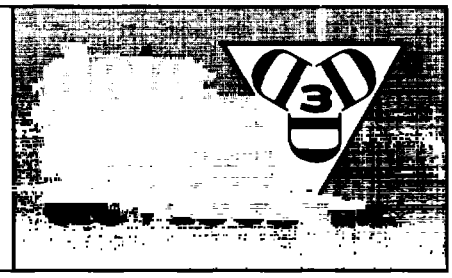
Fast Logic

Programmable Pulse Discriminator

SERIES: PPD-56
(6 BIT) TTL Interfaced



Description:

The Programmable Discriminator Module, PPD-56 series, is a very powerful and versatile unit. It can be used to discriminate high pulse width or low pulse width or a limited range of pulse widths. It can be used as a programmable delay line with 7-Bit programmability. As an added feature it provides STATUS condition for selector A & B. By tying E_A & E_B to ground, the module becomes a programmable delay line and the delayed output signal is given by

$A_{DELAYED}$ 18 ns · (A_0 A_5)* INCREMENT

$B_{DELAYED}$ $A_{DELAYED}$ · (B_0 B_5)* INCREMENT · 9 ns

Tying E_B to ground and E_A to positive level, the unit becomes a discriminator passing all pulse widths greater than programmed Selector A in accordance with the formula.

$PW_{LOWER\ LIMIT}$ 8 ns · (A_0 A_5)* INCREMENT

Tying E_A to ground and E_B to positive level, the unit becomes a discriminator passing all pulse widths less than the programmed Selector B in accordance with the formula.

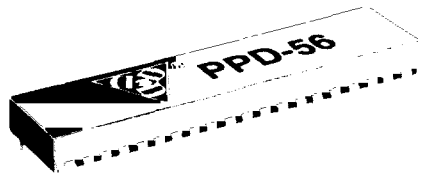
$PW_{UPPER\ LIMIT}$ $PW_{LOWER\ LIMIT}$ · (B_0 B_5)* INCREMENT · 3 ns

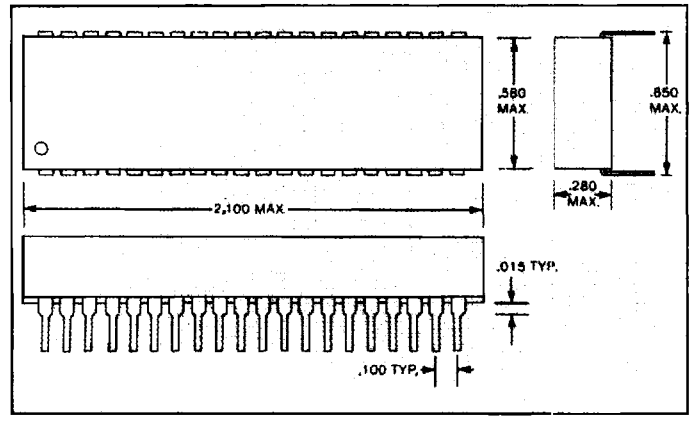
Tying both E_A and E_B to positive level, the unit becomes a discriminator passing only a range of Pulse Widths defined by the equation:

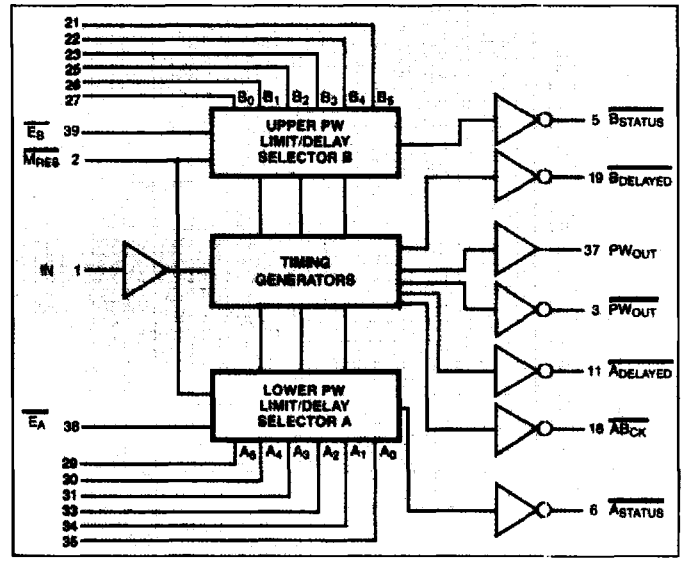
PW_{RANGE} $PW_{UPPER\ LIMIT}$—$PW_{LOWER\ LIMIT}$

Specifications:

- **Discriminator input signal**
  - Minimum Pulse Width High (PW_H): 11 ns or 1/8 of max. SELECT B, whichever is greater.
  - Minimum Pulse Width Low (PW_L): 11 ns or (SELECT B–SELECT A) · 3 ns or 1/8 of max. SELECT B, whichever is greater.
  - Minimum Period PW_H · PW_L
- **Programmable delay input signal**
  - Minimum Pulse Width High (PW_H): 8 ns or 1/8 of max. SELECT B, whichever is greater.
  - Minimum Period: 2 · PW_H
- **Supply voltage:** 5 Vdc · 5%
- **Supply current:**
  - I_{CCL} 80 ma typ.
  - I_{CCH} 190 ma typ.
- **Operating temperature:** 0 C to 70 C (55 C to · 125 C on request)*
- **Temperature coefficient:** 100 PPM/ C
- **DC parameters:** See TTL-Fast Schottky Logic Table on Page 6.







