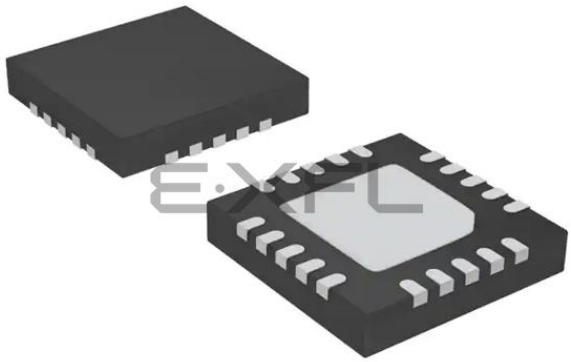


Welcome to E-XFL.COM

What is "Embedded - Microcontrollers"?

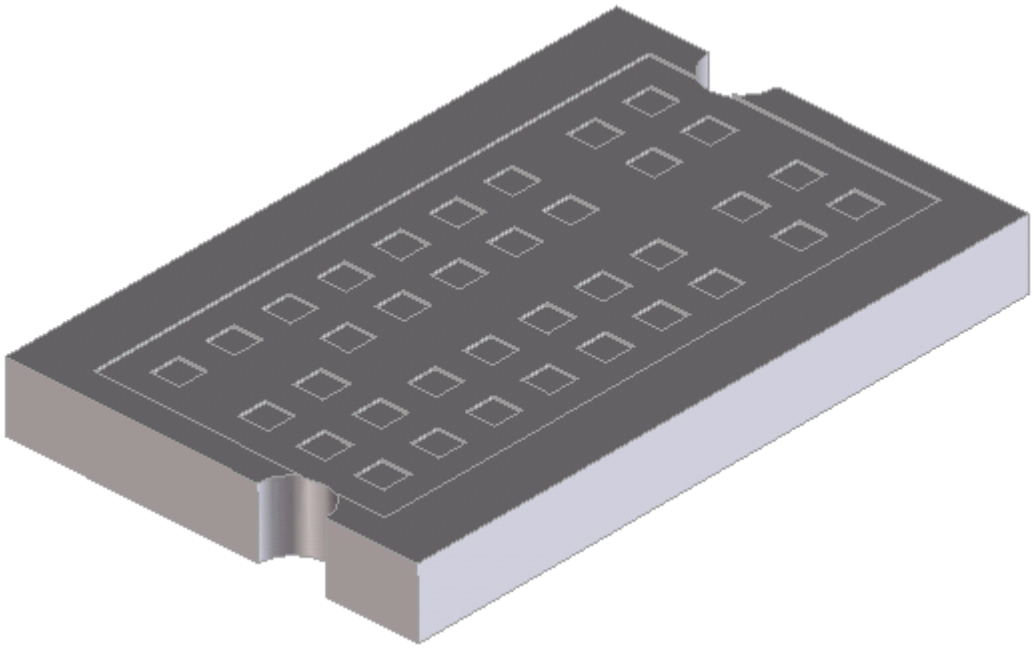
"Embedded - Microcontrollers" refer to small, integrated circuits designed to perform specific tasks within larger systems. These microcontrollers are essentially compact computers on a single chip, containing a processor core, memory, and programmable input/output peripherals. They are called "embedded" because they are embedded within electronic devices to control various functions, rather than serving as standalone computers. Microcontrollers are crucial in modern electronics, providing the intelligence and control needed for a wide range of applications.

Applications of "Embedded - Microcontrollers"

Details	
Product Status	Not For New Designs
Core Processor	8051
Core Size	8-Bit
Speed	25MHz
Connectivity	SMBus (2-Wire/I²C), SPI, UART/USART
Peripherals	POR, PWM, Temp Sensor, WDT
Number of I/O	17
Program Memory Size	4KB (4K x 8)
Program Memory Type	FLASH
EEPROM Size	-
RAM Size	768 x 8
Voltage - Supply (Vcc/Vdd)	2.7V ~ 3.6V
Data Converters	A/D 16x10b
Oscillator Type	Internal
Operating Temperature	-40°C ~ 85°C (TA)
Mounting Type	Surface Mount
Package / Case	20-VFQFN Exposed Pad
Supplier Device Package	20-QFN (4x4)
Purchase URL	https://www.e-xfl.com/product-detail/silicon-labs/c8051f332-gm

TABLE OF CONTENTS

1.0 SCOPE
2.0 PRODUCT DESCRIPTION
3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS
4.0 RATINGS
5.0 ENVIRONMENTAL PERFORMANCE
6.0 TEST SEQUENCE
7.0 PACKAGING
8.0 APPENDIX
8.1 REFLOW PROFILE (Soldering heat resistance testing)
8.2 REFLOW PROFILE (Solderability testing)



