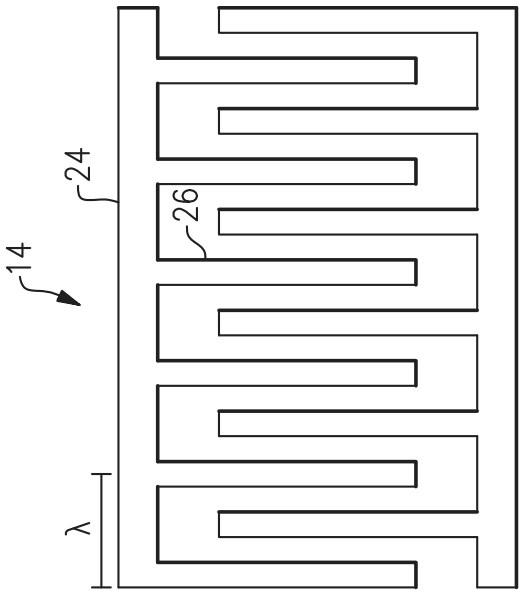


FIG.1B

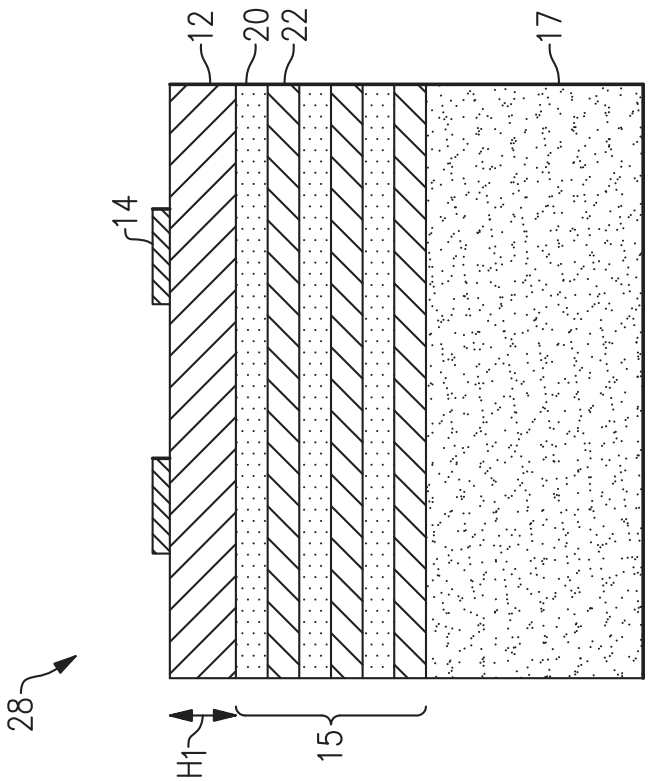


FIG.1A

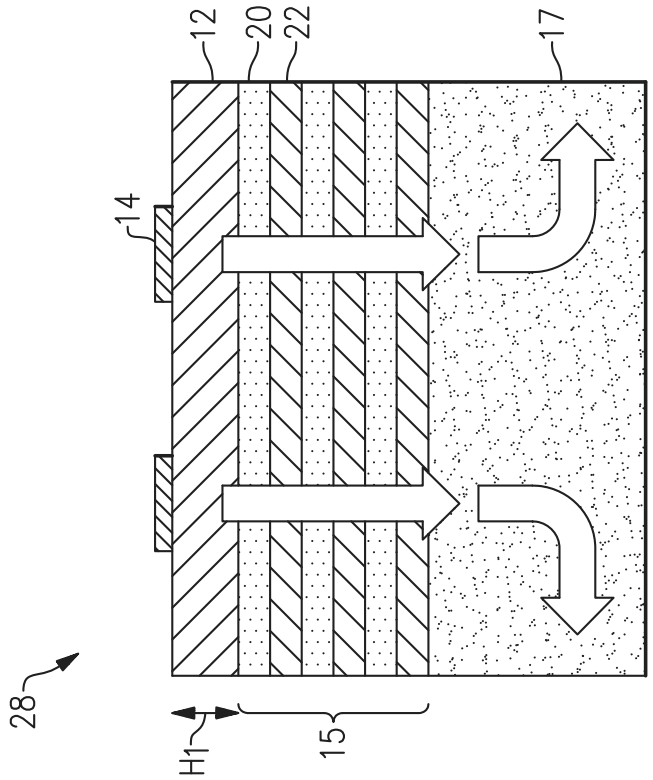


FIG.2

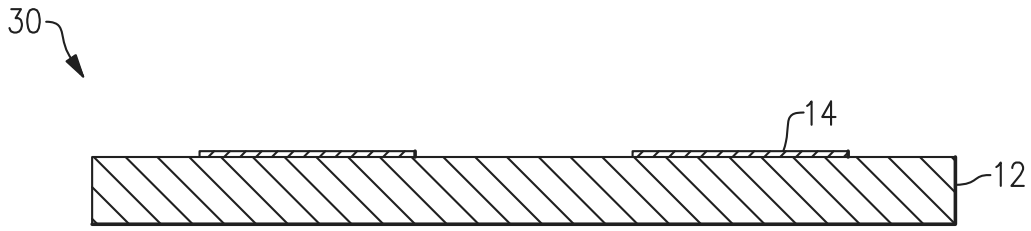

