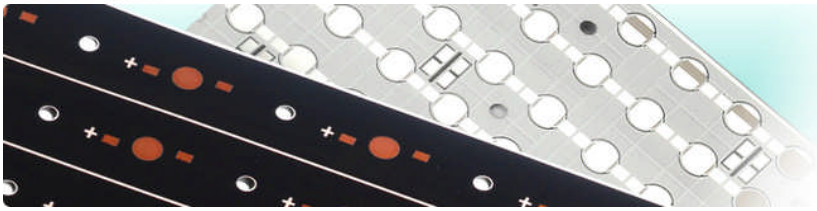

ITEQ CORPORATION.

Product

- Rigid CCL&PP (RoHS)
  - Normal Tg
  - Normal Tg (Lead Free)
  - Middle Tg (Lead Free)
  - High Tg (Lead Free)
  - Halogen Free (Lead Free)
  - High CTI
  - Special Copper Laminate Material
- No Flow PP (RoHS)
  - High Tg
  - Halogen Free
- IMS
  - IMS
- Optronic Films
  - Optronic Films
- FCCL
  - FCCL
  - Coverlay
  - Bonding Sheet
  - Stifener
- Process Guideline

Process

- Rigid CCL&PP
- IMS
- FCCL
- Optronic Films

Products

Financial

Product

Home > Products > Product > IMS > IMS > IT-859GTA

| IT-859GTA | IT-889GT |

IT-859GTA

Features

Features

- High Thermal conductivity >2W and Al based-material
- Halogen and Antimony- free
- Tg ≥100℃ (DSC)
- Excellent thermal resistance and reliability
- Good moisture resistant
- High thermal decomposition temperature (Td)
- Lead-free process compatible.

Properties

IT-859GTA

Features

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Properties

ITEQ Laminate/ Prepreg : IT-859GTABS / IT-859GTA

IPC-4101A Spec / 21 for Reference

LAMINATE (IT-859GTA)

Property	Thickness<0.50 mm [0.0197 in]		Thickness≧0.50 mm [0.0197 in]		Units	Test Method
	Typical Value	Spec	Typical Value	Spec	Metric (English)	IPC-TM-650 (or as noted)
Peel Strength, minimum A. Low profile copper foil and very low profile copper foil - all copper weights > 17µm [0.669 mil]	0.87(5.0)	0.70(4.0)	0.87(5.0)	0.70(4.0)	N/mm (lb/inch)	2.4.8 2.4.8.2 2.4.8.3
B. Standard profile copper foil 1. After Thermal Stress 2. At 125°C [257 F]	1.22(7.0) 1.05(6.0)	0.80 (4.57) 0.70 (4.00)	1.22(7.0) 1.05(6.0)	1.05 (6.00) 0.70 (4.00)		
Volume Resistivity, minimum A. C-96/35/90 B. After moisture resistance C. At elevated temperature E-24/125	10^7 - -	10^6 — 10^3	 10^7 -	--- 10^4 10^3	MΩ-cm	2.5.17.1
Surface Resistivity, minimum A. C-96/35/90 B. After moisture resistance C. At elevated temperature E-24/125	10^5 - -	10^4 — 10^3	- 10^5 -	--- 10^4 10^3	MΩ	2.5.17.1
Moisture Absorption, maximum	-	—	0.10	0.8	%	2.6.2.1
Dielectric Breakdown, minimum	-	—	50	--	kV	2.5.6
Permittivity at 1 MHz, maximum (Laminate & Prepreg as laminated)	5.0	5.4	5.0	5.4	—	2.5.5.
Loss Tangent at 1 MHz, maximum (Laminate & Prepreg as laminated)	0.020	0.035	0.020	0.035	—	2.5.5.
Flexural Strength, minimum					N/mm^2	2.4.4