Vcc = 24, 28, 32, 36, 40 GRD = 4, 8, 12, 16, 20

Timing Waveform
(see other side)

*Add "M" after P.N. Ex. PPD-56-5M

Part No.	Incremental Pulse-Width/ Delay (Selector A)(ns)	Total Programmed Pulse-Width/ Delay (Selector A)(ns)	Incremental Pulse-Width/ Delay (Selector B)(ns)	Total Programmed Pulse-Width/ Delay (Selector B)(ns)
PPD-56-.5	.5 ± .3	31.5	.5 ± .3	31.5
PPD-56-1	1 ± .5	63	1 ± .5	63
PPD-56-2	2 ± .5	126	2 ± .5	126
PPD-56-3	3 ± 1.0	189	3 ± 1.0	189
PPD-56-4	4 ± 1.0	252	4 ± 1.0	252
PPD-56-5	5 ± 1.5	315	5 ± 1.5	315
PPD-56-6	6 ± 1.5	376	6 ± 1.5	376
PPD-56-7	7 ± 1.5	441	7 ± 1.5	441
PPD-56-8	8 ± 2.0	504	8 ± 2.0	504
PPD-56-9	9 ± 2.0	567	9 ± 2.0	567
PPD-56-10	10 ± 2.0	630	10 ± 2.0	630

