# Line Drivers/Receivers

## LM55107A/LM75107A, LM55108A/LM75108A, LM163/LM363 dual line receivers
## LM75207, LM75208, LM363A dual MOS sense amplifiers

## general description

The nine products described herein are TTL compatible dual high speed circuits intended for sensing in a broad range of system applications. While the primary usage will be for line receivers or MOS sensing, any of the products may effectively be used as voltage comparators, level translators, window detectors, transducer preamplifiers, and in other sensing applications. As digital line receivers the products are applicable with the LM55109/LM75109 and LM55110/LM75110 companion drivers, or may be used in other balanced or unbalanced party-line data transmission systems. The improved input sensitivity and delay specifications of the LM75207, LM75208 and LM363A make them ideal for sensing high performance MOS memories as well as high sensitivity line receivers and voltage comparators. TRI-STATE® products enhance bused organizations.

## features

- High speed            17 ns typ
- TTL compatible
- Input sensitivity      ±10 mV or ±25 mV
- Input common-mode range      ±3V
- High input impedance with normal $V_{CC}$, or $V_{CC}$ = 0V
- Strobes for channel selection
- TRI-STATE outputs for high speed buses
- Dual circuits
- Sensitivity guaranteed over full common-mode range
- Logic input clamp diodes
- 14 pin cavity or molded dual-in-line package
- Standard supply voltages      ±5V

## connection diagrams

### Dual-In-Line Package



TOP VIEW
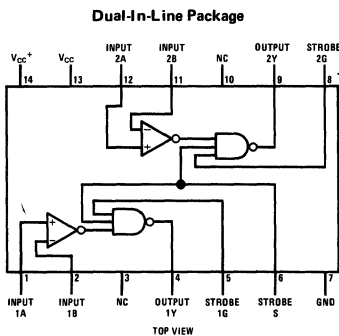
Order Number LM55107AF or LM55108AF
See Package 4

Order Number LM55107AJ, LM75107AJ, LM55108AJ, LM75108AJ, LM75207J or LM75208J
See Package 16

Order Number LM75107AN, LM75108AN, LM75207N or LM75208N
See Package 22

### Dual-In-Line Package



TOP VIEW
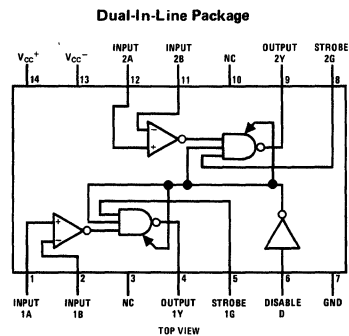
Order Number LM163J, LM363J, or LM363AJ
See Package 16

Order Number LM363N or LM363AN
See Package 22

## product selection guide

| TEMPERATURE→ PACKAGE→ | −55°C ≤ $T_A$ ≤ +125°C CAVITY DIP | 0°C ≤ $T_A$ ≤ +70°C CAVITY OR MOLDED DIP | |
|---|---|---|---|
| INPUT SENSITIVITY→ OUTPUT LOGIC↓ | ±25 mV | ±25 mV | ±10 mV |
| TTL Active Pull-up | LM55107A | LM75107A | LM75207 |
| TTL Open Collector | LM55108A | LM75108A | LM75208 |
| TTL TRI-STATE | LM163 | LM363 | LM363A |

# absolute maximum ratings

| | | | |
|---|---|---|---|
| Supply Voltage, $V_{CC}^+$ | 7V | Strobe Input Voltage | 5.5V |
| Supply Voltage, $V_{CC}^-$ | –7V | Storage Temperature Range | –65°C to +150°C |
| Differential Input Voltage | ±6V | Power Dissipation | 600 mW |
| Common Mode Input Voltage | ±5V | Lead Temperature (Soldering, 10 sec) | 300°C |

