**Product / Process Change Notice**

**Parts Affected:**

Chip process CP312, NPN power transistors, wafers, and bare die.

**Extent of Change:**

The CP312 wafer process has been discontinued and replaced with the CP322 wafer process. See figures 1 and 2 for details.

**Reason for Change:**

The CP312 wafer process has been replaced by the CP322 wafer process in order to enhance the manufacturing process controls and performance. In addition, this change is being made to ensure an undisrupted supply of product, moving forward.

**Effect of Change:**

The wafer process meets all electrical specifications of the individual devices listed on the following page.

**Qualification:**

|  |  |  |
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| **Test** | **Condition** | **Failure rate** |
| **Resistance to Solder Shock**  | T =260°C ±5°CDwell time = 10 sec.**JESD22-B106** | 0/77 |
| **High Temperature Storage Life/ bake test.** |  150°C (-0/+10)°C, 1000 hours.**JESD22-A103** | 0/77 |
| **Temperature Cycling** | T= -65°C to +150°C1000 cycles. Dwell time = 15 min.**JESD22-A104** | 0/77 |
| **High Temperature Reverse Bias (HTRB)** | T=125°C, t=1000 hoursBias conditions per device datasheet**JESD22-A108** | 0/77 |
| **Highly Accelerated Temperature and Humidity Stress Test (HAST)** | T = 130°C, RH = 85%, P = 33.3 psia, and t = 96 hours.Bias conditions per device specification sheet.**JESD22-A110** | 0/77 |
| **Accelerated Moisture Resistance Unbiased Autoclave** | Temperature = 121°C ± 2°C; relative humidity = 100%; vapor pressure = 29.7 psia (15psig). t=96 hours**JESD22-A102** | 0/77 |

**Effective Date of Change:**

September 30, 2019 - Existing inventory will be shipped until depleted.

**Sample Availability:**

Please contact your salesperson or manufacturer’s representative for samples.

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| **Figure 1: CP312 Chip Geometry (Discontinued)** | **Figure 2: CP322 Chip Geometry** |
|  |  |
| Wafer Diameter | 4 inch | Wafer Diameter | 5 inch |
| Die Size | 70 x 70 mils | Die Size | 67 x 67 mils |
| Die Thickness | 9.0 mils | Die Thickness |  9.0 mils |
| Bond Pad Size (Base) | 11.4 18.1 mils | Bond Pad Size (Base) | 11.8 x 17.7 mils |
| Bond Pad Size (Emitter) | 13.8 x 23.6 mils | Bond Pad Size (Emitter) | 11.8 x 17.7 mils |
| Topside Metal: | Al (30,000Å) | Topside Metal: | Al (26,000Å) |
| Backside Metal: | Ti/Ni/Ag (11,300Å) | Backside Metal: | Ti/Ni/Ag (11,300Å) |
| **Part Numbers Affected:**  |
| CP312-BD437-CT | CP312-CJD200-CT | CP312-CZT3120-CT |  |
| BFX34 | BSX63-10 | CEN1182 |  |
| CZT3120 | 2N3420 | 2N3421 |  |
| 2N4237 | 2N4238 | 2N4239 |  |
| 2N4895 | 2N5784 | 2N5785 |  |
| 2N5786 |  |  |  |

As per JEDEC standard JESD46, Customer Notification of Product/Process Changes by Solid-State Suppliers, a lack of acknowledgement of a PCN within thirty (30) days constitutes acceptance of the change.

The undersigned acknowledges and accepts Central Semiconductor’s Product/Process Change Notification (PCN).

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| Company Name: |  |
| Address: |  |
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|  |
| Printed Name: |  |
| Title: |  |
| Signature: |  |
| Date: |  |