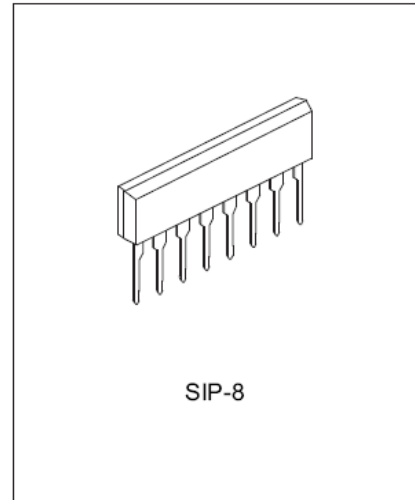


### 1、 Description

The V2181 is a state-of-the-art voltage-controlled amplifier (VCA) offering high-performance current-in/current-out technology including two opposing-polarity, voltage-sensitive control ports. The V2181 VCA combines many advantages such as ultra-low noise, ultra-low distortion, low offset and high gain-bandwidth. It requires few external support circuitry and is housed in a space-efficient 8-pin single-in-line (SIP) package.



### 2、 Features

**Wide dynamic range:** >115 dB

**Wide gain range:** >130 dB

**Logarithmic gain control with dual gain control (pos/neg)**

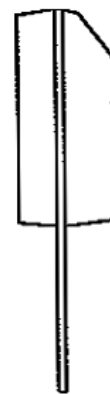
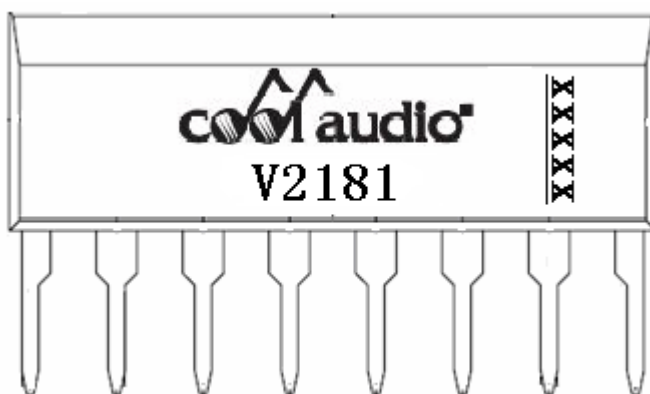
**Low distortion:** (0.008 % @ 0 dB gain, 0.035 % @ 15 dB gain)

**Wide gain-bandwidth:** 6 MHz

**Low harmonic distortion:** 0.01 % (typ)

**Package outline:** SIP-8 (V2181)

**ROHS compliant (PB-free)**



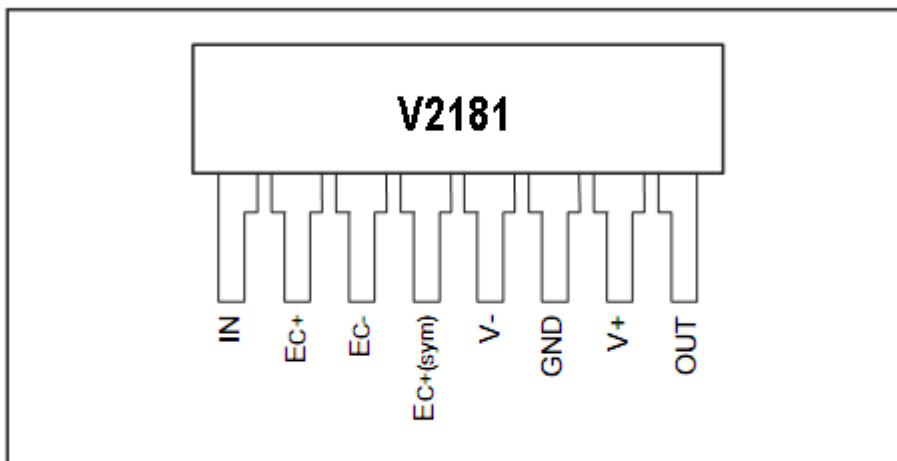
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### 3、 Applications

- Faders
- Expanders
- Compressors
- Equalizers
- Oscillators
- Filters
- Automation Systems

### 4、 Pin Configuration



## 5、 Function Description

The V2181 VCA is designed for high performance in audio applications which requires exponential gain control, low distortion, wide dynamic range and low DC “control feedthrough” modulation. Gain is controlled by converting an input current signal to a bipolar logged voltage, adding a DC control voltage and reconvertng the summed voltage back to a current through a bipolar antilog circuit.

