

SMT- Reflow Soldering Process Training Part I & II

Period: **2 Days**
Location: **SMT Wertheim**
Start: **09:00 am (first day)**
End: **approx. 03:00 pm (second day)**
Cost: **EUR 480,00 for each attendee incl. accommodation (1 night)**

Training Manager: Part 1: Mr. Hans-Günter Ulzhöfer
Part 2: Mr. Fred Hellmuth, Mr. Jochen Krisch

Agenda Part 1: SMT Reflow Soldering Systems:

- Construction and Technology

Agenda Part 2: Soldering Process:

- Basics of the soldering process,
- Parameter of the soldering process,
- Preparations for Measurements,
- Application and Measurements
- Analysis of the Measurements/Process.

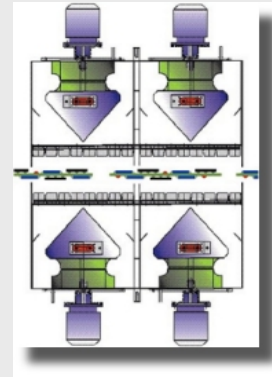
The course documentation will be provided for each attendee.
Each attendee will receive a training certificate.

Reflow Soldering Seminar Part 1

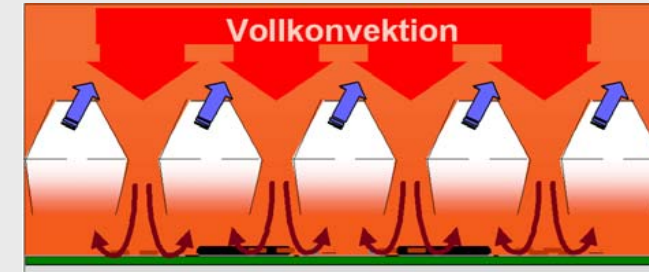
Construction and Technology of Reflow Soldering Systems

Eulektische Legierungen	Schmelzpunkt	Arbeits-temperatur am Pad	Bisheriger Ofen Umgebungs-temperatur im Prozeßraum	SMT Quattro Peak® Umgebungs-temperatur im Prozeßraum
62 Sn / 36 Pb / 2 Ag	179 °C	195 °C / 10 sek.	min. 250 °C	220 °C
63 Sn / 37 Pb	183 °C	195 °C / 200 °C / 10 sek.	min. 255 °C	225 °C
96,5 Sn / 3,5 Ag bleifrei	221 °C	235 °C / 10 sek.	290 °C (bzw. nicht mehr ohne Schädigung an Leiterplatte und Bauteil löfbar)	260 °C

Solder pastes



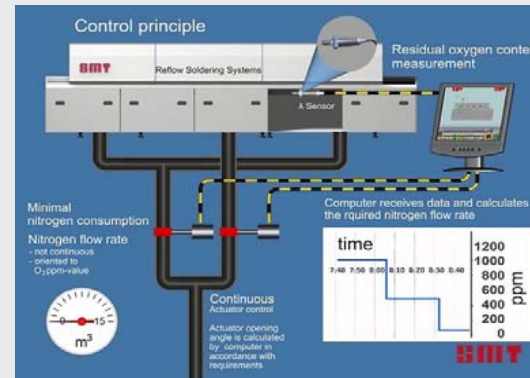
Heat transfer



Air flow systems



Conveyor systems



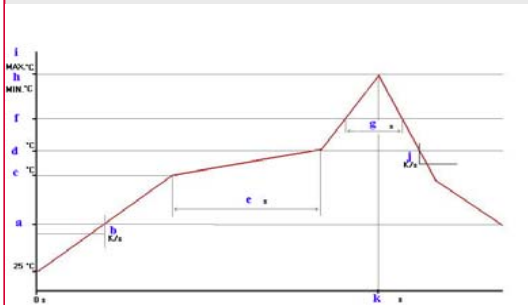
Nitrogen



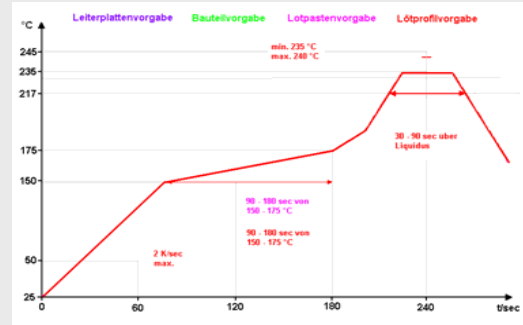
Reflow Soldering Systems – Curing Systems
 Vacuum Soldering Systems – Drying Systems
 Custom Design Systems – Solar Systems

