

Dielectric Materials

Material	Dielectric Constant	Temperature Stable	Loss Tangent	Custom Dielectric Constants	Relative Cost	Stage of Development	Comments
D-4	4	TCE = +55 ppm/deg C	<.0002	No	Low	Catalog	Cordierite. Ultra-Low Thermal Expansion. (2 ppm/deg C)
D-6	6-6.6	TCE = +107 ppm/deg C	<.0002	6-6.6	Low	Catalog	Forsterite
D-930	9-10	$T_F = -45$ ppm/deg C	<.00005	Part of ZTA system. Dielectric Constants form 8-100	Low	New Product	New material in ZnO-TiO ₂ -Al ₂ O ₃ system. Low dielectric loss
SMAT-9	9	+100 ppm/deg C	<.0001	9-14	Low	Catalog	
SMAT-9.5	9.5	+100 ppm/deg C	<.0001	9-14	Low	Catalog	
SMAT-10	10	+100 ppm/deg C	<.0001	9-14	Low	Catalog	
SMAT-11	11	+100 ppm/deg C	<.0001	9-14	Low	Catalog	
D-1200	11-13	Can be tuned to T_F near 0 ppm/deg C	<.00005	11-13	Low	New Product	New material in ZnO-TiO ₂ -Al ₂ O ₃ system. Low dielectric loss and temperature stable
SMAT-12	12	+100 ppm/deg C	<.0001	9-14	Low	Catalog	
SMAT-13	13	+100 ppm/deg C	<.0001	9-14	Low	Catalog	
SMAT-14	14	+100 ppm/deg C	<.0001	9-14	Low	Catalog	
D-15	15	+98 ppm/deg C	<.0002	No	Low	Catalog	MgO-TiO ₂ system
D-16	16	+98 ppm/deg C	<.0002	No	Low	Catalog	MgO-TiO ₂ system
MCT-18	18	-70 ppm/deg C	<.0015	18-140 as standard material. Up to 170 possible	Low	Catalog	MgO-CaO-TiO ₂ system

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MCT-20	20	-130 ppm/deg C	<.0015	18-140 as standard material. Up to 170 possible	Low	Catalog	MgO-CaO-TiO ₂ system
D-2000	20	Can be tuned to T _F near 0 ppm/deg C	<.001	No	Low	Catalog	
D-2150	21.5	Can be tuned to T _F near 0 ppm/deg C	<.001	No	Low	Catalog	
MCT-25	25	-245 ppm/deg C	<.0015	18-140 as standard material. Up to 170 possible	Low	Catalog	MgO-CaO-TiO ₂ system
D-29XX	29-31	Can be tuned to T _F near 0 ppm/deg C	Qf Product > 100000	No	Extremely High	Catalog	Tantalum containing
MCT-30	30	-370 ppm/deg C	<.0015	18-140 as standard material. Up to 170 possible	Low	Catalog	MgO-CaO-TiO ₂ system
D-35XX	33.5-35.5	Can be tuned to T _F near 0 ppm/deg C	Qf Product > 80000	No	High	Catalog	Reduced Cost, reduced Q relative to D-29XX
D-8812/ D-38	36-38	-25 ppm/deg C	<.0005	No	Low	Catalog	
D-8372	36-38	Can be tuned to T _F near 0 ppm/deg C	Qf Product > 35000	No	Medium	Catalog	Modified 8812 to improve loss tangent
MCT-40	40	-580 ppm/deg C	<.0015	18-140 as standard material. Up to 170 possible	Low	Catalog	MgO-CaO-TiO ₂ system
D-43XX	43	Can be tuned to T _F near 0 ppm/deg C	Qf Product > 35000	No	Medium	Catalog	Linear T _F version of D-45XX
D-45XX	45	Can be tuned to T _F near 0 ppm/deg C	Qf Product > 35000	No	Medium	Obsolete	Non-Linear T _F

MCT-50	50	-730 ppm/deg C	<.0015	18-140 as standard material.	Low	Catalog	MgO-CaO-TiO ₂ system
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D-50	50	-250 ppm/deg C	< .0005	No	Low	Catalog	BaO-SrO-TiO ₂
MCT-55	55	-800 ppm/deg C	<.0005	18-140 as standard material. Up to 170 possible	Low	Catalog	MgO-CaO-TiO ₂ system
MCT-70	70	-960 ppm/deg C	< .0005	18-140 as standard material. Up to 170 possible	Low	Catalog	MgO-CaO-TiO ₂ system
D-73XX	73	Can be tuned to T_f near 0 ppm/deg C	Qf product > 10000	Specialty materials can be generated from dielectric constant of 59 -100	Medium	New Product	Best combination of Q and temperature stability for high dielectric constant material
MCT-85	85	-1070 ppm/deg C	<.0005	18-140 as standard material. Up to 170 possible	Low	Catalog	MgO-CaO-TiO ₂ system
D-9000	90	Can be tuned to T_f near 0 ppm/deg C	Qf product > 3000	No	Medium	Catalog	Temperature Stable. Low Q
D-100	100	-575 ppm/deg C	Qf product > 20000	No	Low	Catalog	Highest Q (lowest loss tangent) at a high dielectric constant material
MCT-100	100	-1120 ppm/deg C	<.0005	18-140 as standard material. Up to 170 possible	Low	Catalog	
MCT-115	115	-1160 ppm/deg C	< .0005	18-140 as standard material. Up to 170 possible	Low	Catalog	

D-125	120-125	Can be tuned to T_f near 0 ppm/deg C	Qf product > 2000	No	Medium	New Product	Highest k temperature stable material
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