Cypress Semiconductor
Qualification Report

QTP# 98042 VERSION 1.0
August, 1998

32K x 8 Low Power SRAM - R32 Technology - Fab4 Qualification Hot Al Alloy Temperature at 450°C implementation	
Part Number	**Description**
CY62256V	**32K x 8 SRAM Low Power (3V Operation)**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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Reliability Manager
(408)943-2681

PRODUCT DESCRIPTION (for qualification)	
Qualification Purpose: Change Hot Al Alloy temperature from 425C to 450C for 3V parts qualified at Fab 4 in R32 technology to improve speed at sort.	
Marketing Part #:	CY62256V, 3V Operation
Package:	28-pin, 300-mil NSOIC
Device Description:	32K x 8 Static RAM
Cypress Division:	Cypress Semiconductor Corporation - MPD Division
Overall Die (or Mask) REV Level (pre-requisite for qualification):	Rev. C
What ID markings on Die:	7C1257A (CY62256V)

TECHNOLOGY/FAB PROCESS DESCRIPTION - R32			
Number of Metal Layers:	1	Metal Composition:	Metal 1: TiW/Al, 500Å/8,000Å
Passivation Type and Materials:	Silicon Dioxide 7,000Å + Silicon Nitride 6,000Å		
Free Phosphorus contents in top glass layer(%):	0%		
Die Coating(s), if used:	No die coat (Low Alpha Molding)		
Generic Process Technology/Design Rule (µ-drawn):	CMOS, Double Poly, Single Metal /0.5 µm		
Gate Oxide Material/Thickness (MOS):	SiO_2 / 145Å		
Name/Location of Die Fab (prime) Facility:	Cypress Semiconductor - Bloomington, MN		
Die Fab Line ID/Wafer Process ID:	Fab4/R32		

PLASTIC PACKAGE/ASSEMBLY DESCRIPTION			
Package Outline, Type, or Name:	28-pin, 300-mil NSOIC		
Mold Compound Name/Manufacturer:	NITTO-8000CH		
Lead Frame material:	Copper Alloy 194		
Lead Finish, composition:	Solder Plated, 85%Sn, 15%Pb		
Die Attach Area Plating:	Silver Spot		
Die Attach Method:	Epoxy	Die Attach Material:	Ablestick 8361
Wire Bond Method:	Thermosonic	Wire Material/Size:	Gold / 1.3 mil
JESD22-A112 Moisture Sensitivity Level:	Level 1		
Name/Location of Assembly (prime) facility:	Omedata, Indonesia		

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 = 3.80V,150°C	P

RELIABILITY TEST DATA

QTP#: 98042

DEVICE	ASSY-LOC	FABLOT#	ASSYLOT#	DURATION	S/S	REJ	FAIL MODE
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE (150C, 3.8 V)							
CY62256V-NSC	INDNS-O	4740691	519801279	48	513	0	
CY62256V-NSC	INDNS-O	4740691	519801280	48	513	0	
CY62256V-NSC	INDNS-O	4742793	519801295	48	513	0	
CY62256V-NSC	INDNS-O	4742793	519801296	48	513	0	
CY62256V-NSC	INDNS-O	4740708	519801310	48	513	0	
CY62256V-NSC	INDNS-O	4740708	519801311	48	513	0	

DEVICE RELATED RELIABILITY TEST DATA

QTP#: 97132[1]

DEVICE	ASSY-LOC	FABLOT#	ASSYLOT#	DURATION	S/S	REJ	FAIL MODE
STRESS: HI-ACCEL SATURATION TEST (140C, 5.5V), PRECOND. 168 HRS 85C/85%RH							
CY62256V-VC	INDNS-O	4647470	519700560/604/5	128	90	0	
CY62256V-VC	INDNS-O	4647470	519700560/604/5	256	90	0	
CY62256-VC	INDNS-O	4701592	519701274/5/6	128	50	0	
STRESS: HI-ACCEL SATURATION TEST (140C, 3.6V), PRECOND. 168 HRS 85C/85%RH							
CY62256V-VC	INDNS-O	4649527	519701211/2/3	128	50	0	
STRESS: HIGH TEMPERATURE STORAGE (165C, NO BIAS)							
CY62256V-VC	INDNS-O	4647470	519700560/604/5	336	48	0	
CY62256V-VC	INDNS-O	4647470	519700560/604/5	1000	48	0	
STRESS: HIGH TEMP STEADY STATE LIFE TEST (150C, 3.9V)							
CY62256V-VC	INDNS-O	4647470	519700560/604/5	80	152	0	
CY62256V-VC	INDNS-O	4647470	519700560/604/5	168	152	0	
STRESS: HIGH TEMP STEADY STATE LIFE TEST (150C, 3.63V)							
CY62256V-VC	INDNS-O	4649527	519701211/2/3	80	162	0	
CY62256V-VC	INDNS-O	4649527	519701211/2/3	168	162	0	
STRESS: HIGH TEMP STEADY STATE LIFE TEST (150C, 5.50V)							
CY62256-VC	INDNS-O	4701592	519701274/5/6	80	162	0	
CY62256-VC	INDNS-O	4701592	519701274/5/6	168	162	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE (150C, 3.90V)							
CY62256V-VC	INDNS-O	4647470	519700560/604/5	80	522	0	
CY62256V-VC	INDNS-O	4647470	519700560/604/5	500	522	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE (150C, 3.80V)							
CY62256V-VC	INDNS-O	4649527	519701211/2/3	80	540	0	
CY62256V-VC	INDNS-O	4649527	519701211/2/3	500	540	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE (150C, 5.75V)							
CY62256-VC	INDNS-O	4701592	519701274/5/6	80	540	0	
CY62256-VC	INDNS-O	4701592	519701274/5/6	500	540	1	Non-visual single bit
STRESS: EXTENDED DYNAMIC BURN-IN (150C, 3.90V)							
CY62256V-VC	INDNS-O	4647470	519700560/604/5	1000	522	0	
STRESS: COLD LIFE TEST (-30C, 6.5V)							
CY62256-VC	INDNS-O	4701592	519701274/5/6	500	52	0	
STRESS: READ & RECORD LIFE TEST (150C, 4.3V)							
CY62256V-VC	INDNS-O	4647470	519700560/604/5	500	10	0	

[1] QTP 97132, 32Kx8 Low Power SRAM, R32 Technology, Fab 4 qualification