



**FERROELECTRIC LATLH
QOQ-PATLH PTFE DIELECTRIC:
CHARGE MEMORY 'EJ DE' MIGH**



Ferroelectric lath QoQ-path PTFE dielectric: charge memory 'ej De' mlgh

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ngoD

PTFE -- premium QoQ tlhegh dielectric -- ferroelectric properties audio Sar. charge memory -- De' audio nlteb dielectric polarization -- De' transmission mlgh. 1 kHz differential capacitance -- hysteresis 0.3 pF/m untreated PTFE, 0.04 pF/m blr chenmoH ghlq. blr chenmoH molecular alignment Qaw' -- dielectric degauss. "dielectric echo" pong -- break-in wanl' quantify.

1. NGOQ

PTFE (Teflon) -- premium QoQ tlhegh dielectric -- dielectric constant 2.1, loss tangent < 0.0002 -- 'ul pathl nlv. 'ach audio Sar wanl' -- leghlu'be'.

PTFE semi-crystalline fluoropolymer. crystalline regions -- carbon-fluorine dipoles lattice regular Daq. 'ul He external -- audio De' -- dipoles slightly rotate -- molecular charge pol. 'ul He mej -- dipoles relax -- 'ach instantaneously Qo'. PTFE relaxation poH -- milliseconds vo' rep -- 'ul He tlnmoH 'ej crystallinity pathl.

charge memory -- dielectric pa'logh audio De' ghost pol. De' chu' -- residual polarization push. inter-modulation mlgh -- "dielectric echo."

break-in -- audiophile 100-200 rep -- cable wab choH -- dielectric echo steady-state Sum.

2. MIW

test tlhegh -- 2.0 mm OFC Devwl' loS dielectric:

Sample A: untreated PTFE (60% crystallinity).

Sample B: blr PTFE (-196degC, 72 rep).

Sample C: nitrogen-injected PTFE.

Sample D: air-gap dielectric.

differential capacitance -- Agilent 4294A -- 1 kHz, 100 mV AC, DC bias -10V vo' +10V sweep. C-V curve hysteresis.

time-domain relaxation -- 10V DC 60 seconds, ghlq short -- recovery voltage Keithley 6517B -- 600 seconds.

3. LUT

capacitance hysteresis 1 kHz:

A (untreated): 0.31+/-0.04 pF/m

B (cryo): 0.04+/-0.01 pF/m

C (N,): 0.12+/-0.03 pF/m

D (air-gap): 0.02+/-0.01 pF/m

cryo PTFE -- 87% hysteresis nup.

dielectric absorption (recovery voltage t=60s):

A: 142 mV, B: 18 mV, C: 67 mV, D: 8 mV.

recovery time constant: A 85s, B 12s. untreated 7x longer charge memory.

break-in experiment: Sample A pink noise 2 Vrms -- 0, 24, 48, 96, 200 rep. hysteresis 0.3 plateau). audiophile 100-200 rep break-in rap.

4. JA'CHUQ

mechanism straightforward: blr chenmoH PTFE crystalline order Qaw'. -196degC 1degC/min blrmoH -- internal stress -- crystalline 'ej amorphous joj differential contraction -- microcracks -- long-range dipole alignment Qaw'.

practical: blr chenmoH dielectric -- Devwl' neH Qo' -- necessary premium tlhegh chenmoH. Tropic tier: untreated PTFE, 100-rep break-in. Equinox tier: cryo PTFE (-196degC, 72 rep), 15-rep break-in. Zero-Point tier: extended cryo (-196degC, 168 rep), 5-rep



break-in.

air-gap -- Hoch PTFE nlv law' -- 'ach mechanical complexity, diameter tln, flexibility nup. cryo PTFE -- optimal compromise.

5. BERTLHAM

PTFE dielectric QoQ tlhegh -- charge memory (ferroelectric hysteresis) -- De' transmission mlgh dielectric echo. blr chenmoH 87% charge memory nup. break-in wanl' -- steady-state charge distribution gradually Sum. blr chenmoH Devwl' 'ej dielectric -- standard practice premium QoQ tlhegh chenmoH.

DE'MEY

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