

## **GENERAL DESCRIPTION**

While the VSC8201XVZ is a lead-free device, it is not compatible with a 260°C solder reflow profile. This document will describe the proper solder reflow profile for use with the VSC8201XVZ.

## **1.0 INTRODUCTION**

As with all BGA packaged devices, reliable mounting of the VSC8201XVZ requires careful attention to the temperature profile used in the solder reflow process. Reflow process, equipment, and the thermal characteristics of each circuit board design can all affect the required profile. This Application Note provides guidelines that can be used to develop a reliable reflow profile for each application.

### **1.1 References**

#### **1.1.1 Vitesse Documents**

VMDS-10103

VSC8201 Datasheet

#### **1.1.2 JEDEC Standard**

IPC/JEDEC J-STD-020

Moisture/Reflow Sensitivity Classification for Nonhermetic Solid State Surface Mount Devices

**Confidential**

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## 2.0 REFLOW PROFILE SPECIFICATIONS

Note: All temperatures refer to topside of the package, measured on the package body surface.

**Table 1. Reflow Profile Specifications**

| Specification                                        | Value  | Units           |
|------------------------------------------------------|--------|-----------------|
| Average Ramp-Up Rate ( $T_{s_{max}}$ to $T_P$ )      | 3      | °C/second (max) |
| <b>Preheat</b>                                       |        |                 |
| - Temperature Min ( $T_{s_{min}}$ )                  | 100    | °C              |
| - Temperature Max ( $T_{s_{max}}$ )                  | 150    | °C              |
| - Time ( $t_{s_{min}}$ to $t_{s_{max}}$ )            | 60-120 | seconds         |
| Time maintained above:                               |        |                 |
| - Temperature ( $T_L$ )                              | 183    | °C              |
| - Time ( $t_L$ )                                     | 60-150 | seconds         |
| Peak Temperature ( $T_P$ )                           | 240    | °C              |
| Time within 5°C of actual Peak Temperature ( $t_P$ ) | 10-30  | seconds         |
| Ramp-Down Rate                                       | 6      | °C/second       |
| Time 25°C to Peak Temperature                        | 6      | minutes (max)   |
| Maximum number of reflow cycles                      | 6      |                 |

### 3.0 EXAMPLE PROFILE

The plot below shows an example thermal profile that meets the above specifications.

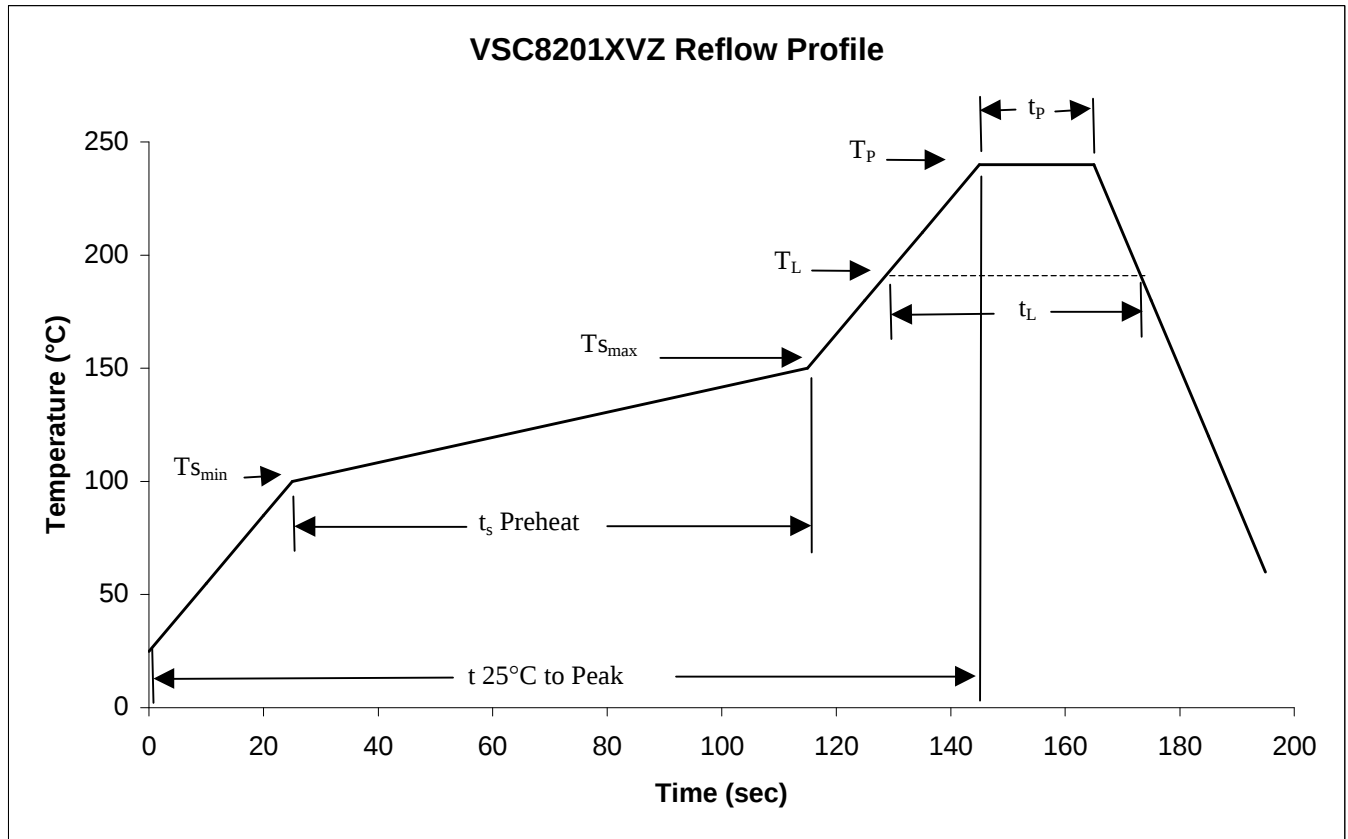


Figure 1. Reflow Profile

## DOCUMENT HISTORY & NOTES

Table 2. Document History

| Rev   | Date          | Description              |
|-------|---------------|--------------------------|
| 01-00 | 12 April 2005 | Initial Document Release |

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