## operating conditions

| | LM55107A, LM55108A, LM163 | | | LM75107A, LM75207 LM75108A, LM75208 LM363, LM363A | | |
|---|---|---|---|---|---|---|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| Supply Voltage $V_{CC}^+$ | 4 5V | 5V | 5.5V | 4 75V | 5V | 5 25V |
| Supply Voltage $V_{CC}^-$ | –4 5V | –5V | –5 5V | –4 75V | –5V | –5 25V |
| Operating Temperature Range | –55°C | to | +125°C | 0°C | to | +70°C |

## typical applications

Line Receiver Used in a
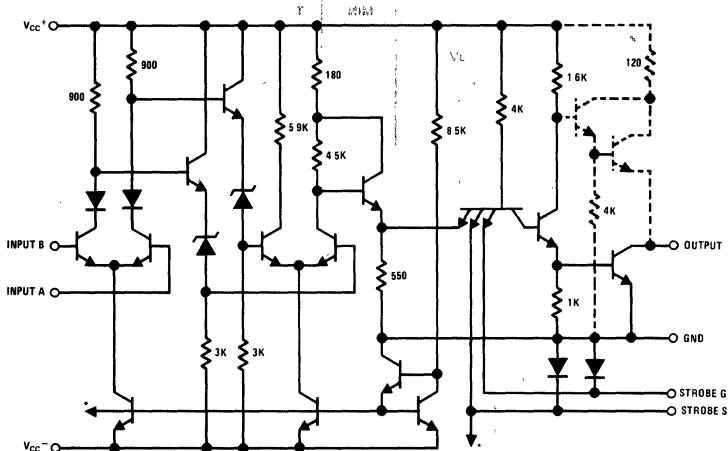Party-Line or Data-Bus System
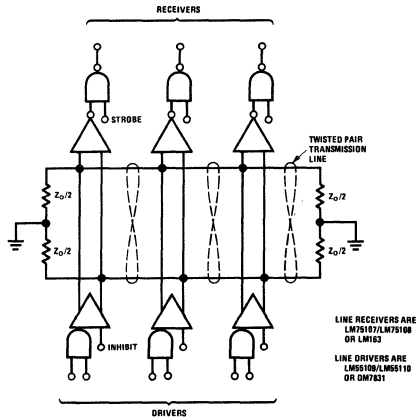


Line Receiver Used in MOS Memory System
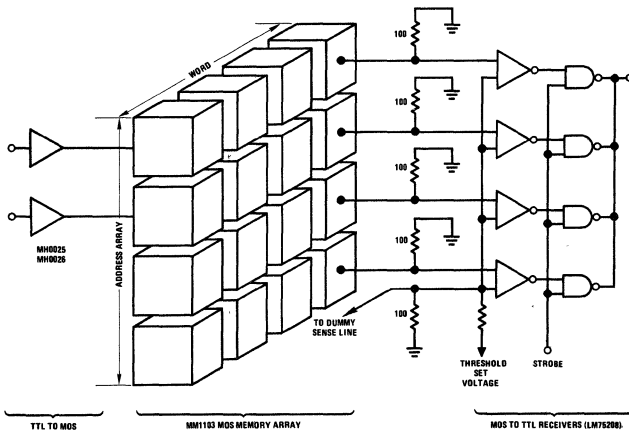
# schematic diagrams

