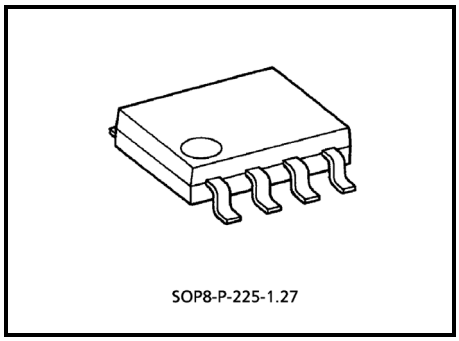
TOSHIBA Bipolar Linear Integrated Circuit Silicon Monolithic

TA8504F

High Speed Comparator

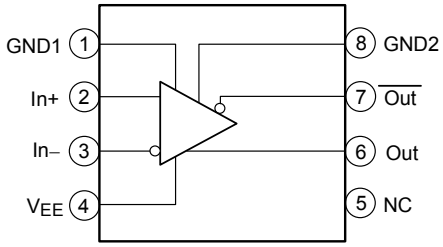
Features

- Pulse delay: 1.6ns (typ.)
- Differential ECL output
- 50Ω line drive output
- 8pin mini flat package
- −5V single power supply

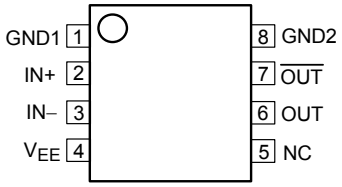


Weight: 0.1g (typ.)

Block Diagram



Pin Connection (top view)



Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Supply voltage	V_{EE}	0.3~−6.0	V
Differential input voltage	DV_{IN}	±3	V
Common mode input voltage	CMV_{IN}	−0.3~V_{EE}	V
Power dissipation	P_D	(*) 300	mW
Operating temperature	T_{opr}	−20~85	°C
Storage temperature	T_{stg}	−55~150	°C

Recommended operating voltage: V_{EE} = −5.5~−4.5V, Ta = −20~70°C

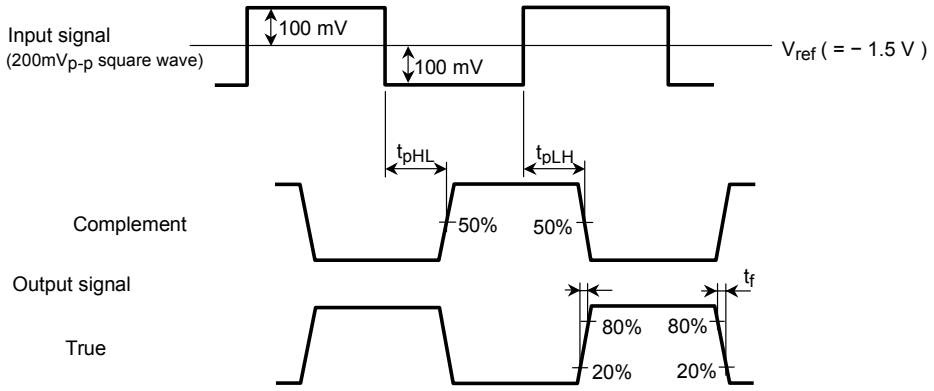
(Note *) Shown here is date for the single unit of IC only and when mounted on a substrate, power dissipation can be made larger than this. However, as it varies largely depending upon the state of mounted on a substrate, it shall be examined thoroughly.

(Note **) As this product is weak to surge voltage, please handle carefully.

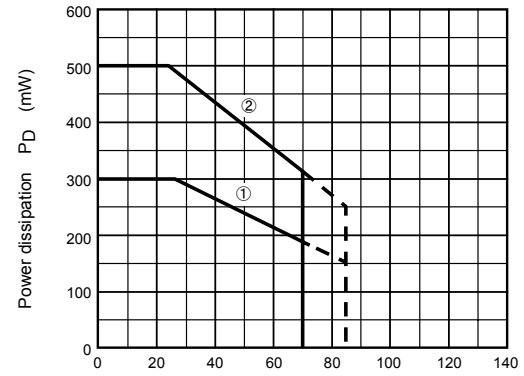
Electrical Characteristics (V_{EE} = −5V, R_L = 50Ω, Ta = 25°C)

Characteristic		Symbol	Test Cir–cuit	Test Condition	Min.	Typ.	Max.	Unit
Input offset voltage		—	—	R_S < 500Ω	−10	—	10	mV
Input bias current		—	—	—	—	20	40	μA
Input offset current		—	—	—	—	—	10	μA
Supply current		I_{EE}	—	V_{EE} = −5.5V	—	26	37	mA
Propagation delay		t_{pLH}	—	(Note 1)	—	1.6	2.6	ns
		t_{pHL}	—	(Note 1)	—	1.6	2.6	
Rise time	20~80%	t_r	—	(Note 1)	—	1.0	1.8	ns
Fall time	20~80%	t_f		(Note 1)	—	0.7	1.6	
Common mode input voltage range		—	—	—	−2.5	—	−0.8	V
Output voltage		V_{OH}	—	R_L = 50Ω is load per −2V.	−1.025	—	−0.88	V
		V_{OL}	—		−1.81	—	−1.62	
Input capacitance		—	—	—	—	3.5	—	pF
Open loop gain		—	—	—	—	70	—	dB

(Note 1) Input / output conditions are as illustrated below.