30
14
12

FIG.3

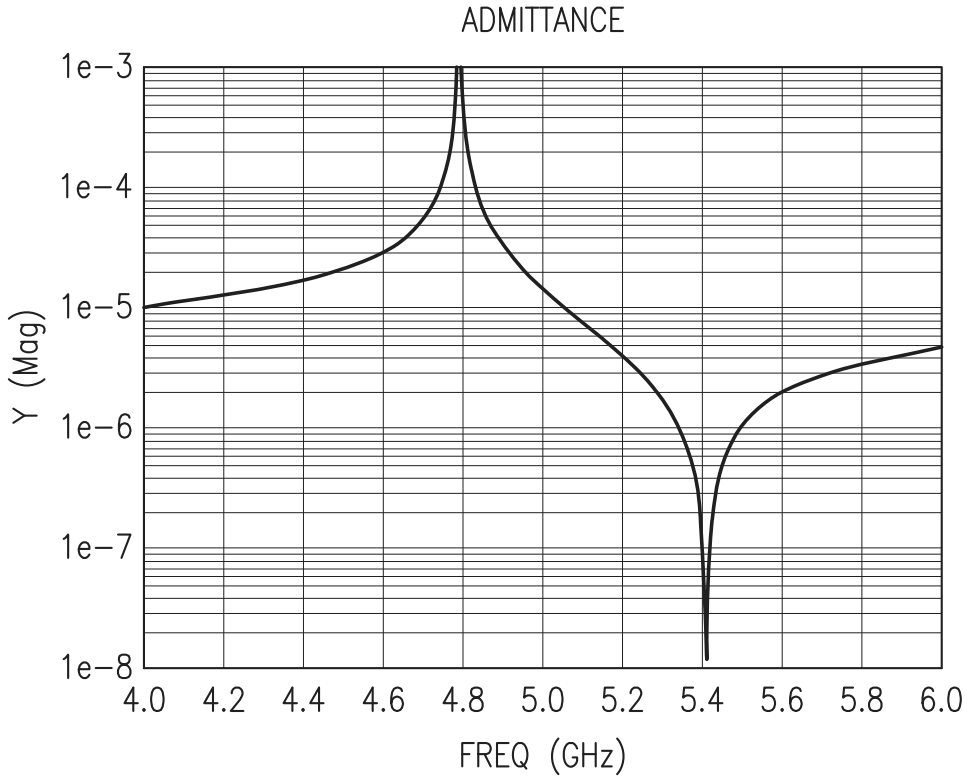

ADMITTANCE
1e−3
1e−4
1e−5
1e−6
1e−7
1e−8
Y (Mag)
4.0
4.2
4.4
4.6
4.8
5.0
5.2
5.4
5.6
5.8
6.0
FREQ (GHz)

