

# VT-901 PROCESS GUIDE

UL Approval: E214381    Version: Rev. B5

VT-901 CCL/Laminate VT-901 PP / Prepreg (Polyimide)

## Precautions in Handling

## Storage Condition & Shelf Life

		Prepreg		Laminate
Storage Condition	Temperature	Below 23°C (73°F)	Below 5°C (41°F)	Room
	Relative Humidity	Below 55%	/	/
Shelf Time		3 Months	6 Months	24 Months

- The prepreg exceeding shelf life should be retested.
- Take care in handling thin core laminates as they are easily damaged.
- If the prepreg is not consumed within 48hrs after opening the vacuum package, it is recommended that the bags be resealed.
- Material is available in both long and short grain. The grain direction is indicated on the label with an arrow.

## Designing & Inner layer Process

- Please be careful when single ply of 1080, 1086, 1078 or 106 prepreg is designed to the dielectric layer.
- Dimension stability is the same with Standard FR4 material.
- Please check with your oxide vendor to make sure that our material is suitable with your oxide process. We recommend to control the peel strength with brown oxide copper over 2 Lb/in.
- For unclad or single sided laminates to be used in multilayer, please brush unclad sides before use.

### CORPORATE HEADQUARTERS

Ventec Electronics Co. Ltd.  
308 TaiShan Rd,  
New District Suzhou,  
Jiangsu, P.R. China 215129  
T: +86 512-68091810  
Email: sales@ventec.com.cn

### EMEA REGIONAL HEADQUARTERS

Ventec Europe  
Unit 1 Trojan Business Centre,  
Tachbrook Park Estate,  
Leamington-Spa, CV34 6RH, UK  
T: +44 1926-889822  
Email: sales@ventec-europe.com

### AMERICAS REGIONAL HEADQUARTERS

Ventec USA  
21 Water Street, Amesbury,  
Massachusetts, MA 01913,  
United States of America  
T: +1 978-5219700  
Email: saleseast@ventec-usa.com

# VT-901

## PROCESS GUIDE

### Prepreg Availability

E-Glass styles : 7628, 1506, 1500, 2113, 2313, 3313, 2116, 1080, 1086, 1078, 106, 1067 etc.

Type	Resin Content	Press Thickness (mil)	DK				DF				Remark
			@ 1GHz	@ 2GHz	@ 5GHz	@ 10GHz	@ 1GHz	@ 2GHz	@ 5GHz	@ 10GHz	
7628	40%	7.30	4.05	4.00	3.93	3.88	0.012	0.012	0.013	0.014	Standard
	44%	8.00	3.95	3.90	3.85	3.80	0.013	0.013	0.014	0.015	Standard
1506	46%	6.80	3.95	3.90	3.85	3.80	0.014	0.014	0.015	0.016	Standard
2116	50%	4.70	3.85	3.80	3.75	3.70	0.015	0.015	0.016	0.017	Standard
	53%	5.10	3.80	3.78	3.72	3.67	0.015	0.015	0.016	0.017	Standard
2113	57%	4.30	3.78	3.75	3.70	3.65	0.015	0.015	0.016	0.017	Standard
1080	60%	2.80	3.75	3.70	3.65	3.60	0.015	0.015	0.016	0.017	Standard
	63%	3.10	3.72	3.68	3.63	3.58	0.015	0.016	0.017	0.018	Standard
106	70%	2.00	3.68	3.65	3.60	3.55	0.016	0.016	0.017	0.018	Standard

Remark:

- ① Press thickness test condition---Prepreg lamination size 18"\*24", Copper Foil---1oz/1oz, Flow---about 5%;
- ② Make laminated prepreg to micro-section and measure the thickness with microscope; this thickness is used for resistance design calculation
- ③ The thickness measured with micrometer is 0.2-0.4 mil larger than that measured with micro-section; and mainly used for total thickness design calculation.

**CORPORATE HEADQUARTERS**

Ventec Electronics Co. Ltd.  
308 TaiShan Rd,  
New District Suzhou,  
Jiangsu, P.R. China 215129  
T: +86 512-68091810  
Email: sales@ventec.com.cn

**EMEA REGIONAL HEADQUARTERS**

Ventec Europe  
Unit 1 Trojan Business Centre,  
Tachbrook Park Estate,  
Leamington-Spa, CV34 6RH, UK  
T: +44 1926-889822  
Email: sales@ventec-europe.com

**AMERICAS REGIONAL HEADQUARTERS**

Ventec USA  
21 Water Street, Amesbury,  
Massachusetts, MA 01913,  
United States of America  
T: +1 978-5219700  
Email: saleseast@ventec-usa.com

# VT-901

## PROCESS GUIDE

### Laminates Availability

- Thickness: 0.002" (0.05mm) to 0.200" (5mm), available in sheet or panel form
- Copper Foil: 1/4 to 12oz, HTE or RTF or DST
- Dk values are for impedance design.