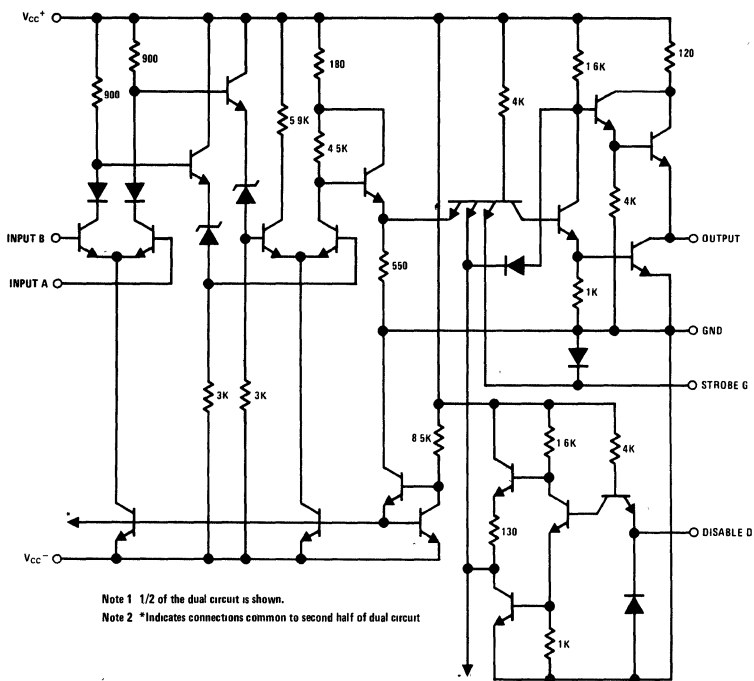LM55107A/LM75107A, LM75207
LM55108A/LM75108A, LM75208



Note 1: 1/2 of the dual circuit is shown.
Note 2: *Indicates connections common to second half of dual circuit.
Note 3: Components shown with dash lines are applicable to the LM55107A, LM75107A, and LM75207 only.

LM163/LM363, LM363A



Note 1: 1/2 of the dual circuit is shown.
Note 2: *Indicates connections common to second half of dual circuit.

## LM55107A/LM75107A, LM55108A/LM75108A
## dc electrical characteristics $(T_{MIN} \leq T_A \leq T_{MAX})$

| PARAMETER | CONDITIONS | LM55107A/LM75107A | | | LM55108A/LM75108A | | | UNITS |
|---|---|---|---|---|---|---|---|---|
| | | MIN | TYP | MAX | MIN | TYP | MAX | |
| High Level Input Current Into 1A, 1B, 2A or 2B ($I_{IH}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{ID}$ = 0 5V, $V_{IC}$ = −3V to 3V | | 30 | 75 | | 30 | 75 | μA |
| Low Level Input Current Into 1A, 1B, 2A or 2B ($I_{IL}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{ID}$ = −2V, $V_{IC}$ = −3V to 3V | | | −10 | | | −10 | μA |
| High Level Input Current Into 1G or 2G ($I_{IH}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IH(S)}$ = 2 4V | | | 40 | | | 40 | μA |
| High Level Input Current Into 1G or 2G ($I_{IH}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IH(S)}$ = Max $V_{CC}^+$ | | | 1 | | | 1 | mA |
| Low Level Input Current Into 1G or 2G ($I_{IL}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IL(S)}$ = 0 4V | | | −1 6 | | | −1 6 | mA |
| High Level Input Current Into S ($I_{IH}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IH(S)}$ = 2 4V | | | 80 | | | 80 | μA |
| High Level Input Current Into S ($I_{IH}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IH(S)}$ = Max $V_{CC}^+$ | | | 2 | | | 2 | mA |
| Low Level Input Current Into S ($I_{IL}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IL(S)}$ = 0 4V | | | −3 2 | | | −3 2 | mA |
| High Level Output Voltage ($V_{OH}$) | $V_{CC}^+$ = Min, $V_{CC}^-$ = Min, $I_{LOAD}$ = −400μA, $V_{ID}$ = 25 mV, $V_{IC}$ = −3V to 3V | 2 4 | | | | | | V |
| Low Level Output Voltage ($V_{OL}$) | $V_{CC}^+$ = Min, $V_{CC}^-$ = Min, $I_{SINK}$ = 16 mA, $V_{ID}$ = −25 mV, $V_{IC}$ = −3V to 3V | | | 0 4 | | | 0 4 | V |
| High Level Output Current ($I_{OH}$) | $V_{CC}^+$ = Min, $V_{CC}^-$ = Min $V_{OH}$ = Max $V_{CC}^+$ | | | | | | 250 | μA |
| Short Circuit Output Current ($I_{OS}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max | −18 | | −70 | | | | mA |
| High Logic Level Supply Current From $V_{CC}$ ($I_{CCH}^+$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{ID}$ = 25 mV, $T_A$ = 25°C | 18 | 30 | | 18 | 30 | | mA |
| High Logic Level Supply Current From $V_{CC}$ ($I_{CCH}^-$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{ID}$ = 25 mV, $T_A$ = 25°C | −8 4 | −15 | | −8 4 | −15 | | mA |
| Input Clamp Voltage on G or S ($V_I$) | $V_{CC}^+$ = Min, $V_{CC}^-$ = Min, $I_{IN}$ = −12 mA, $T_A$ = 25°C | −1 | −1 5 | | −1 | −1 5 | | V |