The simplified internal circuit diagram of the IC is shown in figure 1. The AC input signal current flows in the input pin 1, which is maintained at a virtual ground by an internal opamp.

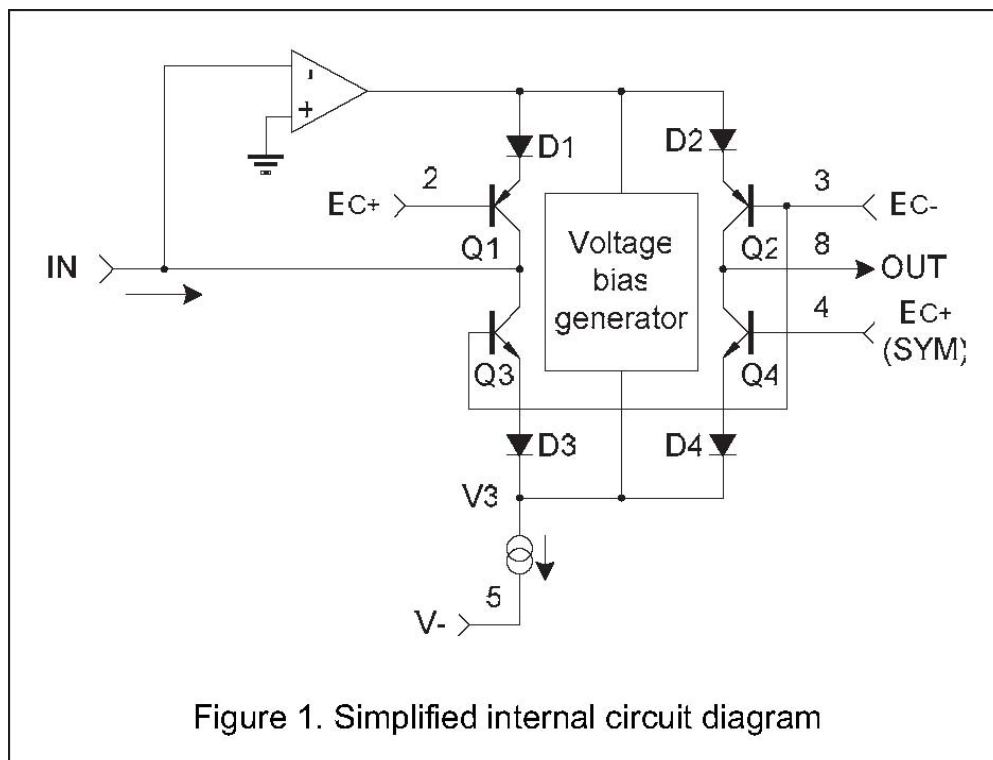


Figure 1. Simplified internal circuit diagram

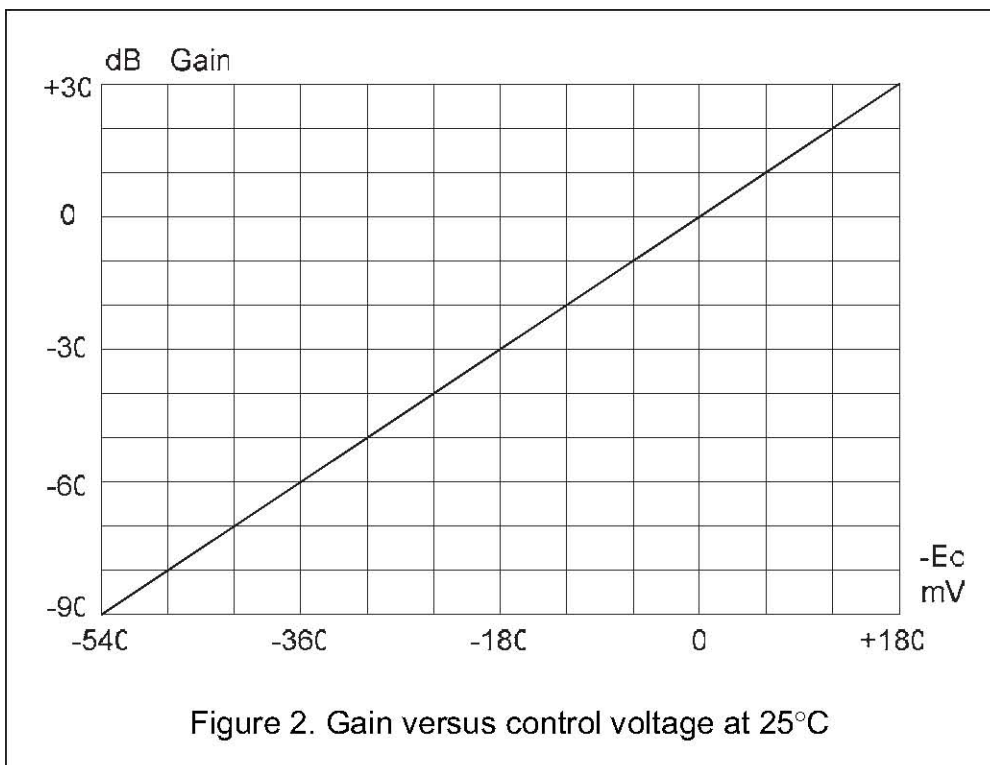


