RF/Microwave

Astra® MT77 Data Sheet

Tg 200, Td 360
Dk 3.00, Df 0.0017
/17

Astra® MT77
Very Low-loss Laminate Material

Astra MT77 laminate materials exhibit exceptional electrical properties which are very stable over a broad frequency and temperature range. Astra MT77 is suitable for many of today's commercial RF/microwave printed circuit designs. It features a dielectric constant (Dk) that is stable between -55°C and +125°C at up to 20 GHz. In addition, Astra MT77 offers a lower dissipation factor (Df) of 0.0017, making it a cost-effective alternative to PTFE and other commercial microwave laminate materials.

Key applications include long antennas and radar applications for automobiles, such as adaptive cruise control, pre-crash, blind spot detection, lane departure warning and stop and go systems.

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Features

- High Thermal Performance
  - Tg: 200°C (DSC)
  - Td: 360°C (TGA @ 5% wt loss)
  - Low CTE in the Z-axis – 2.9% (-55-288°C)
- T260: 60+ minutes
- T288: 60+ minutes
- RoHS Compliant
- Electrical Properties
  - Dk: 3.00 ±0.05
  - Df: 0.0017 ±0.0005
  - Exceptional dielectric properties over a broad frequency and temperature range per IPC-TM-650-2.5.5.5
- Core Material Standard Availability
  - Thickness: 0.005", 0.010", 0.015", 0.020", 0.030" & 0.060" (0.127 mm, 0.254 mm, 0.381 mm, 0.510 mm, 0.760 mm & 1.50 mm)
  - Available in full size sheet or panel form
- Copper Foil Type Availability
  - RTF (Reverse Treat Foil)
  - VLP-2 (2 micron)
- Copper Weights
  - ½ and 1 oz (18 and 35 µm) available
  - Heavier copper available upon request
  - Thinner copper foil available upon request
- Industry Approvals
  - IPC-4101D WAM1 /17
  - UL – File Number E41625
  - UL 94 V-0 130 MOT

ORDERING INFORMATION:

Contact your local sales representative or visit **www.isola-group.com** for further information.

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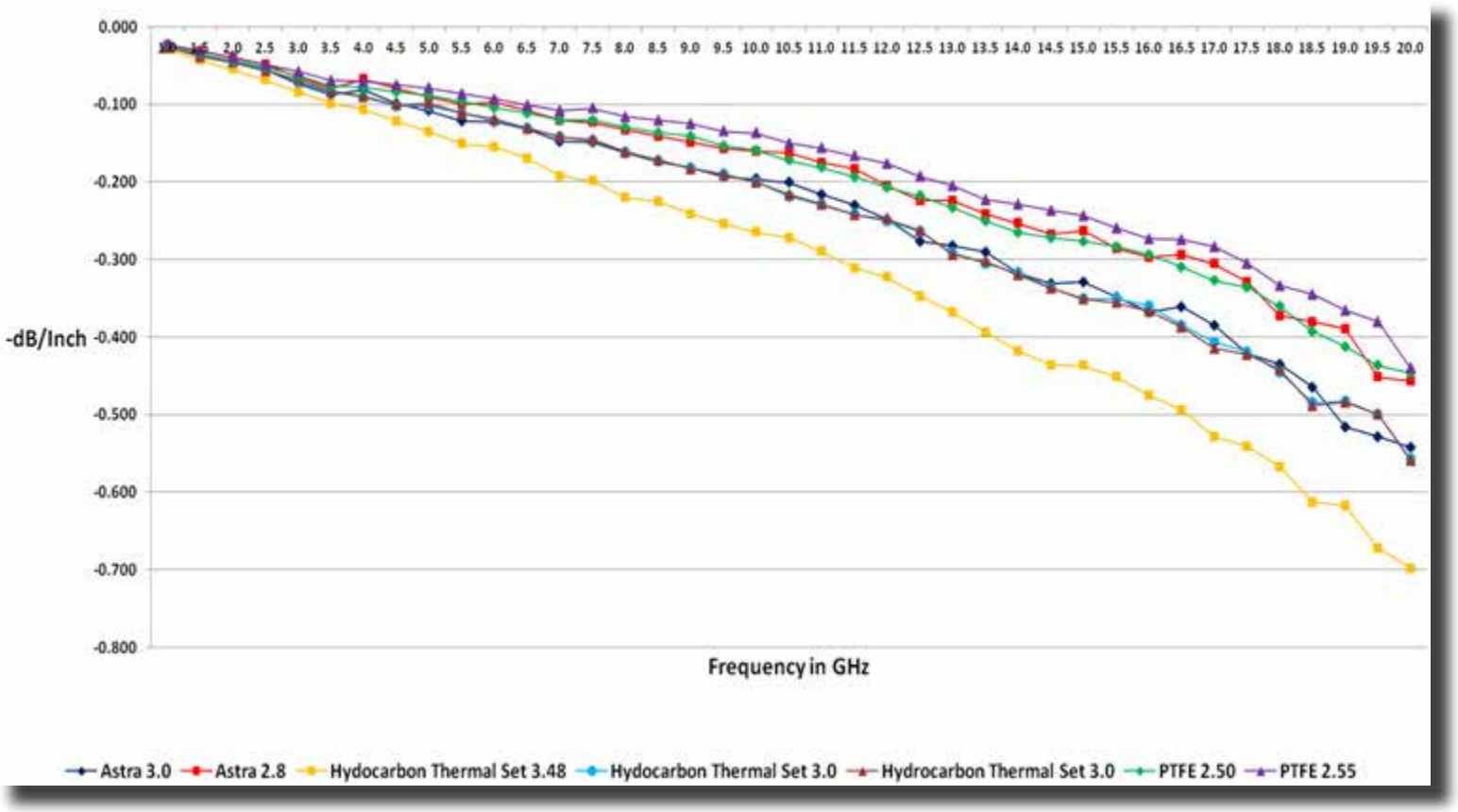
Astra® MT77 Specifications