FIG.4A

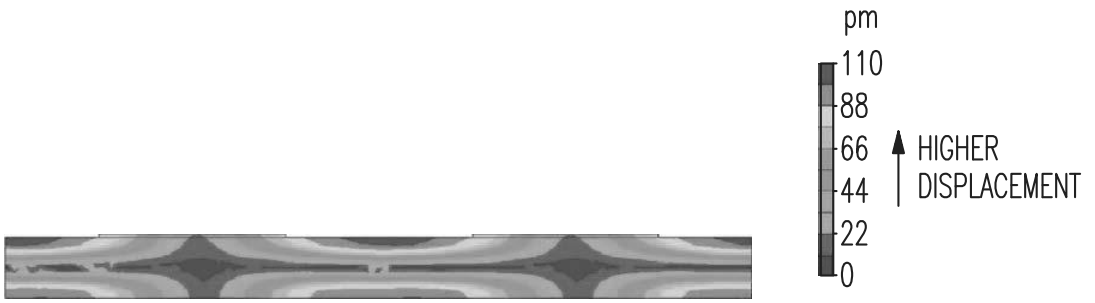

pm
110
88
66
44
22
0
HIGHER
DISPLACEMENT

FIG.4B


pm
17
13.6
10.2
6.8
3.4
0.0
HIGHER
DISPLACEMENT

FIG.4C

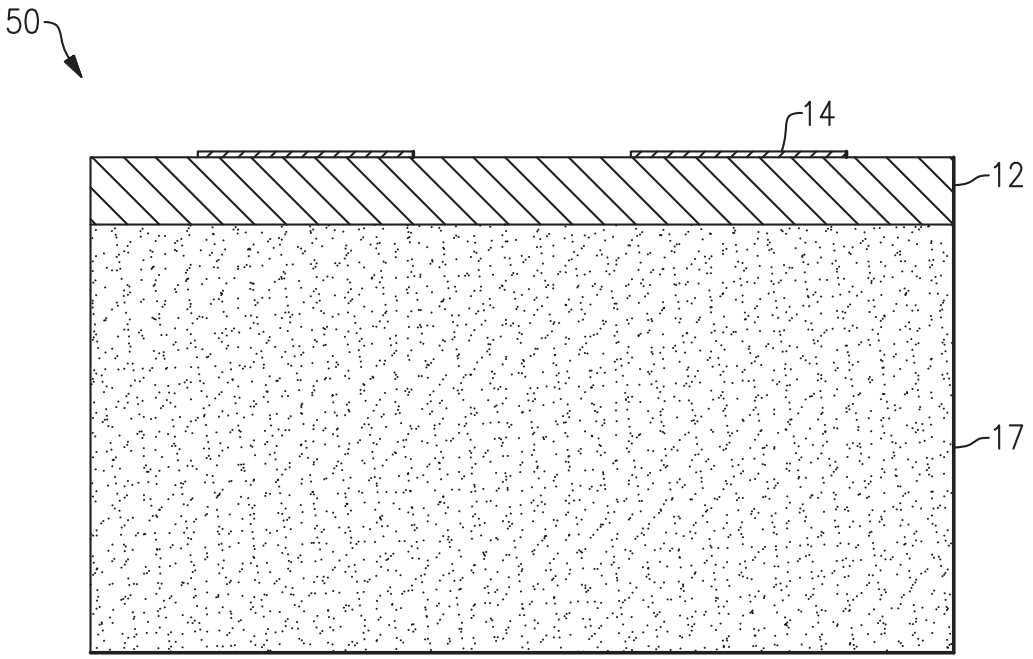

50
14
12
17

FIG.5

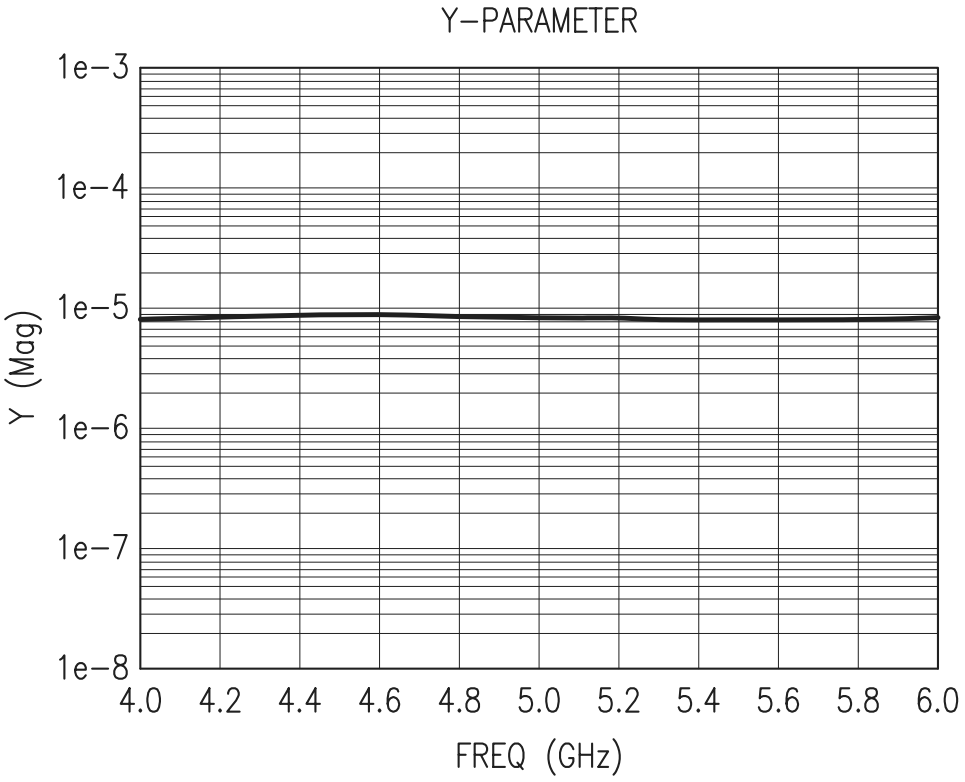

Y-PARAMETER
1e-3
1e-4
1e-5
1e-6
1e-7
1e-8
Y (Mag)
4.0
4.2
4.4
4.6
4.8
5.0
5.2
5.4
5.6
5.8
6.0
FREQ (GHz)