## ac switching characteristics $(V_{CC}^+ = 5V, V_{CC}^- = -5V, T_A = 25°C)$

| PARAMETER | CONDITIONS | LM55107A/LM75107A | | | LM55108A/LM75108A | | | UNITS |
|---|---|---|---|---|---|---|---|---|
| | | MIN | TYP | MAX | MIN | TYP | MAX | |
| Propagation Delay Time, Low to High Level, From Differential Inputs A and B to Output (Note 1) ($t_{PLH(D)}$) | $R_L$ = 390Ω, $C_L$ = 50 pF | | 17 | 25 | | | | ns |
| Propagation Delay Time, Low to High Level, From Differential Inputs A and B to Output (Note 1) ($t_{PLH(D)}$) | $R_L$ = 390Ω, $C_L$ = 15 pF | | | | | 19 | 25 | ns |
| Propagation Delay Time, High to Low Level, From Differential Inputs A and B to Output (Note 1) ($t_{PHL(D)}$) | $R_L$ = 390Ω, $C_L$ = 50 pF | | 17 | 25 | | | | ns |
| Propagation Delay Time, High to Low Level, From Differential Inputs A and B to Output (Note 1) ($t_{PHL(D)}$) | $R_L$ = 390Ω, $C_L$ = 15 pF | | | | | 19 | 25 | ns |
| Propagation Delay Time, Low to High Level, From Strobe Input G or S to Output ($t_{PLH(S)}$) | $R_L$ = 390Ω, $C_L$ = 50 pF | | 10 | 15 | | | | ns |
| Propagation Delay Time, Low to High Level, From Strobe Input G or S to Output ($t_{PLH(S)}$) | $R_L$ = 390Ω, $C_L$ = 15 pF | | | | | 13 | 20 | ns |
| Propagation Delay Time, High to Low Level, From Strobe Input G or S to Output ($t_{PHL(S)}$) | $R_L$ = 390Ω, $C_L$ = 50 pF | | 8 | 15 | | | | ns |
| Propagation Delay Time, High to Low Level, From Strobe Input G or S to Output ($t_{PHL(S)}$) | $R_L$ = 390Ω, $C_L$ = 15 pF | | | | | 13 | 20 | ns |

