
Input pulse width	$t_{w\ sence}$	—	$V_{IH} = V_{ref}$ Typ + 200mA $V_{IL} = V_{ref}$ Typ − 200mA		1.0	—	—	μs
	$t_{w\ \overline{reset\ in}}$	—	—		0.4	1.4	—	
Output pulse width	t_w	—	C_t = 0.1μF	$V_{ct\ (t=0)}$ = 1V	0.65	1.3	2.6	ms
				$V_{ct\ (t=0)}$ = 0V	—	5.7	—	
Propagation delay time ($\overline{RESIN}$–RESET)	t_{pd}	—	C_L = 100pF, R_L = 4.7kΩ		—	1	—	μs

Timing Chart



(*1) $V_{hys} = (R_1 + R_2) \times 10^{-5}$ (V)

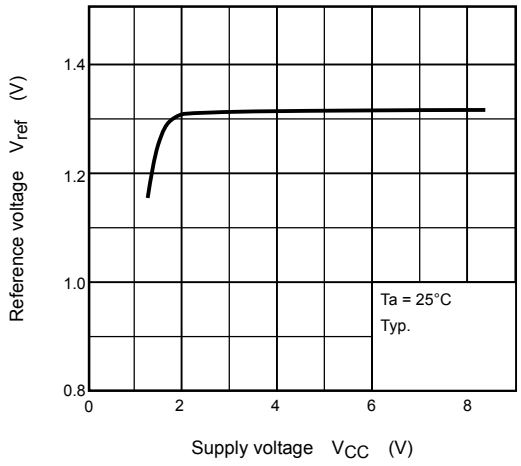
(*2) $V_{T+} = \frac{R_1+R_2}{R_1} \times 1.31$ (V)

(*3) $V_{T-} = \frac{R_1+R_2}{R_1} \times (1.31 - R_1 \times 10^{-5})$ (V)

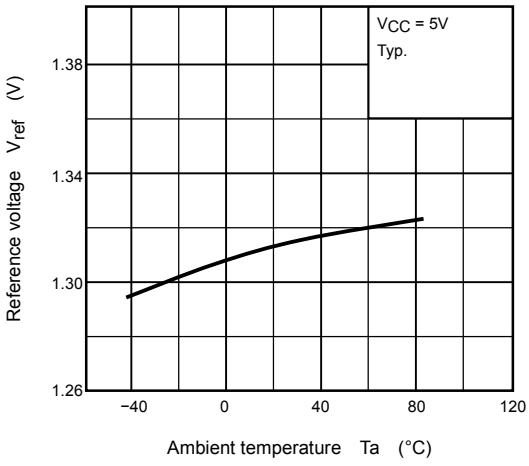
(*4) $T_{w1} = G_t \cdot (V_{ref} - 0V) / I_{CT}$ ($I_{CT} = 23\mu A$)

