

Cypress Semiconductor Qualification Report

QTP# 98517 VERSION 1.0
February, 1999

3.3V. Synchronous. FIFOs. ... R42D. Technology. With. Hot. AI	
CY7C43642V/CY7C43662V/CY7C43682V	1K/4K/16K. x. 36. . x. 2. Bidirectional. Synchronous. . FIFO. . 120 Pins TQFP
CY7C43643V/CY7C43663V/CY7C43683V	1K/4K/16K x 36 Undirectional Synchronous FIFO w/ Bus Matching. ... 128. Pins. TQFP
CY7C43644V/CY7C43664V/CY7C43684V	1K/4K/16K x 36 x 2 Bidirectional Synchronous FIFO w/ Bus. Matching. ... 128. Pins. TQFP
CY7C43646V/CY7C43666V/CY7C43686V	1K/4K/16K. x. 36. x. 2. Tri. Bus. FIFO. ... 128. Pins. TQFP

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

Cypress Semiconductor
Quality & Reliability Department

(408)432-7069

PRODUCT DESCRIPTION (for qualification)			
Qualification Purpose: To qualify 2 mask changed for speed tweak and retransmit fixed on 3.3V FIFO products. The 3.3V FIFO products were qualified by qualification # 98268.			
Marketing Part #:	CY7C43684V		
Package:	128-pin TQFP		
Device Description:	16K x 36 x 2 Bi-directional Synchronous FIFO with Bus Matching		
Cypress Division:	Cypress Semiconductor Corporation		
Overall Die (or Mask) REV Level (pre-requisite for qualification):	Rev. A		
Die Size (stepping):	234 mils x 262 mils	What ID markings on Die:	7C43384A

TECHNOLOGY/FAB PROCESS DESCRIPTION – R42D			
Number of Metal Layers:	2	Metal Composition:	Metal. 1:.. 500..TiW/6000..Al. -5%Cu/1200..TiW Metal. 2:.. 500..TiW/8000..Al. -5%Cu/300..TiW
Passivation Type and Materials:	7000.. SiO ₂ . +. 6000.. Si ₃ N ₄		
Free Phosphorus contents in top glass layer(%):	0%		
Die Coating(s), if used:	N/A		
Generic Process Technology/Design Rule (μ -drawn):	CMOS, Double Metal /0.35 μ m		
Gate Oxide Material/Thickness (MOS):	SiO ₂ ./ .70.		
Name/Location of Die Fab (prime) Facility:	Cypress Semiconductor – Bloomington, MN		
Die Fab Line ID/Wafer Process ID:	Fab4/R42D (with Hot AL)		

PLASTIC PACKAGE/ASSEMBLY DESCRIPTION			
Package Outline, Type, or Name:	128-pins TQFP		
Mold Compound Name/Manufacturer:	Sumitomo EME-7320		
Lead Frame material:	Copper		
Lead Finish, composition:	Solder Plated, 90%Sn, 10%Pb		
Die Attach Area Plating:	None		
Die Attach Method:	Silver Epoxy	Die Attach Material:	Ablestik 84-1LMISR4
Wire Bond Method:	Thermosonic	Wire Material/Size:	Gold / 1.3 mil
JESD22-A112 Moisture Sensitivity Level:	Level 3 & 5		
Name/Location of Assembly (prime) facility:	Anam Korea (KOREA-Q)		

Note: Please contact a Cypress Representative for other packages availability.

RELIABILITY TESTS PERFORMED

Stress/Test	Test Condition (Temp/Bias)	Result P/F
High Temperature Operating Life Early Failure Rate	Dynamic Operating Condition, Vcc = 3.8 V, 150°C	P
Electrostatic Discharge Human Body Model (ESD-HBM)	MIL-STD-883, Method 3015.7	2,200V
Electrostatic Discharge Charge Device Model (ESD-CDM)	Cypress Spec. 25-00020	750V
Latchup Sensitivity	In accordance with JEDEC 17. Cypress Spec. 01-00081	7.0V

RELIABILITY TEST DATA

QTP#: 98517

DEVICE	ASSY-LOC	FABLOT#	ASSYLOT#	DURATION	S/S	REJ	FAIL MODE
=====							
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE (150C, 3.8V)							
CY7C43684V-AC	KOREA-Q	4832080	619817891	48	1004	0	

STRESS: ESD-CHARGE DEVICE MODEL (750V)							
CY7C43684V-AC	KOREA-Q	4832080	619817891	COMP	3	0	

STRESS: ESD-HUMAN BODY CIRCUIT PER MIL STD 883, METHOD 3015 (2,200V)							
CY7C43684V-AC	KOREA-Q	4832080	619817891	COMP	3	0	

DEVICE RELATED RELIABILITY TEST DATA

QTP#: 98268¹

DEVICE	ASSY-LOC	FABLOT#	ASSYLOT#	DURATION	S/S	REJ	FAIL MODE
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE (150C, 3.8V)							
CY7C43684V-AC	KOREA-Q	4831010	619810894	48	581	0	
CY7C43684V-AC	KOREA-Q	4831010	619810894	48	395	0	
CY7C43684V-AC	KOREA-Q	4831010	619811151	48	30	0	
STRESS: ESD-CHARGE DEVICE MODEL (750V)							
CY7C43684V-AC	KOREA-Q	4831010	619810894	COMP	3	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER MIL STD 883, METHOD 3015 (2200V)							
CY7C43684V-AC	KOREA-Q	4831010	619810894	COMP	3	0	
STRESS: HI-ACCEL SATURATION TEST (130C, 3.63V), PRECOND. 192 HRS 30C/60%RH							
CY7C43684V-AC	KOREA-Q	4831010	619810894	128	48	0	
STRESS: HI-ACCEL SATURATION TEST (130C, 3.63V), PRECOND. DB + 72 HRS 30C/60%RH							
CY7C43684V-AC	KOREA-Q	4831010	619810894	128	48	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH)							
CY7C43684V-AC	KOREA-Q	4831010	619810894	168	48	0	
STRESS: TC COND. C, -65 TO 150C, PRECOND. 192 HRS 30C/60%RH (MSL 3)							
CY7C43684V-AC	KOREA-Q	4831010	619810894	300	48	0	
CY7C43684V-AC	KOREA-Q	4831010	619810894	1000	48	0	
CY7C43684V-AC	KOREA-Q	4831010	619810894	300	48	0	
CY7C43684V-AC	KOREA-Q	4831010	619810894	1000	48	0	

¹ 3.3V FIFO product qualified in R42 Technology.