**Claims:**

1. A process for depositing a conducting metal layer, comprising:

a) depositing a dielectric film-forming composition on a substrate to form a dielectric film, the dielectric film-forming composition comprising;

i) at least one cyclized polydiene resin having a substituted or unsubstituted alkenyl group;

ii) at least one reactive functional compound having at least two functional groups capable of reacting with the substituted or unsubstituted alkenyl group on cyclized polydiene resin; and

iii) at least one catalyst capable of inducing reaction of the cyclized polydiene resin with the reactive functional compound;

b) exposing the dielectric film to radiation or heat or a combination of radiation and heat;

c) patterning the dielectric film to form a patterned dielectric film having openings;

d) optionally depositing a seed layer on the patterned dielectric film;

e) depositing a conducting metal layer in at least one opening in the patterned dielectric film; and

f) optionally repeating steps a) to e) at least one time.

2. The process of claim 1, wherein the at least one cyclized polydiene resin comprises a cyclized polyisoprene, a cyclized polybutadiene, a cyclized polypentadiene, or a copolymer thereof.

3. The process of claim 1 or claim 2, wherein the at least one cyclized polydiene resin has a weight average molecular weight (Mw) of from at least 5,000 Daltons to at most 500,000 Daltons.

4. The process of any one of claims 1 to 3, wherein the at least one cyclized polydiene resin is a mixture of:

a) a cyclized polydiene resin with a weight average molecular weight of from 5,000 Daltons to 20,000 Daltons;

b) a cyclized polydiene resin with a weight average molecular weight of

from 25,000 Daltons to 60,000 Daltons; and

c) a cyclized polydiene resin with a weight average molecular weight of from 70,000 Daltons to 200,000 Daltons.

5. The process of any one of claims 1 to 4, wherein the at least one cyclized polydiene resin is in an amount of from 2 wt% to 40 wt% of the composition.

6. The process of any one of claims 1 to 5, wherein the dielectric film-forming composition is capable of forming a dielectric film having a Tg of at least about 120°C.

7. The process of any one of claims 1 to 6, wherein the at least one of the reactive functional compound comprises a compound containing at least two functional groups selected from the groups consisting of a (meth)acrylate group, an olefin group, a cycloolefin group, an alkynyl group, and a combination thereof.

8. The process of any one of claims 1 to 7, wherein the at least one reactive functional compound is in an amount of from 1 wt% to 25 wt% of the composition.

9. The process of any one of claims 1 to 8, wherein the at least one catalyst is in an amount of from 0.2 wt% to 3 wt% of the composition.

10. A process for forming a dielectric film on a substrate, comprising steps of:

a) providing a substrate containing conducting metal wire structures that form a network of lines and interconnects on the substrate;

b) depositing a dielectric film-forming composition on the substrate to form a dielectric film, the dielectric film-forming composition comprising:

i) at least one cyclized polydiene resin having a substituted or unsubstituted alkenyl group;

ii) at least one reactive functional compound having at least two functional groups capable of reacting with the substituted or unsubstituted alkenyl group on cyclized polydiene resin; and

iii) at least one catalyst capable of inducing reaction of the cyclized polydiene resin with the reactive functional compound;

c) exposing the dielectric film to radiation or heat or a combination of radiation and heat; and

d) optionally, repeating steps a) to c) at least one time.

11. The process of claim 10, wherein the at least one cyclized polydiene resin comprises a cyclized polyisoprene, a cyclized polybutadiene, a cyclized polypentadiene, or a copolymer thereof.

12. The process of claim 10 or claim 11, wherein the at least one cyclized polydiene resin has a weight average molecular weight (Mw) of from at least 5,000 Daltons to at most 500,000 Daltons.

13. The process of any one of claims 10 to 12, wherein the at least one cyclized polydiene resin is a mixture of:

a) a cyclized polydiene resin with a weight average molecular weight of from 5,000 Daltons to 20,000 Daltons;

b) a cyclized polydiene resin with a weight average molecular weight of from 25,000 Daltons to 60,000 Daltons; and

c) a cyclized polydiene resin with a weight average molecular weight of from 70,000 Daltons to 200,000 Daltons.

14. The process of any one of claims 10 to 13, wherein the at least one cyclized polydiene resin is in an amount of from 2 wt% to 40 wt% of the composition.

15. The process of any one of claims 10 to 14, wherein the dielectric film-forming composition is capable of forming a dielectric film having a Tg of at least about 120°C.

16. The process of any one of claims 10 to 15, wherein the at least one of the reactive functional compound comprises a compound containing at least two functional groups selected from the groups consisting of a (meth)acrylate group, an olefin group, a cycloolefin group, an alkynyl group, and a combination thereof.

17. The process of any one of claims 10 to 16, wherein the at least one reactive functional compound is in an amount of from 1 wt% to 25 wt% of the composition.

