



# Product Training Module: GT Series

November 2012



# Introduction

- Purpose
  - This training module is used to give an introduction to t-Global Technology's GT product range
- Objectives
  - To identify the key properties of the GT series
  - To identify the key design criteria for product selection
  - To identify common applications for the product
- Content
  - Introduction and background to the GT series
- Learning time
  - 30 mins



# GT - Series

- The GT series is t-Global Technology's range of high performance, thermally conductive insulators designed for demanding applications
- Each member in the family has been developed to address specific industrial needs
- All products in this series are available as standard sheets, custom-die cuts and on rolls

# GT-15

- GT-15 has a thermal conductivity of 1.5 W/.mk
- It has a breakdown voltage of 6 KV DC
- It has a thermal impedance of 0.61 Cin<sup>2</sup>/W (50 PSI)
- It is designed for applications that require high thermal performance and electrical isolation
- GT-15 has a smooth and highly compliant surface to optimize thermal resistance at low mounting pressures



# GT-15 Datasheet

Property	GT15	Unit	Test Method
Colour	Yellow	-	Visual
Reinforcement	Fiberglass	-	-
Thickness	0.23	(mm)	-
Op. Temp. Range	-45 to 180	°C	-
Density	2.35	g/cm <sup>3</sup>	ASTM D792
Thermal Conductivity	1.5	W/mK	ASTM D5470
Hardness	75	Shore A	ASTM D2240
Breakdown Voltage AC	4000	V	ASTM D149
Breakdown Voltage DC	6000	V	ASTM D149
Dielectric Constant	5.8	1000 Hz	ASTM D150
Thermal Impedance		°C in <sup>2</sup> /W	
t=0.23mm 20psi	0.70	psi	ASTM D5470
t=0.23mm 50psi	0.61	psi	ASTM D5470
t=0.23mm 100psi	0.49	psi	ASTM D5470
t=0.23mm 200psi	0.43	psi	ASTM D5470
t=0.23mm 400psi	0.40	psi	ASTM D5470
TML	< 0.2 %	%	ASTM E595
Tensile Strength	200	psi	ASTM D412
Elongation	60	%	ASTM D412
UL Flammability	V-0	-	UL 94

# GT-20

- GT-20 has a thermal conductivity of 2 W/mk
- It has a breakdown voltage of 6 KV DC
- It has a thermal impedance of 0.43  $\text{Cin}^2/\text{W}$  (50 PSI)
- It is designed for applications that require high thermal performance and electrical isolation
- GT-20 has a smooth and highly compliant surface to optimize thermal resistance at low mounting pressures
- Typical applications include:
  - Motor drive controls
  - Control units
  - Power transistors



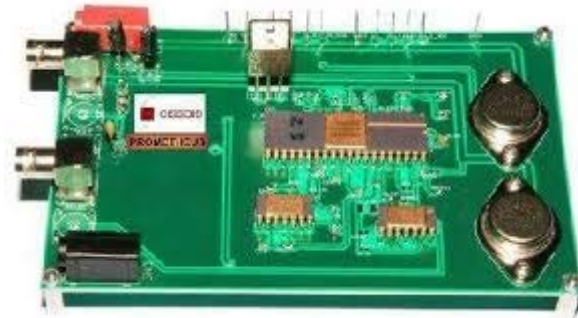


# GT-20 Datasheet

Property	GT20	Unit	Test Method
Colour	Green	-	Visual
Reinforcement	Fiberglass	-	-
Thickness	0.23	(mm)	-
Op. Temp. Range	-45 to 180	°C	-
Density	2.52	g/cm <sup>3</sup>	ASTM D792
Thermal Conductivity	2	W/mK	ASTM D5470
Hardness	80	Shore A	ASTM D2240
Breakdown Voltage AC	4000	V	ASTM D149
Breakdown Voltage DC	6000	V	ASTM D149
Dielectric Constant	5.7	1000 Hz	ASTM D150
Thermal Impedance		°C in <sup>2</sup> /W	
t=0.23mm 20psi	0.60	psi	ASTM D5470
t=0.23mm 50psi	0.43	psi	ASTM D5470
t=0.23mm 100psi	0.35	psi	ASTM D5470
t=0.23mm 200psi	0.32	psi	ASTM D5470
t=0.23mm 400psi	0.30	psi	ASTM D5470
TML	< 0.2 %	%	ASTM E595
Tensile Strength	200	psi	ASTM D412
Elongation	60	%	ASTM D412
UL Flammability	V-0	-	UL 94

# GT-30

- GT-30 has a thermal conductivity of 3 W/mk
- It has a breakdown voltage of 5 KV DC
- It has a thermal impedance of 0.28  $\text{Cin}^2/\text{W}$  (50 PSI)
- It is designed for applications that require high thermal performance and electrical isolation
- GT-30 has a smooth and highly compliant surface to optimize thermal resistance at low mounting pressures
- Typical applications include:
  - Motor drive controls
  - Control units
  - Power transistors





# GT-30 Datasheet

Property	GT30	Unit	Test Method
Colour	Pink	-	Visual
Reinforcement	Fiberglass	-	-
Thickness	0.23	(mm)	-
Op. Temp. Range	-45 to 180	°C	-
Density	2.8	g/cm <sup>3</sup>	ASTM D792
Thermal Conductivity	3.0	W/mK	ASTM D5470
Hardness	80	Shore A	ASTM D2240
Breakdown Voltage AC	3000	V	ASTM D149
Breakdown Voltage DC	5000	V	ASTM D149
Dielectric Constant	6.0	1000 Hz	ASTM D150
Thermal Impedance		°C in <sup>2</sup> /W	
t=0.23mm 20psi	0.38	psi	ASTM D5470
t=0.23mm 50psi	0.28	psi	ASTM D5470
t=0.23mm 100psi	0.25	psi	ASTM D5470
t=0.23mm 200psi	0.32	psi	ASTM D5470
t=0.23mm 400psi	0.30	psi	ASTM D5470
TML	± 0.2 %	%	ASTM E595
Tensile Strength	100	psi	ASTM D412
Elongation	30	%	ASTM D412
UL Flammability	V-0	-	UL 94



# Summary

- The GT series from t-Global is a range of high performance, thermally conductive insulators designed for demanding applications
- Thermal conductivity of the series ranges from 1.5 – 3 W/mk
- Thermal impedance varies from 0.61 - 0.28  $\text{Cin}^2/\text{W}$  (50 PSI)
- All products are available in sheet form, standard or custom die cuts and roll form.