FIG.6A

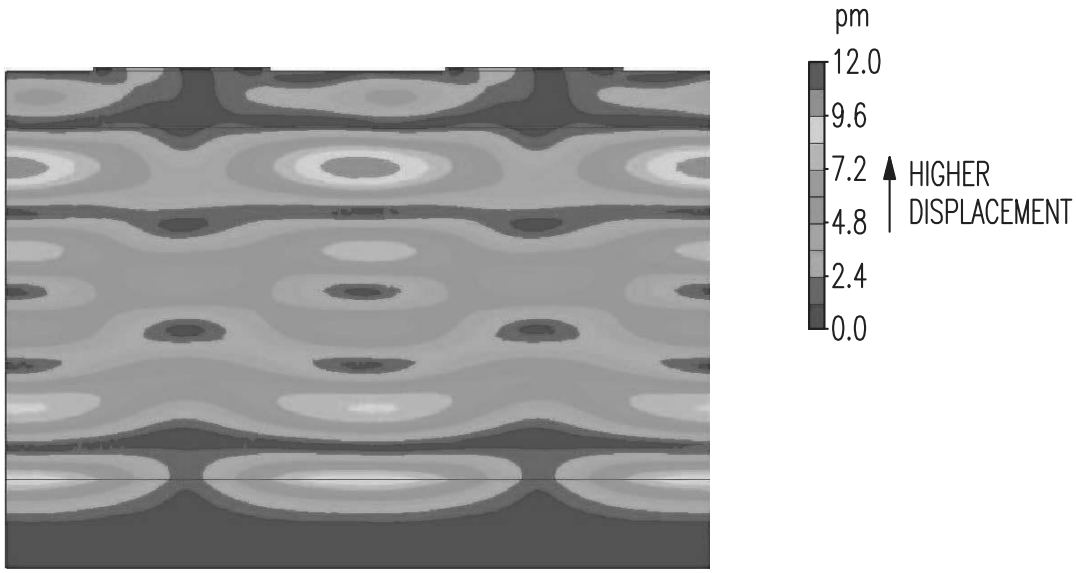

pm
12.0
9.6
7.2
4.8
2.4
0.0
HIGHER
DISPLACEMENT

FIG.6B

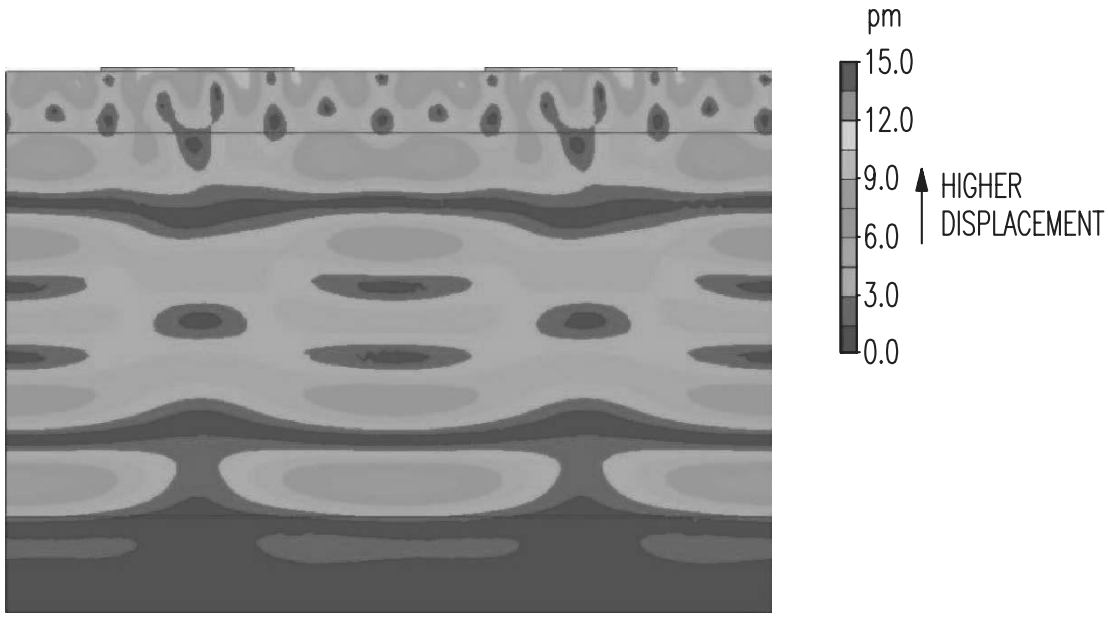

pm
15.0
12.0
9.0
6.0
3.0
0.0
HIGHER
DISPLACEMENT

FIG.6C

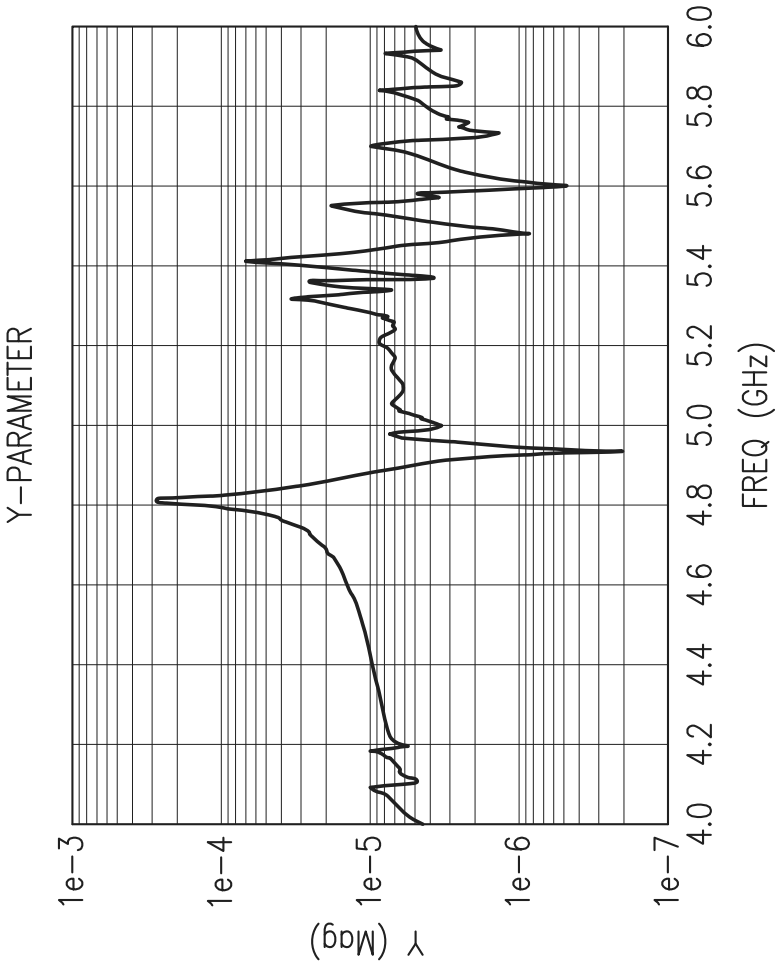

Y-PARAMETER
Y (Mag)
1e-3
1e-4
1e-5
1e-6
1e-7
4.0
4.2
4.4
4.6
4.8
5.0
5.2
5.4
5.6
5.8
6.0
FREQ (GHz)