Property		Typical Values			
				Units	Test Method
		Typical Value	Specification	Metric (English)	IPC-TM-650 (or as noted)
Glass Transition Temperature (Tg) by DSC		200	170-200	ºC	2.4.24
Decomposition Temperature (Td) by TGA @ 5% weight loss		360	–	ºC	ASTM D3850
T260		>60	–	Minutes	–
T288		>60	–	Minutes	–
CTE, Z-axis	A. Pre-Tg B. Post-Tg	44.7 191	AABUS –	ppm/ºC	2.4.41
CTE, X-, Y-axes	A. Pre-Tg B. Post-Tg	12 13	AABUS –	ppm/ºC	2.4.41
Z-axis Expansion (-55 to 260ºC)		2.9	–	%	2.4.41
Thermal Conductivity (-100 to 250ºC)		0.45	–	W/mK	ASTM F433
Thermal Stress 10 sec @ 288ºC (550.4ºF)	A. Unetched B. Etched	Pass	Pass Visual	Rating	2.4.13.1
Dk, Permittivity @ 2 GHz		3.00	±0.05	–	2.5.5.5
Df, Permittivity @ 2 GHz		0.0017	Min ±0.0005	–	2.5.5.5
Volume Resistivity	96/35/90	$1.33x10^{7}$	$1.0x10^{6}$	MΩ-cm	2.5.17.1
Surface Resistivity	96/35/90	$1.33x10^{5}$	$1.0x10^{4}$	MΩ	2.5.17.1
Dielectric Breakdown (0.060)		45.4	–	kV	2.5.6
Arc Resistance		139	60	Seconds	2.5.1
Electric Strength		45 (1133)	30 (750)	kV/mm (V/mil)	2.5.6.2
Comparative Tracking Index (CTI)		2	–	Class (Volts)	UL-746A ASTM D3638
Peel Strength	1 oz. EDC foil	1.0 (5.7)	0.53 (3.0)	N/mm (lb/inch)	2.4.8.3
Tensile Strength	A. Lengthwise direction B. Crosswise direction	31 24	–	ksi	ASTM D3039-095a
Tensile Modulus/Young's Modulus	A. Lengthwise direction B. Crosswise direction	2,784 2,526	–	ksi	ASTM D3039-095a
Flexural Strength	A. Lengthwise direction B. Crosswise direction	49 38	–	ksi	ASTM D790-10
Flexural Modulus/Taylor's Modulus	A. Lengthwise direction B. Crosswise direction	2,701 2,529	–	ksi	ASTM D790-10
Poisson's Ratio	A. Lengthwise direction B. Crosswise direction	0.183 0.182	–	–	ASTM D3039-095a
Moisture Absorption		0.1	–	%	2.6.2.1
Flammability		V-0	V-0	Rating	UL 94
Max Operating Temperature		130	UL Cert	ºC	–

The data, while believed to be accurate and based on analytical methods considered to be reliable, is for information purposes only. Any sales of these products will be governed by the terms and conditions of the agreement under which they are sold.

Astra® MT77 Vs. The Competition



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