REV.	A	A	A	A	A	A
SHEET	1	2	3	4	5	6

REVISE ON PC ONLY

REV.	DESCRIPTION
A	ORIGINAL RELEASE DC 2004/08/26 E2004-0178

TITLE: **PRODUCT SPECIFICATION FOR TRACEABILITY PAD**

DESIGN CONTROL	STATUS	WRITTEN BY:	CHECKED BY:	APPROVED BY:	DATE: YR/MO/DAY
SHANNON, IRELAND		DCARTON			2004/08/26

DOCUMENT NUMBER	FILENAME	SHEET
PS-91658-010		1 OF 6

1.0 SCOPE

This document determines the specification for the 91658 Traceability Pad.

2.0 PRODUCT DESCRIPTION

2.1 The part number covered in this specification is:
Part number: 91658-0020
Sales drawing: SD-91658-010

2.2 This pad consists of a flat solderable pad that has a 2D data matrix laser-etched onto it's surface. A unique number will be attached to each pad using this data matrix. Laser etched surface with respect to non-etched surface is to have a contrast of at least 50%.

2.3 This pad must be suitable for soldering with both Pb and Pb-free soldering processes.

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

In the event of conflict between the requirements of this specification and sales drawing, the sales drawing shall take precedence. See the sales drawing and the other sections of this specification for the necessary documents and specifications.

4.0 RATINGS

4.1 CLIMATIC REQUIREMENTS

Storage Temperature Range -40 to +85 °C

4.2 READABILITY REQUIREMENTS

A Quadrus EZ reader can be used to read this product.
This reader should be used during product testing and verification to confirm that the number programmed into the laser etching machine corresponds to the number being read by the scanner. This will ensure that the laser etching is correct.

5.0 ENVIRONMENTAL PERFORMANCE SPECIFICATIONS

	Item	Test Condition	Requirement
5.1	Damp Heat (cyclic) IEC 68-2-30 Db	Temp 25°C-55 °C and 90-100% humidity for 6 cycles of 24 hours (Cycle: 25 °C-55 °C in 3 hours 9 hours at 55 °C 55 °C-25 °C in 3 hours 9 hours at 25 °C Recovery at 25 °C and 25-75% humidity for 2 hours)	No change in the readability of the laser marking
5.2	Cold Storage IEC 68-2-1 Ab	96 hours in -40 °C Recovery 2 hours at room temp	No change in the readability of the laser marking
5.3	Dry Heat Storage IEC68-2-2Bb	96 hours in +85 °C Recovery 2 hours at room temp	No change in the readability of the laser marking
5.4	Thermal Shock IEC 68-2-14 Na	-55 °C to +85 °C (change < 3 min) 50 cycles, 1 cycle 0.5 + 0.5 hours, recovery time 2 hours at room temp	No change in the readability of the laser marking
5.5	Gradual change of temperature	From -55 °C to +125 °C at steps of 10 °C/hr, starting at 25 °C to min/max temp	No change in the readability of the laser marking
5.6	Reflow Test	Reflow the connector as per Appendix 8.1.	Solders correctly to PWB. No change in the readability of the laser marking
5.7	Solderability TestReflow the connector as per Appendix 8.2.		Solders correctly to PWB. No change in the readability of the laser marking
5.8	Salt Spray IEC512-5, test11f	48hour spray, at temp. 35° +/-2° C R/H 90-95% Salt NaCl mist 5% After test wash parts and return to room Temperature for 1-2 hours	No change in the readability of the laser marking
5.9	Mixed Gas IEC68-2-42 Kc	96 hours. H_2S 3ppm + SO_2 10ppm At temp 40 °C +/- 2 °C, R/H 80% After test return to ambient for 1-2 hours	No change in the readability of the laser marking