Core thk. (inches)	Stack-up	Resin Content	DK				DF				Remark
			@ 1GHz	@ 2GHz	@ 5GHz	@ 10GHz	@ 1GHz	@ 2GHz	@ 5GHz	@ 10GHz	
0.002	1-106	70%	3.68	3.65	3.60	3.55	0.016	0.016	0.017	0.018	Standard
0.003	1-1080	63%	3.72	3.68	3.63	3.58	0.015	0.015	0.016	0.017	Standard
0.004	1-2116	44%	3.90	3.85	3.80	3.75	0.014	0.014	0.015	0.016	Standard
0.004	2-1078	45%	3.90	3.85	3.80	3.75	0.014	0.014	0.015	0.016	2ply Construction
0.005	1-2116	53%	3.80	3.78	3.72	3.67	0.015	0.015	0.016	0.017	Standard
0.005	2-1078	53%	3.80	3.78	3.72	3.67	0.015	0.015	0.016	0.017	2ply Construction
0.006	1-1506	42%	4.00	3.95	3.90	3.85	0.013	0.013	0.014	0.015	Standard
0.007	1-7628	40%	4.05	4.00	3.93	3.88	0.012	0.012	0.013	0.014	Standard
0.008	1-7628	44%	3.95	3.90	3.85	3.80	0.013	0.013	0.014	0.015	Standard
0.008	2-2116	44%	3.90	3.85	3.80	3.75	0.014	0.014	0.015	0.016	2ply Construction
0.010	2-2116	53%	3.80	3.78	3.72	3.67	0.015	0.015	0.016	0.017	Standard
0.012	2-1506	42%	4.00	3.95	3.90	3.85	0.013	0.013	0.014	0.015	Standard
0.014	2-7628	40%	4.05	4.00	3.93	3.88	0.012	0.012	0.013	0.014	Standard
0.016	2-7628	44%	3.95	3.90	3.85	3.80	0.013	0.013	0.014	0.015	Standard
0.028	4-7628	40%	4.05	4.00	3.93	3.88	0.012	0.012	0.013	0.014	Standard
0.036	5-7628	40%	4.05	4.00	3.93	3.88	0.012	0.012	0.013	0.014	Standard
0.045	6-7628	41%	4.05	4.00	3.90	3.85	0.012	0.012	0.013	0.014	Standard
0.049	7-7628	40%	4.05	4.00	3.93	3.88	0.012	0.012	0.013	0.014	Standard
0.059	8-7628	42%	4.02	3.98	3.90	3.85	0.013	0.013	0.014	0.015	Standard

**CORPORATE HEADQUARTERS**

Ventec Electronics Co. Ltd.  
308 TaiShan Rd,  
New District Suzhou,  
Jiangsu, P.R. China 215129  
T: +86 512-68091810  
Email: sales@ventec.com.cn

**EMEA REGIONAL HEADQUARTERS**

Ventec Europe  
Unit 1 Trojan Business Centre,  
Tachbrook Park Estate,  
Leamington-Spa, CV34 6RH, UK  
T: +44 1926-889822  
Email: sales@ventec-europe.com

