

禾勝國際科技有限公司
***Inno-Material International
Technology Co., LTD.***

Product Specification

Product Name: ThermoRay Heat Dissipation Foil

Part Number: MTC-BM series

Eng.	Chk.	Appd.	QE
Issued Date	Oct./14/2014	Article Ver.	1.4

產品簡介

ThermoRay 奈米輻射散熱片產品，係利用高熱傳導性的金屬，如銅、鋁，並對此金屬基材表面進行特殊處理，再結合高輻射特性的奈米材料，置備出上述特殊的介質結構，同時具備(均/散)熱性能佳、輕薄之複合基材散熱片。在現今電子產品材料不斷追求微小化與輕薄化的趨勢下，能提供電子產品消散廢熱並提高其穩定性與可靠度。

MTC 系列產品乃以銅箔材料為主，經表面處理與奈米輻射散熱材料塗佈後，置備出可取代現今電子系統常使用石墨片或金屬箔片。本系列產品並可搭配專屬設計的高導熱超薄散熱背膠，使產品具有絕佳的效能與輕薄的方便性。

基本特性

- Good shape reliability, Rework and Processability
- Easy handling and operation
- Eco-friendly on RoHS compliant
- Temperature operating $>100^{\circ}\text{C}$
- Customized Applications for shape, dimension

產品性能 (Functional Characteristics)

A. ThermalRay Heat Dissipation Foil

ITEM	VALUE	UNIT	Method
A. Basic Remark			
1. Density	8.0	g/cm ³	
2. Thermal conductivity	>600	w/m-k	
3. Emissivity	>0.90		
4. Total Thickness	0.045/0.065/0.105	mm	Typical
B. NanoRay Coating Specifications			
1. Color	Black		Visual
2. Adhesion	Cross cut 100/100	%	ASTM D3359
3. Impact Test	Collision free		DuPont 500gx50cm
4. Salt water spray (Surface)	>500	hrs	ASTM B117
5. Hardness	3	H	ASTM D3363
6. Coating Thickness	20±5	µm	ASTM D1186
7. Surface Conductivity	10 ⁵	Ω	ANSI STM 11.11
8. Anti-Alcohol	Wipe 20 times		No fading
9. Composition	20-80/10-50/10-20	%(w/w)	Resin/filler/additive
C. Conductive Adhesive Tape Specification			
1. Carrier	Acryl film or Paper		
2. Adhesive	Acryl		
3. Color	Yellow-Transparent		Typical
4. Liner	None		
5. Weather Resistant	Yes		
6. Aging Resistant	Yes		
7. Thickness Total	0.01/0.03	mm	
8. Adhesion on Stainless Steel	10	N/in	
9. Service Temperature	-20~120	°C	

SGS Test Report

Test Requested	Value
RoHS (2002/95/EC)	Up to standard

Reliability Test Items on NanoCoating layer

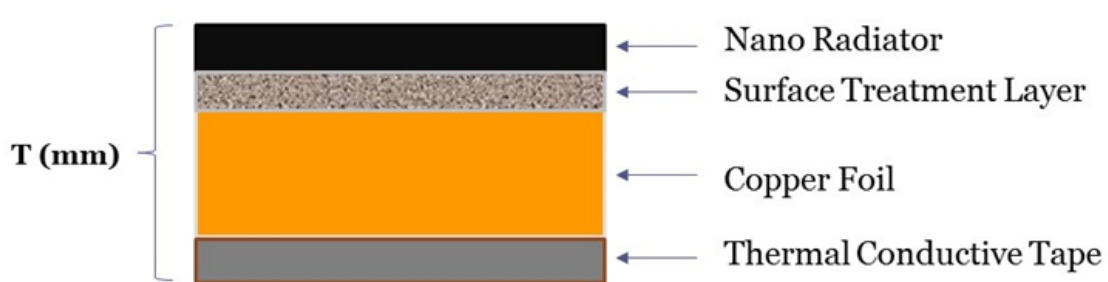
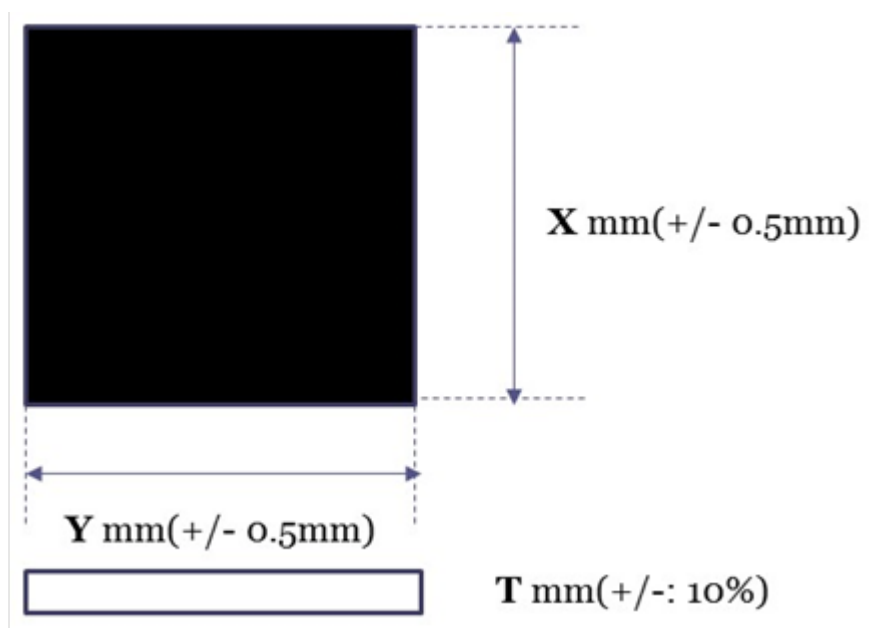
No.	Test Items	Test standard	Test method	Inspection standard	Conclusion
1	Salt Water Spray Test	GB/T10125-1977	In 35 for 5%NaCl spray 1000 hours test	No foaming, no peeling, no rust	pass
2	Acid resistance	JIS-K-56006.1	Use the 5%H ₂ SO ₄ solution at room temperature for 300 hours	No foaming, no peeling, no rust	pass
3	Alkali resistance	JIS-K-56006.1	Use the 5%H ₂ SO ₄ solution at room temperature for 24 hours	No foaming, no peeling, no rust	Pass
4	Boiling resistance	JIS-K-56006.3	Boiling water and cook for 1 hour	No foaming, no peeling, no rust	Pass

