



**High K substrates are used for circuit miniaturization.
DLI offers complete fabrication services!**

Part Number Identification

H	20	CG	250	D	Z	N	X
Product H = Plate	Case Size	Material	Thickness	Thickness Tolerance	Surface Finish	Metallization	Test Level

Case Size Definitions

Case Size	Width (Inches)	Length (Inches)
10	1.000	1.000
15	1.000	1.500
20	2.000	2.000
25	2.500	2.500
30	3.000	3.000
40	4.000	4.000

Tolerance: ± 0.050"

Custom sizes are available. Please contact us for more information!

Material Specifications

Material Code	Relative ϵ_r^*	TCC† (ppm/°C)	Loss Tangent* (% Max)	CTE (ppm/°K)	Thermal Conductivity (W/m·°K)
QZ	3.82 (@ 1MHz)	Fused Quartz	0.0015 (@ 1MHz) 0.033 (@ 24 GHz)	0.55	1.28
LA	4.9 ± 0.2	-	0.25	4.6 - 5.1	-
AG	8.85 ± 0.35 (@ 1MHz)	Aluminum Nitride	0.10	4.6	140-180
PI	9.9 ± 0.15 (@ 1MHz)	Alumina 99.6%	0.01	6.5 - 7.5	27
PG	12.5 ± 0.5	P22 ± 30	0.02	7.6	-
AH	20 ± 0.5	P90 ± 20	0.02	9.6	1.56
NA	23 ± 1	N30 ± 15	0.03	10.1	1.56
CF	25 ± 2	0 ± 15	0.15	9.0	1.56
CD	38 ± 1	N20 ± 15	0.04	5.8	1.59
CG	67 ± 3	0 ± 30	0.10	9.0	1.59
NR	152 ± 5	N1500 ± 500	0.06	10.0	2.72

Additional material options are available. Please contact us for more information!

*Unless otherwise specified, dielectric measurement at approximately 5 GHz.

†For the temperature range -55 to 125°C.

Thickness, Surface Finish and Metallization Options

Thickness Code Definition

A three digit number representing the thickness in **xx.x** mils.

Examples: Code 100 = 0.010"
Code 155 = 0.0155"
Code 250 = 0.025"

Thickness Tolerance Codes

Code	Tolerance	Condition
D	+/- .0005	Machined or Polished
E	+/- .001	As-Fired ≤.010" Thick
J	+/- 5%	Minimum Thicknesses: As-Fired - .025" Lapped or Polished - .010"
K	+/- 10%	As-Fired ≥.010" Thick

Please consult with Applications support for thicknesses < .010"

Surface Finish Codes

Code	Roughness R _a	Material Process
X	>50 μ in.	As-Fired
Y	20 μ in.	Machined
Z	<5 μ in.	Polished
S	Customer Defined	Customer Drawing/Spec. Required!

Metallization Codes

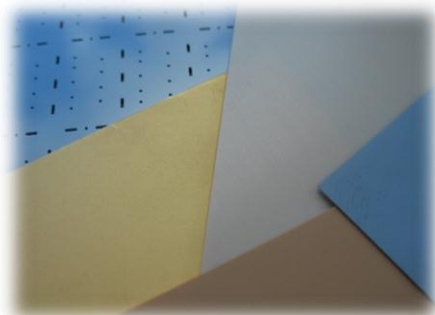
Code	Description
X	No Metallization
M	300 Angstroms TiW, 100 μ in. min. Au
N	300 Angstroms TiW, 50 μ in. min. NiV, 100 μ in. min. Au
P	75 μ in. min. Nickel, 100 μ in. min. Au
L	Top 50 Ohms/sq. TaN, 300 Angstroms TiW, 100 μ in. min Au. Bottom Side 300 Angstroms TiW, 100 μ in. min. Au
T	300 Angstroms min. TiW, 50 μ in. min. NiV, 300 μ in. min. Au-Sn
D	Customer Defined, Customer Drawing/Spec. Required!

Test Level Codes

Test Code	Test / Inspection	Sample Size	Description
X	Visual Mechanical	100%	Verify that the required area is available and continuous. (Broken corners allowable).
K	Visual Mechanical	100%	Verify that the required area is available and continuous. (Broken corners allowable).
	Dielectrometer Measurement	10% of lot	K and Loss Tangent.
D	Customer Defined		Customer Drawing/Spec. Required!

Please Note: For custom devices a DLI outline drawing may be issued. For these cases the part number will end in a five digit drawing number representing the appropriate drawing.

Example: H20PI250DZ01234



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