**AMERICAS REGIONAL HEADQUARTERS**

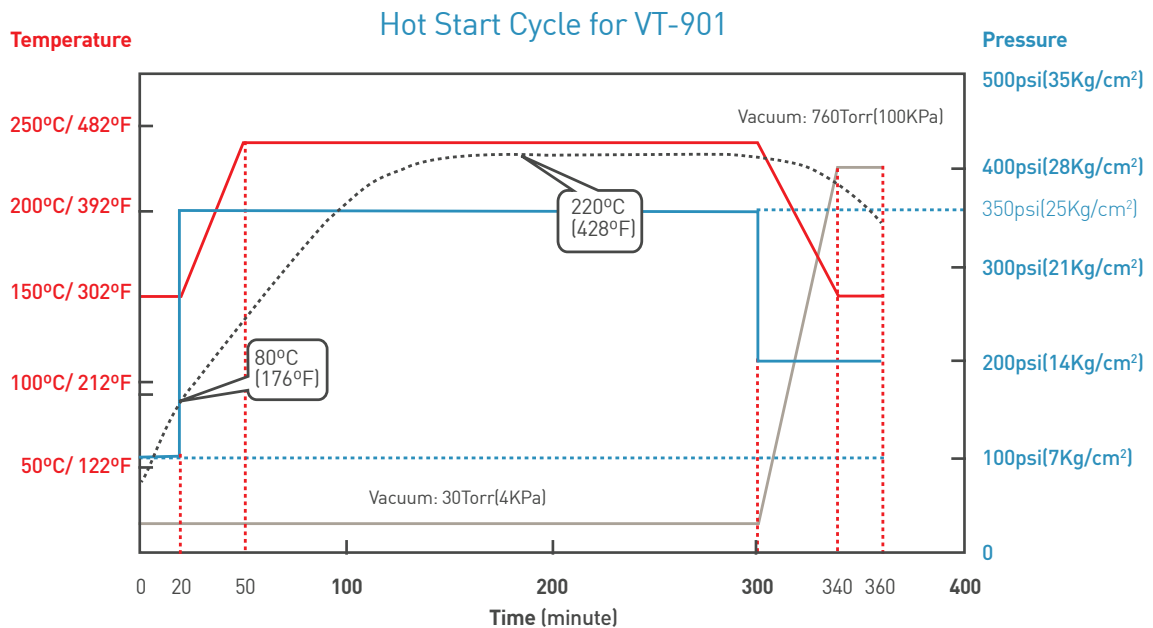
Ventec USA  
21 Water Street, Amesbury,  
Massachusetts, MA 01913,  
United States of America  
T: +1 978-5219700  
Email: saleseast@ventec-usa.com

# VT-901

## PROCESS GUIDE

### Press Condition

1. Heating rate (Rise of Rate) of material:  
Programmable Press: 1.5-3.0°C/min (3~5°F/min). Manual Press: 3~6°C /min (5~10°F/min)
2. Curing Temperature & Time:
  - 1) 120~150min at more than 218°C (424°F) [Material Temperature] depending on total thickness.  
Boards thicker than 3 mm may need longer curing time.
  - 2) For sequential lamination use 120 minutes for the first lamination and 150 minutes for the final.  
After pressing, T<sub>g</sub> should be performed for further verification.
3. Full Pressure: ≥320psi
4. Vacuuming should be continued until over 200°C (392°F) [Material Temperature]
5. Cold Press condition: Keep Plate @ Room Temperature by water; Pressure:100psi; Keep Time: 60minutes



**CORPORATE HEADQUARTERS**

Ventec Electronics Co. Ltd.  
308 TaiShan Rd,  
New District Suzhou,  
Jiangsu, P.R. China 215129  
T: +86 512-68091810  
Email: sales@ventec.com.cn

**EMEA REGIONAL HEADQUARTERS**

Ventec Europe  
Unit 1 Trojan Business Centre,  
Tachbrook Park Estate,  
Leamington-Spa, CV34 6RH, UK  
T: +44 1926-889822  
Email: sales@ventec-europe.com

**AMERICAS REGIONAL HEADQUARTERS**

Ventec USA  
21 Water Street, Amesbury,  
Massachusetts, MA 01913,  
United States of America  
T: +1 978-5219700  
Email: saleseast@ventec-usa.com

# VT-901

## PROCESS GUIDE

### Typical Drilling Parameters ( $\phi$ 0.3-1.0 mm)

1. Spindle Speed	120-180	KRPM
2. Feed Rate	100-200	inch / min
3. Retract Rate	550-1000	inch / min
4. Chip Load	0.6~1.8	mil / Rev.
5. Entry board	0.15mm Al	-

### Desmear Process

1. Adjustments to the desmear process are necessary for the polyimide materials;
2. Check with your chemical supplier for recommendations.

#### CORPORATE HEADQUARTERS

Ventec Electronics Co. Ltd.  
308 TaiShan Rd,  
New District Suzhou,  
Jiangsu, P.R. China 215129  
T: +86 512-68091810  
Email: sales@ventec.com.cn

#### EMEA REGIONAL HEADQUARTERS

Ventec Europe  
Unit 1 Trojan Business Centre,  
Tachbrook Park Estate,  
Leamington-Spa, CV34 6RH, UK  
T: +44 1926-889822  
Email: sales@ventec-europe.com

#### AMERICAS REGIONAL HEADQUARTERS

Ventec USA  
21 Water Street, Amesbury,  
Massachusetts, MA 01913,  
United States of America  
T: +1 978-5219700  
Email: saleseast@ventec-usa.com