**Note 1:** Differential input is +100 mV to −100 mV pulse. Delays read from 0 mV on input to 1.5V on output.

## LM75207, LM75208
### dc electrical characteristics (0°C ≤ $T_A$ ≤ +70°C)

| PARAMETER | CONDITIONS | LM75207 MIN | LM75207 TYP | LM75207 MAX | LM75208 MIN | LM75208 TYP | LM75208 MAX | UNITS |
|---|---|---|---|---|---|---|---|---|
| High Level Input Current Into 1A, 1B, 2A or 2B ($I_{IH}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{ID}$ = 0 5V, $V_{IC}$ = -3V to 3V | | 30 | 75 | | 30 | 75 | µA |
| Low Level Input Current Into 1A, 1B, 2A or 2B ($I_{IL}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{ID}$ = -2V, $V_{IC}$ = -3V to 3V | | | -10 | | | -10 | µA |
| High Level Input Current Into 1G or 2G ($I_{IH}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IH(S)}$ = 2 4V | | | 40 | | | 40 | µA |
| High Level Input Current Into 1G or 2G ($I_{IH}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IH(S)}$ = Max $V_{CC}^+$ | | | 1 | | | 1 | mA |
| Low Level Input Current Into 1G or 2G ($I_{IL}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IL(S)}$ = 0 4V | | | -1 6 | | | -1 6 | mA |
| High Level Input Current Into S ($I_{IH}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IH(S)}$ = 2 4V | | | 80 | | | 80 | µA |
| High Level Input Current Into S ($I_{IH}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IH(S)}$ = Max $V_{CC}^+$ | | | 2 | | | 2 | mA |
| Low Level Input Current Into S ($I_{IL}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IL(S)}$ = 0 4V | | | -3 2 | | | -3 2 | mA |
| High Level Output Voltage ($V_{OH}$) | $V_{CC}^+$ = Min, $V_{CC}^-$ = Min, $I_{LOAD}$ = -400µA, $V_{ID}$ = 10 mV, $V_{IC}$ = -3V to 3V | 2 4 | | | | | | V |
| Low Level Output Voltage ($V_{OL}$) | $V_{CC}^+$ = Min, $V_{CC}^-$ = Min, $I_{SINK}$ = 16 mA, $V_{ID}$ = -10 mV, $V_{IC}$ = -3V to 3V | | | 0 4 | | | 0 4 | V |
| High Level Output Current ($I_{OH}$) | $V_{CC}^+$ = Min, $V_{CC}^-$ = Min $V_{OH}$ = Max $V_{CC}^+$ | | | | | | 250 | µA |
| Short Circuit Output Current ($I_{OS}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max | -18 | | -70 | | | | mA |
| High Logic Level Supply Current From $V_{CC}$ ($I_{CCH}^+$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{ID}$ = 10 mV, $T_A$ = 25°C | | 18 | 30 | | 18 | 30 | mA |
| High Logic Level Supply Current From $V_{CC}$ ($I_{CCH}^-$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{ID}$ = 10 mV, $T_A$ = 25°C | | -8 4 | -15 | | -8 4 | -15 | mA |
| Input Clamp Voltage on G or S ($V_I$) | $V_{CC}^+$ = Min, $V_{CC}^-$ = Min, $I_{IN}$ = -12 mA, $T_A$ = 25°C | | -1 | -1 5 | | -1 | -1 5 | V |

### ac switching characteristics ($V_{CC}^+$ = 5V, $V_{CC}^-$ = -5V, $T_A$ = 25°C)

| PARAMETER | CONDITIONS | LM75207 MIN | LM75207 TYP | LM75207 MAX | LM75208 MIN | LM75208 TYP | LM75208 MAX | UNITS |
|---|---|---|---|---|---|---|---|---|
| Propagation Delay Time, Low to High Level, From Differential Inputs A and B to Output (Note 1) ($t_{PLH(D)}$) | $R_L$ = 470Ω, $C_L$ = 15 pF | | | 35 | | | | ns |
| Propagation Delay Time, Low to High Level, From Differential Inputs A and B to Output (Note 1) ($t_{PLH(D)}$) | $R_L$ = 470Ω, $C_L$ = 15 pF | | | | | | 35 | ns |
| Propagation Delay Time, High to Low Level, From Differential Inputs A and B to output (Note 1) ($t_{PHL(D)}$) | $R_L$ = 470Ω, $C_L$ = 15 pF | | | 20 | | | | ns |
| Propagation Delay Time, High to Low Level, From Differential Inputs A and B to Output (Note 1) ($t_{PHL(D)}$) | $R_L$ = 470Ω, $C_L$ = 15 pF | | | | | | 20 | ns |
| Propagation Delay Time, Low to High Level, From Strobe Input G or S to Output ($t_{PLH(S)}$) | $R_L$ = 470Ω, $C_L$ = 15 pF | | | 17 | | | | ns |
| Propagation Delay Time, Low to High Level, From Strobe Input G or S to Output ($t_{PLH(S)}$) | $R_L$ = 470Ω, $C_L$ = 15 pF | | | | | | 17 | ns |
| Propagation Delay Time, High to Low Level, From Strobe Input G or S to Output ($t_{PHL(S)}$) | $R_L$ = 470Ω, $C_L$ = 15 pF | | | 17 | | | | ns |
| Propagation Delay Time, High to Low Level, From Strobe Input G or S to Output ($t_{PHL(S)}$) | $R_L$ = 470Ω, $C_L$ = 15 pF | | | | | | 17 | ns |

