







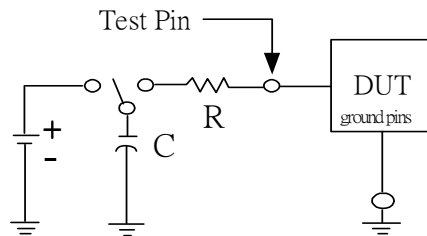




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## 4. ESD Sensitivity

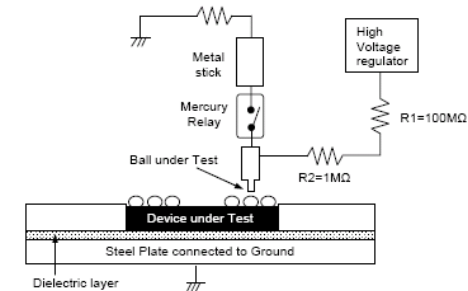
### 4.1 Human Body Model (HBM) Test Circuit



#### \* Human Body Model (HBM)

- Capacitance : 100 pF, Resistance : 1.5 K $\Omega$   
3 pulses per polarity  
1 sec interval between pluses
- Sample size : 3ea
- Stress Voltage : > $\pm$ 2000V

### 4.2 Charge Device Model (CDM) test circuit:



- Direct charging method  
3 pulses per polarity  
1 sec interval between pluses
- Sample size : 3 ea
- Stress Voltage : > $\pm$ 1000V (Corner Balls)  
>  $\pm$ 500V (All other Balls)

4.2 Reference: HBM: MIL-STD-883 Method 3015.8-2012; CDM: ESD S5.3.1-2009

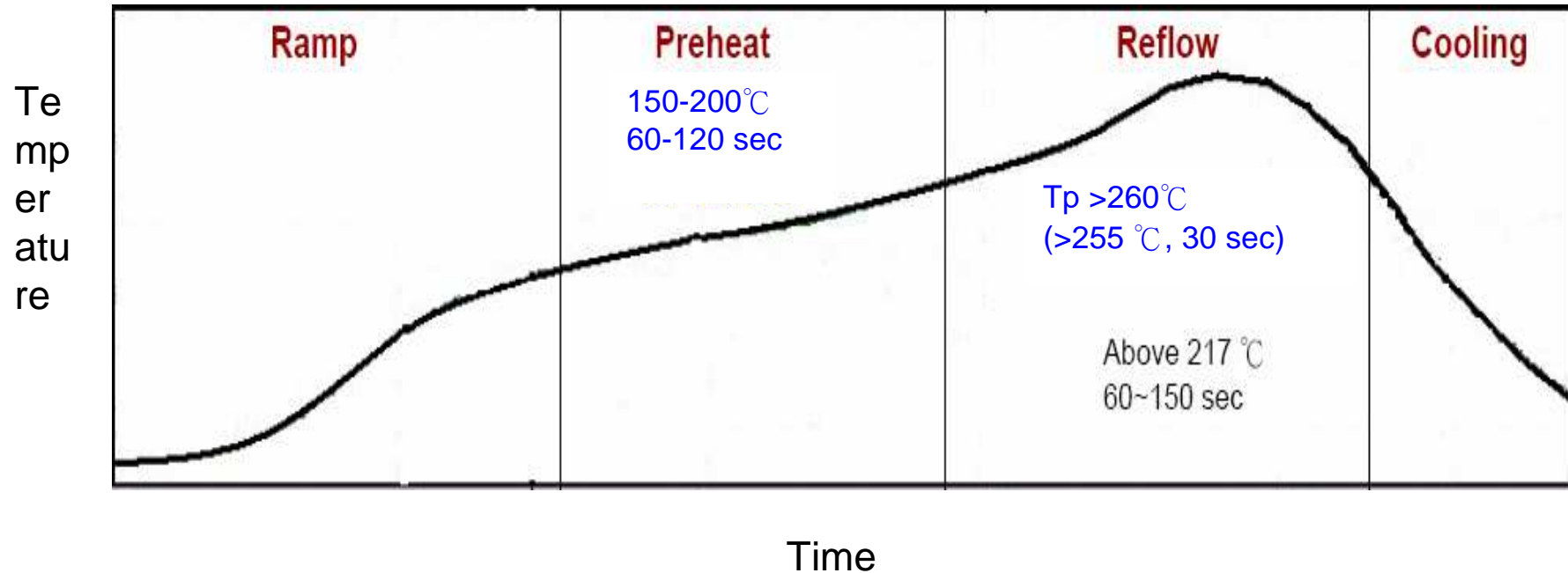
4.3 Test Result : **HBM : > 2000V; CDM : > 1000V (Corner Balls)**  
**> 500V (All other Balls)**

## 5. Latch-up Test

Test Items	Test Conditions	Sample Size	Results (Number of failures)
5.1 I-test (I/O pin current pulse injection)	$>\pm 200\text{mA}$ ; $T_c = 95\text{ }^\circ\text{C}$	6 ea	0/6
5.2 V-supply over voltage test	$>\pm 2.36\text{V}$ ; $T_c = 95\text{ }^\circ\text{C}$	6 ea	0/6

5.2 Reference: Test procedure in according to EIA/JESD 78, test temp. is Class2 and failure criteria is Level A.

## 6. IR-reflow Profile



1. The IR reflow profile follows the IPC/JEDEC J-STD-020D.1.
2. Ramp up rate: 3 °C/sec max., Ramp down rate: 6 °C/sec max..
3. The maximum temperature should be limited to 260 °C.
4. Time above liquidus temperature (217 °C) should be 60~150 sec.
5. The re-flow should not be repeated for more than 3 times.
6. Time 25 °C to peak temperature should be 8 minutes maximum.