

Delay Lines

Active Delay Lines

SMD

SAD Series

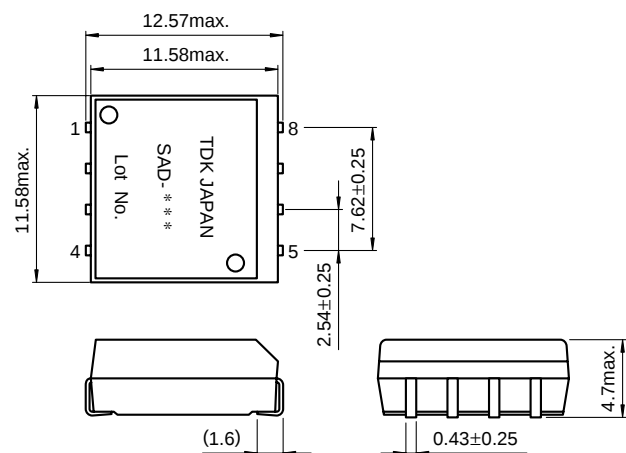
FEATURES

- The SAD series are 5-output lumped constant type delay lines with built-in TTL logic elements (Fast type)
- These parts employ the PLCC28 pin-type surface mounting style.
- Using the IC74F04 TTL, they achieve high speed and low insertion loss.
- Available for flow and reflow soldering.

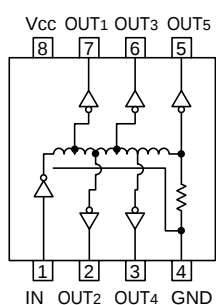
APPLICATIONS

Computers, personal computers, hard disk drives, printers, and automatic control machines.

SHAPES AND DIMENSIONS



CIRCUIT DIAGRAM



Weight: 1.8g max.
Dimensions in mm

MAXIMUM RATINGS

Power supply voltage Vcc	+7V
Input voltage Vi	-0.5 to +7V
Temperature range	Operating: 0 to +70°C
	Storage: -40 to +125°C

ELECTRICAL CHARACTERISTICS

Part No.	Total delay time Td (ns)	Delay time between each terminal td (ns)
SAD-020	20±2ns	4±2
SAD-025	25±3ns	5±2
SAD-050	50±3ns	10±2
SAD-060	60±3ns	12
SAD-075	75±5%	15
SAD-100	100±5%	20
SAD-125	125±5%	25
SAD-150	150±5%	30
SAD-200	200±5%	40
SAD-250	250±5%	50

- Minimum input pulse width: Td×40% (Repeat cycle T=Td×30)
(Measuring conditions Vcc: 5±0.1V/Ta: 25±1°C/No load between each terminal)
- Rise time: 4ns max.

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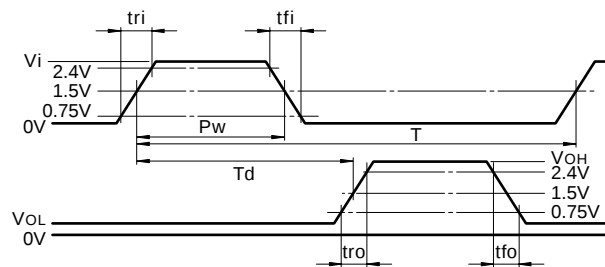
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MEASURING CONDITIONS

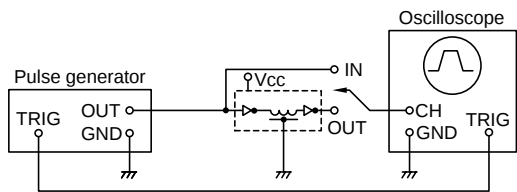
Input voltage V_i	3.2V
Pulse width conversion P_w	$T_d(\text{Total delay time}) \times 3$
Repeat cycle T	$P_w \times 10$ [Duty: 10%]
Input rise time T_{ri}	5ns max.
Power supply voltage V_{cc}	$5 \pm 0.1V$
Ambient temperature T_a	$25 \pm 1^\circ C$

WAVEFORMS



V_i : Input voltage
 T_d : Total delay time
 P_w : Pulse width conversion
 t_{ri} : Input rise time
 t_{fi} : Input fall time
 t_{ro} : Output rise time
 t_{fo} : Output fall time
 V_{OL} : Output voltage(L level)
 V_{OH} : Output voltage(H level)

MEASURING CIRCUIT



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INPUT/OUTPUT CHARACTERISTICS

Item	Measuring conditions	Standard value		
		Minimum	Nominal	Maximum
Power supply voltage V_{CC}		4.75V	5V	5.25V
Input voltage (H level) V_{IH}		2V	—	—
Input voltage (L level) V_{IL}		—	—	0.8V
Output voltage (H level) V_{OH}	$V_{CC}=4.75V$ $V_{IH}=2V$ $I_{OH}=-1mA$	2.7V	3.4V	—
Output voltage (L level) V_{OL}	$V_{CC}=4.75V$ $V_{IL}=0.8V$ $I_{OL}=20mA$	—	—	0.5V
Input current (H level) I_{IH}	$V_{CC}=5.25V$ $V_I=2.7V$	—	—	20 μA
Input current (L level) I_{IL}	$V_{CC}=5.25V$ $V_I=0.5V$	—	—	-0.6mA
Power supply current I_{CCL}	$V_{CC}=5.25V$ $V_{IL}=0V$	—	24mA	28.5mA

OUTPUT LOAD CONDITIONS

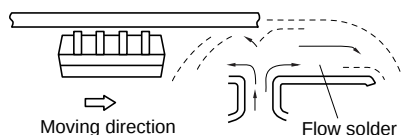
Logic 1 output	20TTL load/tap [$I_{OH}/I_{IH}=1mA/50\mu A=20$]
Logic 0 output	10TTL load/tap [$I_{OH}/I_{IL}=20mA/2mA=10$]

RECOMMENDED SOLDERING CONDITIONS

FLOW/DIP SOLDERING

Solder temperature	260°C max.
Dip time	10±1s

•After dipping, use natural cooling.



RECOMMENDED REFLOW SOLDERING CONDITIONS