FIG.8A

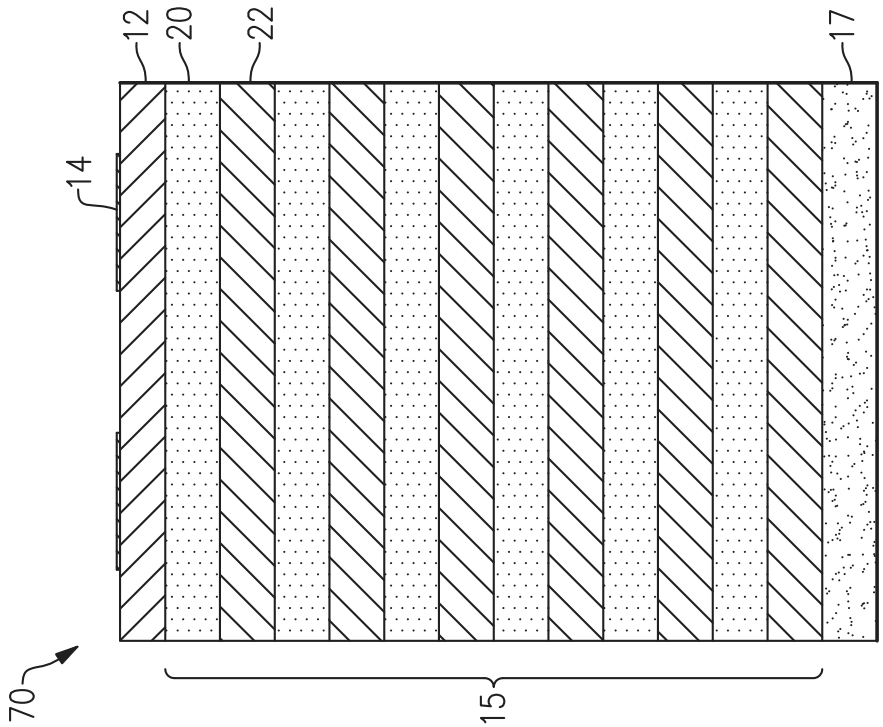

70
14
12
20
22
17
15

FIG.7

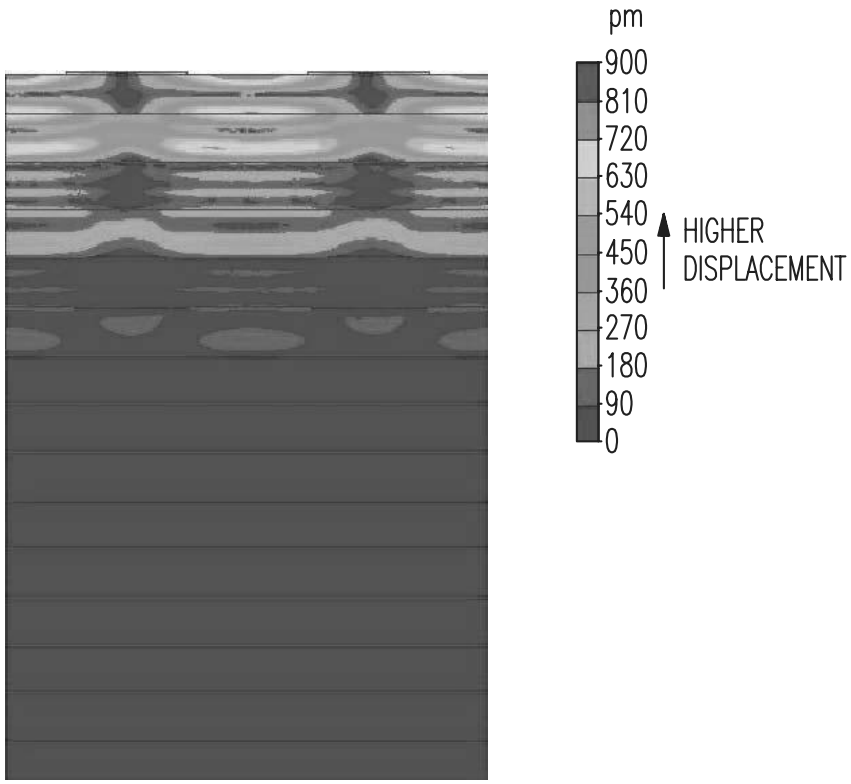

pm
900
810
720
630
540
450
360
270
180
90
0
HIGHER
DISPLACEMENT

FIG.8B

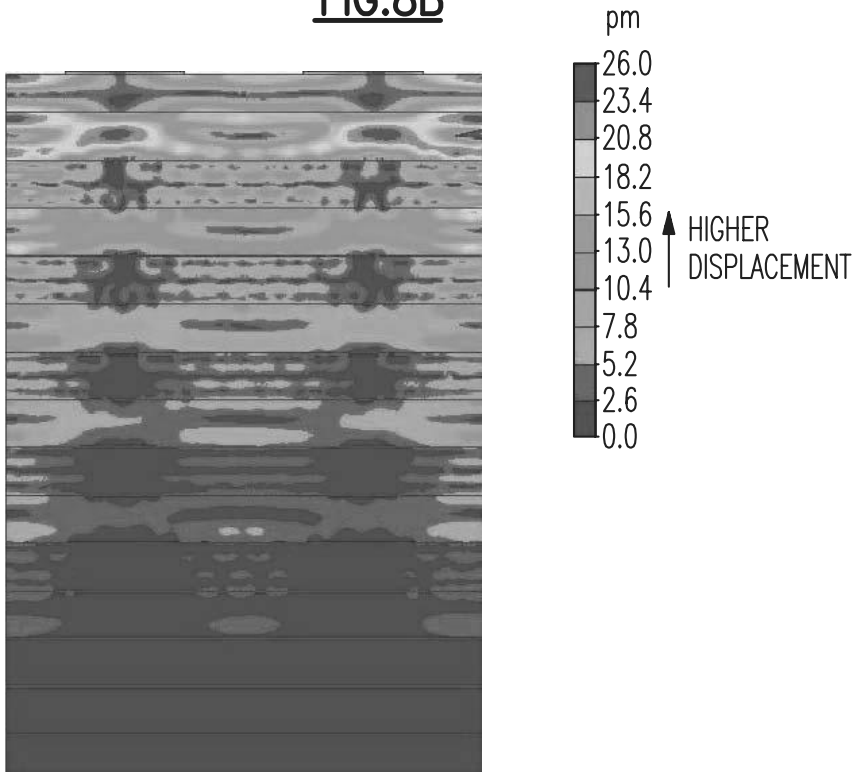

pm
26.0
23.4
20.8
18.2
15.6
13.0
10.4
