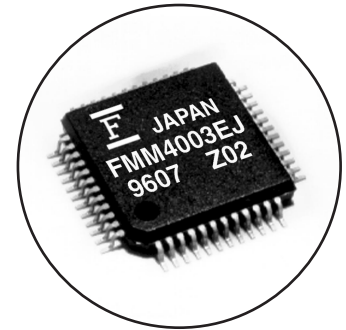


DESCRIPTION

The FMM4003EJ is a low-skew PECL-to-LVTTL clock driver with a 0.5 μ m GaAs MESFET technology. It is designed for clock distribution in high-end workstations and personal computer applications. The FMM4003EJ accepts one differential PECL signal input and fans it out to 14 single-ended LVTTL outputs under a single +3.3V power supply.



EJ PACKAGE

FEATURES

- PECL-to-LVTTL Translation
- Low Skew
- Differential Input
- Single +3.3V Power Supply

ABSOLUTE MAXIMUM RATINGS (Ambient Temperature $T_a = 25^\circ\text{C}$)

The maximum ratings are the limit values that must never be exceeded even for an instant.

The device will not be damaged as long as the device is used within the maximum ratings specified.

Parameter	Symbol	Values	Unit
Supply Voltage	V_{DD}	-0.5 ~ +4.0	V
Output Current*	LVTTL I_{OUT}	-25 ~ +25	mA
Input Voltage	PECL V_{IN}	-0.5 ~ V_{DD}	V
Storage Temperature	T_{STG}	-65 ~ +150	$^\circ\text{C}$
Case Temperature	T_C	-55 ~ +120	$^\circ\text{C}$

(*) Output level is 'H'.

RECOMMENDED OPERATING CONDITIONS

The recommended operating conditions are the recommended values for assuring normal logic operation. As long as the device is used within the specified operating conditions, the electrical characteristics, (DC and AC characteristics) described below are assured.

Parameter	Symbol	Values	Unit
Power Supply Voltage	V_{DD}	+3.3 \pm 5%	V
Termination Voltage	V_T	$V_{DD} - 2.0$	V
Termination Resistance	R_T	50	Ω
Ambient Temperature	T_A	0 ~ +70	$^\circ\text{C}$
Junction Temperature	T_J	0 ~ +100	$^\circ\text{C}$

FMM4003EJ

Low-skew 1:14 PECL-to-LVTTL Clock Driver

DC CHARACTERISTICS for PECL

Parameter	Symbol	Condition	Values			Unit
			Min.	Typ.	Max.	
Input HIGH Voltage	V_{IH}	Single-ended Input*	2280	2450	2600	mV
Input LOW Voltage	V_{IL}	Single-ended Input*	1150	-	1680	mV
Peak-to-Peak Input Voltage	V_{PP}	-	300	-	1000	mV
Common Mode Range	V_{CMP}	-	1400	-	2500	mV
Input HIGH Current	I_{IH}	$V_{IN}=V_{IN(max)}$	-	-	200	μA
Input LOW Current	I_{IL}	$V_{IN}=V_{IN(min)}$	-50	-	-	μA

(*) This condition needs external PECL reference voltage $V_{ref} = 1.97V$.

DC CHARACTERISTICS for LVTTL

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Output High Voltage	V_{OH}	$I_{OH} = -2.4mA$	2.4	-	V_{DD}	V
		$I_{OH} = -24mA$	2.0	-	V_{DD}	
Output Low Voltage	V_{OL}	$I_{OL} = 16mA$	0	-	0.4	V
		$I_{OL} = +24mA$	0	-	0.6	

SUPPLY CURRENT

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Supply Current	I_{DD}	$V_{DD} = 3.3V$, $T_A = 25^\circ C$, Output Open	-	90	135	mA

AC CHARACTERISTICS

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Maximum Input Frequency	f_{max}	$CL = 50pF$	100	-	-	MHz
Propagation Delay IN.XIN to 01-014	t_{pd}	Differential PECL Input, $CL=10pF$	1200	-	1700	ps
		Differential PECL Input, $CL=50pF$	1900	-	2500	
Output-to-Output Skew	t_{sko}	$CL = 10pF$	-	-	150	ps
		$CL = 50pF$	-	-	300	
Part-to-Part Skew	t_{sko}	$CL = 10pF$	-	-	500	ps
		$CL = 50pF$	-	-	600	
Output Rise/Fall Time	t_r t_f	$CL = 10pF$ 0.8V to 2.4V	300	-	400	ps
	t_r t_f	$CL = 50pF$ 0.8V to 2.4V	1100	-	1800	ps