**Note 1:** Differential input is +10 mV to -30 mV pulse. Delays read from 0 mV on input to 1.5V on output.

## LM163/LM363
## dc electrical characteristics $(T_{MIN} \leq T_A \leq T_{MAX})$

| PARAMETER | CONDITIONS | LIMITS LM163/LM363 MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|
| High Level Input Current Into 1A, 1B, 2A or 2B ($I_{IH}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{ID}$ = 0 5V, $V_{IC}$ = −3V to 3V | | 30 | 75 | μA |
| Low Level Input Current Into 1A, 1B, 2A or 2B ($I_{IL}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{ID}$ = −2V, $V_{IC}$ = −3V to 3V | | | −10 | μA |
| High Level Input Current Into 1G, 2G or D ($I_{IH}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IH(S)}$ = 2 4V | | | 40 | μA |
| High Level Input Current Into 1G, 2G or D ($I_{IH}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IH(S)}$ = Max $V_{CC}^+$ | | | 1 | mA |
| Low Level Input Current Into D ($I_{IL}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IL(D)}$ = 0 4V | | | −1 6 | mA |
| Low Level Input Current Into 1G or 2G ($I_{IL}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IH(D)}$ = 2V, $V_{IL(G)}$ = 0 4V | | | −40 | μA |
| Low Level Input Current Into 1G or 2G ($I_{IL}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IL(D)}$ = 0 8V, $V_{IL(G)}$ = 0 4V | | | −1 6 | mA |
| High Level Output Voltage ($V_{OH}$) | $V_{CC}^+$ = Min, $V_{CC}^-$ = Min, $I_{LOAD}$ = −2 mA, $V_{ID}$ = 25 mV, $V_{IL(D)}$ = 0 8V, $V_{IC}$ = −3V to 3V | 2 4 | | | V |
| Low Level Output Voltage ($V_{OL}$) | $V_{CC}^+$ = Min, $V_{CC}^-$ = Min, $I_{SINK}$ = 16 mA, $V_{ID}$ = −25 mV, $V_{IL(D)}$ = 0 8V, $V_{IC}$ = −3V to 3V | | | 0 4 | V |
| Output Disable Current ($I_{OD}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IH(D)}$ = 2V, $V_{OUT}$ = 2 4V | | | 40 | μA |
| Output Disable Current ($I_{OD}$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{IH(D)}$ = 2V, $V_{OUT}$ = 0 4V | | | −40 | μA |
| Short Circuit Output Current ($I_{OS}$) | $V_{CC}^+$ = Max, $V_{IL(D)}$ = 0 8V, $V_{CC}^-$ = Max | −18 | | −70 | mA |
| High Logic Level Supply Current From $V_{CC}^+$ ($I_{CCH}^+$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{ID}$ = 25 mV, $T_A$ = 25°C | | 28 | 40 | mA |
| High Logic Level Supply Current From $V_{CC}^-$ ($I_{CCH}^-$) | $V_{CC}^+$ = Max, $V_{CC}^-$ = Max, $V_{ID}$ = 25 mV, $T_A$ = 25°C | | −8 4 | −15 | mA |
| Input Clamp Voltage on G or D ($V_I$) | $V_{CC}^+$ = Min, $V_{CC}^-$ = Min, $I_{IN}$ = −12 mA, $T_A$ = 25°C | | −1 | −1 5 | V |