Note:

1. Product surface without scratches, dirt, silk, mimeographed phenomenon.
2. Thermal glue stick with copper foil tightly, no bubble and breakage issues.
3. The product surface in 100mmx100mm, only allowed less than 5 convex points or wrinkles appear.

產品規格 (Functional Specifications)

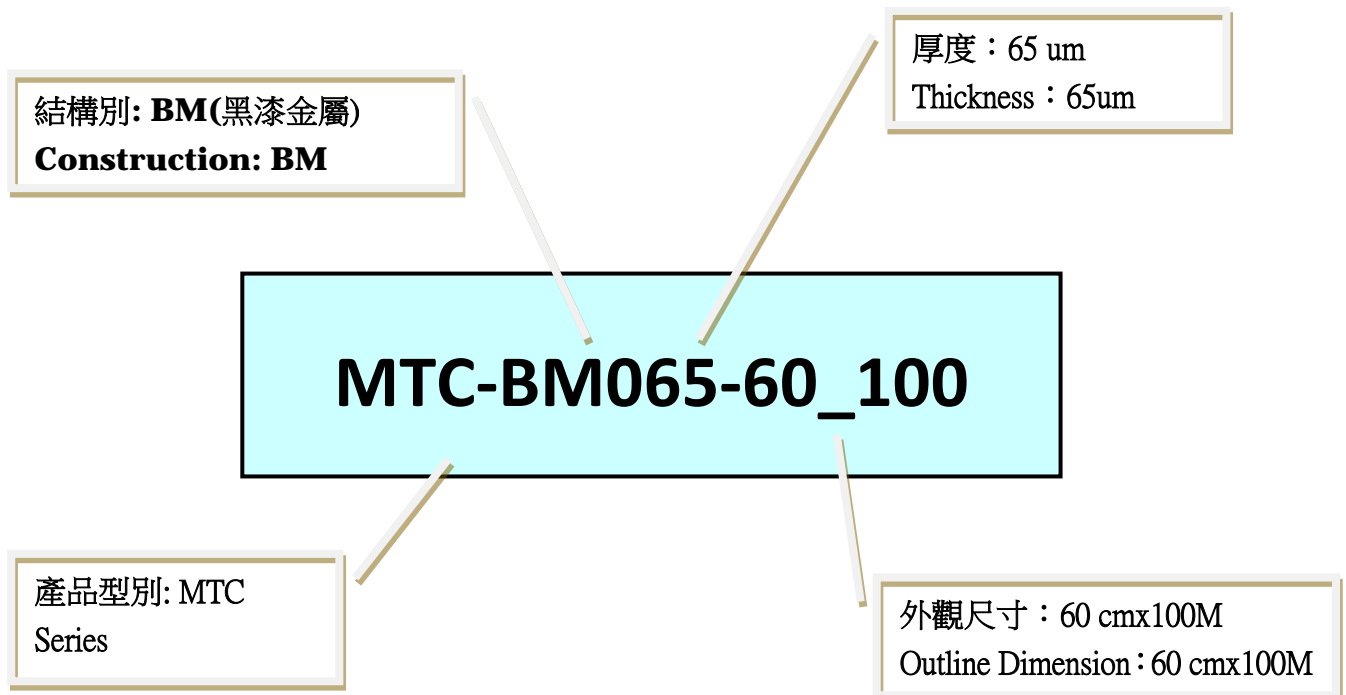
總厚度 T (mm)	0.045±0.005, 0.065±0.01, 0.105±0.01 (含背膠)
尺寸 X(mm)*Y	600*50/100M
包裝(package)	1Roll/box



Naming Rule (命名規則)

Product Series Type (產品型別)	-	Construction (結構)	Numbers of Thickness (厚度條數)	-	Outline dimension (外觀尺寸)
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Example :



Order Code :

Part Number	厚度(mm) Thickness	尺寸(mm) Size (X 寬度)	尺寸(mm) Size (Y 長度)	包裝 Package
MTC-BM045-60_100	0.045±0.01	600mm	100M	Roll
MTC-BM065-60_100	0.065±0.01	600mm	100M	Roll
MTC-BM105-60_50	0.105±0.01	600mm	50M	Roll

出貨品檢表

INSPECTION

Customer:

Date:

2014/10/14

Product	MTC-BM065-60_100	
Lot No.		
Quantity	XXXX PCS	
Order No.		
Material		
Inspection Items	Qualified	Remarks
X:600±5mm	OK	
Y:100M±5cm	OK	
T:0.065±0.01mm	OK	