

**MOTOROLA**

Error Detection-Correction Circuit

ELECTRICALLY TESTED PER:**MPG 10563**

The 10563 is an error detection and correction circuit. It is a building block designed for use with memory systems. The 10563 offers economy in the design of the error detection/correction subsystems for mainframe and add-on memory systems.

For example, using eight 10563s together with eight 12-bit parity checkers (10560), single bit error detection/correction and double-bit error detection can be done on a word of 64-bit length. Only eight check bits (B₀-B₇) need be added to the word.

- 720 mW Max/Pkg (No Load)
- $t_{pd} = 5.0$ ns typ

3

PIN ASSIGNMENTS

| FUNCTION | DIL | FLATS | LCC | BURN-IN (CONDITION C) |
|------------------|-----|-------|-----|--------------------------------|
| V _{CC1} | 1 | 5 | 2 | GND |
| P _{0B} | 2 | 6 | 3 | 51 Ω to V _{TT} |
| P ₃ | 3 | 7 | 4 | 51 Ω to V _{TT} |
| B ₅ | 4 | 8 | 5 | OPEN |
| B ₆ | 5 | 9 | 7 | OPEN |
| B ₂ | 6 | 10 | 8 | GND |
| B ₁ | 7 | 11 | 9 | GND |
| V _{EE} | 8 | 12 | 10 | V _{EE} |
| B ₀ | 9 | 13 | 12 | OPEN |
| B ₃ | 10 | 14 | 13 | GND |
| B ₇ | 11 | 15 | 14 | GND |
| B ₄ | 12 | 16 | 15 | OPEN |
| P ₂ | 13 | 1 | 17 | 51 Ω to V _{TT} |
| P ₁ | 14 | 2 | 18 | 51 Ω to V _{TT} |
| P _{0A} | 15 | 3 | 19 | 51 Ω to V _{TT} |
| V _{CC2} | 16 | 4 | 20 | GND |

BURN - IN CONDITIONS:

V_{TT} = - 2.0 V MAX/- 2.2 V MIN**V_{EE} = - 5.7 V MAX/- 5.2 V MIN**

Military 10563

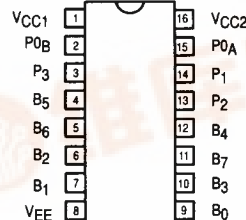


AVAILABLE AS

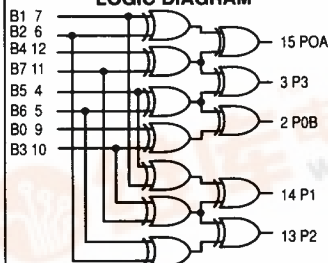
- 1) JAN: N/A
 - 2) SMD: N/A
 - 3) 883: 10563/BXAJC
- X = CASE OUTLINE AS FOLLOWS:

PACKAGE: CERPDP: E
CERFLAT: F
LCC: 2

The letter "M" appears before the slash on LCC.



LOGIC DIAGRAM



IBM CODE
P_{0A}=B₁,B₂,B₄,B₇
P_{0B}=B₀,B₃,B₅,B₆
P₁=B₁,B₃,B₅,B₇
P₂=B₂,B₃,B₆,B₇
P₃=B₄,B₅,B₆,B₇

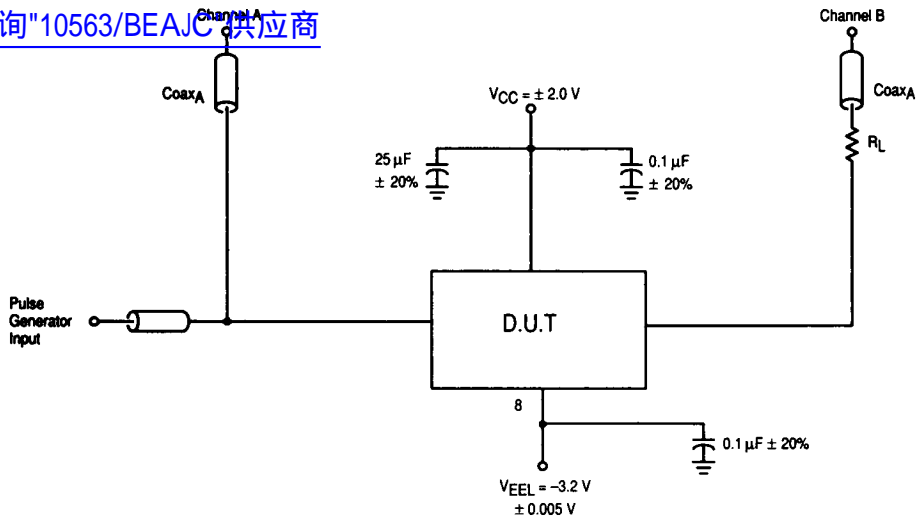
V_{CC1} = Pin 1
V_{CC2} = Pin 16
V_{EE} = Pin 8