7.8
5.2
2.6
0.0
HIGHER
DISPLACEMENT

FIG.8C

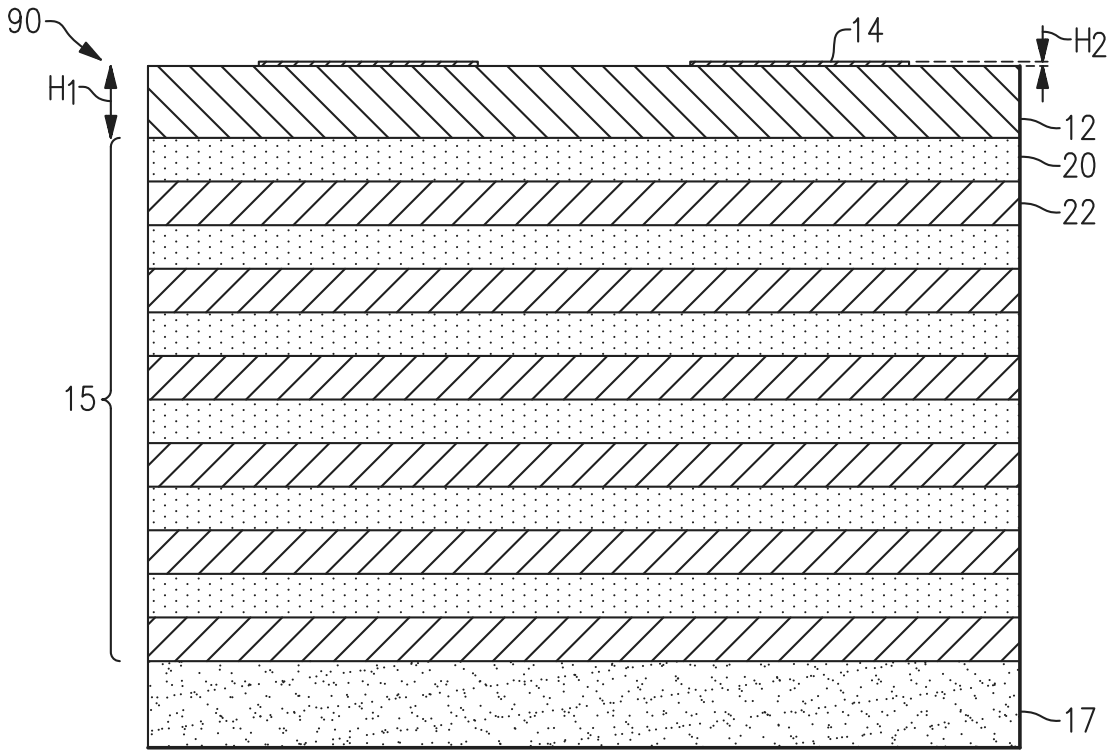

90
H1
14
H2
12
20
22
15
17

FIG.9

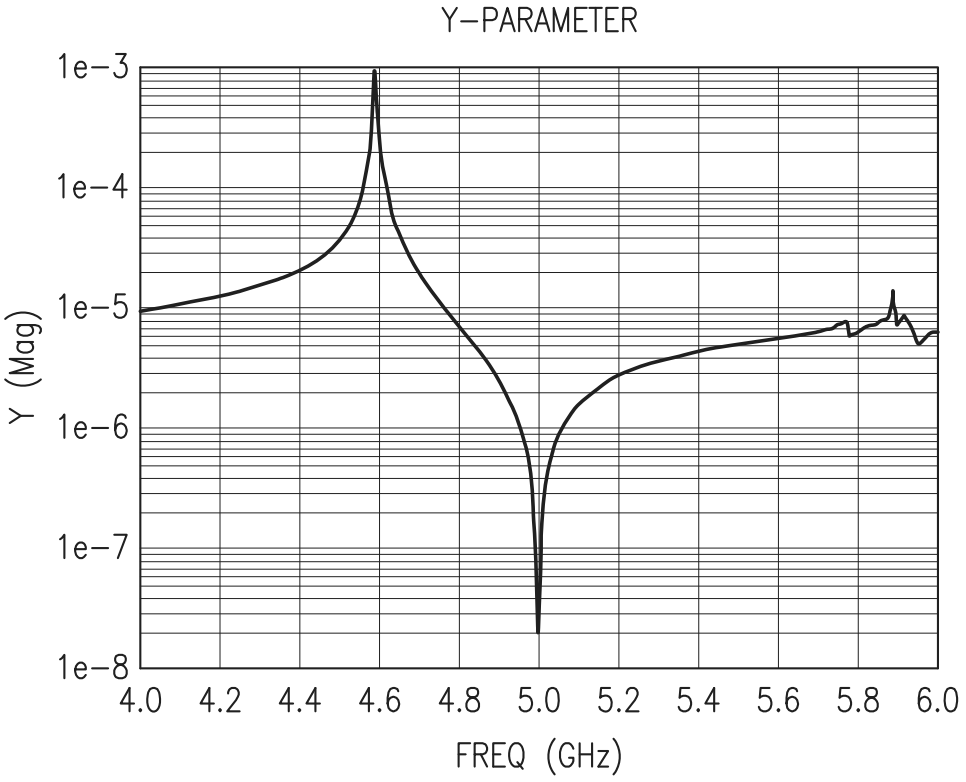

Y–PARAMETER
1e–3
1e–4
1e–5
1e–6
1e–7
1e–8
Y (Mag)
4.0
4.2
4.4
4.6
4.8
5.0
5.2
5.4
5.6
5.8
6.0
FREQ (GHz)