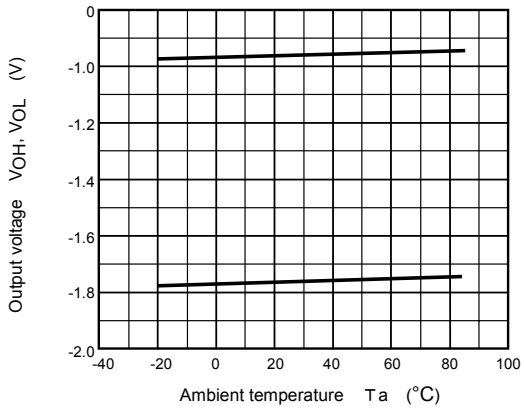
P_D – Ta



(Note 1) (1) is date of a single unit of IC only.

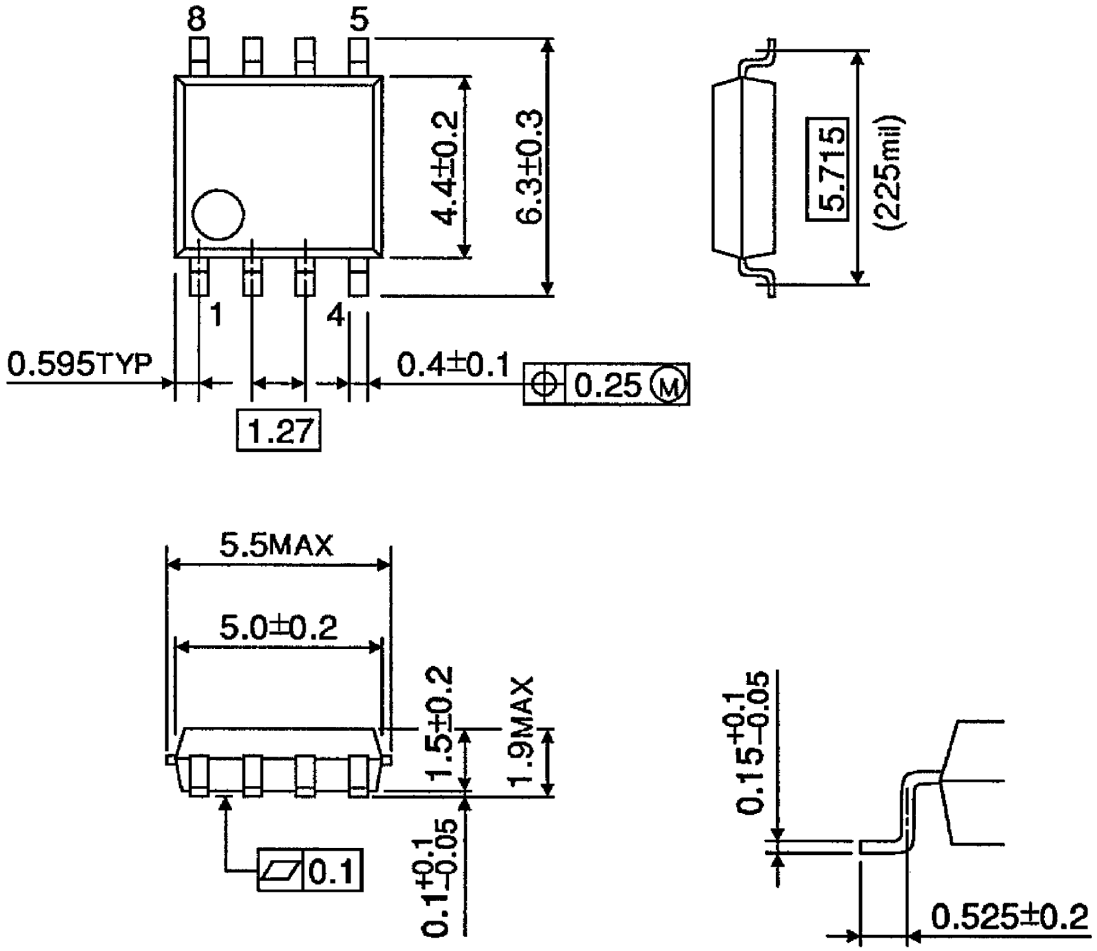
(Note 2) (2) is reference date when mounted on a glass epoxy resion substrate in 20 × 20 × 1.8mm^3, and the copper laminted area is 60% of the substrate.

V_{OH}, V_{OL} – Ta



Package Dimensions

SOP8-P-225-1.27 Unit : mm



Weight: 0.1g (typ.)

RESTRICTIONS ON PRODUCT USE

000707EBA

- TOSHIBA is continually working to improve the quality and 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 comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products 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 TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the “Handling Guide for Semiconductor Devices,” or “TOSHIBA Semiconductor Reliability Handbook” etc..
- The TOSHIBA products listed in this document are intended for usage in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These TOSHIBA products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury (“Unintended Usage”). Unintended Usage include atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, medical instruments, all types of safety devices, etc.. Unintended Usage of TOSHIBA products listed in this document shall be made at the customer’s own risk.
- The products described in this document are subject to the foreign exchange and foreign trade laws.
- 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.