## ac switching characteristics $(V_{CC}^+ = 5V, V_{CC}^- = -5V, T_A = 25°C)$

| PARAMETER | CONDITIONS | LIMITS LM163/LM363 MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|
| Propagation Delay Time, Low to High Level, From Differential Inputs A and B to Output (Note 1) ($t_{PLH(D)}$) | $R_L$ = 390Ω, $C_L$ = 50 pF | | 17 | 25 | ns |
| Propagation Delay Time, High to Low Level, From Differential Inputs A and B to Output (Note 1) ($t_{PHL(D)}$) | $R_L$ = 390Ω, $C_L$ = 50 pF | | 17 | 25 | ns |
| Propagation Delay Time, Low to High Level, From Strobe Input G to Output ($t_{PLH(S)}$) | $R_L$ = 390Ω, $C_L$ = 50 pF | | 10 | 15 | ns |
| Propagation Delay Time, High to Low Level, From Strobe Input G to Output ($t_{PHL(S)}$) | $R_L$ = 390Ω, $C_L$ = 50 pF | | 8 | 15 | ns |
| Disable Low to High to Output High to Off ($t_{1H}$) | $R_L$ = 390Ω, $C_L$ = 5 pF | | | 20 | ns |
| Disable Low to High to Output Low to Off ($t_{0H}$) | $R_L$ = 390Ω, $C_L$ = 5 pF | | | 30 | ns |
| Disable High to Low to Output Off to High ($t_{H1}$) | $R_L$ = 1k to 0V, $C_L$ = 50 pF | | | 25 | ns |
| Disable High to Low to Output Off to Low ($t_{H0}$) | $R_L$ = 390Ω $C_L$ = 50 pF | | | 25 | ns |

**Note 1:** Differential input is +100 mV to −100 mV pulse Delays read from 0 mV on input to 1 5V on output

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## LM363A
## dc electrical characteristics $(0°C \leq T_A \leq +70°C)$