FIG.10A

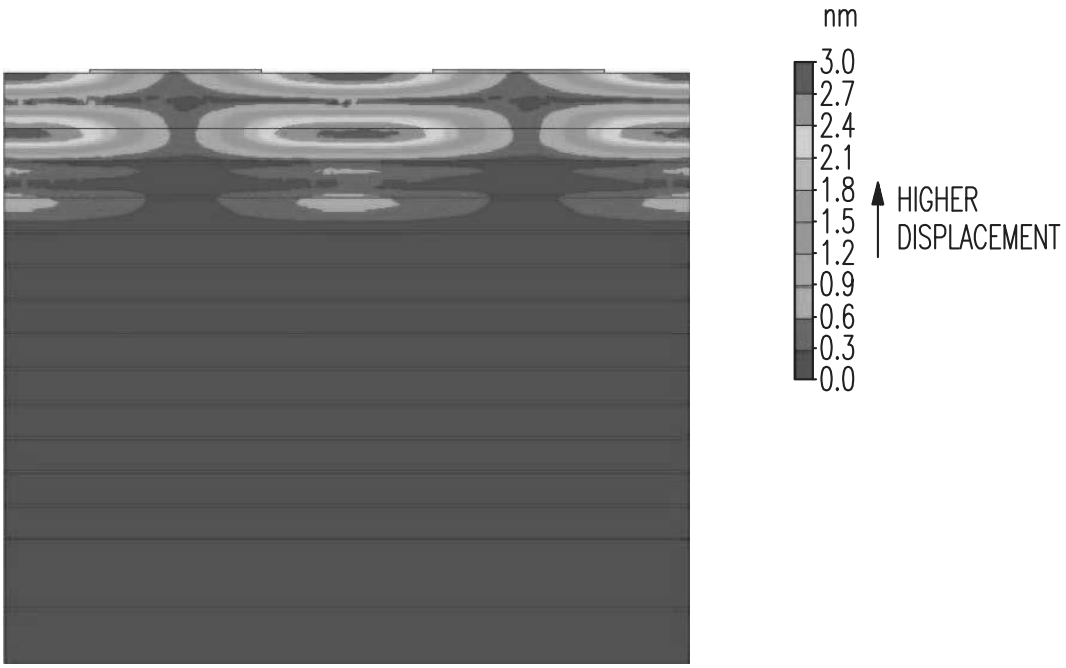


FIG.10B

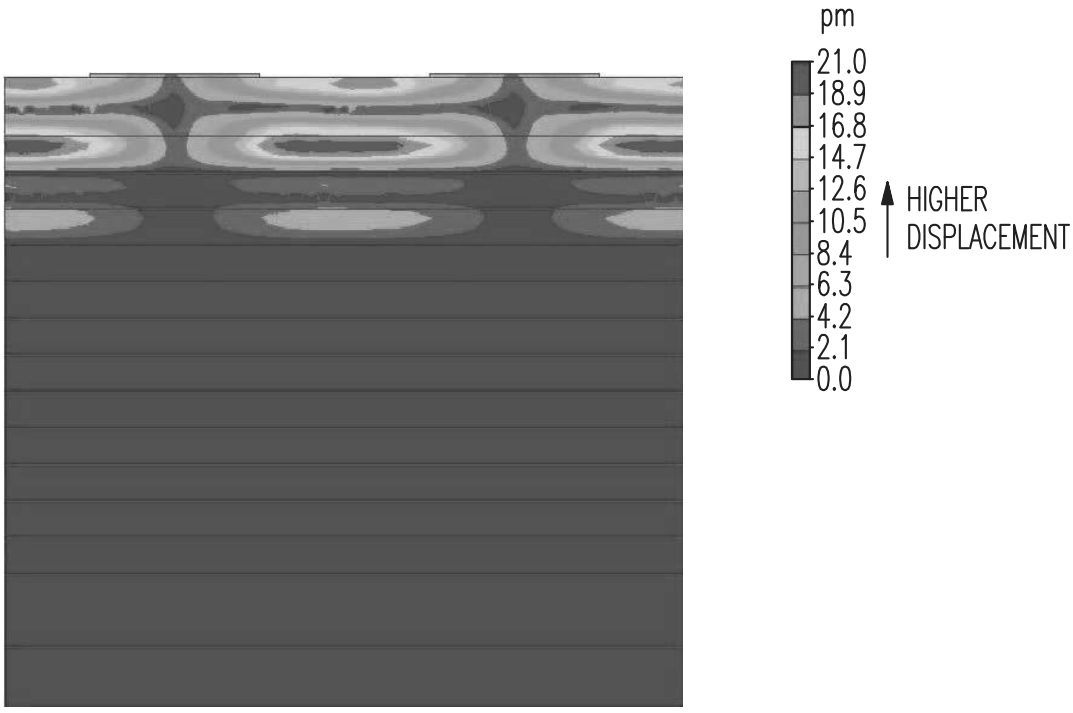


FIG.10C

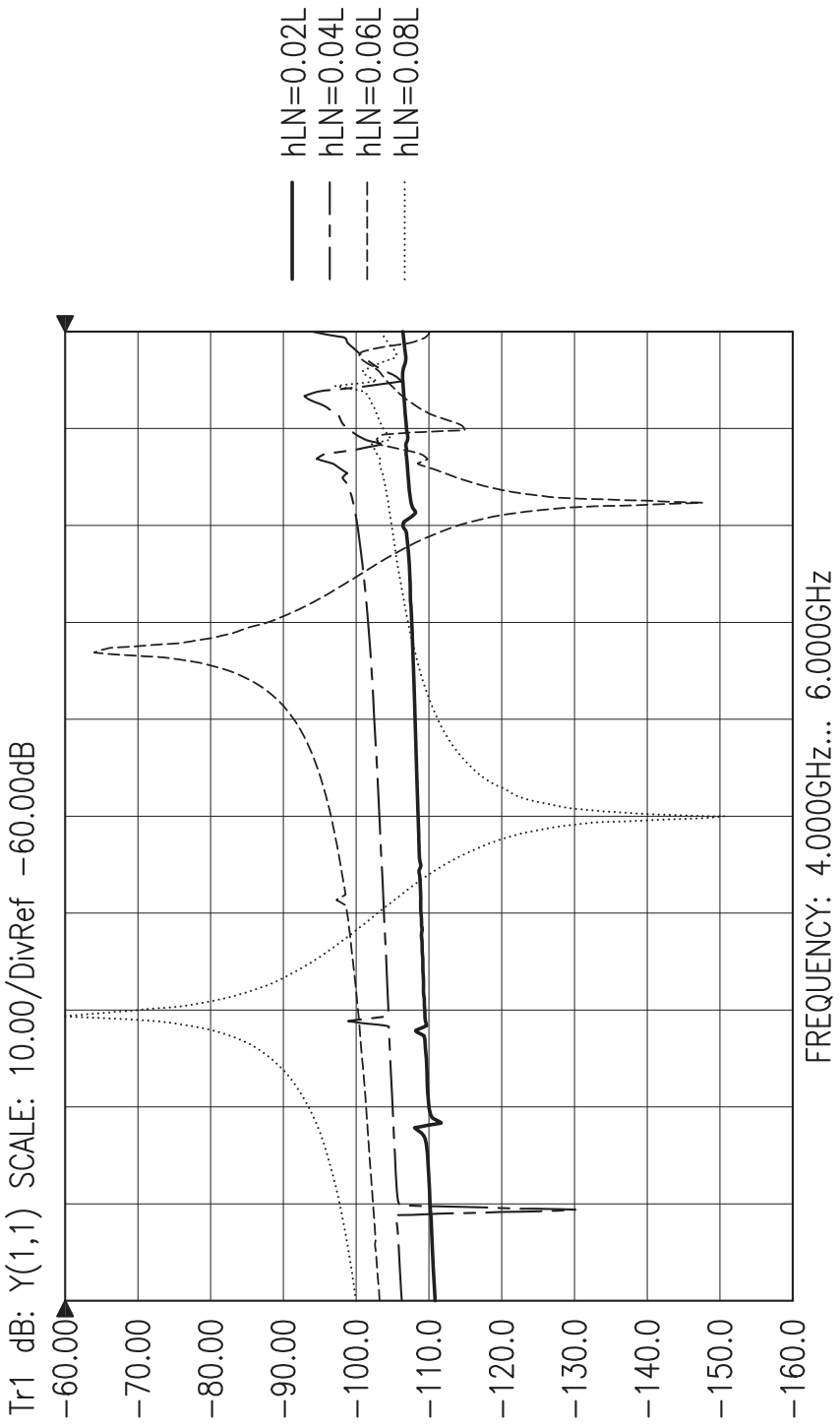

hLN=0.02L
hLN=0.04L
hLN=0.06L
hLN=0.08L
Tr1 dB: Y(1,1) SCALE: 10.00/DivRef −60.00dB
−60.00
−70.00
−80.00
−90.00
−100.0
−110.0
−120.0
−130.0
−140.0