(*5) $T_{w2} = G_t \cdot (V_{ref} - 1V) / I_{CT}$

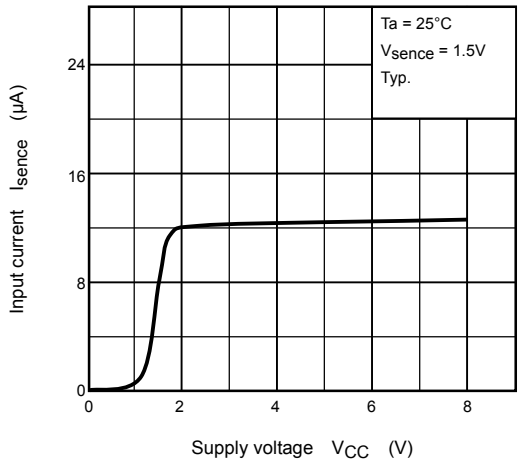
V_{ref} – V_{CC}



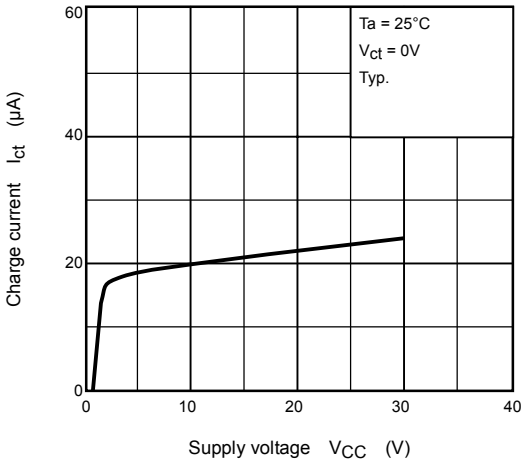
V_{ref} – Ta



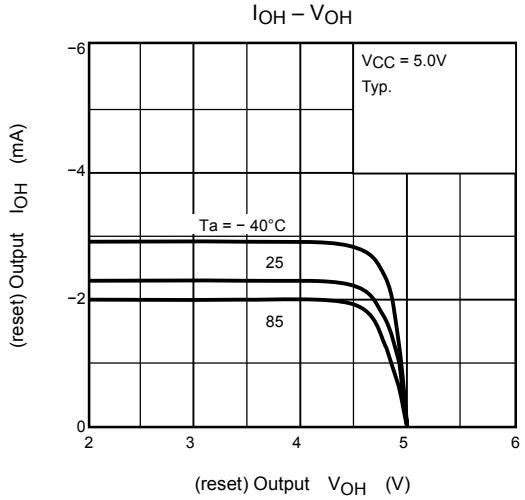
I_{sence} – V_{CC}



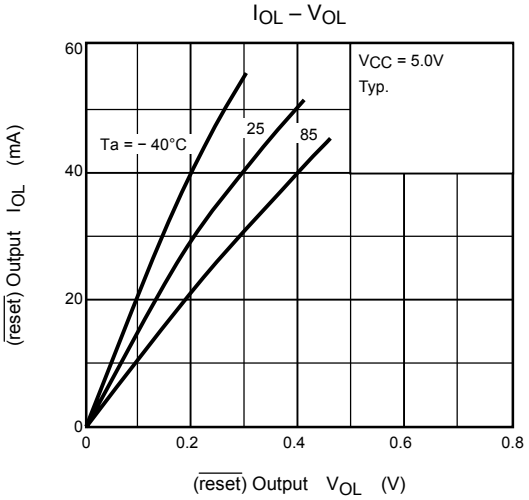
I_{ct} – V_{CC}



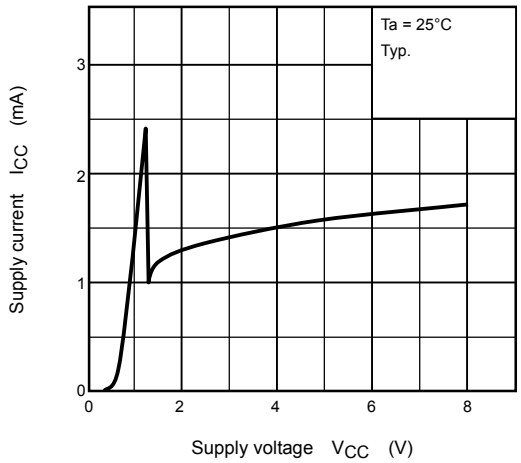
I_{OH} – V_{OH}



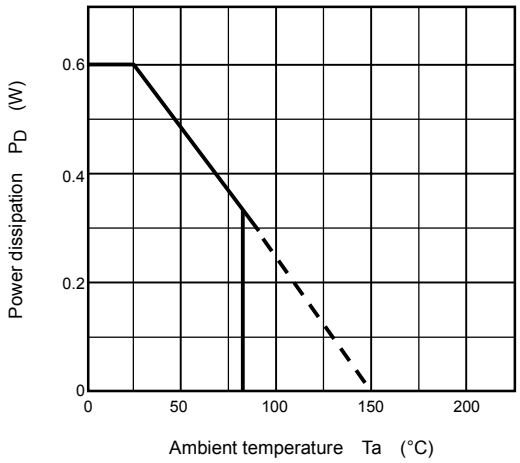