MOTOROLA MILITARY MECL DATA

3-152



[查询"10563/BEAJC"供应商](#)



3

NOTES

1. Pulse generator must be capable of rise and fall times of $2.0 \text{ ns} \pm 0.2 \text{ ns}$.
2. Length of Coax_A and Coax_B should be equal for equal time delay.
3. 2:1 divider may be used.
4. $t_r = t_f = 2.0 \text{ ns} \pm 0.2 \text{ ns}$ (20% to 80%)
5. $R_L = 50 \Omega$ resistor in series with 50Ω coax constituting the 100Ω load.
6. V_{IN} has the following characteristics:
 - a) pulse width $\geq 20 \text{ ns}$.
 - b) frequency = 1.0 MHz .
7. Unused outputs should be loaded 100Ω to ground.

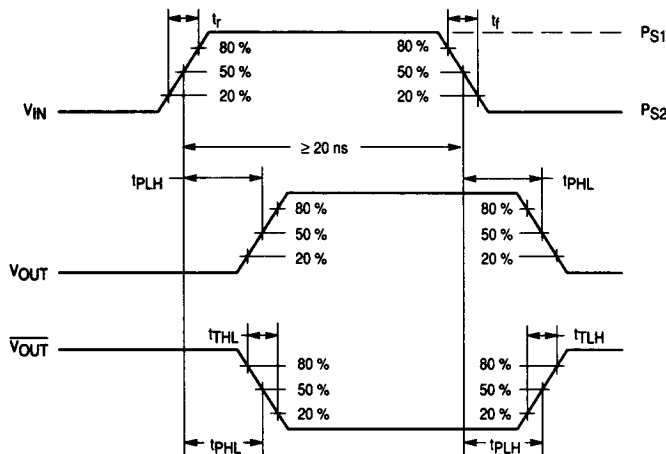


Figure 1. Switching Test Circuit and Waveforms

10563

QUIESCENT LIMIT TABLE *

* ELECTRICAL CHARACTERISTICS

Each MECL 10K series circuit has been designed to meet the dc specifications shown in the test table, after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse air flow greater than 500 linear fpm is maintained. Outputs are terminated through a 100 Ω resistor to -2.0 volts.

| Test Temperature | Test Voltage Values (Volts) | | | | | | |
|-------------------------|-----------------------------|-----------------|------------------|------------------|-----------------|-----------------|------|
| | V _{IH} | V _{IL} | V _{IH1} | V _{IL1} | PS ₁ | PS ₂ | VEEL |
| T _A = 25 °C | -0.78 | -1.85 | -1.105 | -1.475 | +1.11 | +0.31 | -3.2 |
| T _A = 125 °C | -0.63 | -1.82 | -1.000 | -1.400 | +1.24 | +0.36 | -3.2 |
| T _A = -55 °C | -0.88 | -1.92 | -1.255 | -1.510 | +1.01 | +0.28 | -3.2 |