Reflow Soldering Seminar Part 2

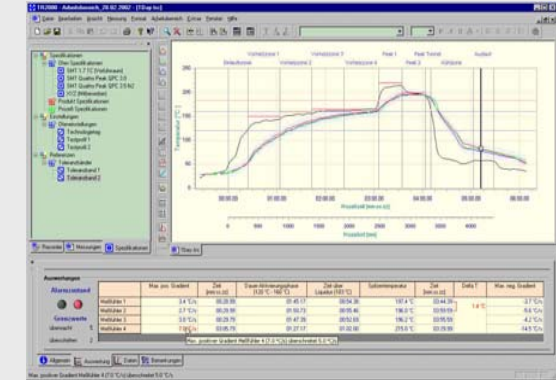
Soldering Process



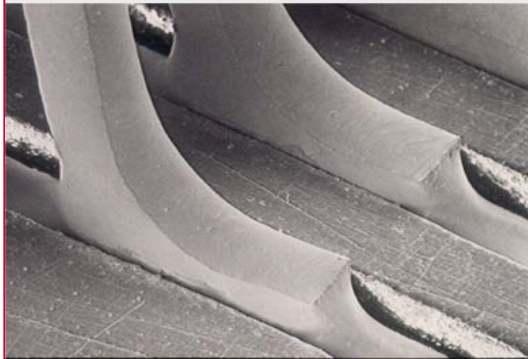
Operation



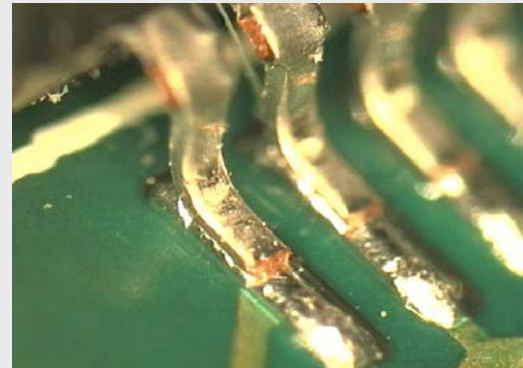
Profile parameter



Profile measurement



Nitrogen



Solder faults + causes

	T1	T2	T3	
Process in Preheatzone				
Maxtemp/deg	200.33	197.07	186.07	
Std.-deviat./s	0.83	0.56	0.50	
Q1 + 3s	202.25	199.56	197.56	
Q1 - 3s	199.44	196.57	184.47	
OTG default	206.33	203.07	191.07	
DTG default	196.33	193.07	181.07	
Cmk	2.83	3.8	3.8	able
Cmk default	2.33	1.87	2.33	
Process in Peakzone				
Maxtemp/deg	238.07	235.03	225.53	
Std.-deviat./s	0.79	0.74	0.72	
Q1 + 3s	241.02	237.81	226.89	
Q1 - 3s	236.11	233.88	221.39	
OTG default	243.07	240.00	228.53	
DTG default	236.33	233.07	221.07	
Cmk	2.33	2.77	2.33	able
Cmk default	1.87	1.87	1.87	
Process in Coolingzone				
Maxtemp/deg	178.47	177.03	200.27	
Std.-deviat./s	1.56	0.54	0.88	
Q1 + 3s	181.83	174.02	202.90	
Q1 - 3s	176.30	169.38	197.63	
OTG default	183.47	176.30	206.27	
DTG default	172.47	169.30	196.27	
Cmk	1.58	1.77	1.88	able
Cmk default	1.37	1.37	1.37	

Machine capability



Reflow Soldering Systems – Curing Systems
 Vacuum Soldering Systems – Drying Systems
 Custom Design Systems – Solar Systems