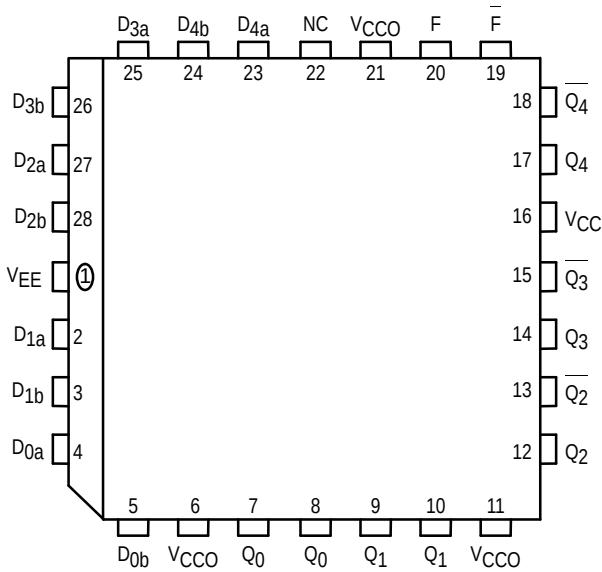


Quint 2-Input XOR/XNOR Gate

The MC10E/100E107 is a quint 2-input XOR/XNOR gate. The function output F is the OR of all five XOR outputs, while $\overline{F}$ 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 $-5.46V$
- 75k Ω Input Pulldown Resistors

Pinout: 28-Lead PLCC (Top View)



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

PIN NAMES

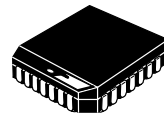
Pin	Function
D0a – D4b	Data Inputs
Q0 – Q4	XOR Outputs
$\overline{Q0}$ – $\overline{Q4}$	XNOR Outputs
F	OR Output
$\overline{F}$	NOR Output

FUNCTION OUTPUTS

$$F = (D0a \oplus D0b) + (D1a \oplus D1b) (D2a \oplus D2b) + (D3a \oplus D3b) + (D4a \oplus D4b)$$

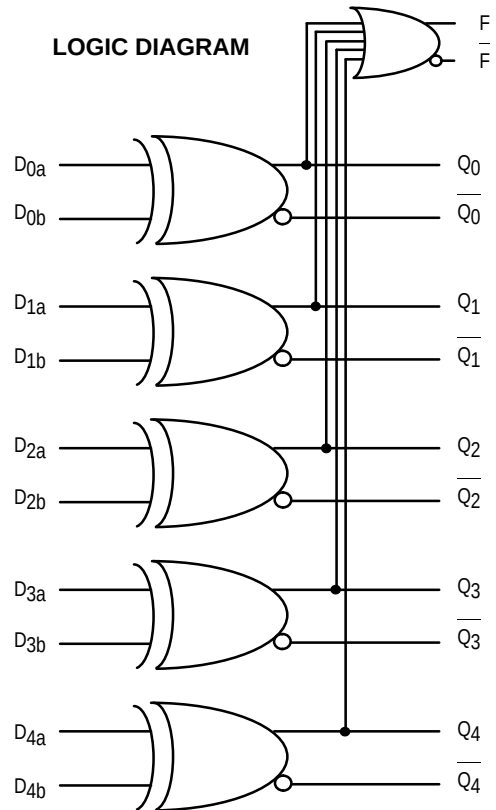
MC10E107
MC100E107

QUINT 2-INPUT
XOR/XNOR GATE



FN SUFFIX
PLASTIC PACKAGE
CASE 776-02

LOGIC DIAGRAM



MC10E107 MC100E107

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		42	50		42	50		42	50		
	100E		42	50		42	50		48	58		