Figure 2. Gain versus control voltage at 25°C

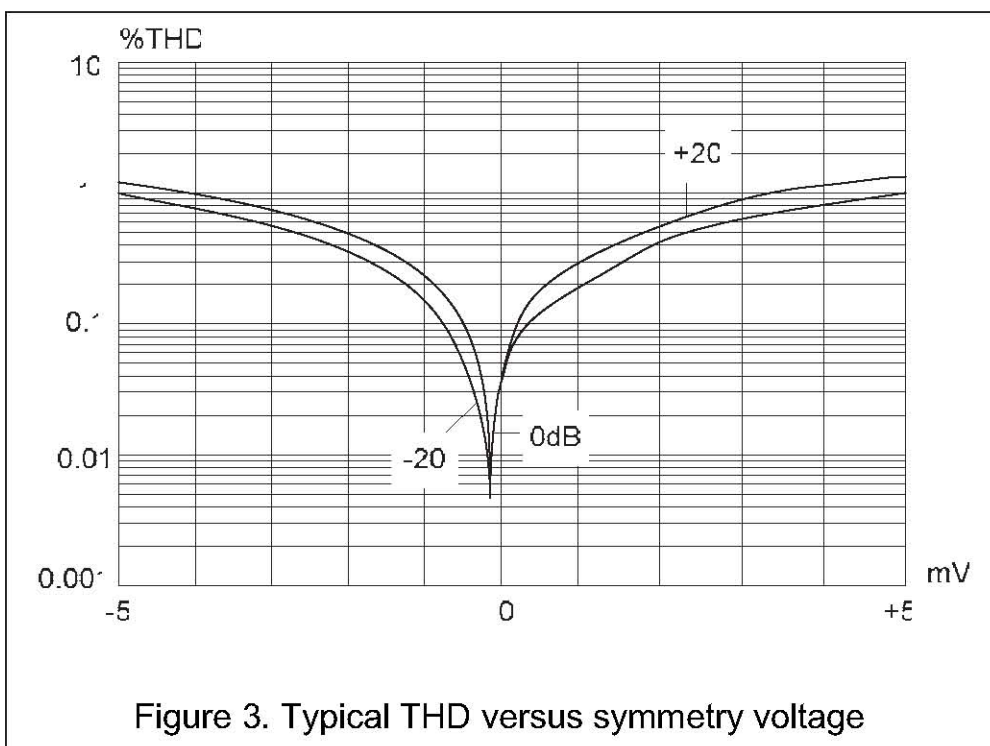
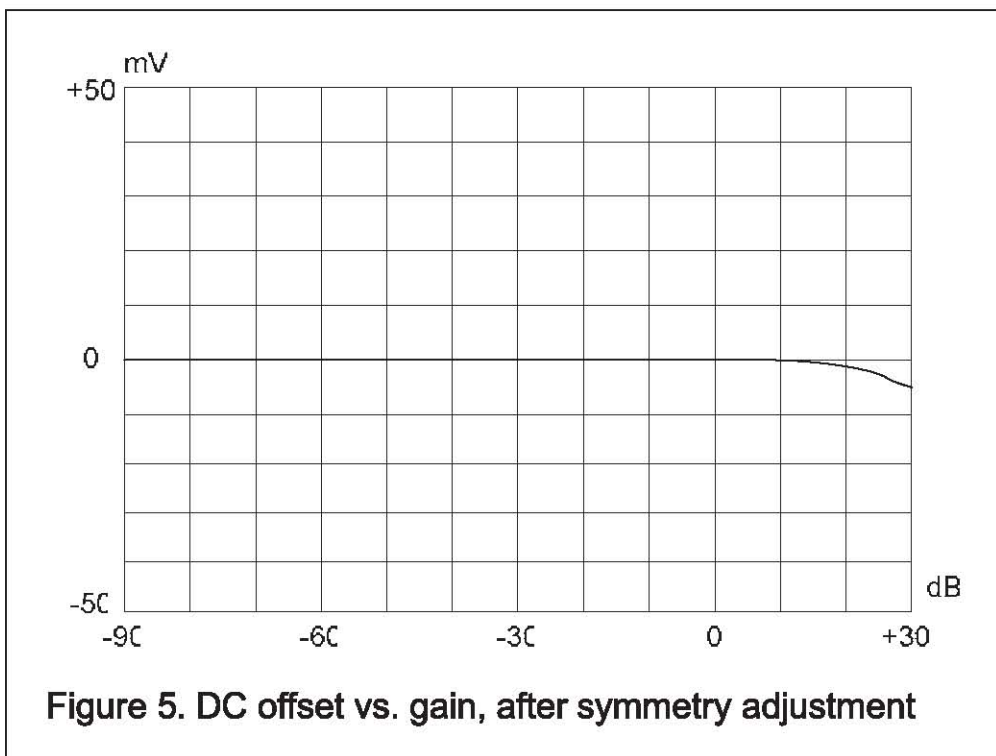