6.0 TEST SEQUENCE

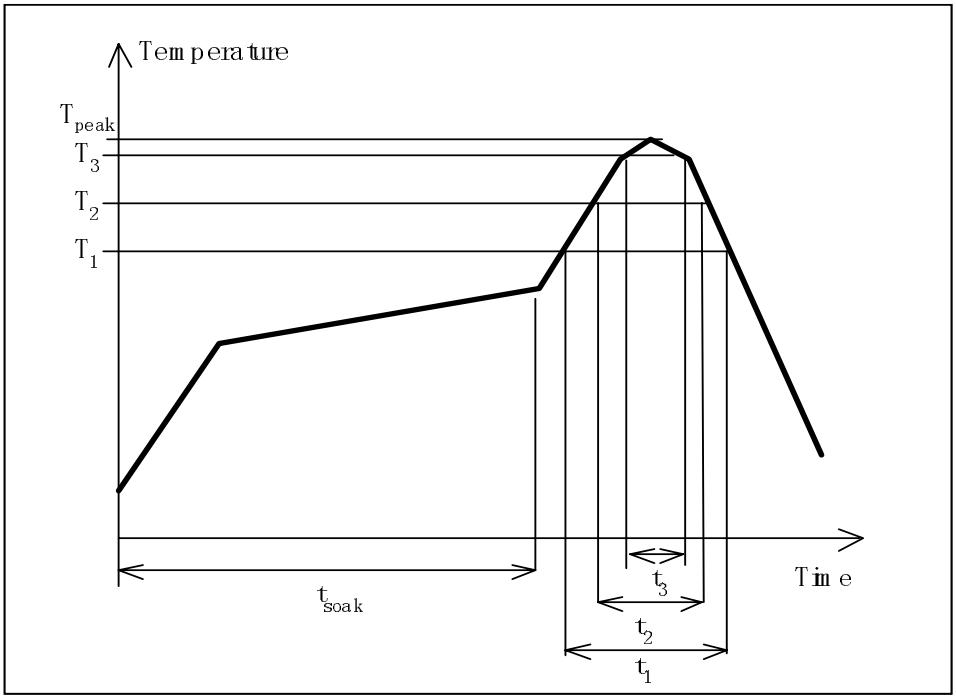
	Test Group	1	2	3	4
4.2	Readability check with scanner	1, 3,5, 7	1,3, 5, 7	1, 3, 5	1, 3, 5,7,9
5.1	Damp heat (cyclic)				4
5.2	Dry cold	6			
5.3	Dry heat	4			
5.4	Thermal shock		4		
5.5	Gradual change of temp			4	
5.6	Reflow test (x3)	2	2		2
5.7	Solderability test			2	
5.8	Salt spray		6		
5.9	Mixed gas				8

7.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage. The parts shall be inserted into paper tape pockets and put on reels which will be put inside boxes.

8.0 APPENDIX

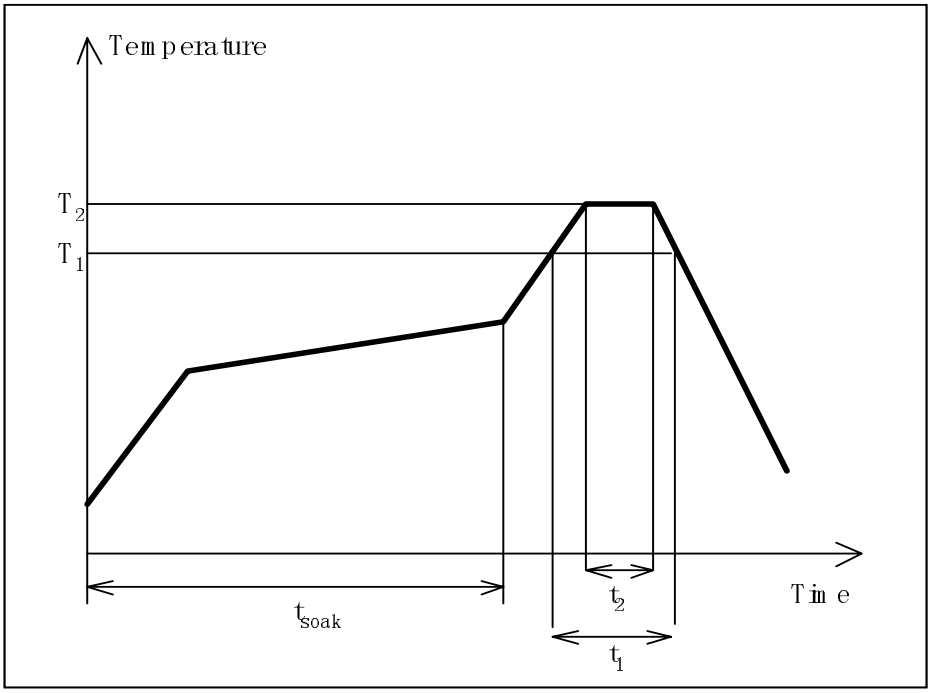
8.1 REFLOW PROFILE (Soldering heat resistance testing)



Generic Profile for Pb-free assemblies (For soldering heat resistance testing)
Components must tolerate this profile three times.

Peak temperature during reflow 255°C (–0/+5)°C
Time above 230 °C max 50 secs
Time above 250 °C max 10 secs

8.2 REFLOW PROFILE (Solderability test)



Peak temperature during reflow 230°C (–0/+5)°C
Time at peak temperature: 10 secs