Figure 1: Package Pin Assignment

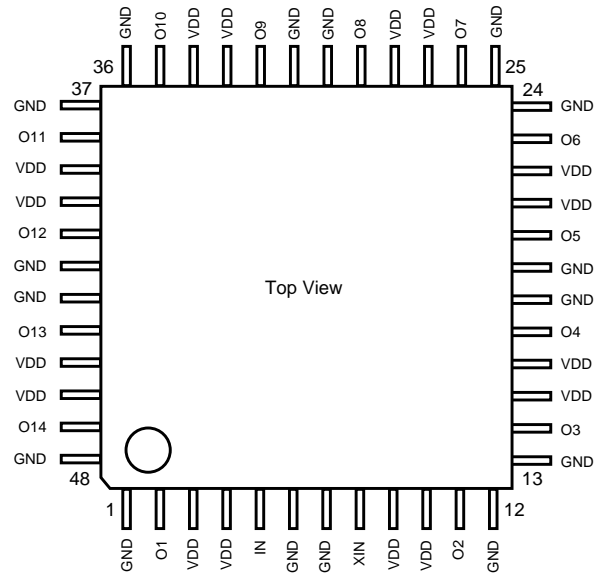
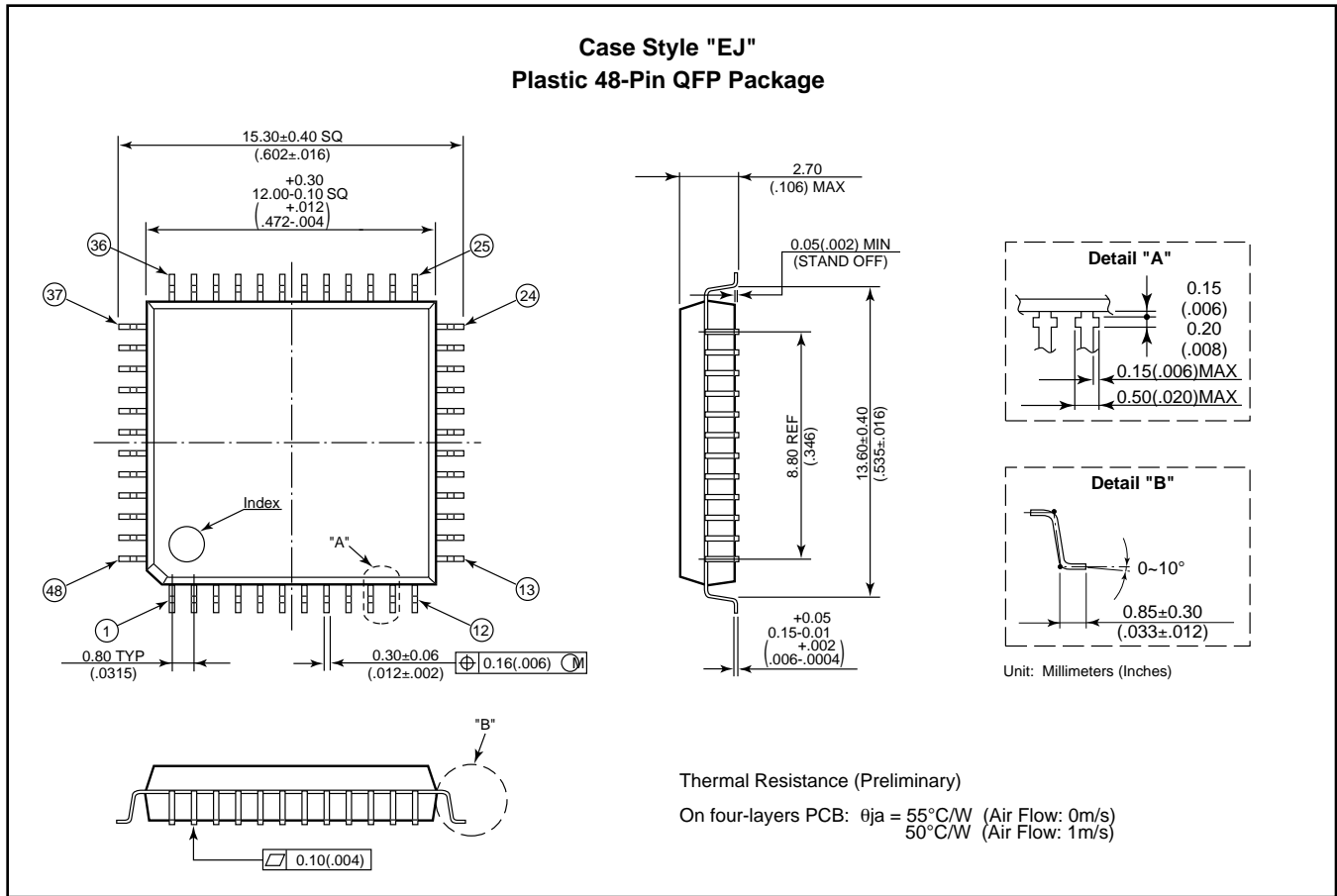


Table 1: Pin Description

Pin Name	Pin No.	I/O	Description	Pin Name	Pin No.	I/O	Description
GND	1	-	—	GND	25	-	—
O1	2	0	LVTTTL Output No. 1	O7	26	0	LVTTTL Output No. 7
VDD	3	-	—	VDD	27	-	—
VDD	4	-	—	VDD	28	-	—
IN	5	I	PECL Input (Positive)	O8	29	0	LVTTTL Output No. 8
GND	6	-	—	GND	30	-	—
GND	7	-	—	GND	31	-	—
XIN	8	I	PECL Input (Negative)	O9	32	0	LVTTTL Output No. 9
VDD	9	-	—	VDD	33	-	—
VDD	10	-	—	VDD	34	-	—
O2	11	0	LVTTTL Output No. 2	O10	35	0	LVTTTL Output No. 10
GND	12	-	—	GND	36	-	—
GND	13	-	—	GND	37	-	—
O3	14	0	LVTTTL Output No. 3	O11	38	0	LVTTTL Output No. 11
VDD	15	-	—	VDD	39	-	—
VDD	16	-	—	VDD	40	-	—
O4	17	0	LVTTTL Output No. 4	O12	41	0	LVTTTL Output No. 12
GND	18	-	—	GND	42	-	—
GND	19	-	—	GND	43	-	—
O5	20	0	LVTTTL Output No. 5	O13	44	0	LVTTTL Output No. 13
VDD	21	-	—	VDD	45	-	—
VDD	22	-	—	VDD	46	-	—
O6	23	0	LVTTTL Output No. 6	O14	47	0	LVTTTL Output No. 14
GND	24	-	—	GND	48	-	—

FMM4003EJ

Low-skew 1:14 PECL-to-LTVVL Clock Driver



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