| Symbol | Parameter | Limits | | | | | | Units | TEST VOLTAGE APPLIED TO PINS BELOW | | | | | | | | | |
|------------------|----------------------------|------------|--------|------------|---------|------------|---------|-------|--|-----------------|------------------|------------------|-----------------|-----------------|-----------------|--|--|--|
| | Functional Parameters: | + 25 °C | | + 125 °C | | - 55 °C | | | Pinouts referenced are for DIL package, check Pin Assignments VCC = 0 V, Output Load = 100 Ω to - 2.0 V | | | | | | | | | |
| | | Subgroup 1 | | Subgroup 2 | | Subgroup 3 | | | | | | | | | | | | |
| | | Min | Max | Min | Max | Min | Max | | | | | | | | | | | |
| V _{OH} | High Output Voltage | - 0.93 | - 0.78 | - 0.825 | - 0.63 | - 1.08 | - 0.88 | V | V _{IH} 4, 11 | V _{IL} | V _{IH1} | V _{IL1} | V _{EE} | V _{CC} | P. U. T. | | | |
| V _{OL} | Low Output Voltage | - 1.85 | - 1.62 | - 1.82 | - 1.545 | - 1.92 | - 1.655 | V | | | | | 8 | 1, 16 | 2, 3, 13 - 15 | | | |
| V _{OL1} | Low Output Voltage | - 1.85 | - 1.60 | - 1.82 | - 1.525 | - 1.92 | - 1.635 | V | | | | 4 - 7, 9 - 12 | 8 | 1, 16 | 2, 3, 13 - 15 | | | |
| V _{OH1} | High Output Voltage | - 0.95 | - 0.78 | - 0.845 | - 0.63 | - 1.10 | - 0.88 | V | | | 4 - 7, 9 - 12 | | 8 | 1, 16 | 2, 3, 13 - 15 | | | |
| I _{IH} | Input Current High | | 220 | | 375 | | 375 | μA | 4, 6, 10 | | | | 8 | 1, 16 | 4, 6, 10 | | | |
| I _{IH1} | Input Current High | | 265 | | 450 | | 450 | μA | 5, 7, 9, 11, 12 | | | | 8 | 16 | 5, 7, 9, 11, 12 | | | |
| I _{IL} | Input Current Low | 0.5 | | 0.3 | | 0.5 | | μA | | | | 4 - 7, 9 - 12 | 8 | 16 | 2, 7, 9, 14, 15 | | | |
| I _{EE} | Power Supply Drain Current | - 125 | | - 138 | | - 138 | | mA | | | | | 8 | 1, 16 | 8 | | | |

10563 QUIESCENT LIMIT TABLE *

* ELECTRICAL CHARACTERISTICS

Each MECL 10K series circuit has been designed to meet the dc specifications shown in the test table, after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse air flow greater than 500 linear fpm is maintained. Outputs are terminated through a 100 Ω resistor to - 2.0 volts.

| Test Temperature | Test Voltage Values (Volts) | | | | | | | |
|--------------------------|-----------------------------|-----------------|------------------|------------------|-----------------|-----------------|------|------|
| | V _{IH} | V _{IL} | V _{IH1} | V _{IL1} | PS ₁ | PS ₂ | VEE | VEEL |
| T _A = 25 °C | -0.78 | -1.85 | -1.105 | -1.475 | +1.11 | +0.31 | -5 | -3.2 |
| T _A = 125 °C | -0.63 | -1.82 | -1.000 | -1.400 | +1.24 | +0.36 | -5 | -3.2 |
| T _A = - 55 °C | -0.88 | -1.92 | -1.255 | -1.510 | +1.01 | +0.28 | -5.2 | -3.2 |

| Symbol | Parameter | Limits | | | | | | Units | TEST VOLTAGE APPLIED TO PINS BELOW | | | | | | | |
|------------------------|-------------------|------------|-----|-------------|-----|-------------|-----|---------|------------------------------------|--|-----------------|------|-----------------|---------------|--|--|
| Functional Parameters: | | + 25 °C | | + 125 °C | | | | - 55 °C | | Pinouts referenced are for DIL package, check Pin Assignments VCC = 2.0 V, Output Load = 100 Ω to GND | | | | | | |
| | | Subgroup 9 | | Subgroup 10 | | Subgroup 11 | | | | | | | | | | |
| | | Min | Max | Min | Max | Min | Max | | | | | | | | | |
| t _{TLH} | Rise Time | 1.1 | 3.9 | 1.1 | 4.5 | 1.1 | 4.4 | ns | V _{IH} | V _{OUT} | V _{CC} | VEEL | PS ₁ | P. U. T. | | |
| | | | | | | | | | 4 - 7, 9 - 12 | 2, 3 13 - 15 | 1, 16 | 8 | 7, 9, 14 | 2, 3, 13 - 15 | | |
| t _{FHL} | Fall Time | 1.1 | 3.9 | 1.1 | 4.5 | 1.1 | 4.4 | ns | 4 - 7, 9 - 12 | 2, 3 13 - 15 | 1, 16 | 8 | 7, 9, 14 | 2, 3, 13 - 15 | | |
| t _{PLH} | Propagation Delay | 1.5 | 6.5 | 1.5 | 7.5 | 1.3 | 7.0 | ns | 4 - 7, 9 - 12 | 2, 3 13 - 15 | 1, 16 | 8 | 7, 9, 14 | 2, 3, 13 - 16 | | |
| t _{PHL} | Propagation Delay | 1.5 | 6.5 | 1.5 | 7.5 | 1.3 | 7.0 | ns | 4 - 7, 9 - 12 | 2, 3 13 - 15 | 1, 16 | 8 | 7, 9, 14 | 2, 3, 13 - 15 | | |