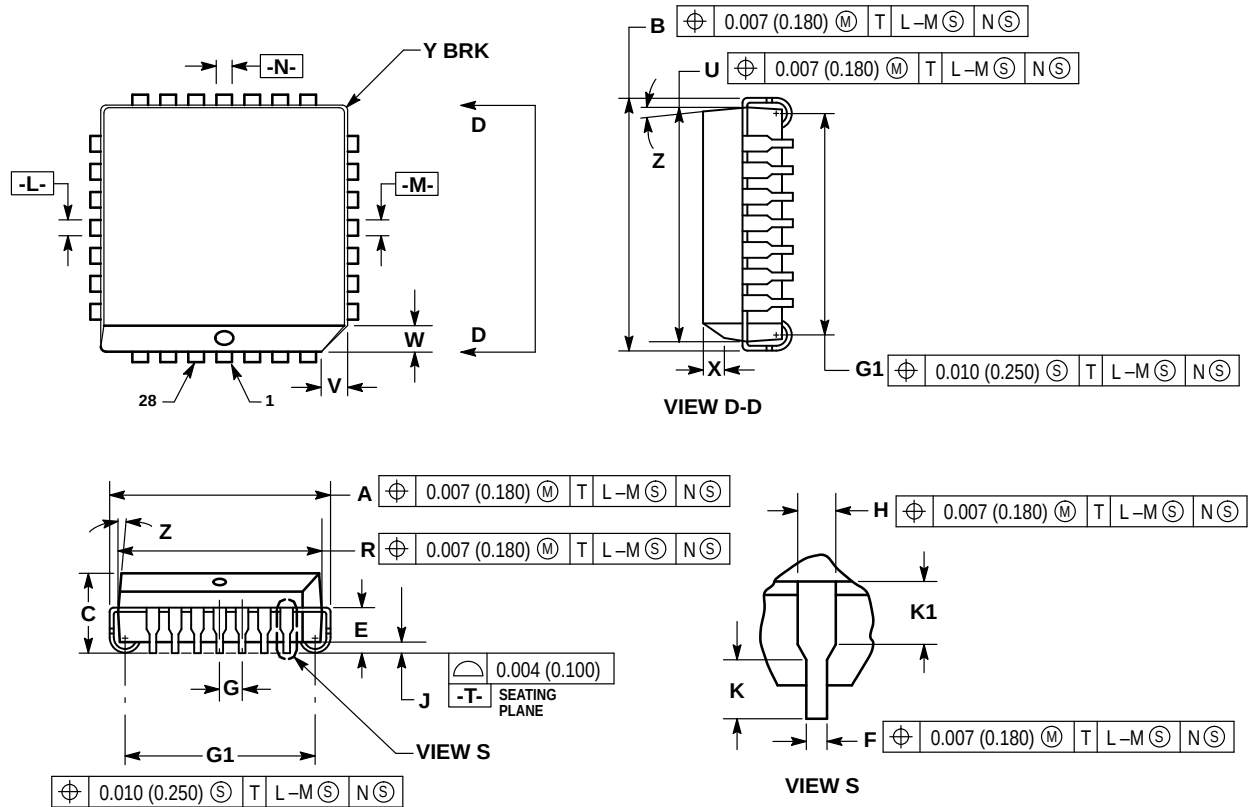
AC CHARACTERISTICS ($V_{EE} = V_{EE(min)}$ to $V_{EE(max)}$; $V_{CC} = V_{CCO} = GND$)

Symbol	Characteristic	0°C			25°C			85°C			Unit	Condition
		min	typ	max	min	typ	max	min	typ	max		
t_{PLH} t_{PHL}	Propagation Delay to Output D to Q D to F	250 500	410 725	600 1000	250 500	410 725	600 100	250 500	410 725	600 1000	ps	
t_{SKEW}	Within-Device Skew D to Q		75			75			75		ps	1
t_r t_f	Rise/Fall Times 20 - 80% Q F	275 300	450 475	700 700	275 300	450 475	700 700	275 300	450 475	700 700	ps	

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:

- DATUMS -L-, -M-, AND -N- DETERMINED WHERE TOP OF LEAD SHOULDER EXITS PLASTIC BODY AT MOLD PARTING LINE.
- DIM G1, TRUE POSITION TO BE MEASURED AT DATUM -T-, SEATING PLANE.
- DIM R AND U DO NOT INCLUDE MOLD FLASH. ALLOWABLE MOLD FLASH IS 0.010 (0.250) PER SIDE.
- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- CONTROLLING DIMENSION: INCH.
- 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.
- 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).

DIM	INCHES		MILLIMETERS	
	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	—

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters which may be provided in Motorola data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part. Motorola and  are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

How to reach us:

USA/EUROPE/Locations Not Listed: Motorola Literature Distribution;
P.O. Box 20912; Phoenix, Arizona 85036. 1-800-441-2447 or 602-303-5454

MFAX: RMFAX0@email.sps.mot.com – TOUCHTONE 602-244-6609
INTERNET: <http://Design-NET.com>

JAPAN: Nippon Motorola Ltd.; Tatsumi-SPD-JLDC, 6F Seibu-Butsuryu-Center,
3-14-2 Tatsumi Koto-Ku, Tokyo 135, Japan. 03-81-3521-8315

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