18. The process of any one of claims 10 to 17, wherein the at least one catalyst is in an amount of from 0.2 wt% to 3 wt% of the composition.

19. A three dimensional object formed by the process of any one of claims 10 to 18.

20. The object of claim 19, comprising the dielectric film in at least two stacks.

21. A dielectric film-forming composition, comprising:

a) at least one cyclized polydiene resin; and

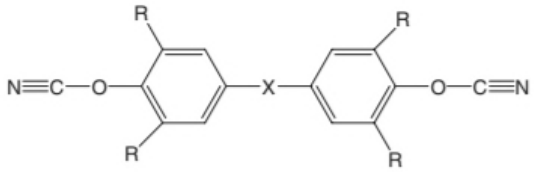
b) at least one cyanate ester compound, the at least one cyanate ester compound comprising at least two cyanate groups.

22. The composition of claim 21, wherein the at least one cyanate ester compound has Structure (I):

$$A\text{-}(O\text{-}C\equiv N)_m \quad (I),$$

wherein m is an integer of at least 2 and A is a divalent organic group comprising a substituted or unsubstituted aromatic group.

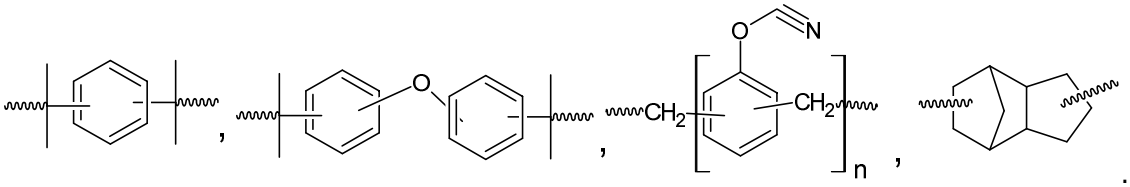
23. The composition of claim 22, wherein the at least one cyanate ester compound has Structure (II):



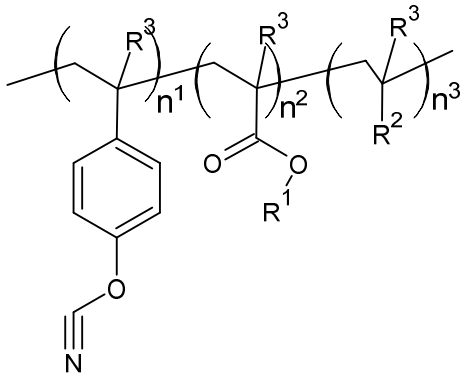

(II),

wherein R is a hydrogen atom, a $C_1$-$C_3$ alkyl group, a fully or partially halogen substituted $C_1$-$C_3$ alkyl group, or a halogen atom; and X is a single bond, -O-, -S-,

-(C=O)-, -(C=O)-O-, -O-(C=O)-, -(S=O)-, -($SO_2$)-, -$CH_2CH_2$-O-, a substituted or unsubstituted $C_1$-$C_{10}$ alkylene, a fully or partially fluoro substituted $C_1$-$C_4$ alkylene, a substituted or unsubstituted $C_3$-$C_{10}$ cycloalkylene, or one of the following groups:



24. The composition of claim 21, wherein the at least one cyanate ester compound has Structure (III):



(III),

wherein $n_1$ is an integer of at least 2, $n_2$ and $n_3$ are independently 0 or an integer from 1 to 100, $R^1$ is a $C_1$-$C_{10}$ alkyl or $C_1$-$C_{20}$ arylalkyl group, $R^2$ is a substituted or unsubstituted $C_1$-$C_{10}$ alkyl, a substituted or unsubstituted $C_3$-$C_{10}$ cycloalkyl, a substituted or unsubstituted aryl group, or a –(C=O)-$OR^4$ group, in which $R^4$ is a non-acid sensitive substituted alkyl or arylalkyl group; and $R^3$ is a substituted or unsubstituted $C_1$-$C_{10}$ alkyl, or a fluoro substituted $C_1$-$C_4$ alkyl.

25. The composition of any one of claims 21 to 24, wherein the at least one cyanate ester compound is in an amount of from 1 wt% to 25 wt% of the composition.

26. A dielectric film-forming composition, comprising:

a) at least one cyclized polydiene resin having a substituted or unsubstituted alkenyl group;

b) at least one reactive functional compound having at least two functional groups capable of reacting with the substituted or unsubstituted alkenyl group on the

cyclized polydiene resin;

c) at least one cyanate ester compound, the at least one cyanate ester compound comprising at least two cyanate groups;

d) at least one catalyst capable of inducing reaction of the cyclized polydiene resin with the reactive functional compound; and

e) optionally, at least one solvent.