I_{OL} – V_{OL}



$I_{CC} - V_{CC}$

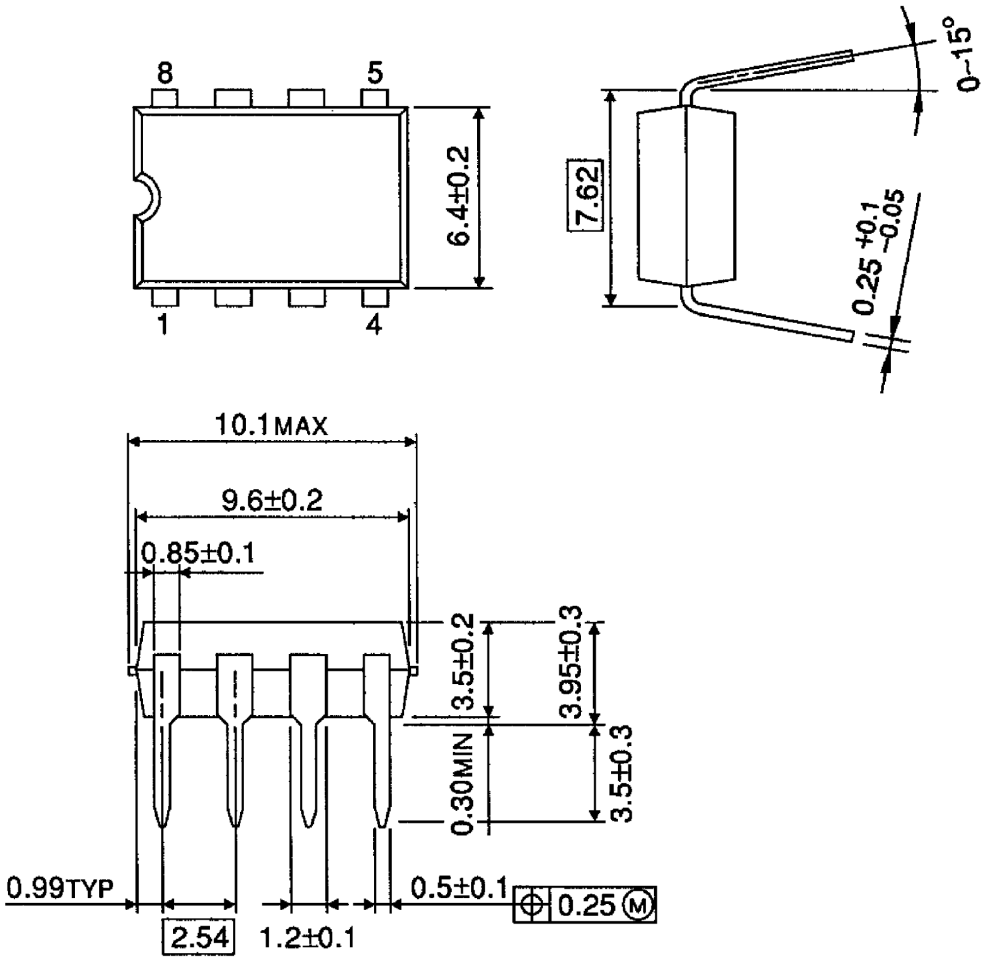

Ta = 25°C
Typ.
Supply current I_{CC} (mA)
Supply voltage V_{CC} (V)
0
1
2
3
0
2
4
6
8

$P_D - Ta$


Power dissipation P_D (W)
Ambient temperature Ta (°C)
0
0.2
0.4
0.6
0
50
100
150
200

Package Dimensions

DIP8-P-300-2.54A Unit : mm



Weight: 0.5g (typ.)

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