Quint 2-Input AND/NAND Gate

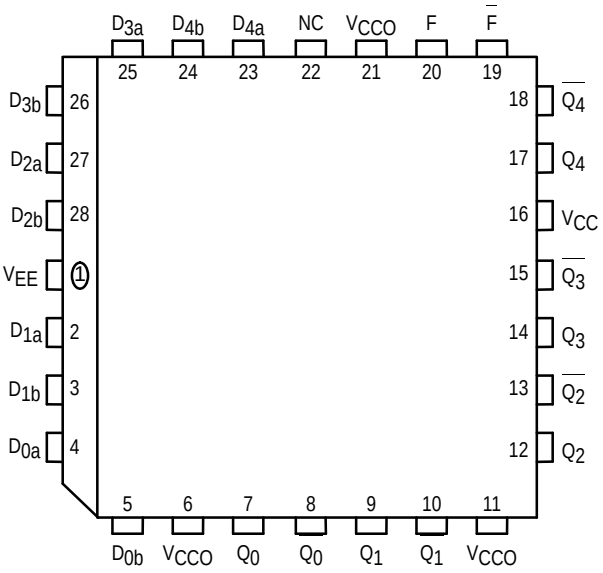
MC10E104
MC100E104

The MC10E/100E104 is a quint 2-input AND/NAND gate. The function output F is the OR of all five AND gate outputs, while F is the NOR. The Q outputs need not be terminated if only the F outputs are to be used.

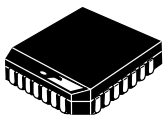
- 600ps Max. Propagation Delay
- OR/NOR Function Outputs
- Extended 100E V_{EE} Range of – 4.2V to – 5.46V
- 75kΩ Input Pulldown Resistors

QUINT 2-INPUT
AND/NAND GATE

Pinout: 28-Lead PLCC (Top View)

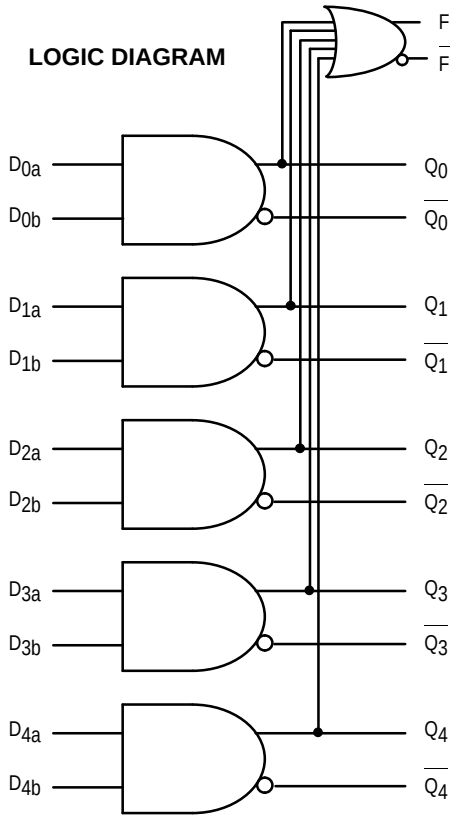


* All V_{CC} and V_{CCO} pins are tied together on the die.



FN SUFFIX
PLASTIC PACKAGE
CASE 776-02

LOGIC DIAGRAM



PIN NAMES

Pin	Function
$D_{0a} - D_{4b}$	Data Inputs
$\underline{Q_0} - \underline{Q_4}$	AND Outputs
$Q_0 - Q_4$	NAND Outputs
$\underline{F}$	OR Output
$\overline{F}$	NOR Output

FUNCTION OUTPUTS

$F = (D_{0a} \bullet D_{0b}) + (D_{1a} \bullet D_{1b}) + (D_{2a} \bullet D_{2b}) + (D_{3a} \bullet D_{3b}) + (D_{4a} \bullet D_{4b})$

DC CHARACTERISTICS (V_{EE} = V_{EE}(min) to V_{EE}(max); V_{CC} = V_{CCO} = GND)

Symbol	Characteristic	0°C			25°C			85°C			Unit	Condition
		min	typ	max	min	typ	max	min	typ	max		
I_{IH}	Input HIGH Current			200			200			200	µA	
I_{EE}	Power Supply Current										mA	
	10E		38	46		38	46		38	46		
	100E		38	46		38	46		44	53		