| PARAMETER | CONDITIONS | LIMITS LM363A MIN | LIMITS LM363A TYP | LIMITS LM363A MAX | UNITS |
|---|---|---|---|---|---|
| High Level Input Current Into 1A, 1B, 2A or 2B $(I_{IH})$ | $V_{CC}^+ = Max, V_{CC}^- = Max,$ $V_{ID} = 0.5V, V_{IC} = -3V$ to $3V$ | | 30 | 75 | $\mu A$ |
| Low Level Input Current Into 1A, 1B, 2A or 2B $(I_{IL})$ | $V_{CC}^+ = Max, V_{CC}^- = Max,$ $V_{ID} = -2V, V_{IC} = -3V$ to $3V$ | | | $-10$ | $\mu A$ |
| High Level Input Current Into 1G, 2G or D $(I_{IH})$ | $V_{CC}^+ = Max, V_{CC}^- = Max,$ $V_{IH(S)} = 2.4V$ | | | 40 | $\mu A$ |
| High Level Input Current Into 1G, 2G or D $(I_{IH})$ | $V_{CC}^+ = Max, V_{CC}^- = Max,$ $V_{IH(S)} = Max V_{CC}^+$ | | | 1 | mA |
| Low Level Input Current Into D $(I_{IL})$ | $V_{CC}^+ = Max, V_{CC}^- = Max,$ $V_{IL(D)} = 0.4V$ | | | $-1.6$ | mA |
| Low Level Input Current Into 1G or 2G $(I_{IL})$ | $V_{CC}^+ = Max, V_{CC}^- = Max,$ $V_{IH(D)} = 2V, V_{IL(G)} = 0.4V$ | | | $-40$ | $\mu A$ |
| Low Level Input Current Into 1G or 2G $(I_{IL})$ | $V_{CC}^+ = Max, V_{CC}^- = Max,$ $V_{IL(D)} = 0.8V, V_{IL(G)} = 0.4V$ | | | $-1.6$ | mA |
| High Level Output Voltage $(V_{OH})$ | $V_{CC}^+ = Min, V_{CC}^- = Min,$ $I_{LOAD} = -2 mA, V_{ID} = 10 mV,$ $V_{IL(D)} = 0.8V, V_{IC} = -3V$ to $3V$ | 2.4 | | | V |
| Low Level Output Voltage $(V_{OL})$ | $V_{CC}^+ = Min, V_{CC}^- = Min,$ $I_{SINK} = 16 mA, V_{ID} = -10 mV,$ $V_{IL(D)} = 0.8V, V_{IC} = -3V$ to $3V$ | | | 0.4 | V |
| Output Disable Current $(I_{OD})$ | $V_{CC}^+ = Max, V_{CC}^- = Max,$ $V_{IH(D)} = 2V, V_{OUT} = 2.4V$ | | | 40 | $\mu A$ |
| Output Disable Current $(I_{OD})$ | $V_{CC}^+ = Max, V_{CC}^- = Max,$ $V_{IH(D)} = 2V, V_{OUT} = 0.4V$ | | | $-40$ | $\mu A$ |
| Short Circuit Output Current $(I_{OS})$ | $V_{CC}^+ = Max, V_{IL(D)} = 0.8V,$ $V_{CC}^- = Max$ | $-18$ | | $-70$ | mA |
| High Logic Level Supply Current From $V_{CC}^+$ $(I_{CCH}^+)$ | $V_{CC}^+ = Max, V_{CC}^- = Max,$ $V_{ID} = 10 mV, T_A = 25°C$ | | 28 | 40 | mA |
| High Logic Level Supply Current From $V_{CC}^-$ $(I_{CCH}^-)$ | $V_{CC}^+ = Max, V_{CC}^- = Max,$ $V_{ID} = 10 mV, T_A = 25°C$ | | $-8.4$ | $-15$ | mA |
| Input Clamp Voltage on G or D $(V_I)$ | $V_{CC}^+ = Min, V_{CC}^- = Min,$ $I_{IN} = -12 mA, T_A = 25°C$ | | $-1$ | $-1.5$ | V |

## ac switching characteristics $(V_{CC}^+ = 5V, V_{CC}^- = -5V, T_A = 25°C)$

| PARAMETER | CONDITIONS | LIMITS LM363A MIN | LIMITS LM363A TYP | LIMITS LM363A MAX | UNITS |
|---|---|---|---|---|---|
| Propagation Delay Time, Low to High Level, From Differential Inputs A and B to Output (Note 1) $(t_{PLH(D)})$ | $R_L = 470\Omega, C_L = 15 pF$ | | | 35 | ns |
| Propagation Delay Time, High to Low Level, From Differential Inputs A and B to Output (Note 1) $(t_{PHL(D)})$ | $R_L = 470\Omega, C_L = 15 pF$ | | | 20 | ns |
| Propagation Delay Time, Low to High Level, From Strobe Input G to Output $(t_{PLH(S)})$ | $R_L = 470\Omega, C_L = 15 pF$ | | | 17 | ns |
| Propagation Delay Time, High to Low Level, From Strobe Input G to Output $(t_{PHL(S)})$ | $R_L = 470\Omega, C_L = 15 pF$ | | | 17 | ns |
| Disable Low to High to Output High to Off $(t_{1H})$ | $R_L = 470\Omega, C_L = 5 pF$ | | | 20 | ns |
| Disable Low to High to Output Low to Off $(t_{0H})$ | $R_L = 470\Omega, C_L = 5 pF$ | | | 30 | ns |
| Disable High to Low to Output Off to High $(t_{H1})$ | $R_L = 1k$ to $0V, C_L = 15 pF$ | | | 25 | ns |
| Disable High to Low to Output Off to Low $(t_{H0})$ | $R_L = 470\Omega, C_L = 15 pF$ | | | 25 | ns |

**Note 1:** Differential input is +10 mV to −30 mV pulse. Delays read from 0 mV on input to 1.5V on output.