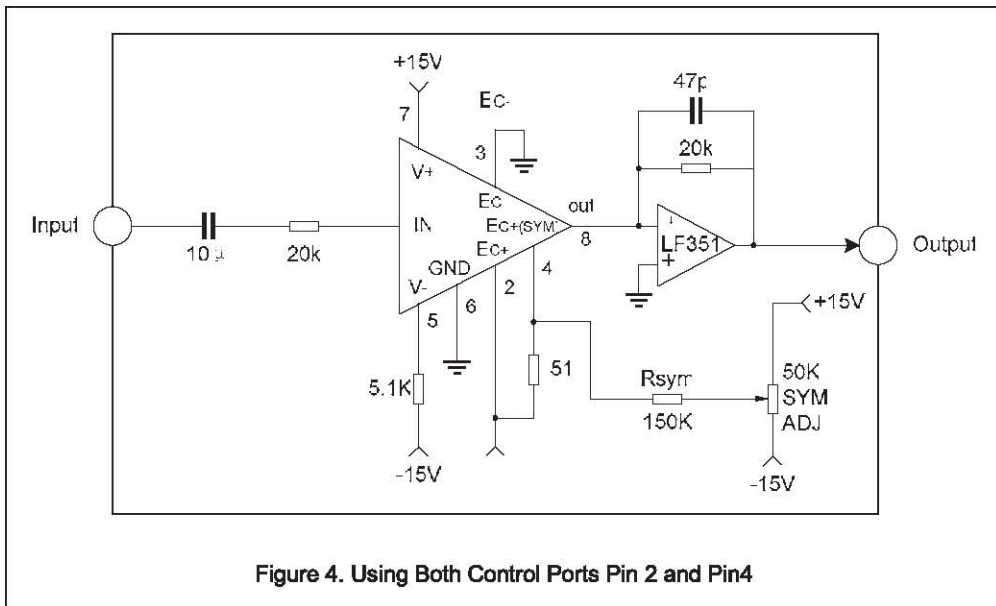
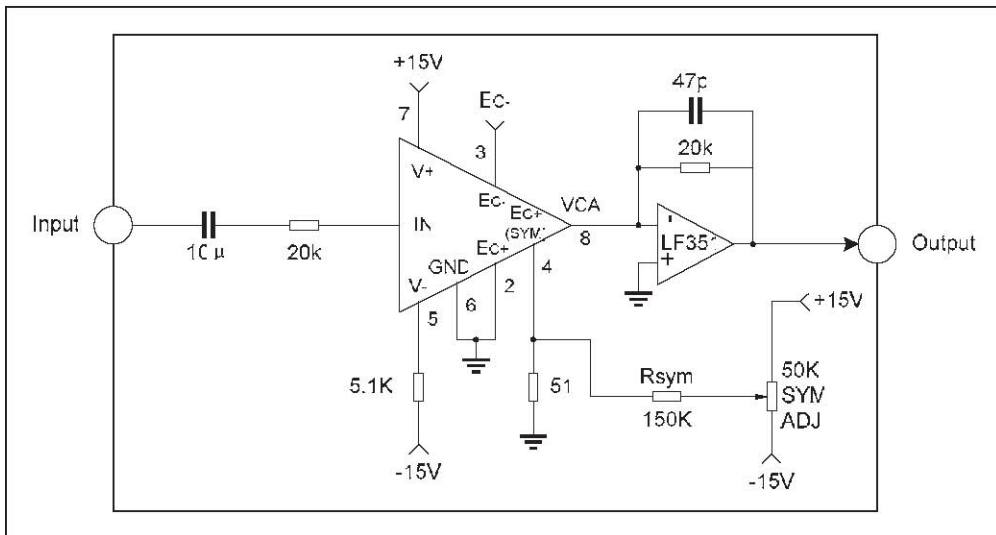
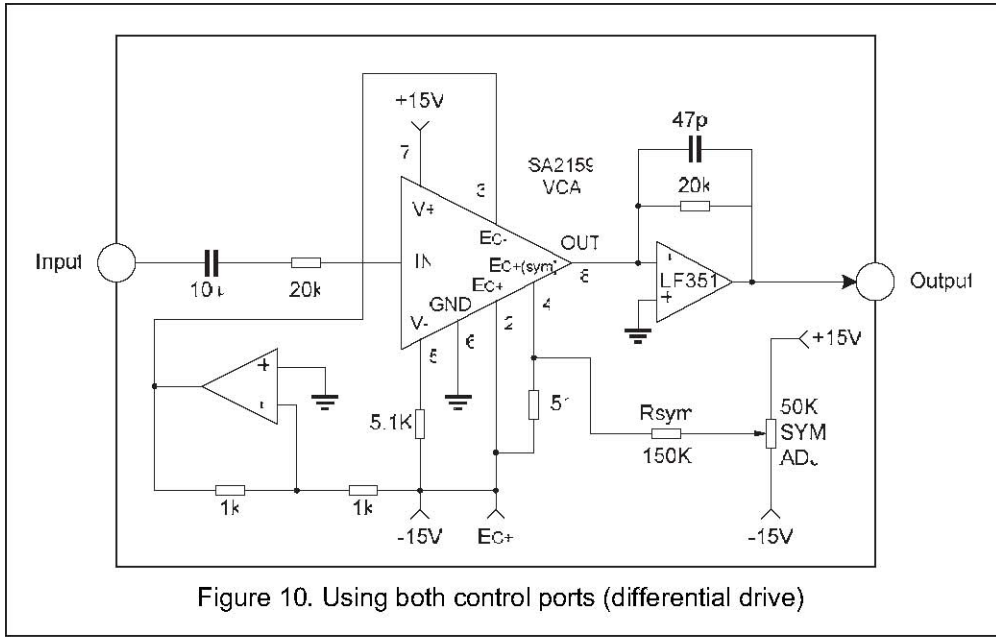
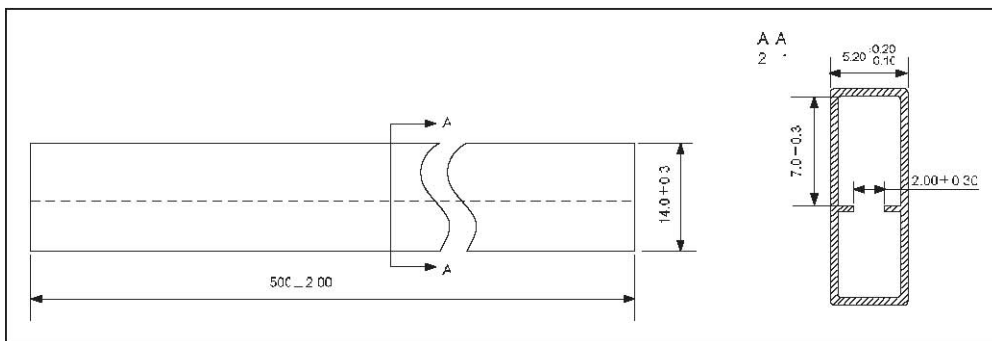