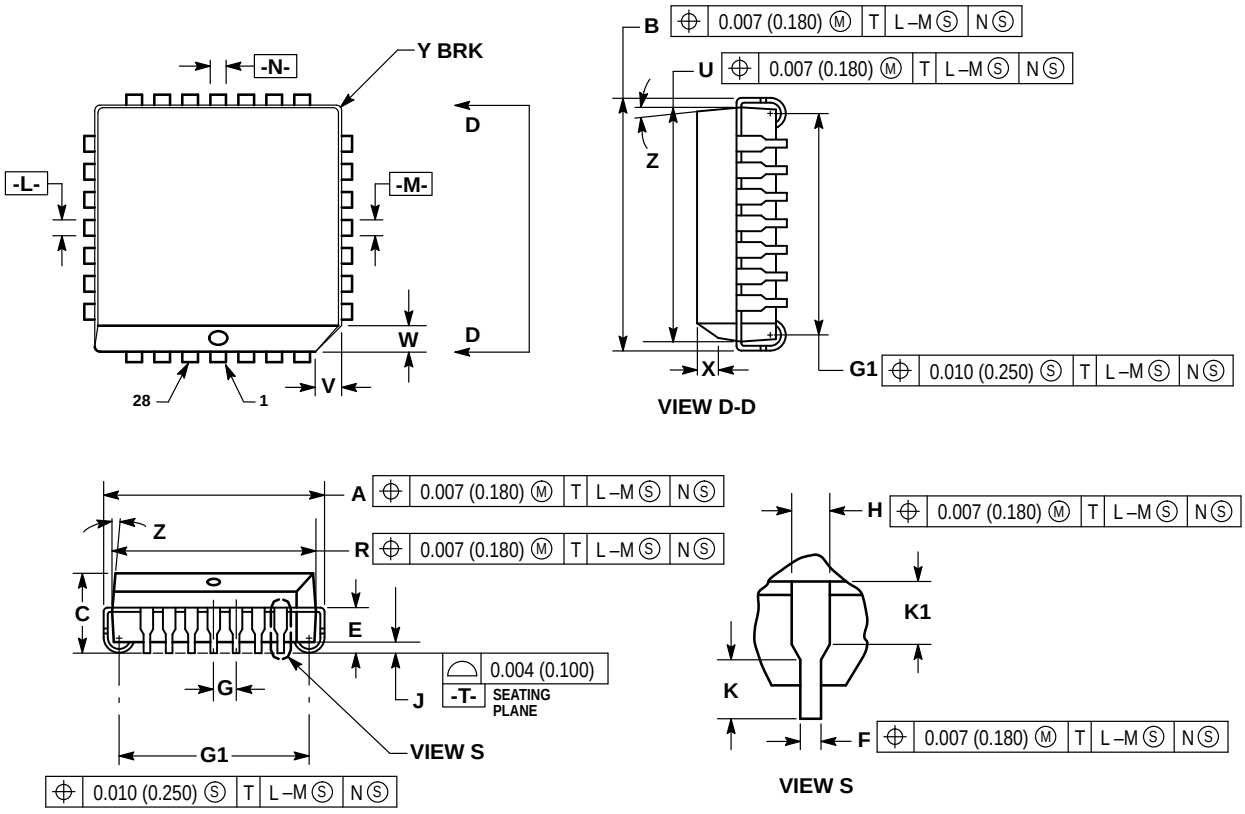
AC CHARACTERISTICS (V_{EE} = V_{EE}(min) to V_{EE}(max); V_{CC} = V_{CCO} = GND)

Symbol	Characteristic	0°C			25°C			85°C			Unit	Condition
		min	typ	max	min	typ	max	min	typ	max		
t_{PLH}	Propagation Delay to Output										ps	
t_{PHL}	D to Q	225	385	600	225	385	600	225	385	600		
	D to F	500	725	1000	500	725	1000	500	725	1000		
t_{SKEW}	Within-Device Skew										ps	
	D to Q		75			75			75			1
t_r	Rise/Fall Times										ps	
t_f	20 - 80%											
	Q	275	425	700	275	425	700	275	425	700		
	F	300	475	700	300	475	700	300	475	700		

1. Within-device skew is defined as identical transitions on similar paths through a device.

OUTLINE DIMENSIONS

FN SUFFIX
PLASTIC PLCC PACKAGE
CASE 776–02
ISSUE D



NOTES:
1. DATUMS -L-, -M-, AND -N- DETERMINED WHERE TOP OF LEAD SHOULDER EXITS PLASTIC BODY AT MOLD PARTING LINE.
2. DIM G1, TRUE POSITION TO BE MEASURED AT DATUM -T-, SEATING PLANE.
3. DIM R AND U DO NOT INCLUDE MOLD FLASH. ALLOWABLE MOLD FLASH IS 0.010 (0.250) PER SIDE.
4. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
5. CONTROLLING DIMENSION: INCH.
6. THE PACKAGE TOP MAY BE SMALLER THAN THE PACKAGE BOTTOM BY UP TO 0.012 (0.300). DIMENSIONS R AND U ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY EXCLUSIVE OF MOLD FLASH, TIE BAR BURRS, GATE BURRS AND INTERLEAD FLASH, BUT INCLUDING ANY MISMATCH BETWEEN THE TOP AND BOTTOM OF THE PLASTIC BODY.
7. DIMENSION H DOES NOT INCLUDE DAMBAR PROTRUSION OR INTRUSION. THE DAMBAR PROTRUSION(S) SHALL NOT CAUSE THE H DIMENSION TO BE GREATER THAN 0.037 (0.940). THE DAMBAR INTRUSION(S) SHALL NOT CAUSE THE H DIMENSION TO BE SMALLER THAN 0.025 (0.635).

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.485	0.495	12.32	12.57
B	0.485	0.495	12.32	12.57
C	0.165	0.180	4.20	4.57
E	0.090	0.110	2.29	2.79
F	0.013	0.019	0.33	0.48
G	0.050 BSC		1.27 BSC	
H	0.026	0.032	0.66	0.81
J	0.020	—	0.51	—
K	0.025	—	0.64	—
R	0.450	0.456	11.43	11.58
U	0.450	0.456	11.43	11.58
V	0.042	0.048	1.07	1.21
W	0.042	0.048	1.07	1.21
X	0.042	0.056	1.07	1.42
Y	—	0.020	—	0.50
Z	2°	10°	2°	10°
G1	0.410	0.430	10.42	10.92
K1	0.040	—	1.02	—

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