A. Length direction B. Cross direction	- -	— —	480(70,000) 450(65,400)	415 (60,190) 345 (50,140)	(lb/in^2)	
Arc Resistance, minimum	-	60	100	60	S	2.5.1
Thermal Stress 10 s at 288˚C [550.4F],minimum A. Unetched B. Etched	 Pass Pass	 Pass Visual Pass Visual	 Pass Pass	 Pass Visual Pass Visual	Rating	2.4.13.1
Electric Strength, minimum (Laminate & Prepreg as laminated)	1000	--	-	—	Volts/mil	2.5.6.2
Dielectric Withstand Voltage (Hi-Pot)	4000/2000	2000/1000	--	--	*VDC/VAC*	*2.5.7.2*
Flammability, (Laminate & Prepreg as laminated)	V-0	V-0	V-0	V-0	Rating	UL94
Glass Transition Temperature	105	100 - 150	105	100 - 150	˚C	2.4.25
Decomposition Temperature	-	—	380	-	˚C	2.3.24.6 (5% wt loss)
Z-Axis CTE A. Alpha 1 B. Alpha 2 C. 50 to 260 Degrees C	 - - -	 — — —	 40 250 3.5	 - - -	 PPM/˚C PPM/˚C %	2.4.24
Thermal Resistance A. T260 B. T288	 - -	 — —	 >60 >60	 - --	 Minutes Minutes	2.4.24.1

PREPREG(IT-859GTABS)

	Typical Value	Specification	Units	Test Method
1. Shelf Life, minimum (Condition 1/Condition 2)	Meet requirement	180/90	Days	AABUS
2. Volatile content maximum	1.0	2.0	%	2.3.19

*AABUS = As agreed upon between user and supplier.

Laminate Construction

Nominal Thickness		Tolerance		Construction
mil	mm	mil	mm	
3	0.08	±0.5	±0.013	106
4	0.10	±0.5	±0.013	106
5	0.13	±0.7	±0.018	106

Scope : This specification covers ANSI FR-4 thin laminate for use in manufacture of multilayer printed wiring board

Recommended Process guideline for IT859GTA

IT-859GTABS/IT-859GTA

High-Tg (Tg>100℃), Halogen-free, Lead-free process Compatible

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Process Guideline

1. Prepreg Handling & Storage

(1) Shelf life is at least 3 months when prepregs stored in a cool dry environment (Temperature: <23 ℃ and Humidity: <60%).

(2) Prepreg exposed to humidity should be resealed to minimize moisture of absorption.

(3) Prepreg should be stored in controlled environment for 12 hours prior to use.

(4) Prepreg supplied in rolls or panels should be stored horizontally. To avoid damage, no stacking is recommended.

2. Laminate Handling & Storage

(1) Laminates should be stored in a dry environment

(2) Laminate should always be stored flat

3. Inner Layer Process

(1) First around must be take and find a suitable parameter (as dimension compensation, etc) before mass production.

(2) Inner layers should be baked for at least 40 min at 120 ℃ after black or brown oxides treatment.

Note: The material temperature is not allowed to >190 ℃ in lamination process if brown oxide treatment.

4. Lamination Overview

(1) Stacks must be prepared in lay-up room to avoid moisture absorption.

(2) Stacks with the core and prepreg is recommended to use the vacuum process for 30 minutes before heated. Recommended pressure ranges should be as follows:
Hydraulic/400~500psi Vacuum Hydraulic 400~500psi

(3) For Lien Chieh Machinery, heating rate is 1.5~2.0℃/min from 80℃ to 140℃, and for Burkle Machinery, the heating rate is 1.6~3.0℃/min from 80℃ to 140℃. Cooling rate is below 3℃/min.

(4) When the board temperature reaches 180℃ during the pressing process, hold for at least 60 minutes.

5. Drilling

Drilling parameters are mainly dependent on hole size, layer thickness, layer number, copper thickness and stack height. The following drilling parameters are for reference only. Typical drilling parameters for 0.4~1.0 mm drills are as follows:

From :Aluminum side drill & punch ,routing

Spindle speed: 45~105 KRPM Feed rate: 50~150 IPM

Retract rate: 500~1000 IPM Max. hit count: <1000 HITS

Stack height: ≤2pnls(2~6layers), 1pnl(≥8layers) Entry Material: 0.2mm Aluminum

Back-up Material: 1.5mm Phenolic laminate Drilling Machine: Hitachi ND-6L210E

Baking condition: After Drilling: 120 ℃ /2 hours

6. Desmear

The following desmear parameter is reference only :

Horizontal (JETCHEM)

Swell : 75℃ for 100 s Mn+7 : 55-65 g/ l at 85℃ for 180s

Vertical (ROHMHAAS)

Swell : 65℃ for 365 s Mn+7 : 65-75 g/ l at 75℃ for 750s

Normally, the typical parameters used to desmear FR-4 product may not produce optimum hole topography for **IT-859GTA**, so you should consult with your chemistry supplier to optimize your desmear condition, as desmear two times or adjust other parameter, etc.

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