Figure 3. Typical THD versus symmetry voltage





## 6. Stick Packaging



## 7、Soldering

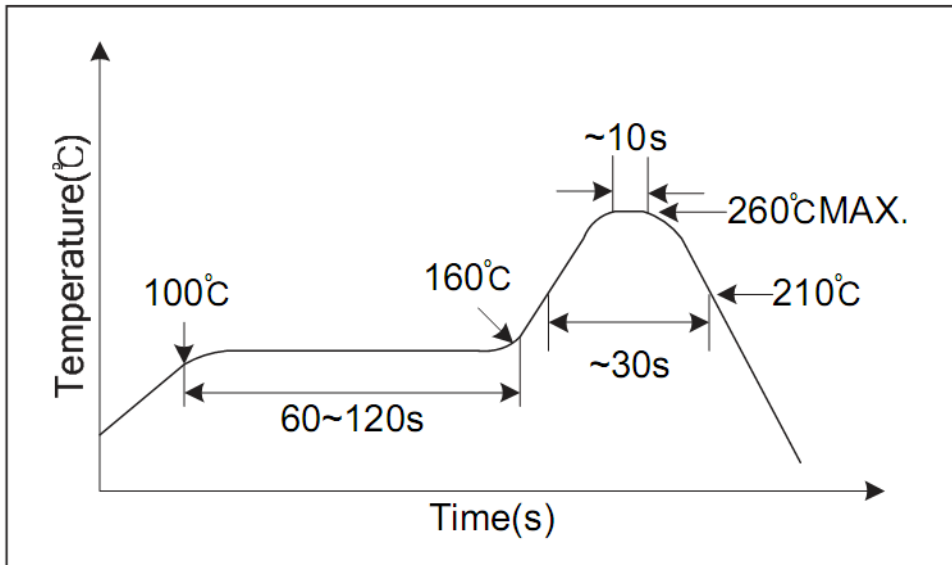
MAX. Temperature (Surface) : Below 260°C

MAX. Temperature Duration :  $\leq 10s$

Above 220° C Duration :  $\leq 30s$

Between 150°C and 180°C : 60-120s

Duration Soldering Times : 2 Times



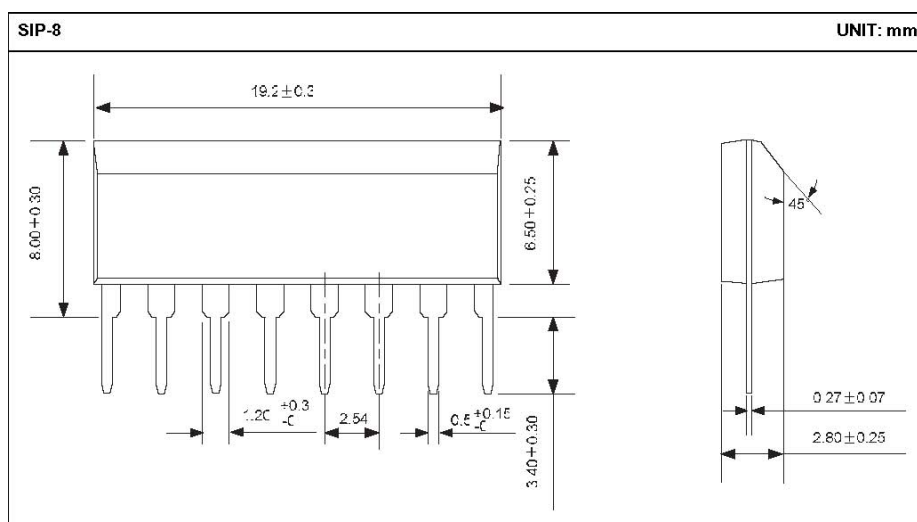
## 8、Package Dimensions

MAX. Temperature (Surface) : Below 260°C

MAX. Temperature Duration : <10s

Pre-heat Temperature : 120°C

Soldering Times : 1 Time



Name of the Part	Material Weight (mg/unit)	Material Name	Material Analysis (element)	Material Analysis (weight%)	Prohibited Content in total (ppm)
Leadframe	122	Cu-Alloy	Cu Fe Zn Pb	>97% 2.1-2.6% 0.05-0.2% <0.03%	<47
Plastic	633	Epoxy Resin	SiO2 Epoxy Sb2O3	70-90% 8-12% 1-3%	
Chip	7	Doped Silicon	Si Al	99.6% 0.4%	
Die attach material	0.5	Glue	Ag Epoxy Resin	82% 18%	
Wires	0.5	Gold	Au	99.99%	
Leads finishing	12.5	Sn Solder Ball	Sn Pb Cd	>99.9% <0.02% <0.0005%	<3 <0.1