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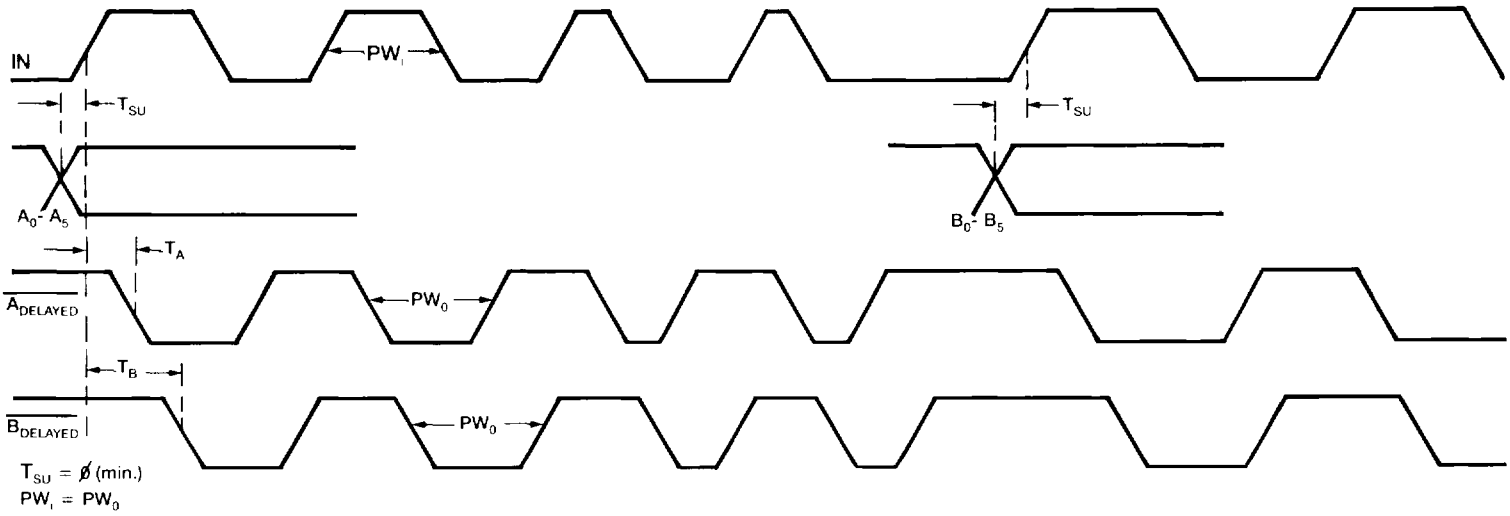
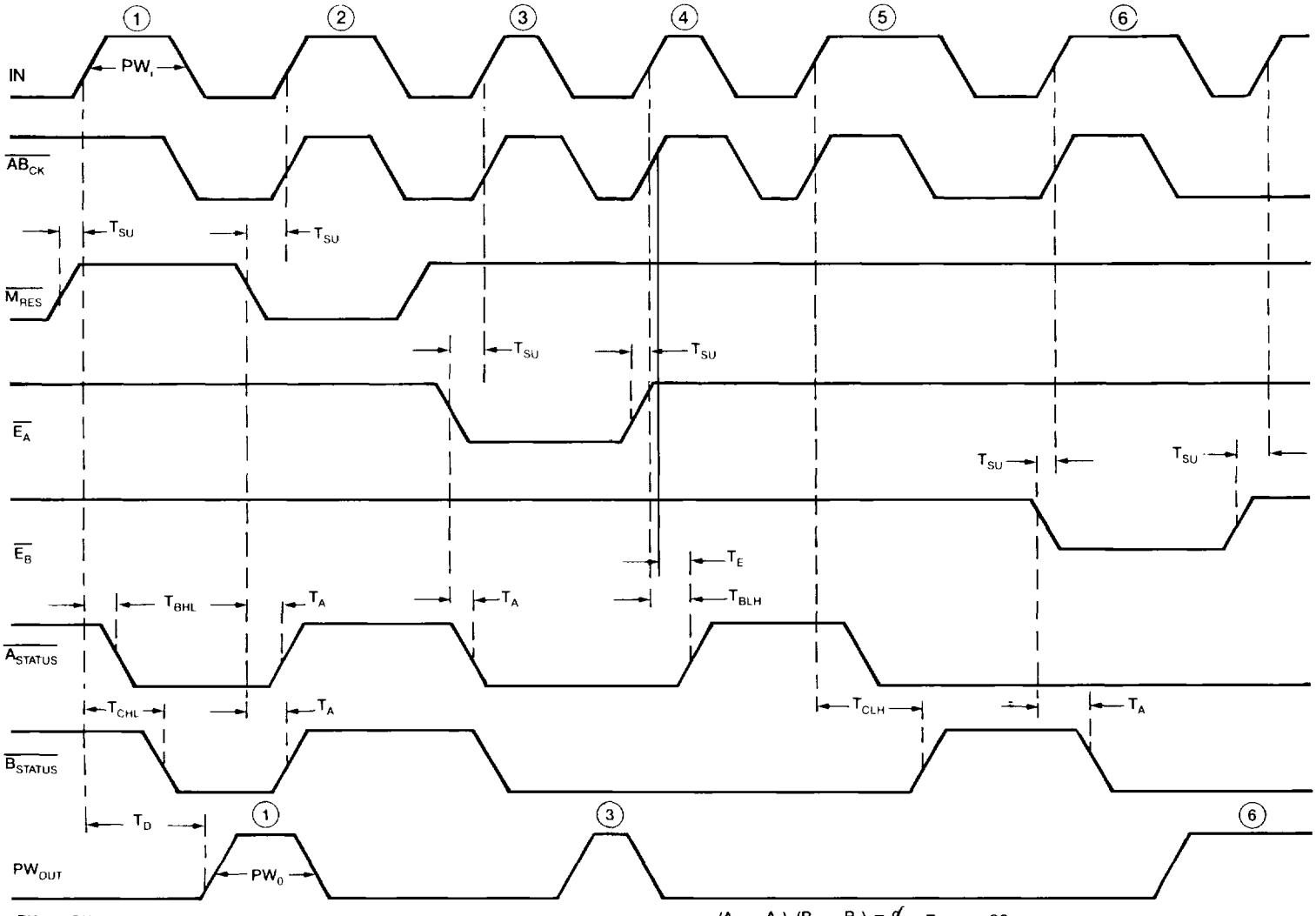
Delay Function



$T_{SU} = \emptyset$ (min.)
$PW_I = PW_0$

$(A_0 - A_5) = \emptyset$	T_A	18 ns	$A_0 - A_5), (B_0 - B_5) = \emptyset$	T_B	27 ns
$(A_0 - A_5) \neq \emptyset$	T_A	18 ns + (A_0 A_5)* INCREMENT	$(A_0 - A_5), (B_0 - B_5) \neq \emptyset$	T_B	27 ns + (A_0 A_5)* INCREMENT + (B_0 B_5)* INCREMENT

Discriminator Function



$PW_I = PW_0$
$T_{SU} = \emptyset$

T_A	4 ns typ.	T_{BHL}	22 ns
T_E	15 ns min.	T_{BLH}	21 ns

$(A_0 - A_5) = \emptyset$ $T_{BHL} = 22 + (A_0 - A_5)$* INCREMENT
$(A_0 - A_5) \neq \emptyset$ $T_{BLH} = 21 + (A_0 - A_5)$* INCREMENT

$(A_0 - A_5), (B_0 - B_5) = \emptyset$ T_{CHL} 30 ns, T_{CLH} 29 ns

$(A_0 - A_5), (B_0 - B_5) \neq \emptyset$ $T_{CHL} = 30 + [(A_0 - A_5) + (B_0 - B_5)]$* INCREMENT
$T_{CLH} = 29 + [(A_0 - A_5) + (B_0 - B_5)]$*INCREMENT

$(A_0 - A_5), (B_0 - B_5) = \emptyset$ T_D 35 ns
$(A_0 - A_5), (B_0 - B_5) \neq \emptyset$ $T_D = 35 + [(A_0 - A_5) + (B_0 - B_5)]$* INCREMENT