−150.0
−160.0
FREQUENCY: 4.000GHz... 6.000GHz

FIG.10D

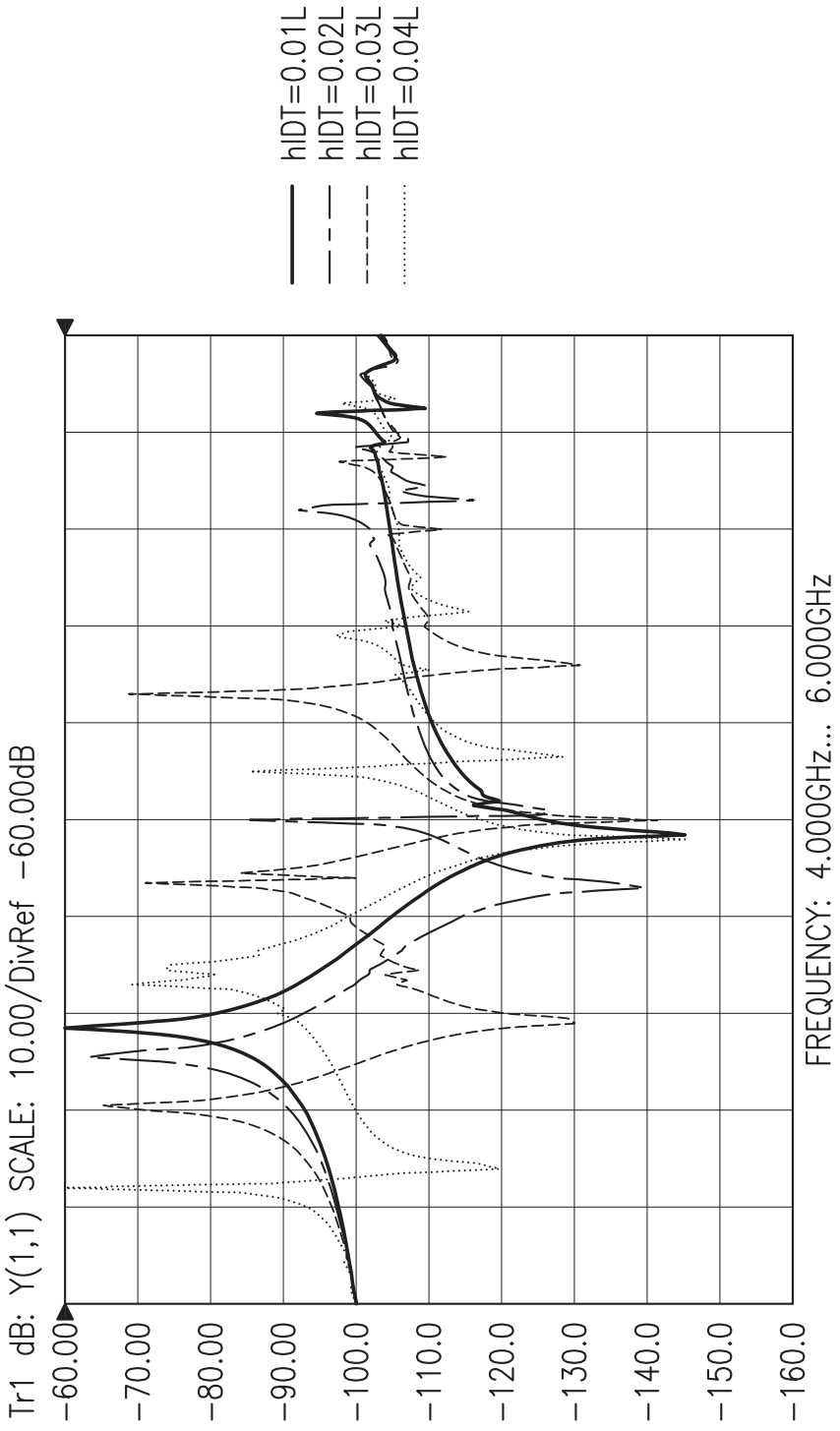

hIDT=0.01L
hIDT=0.02L
hIDT=0.03L
hIDT=0.04L
Tr1 dB: Y(1,1) SCALE: 10.00/DivRef −60.00dB
−60.00
−70.00
−80.00
−90.00
−100.0
−110.0
−120.0
−130.0
−140.0
−150.0
−160.0
FREQUENCY: 4.000GHz... 6.000GHz

FIG.10E

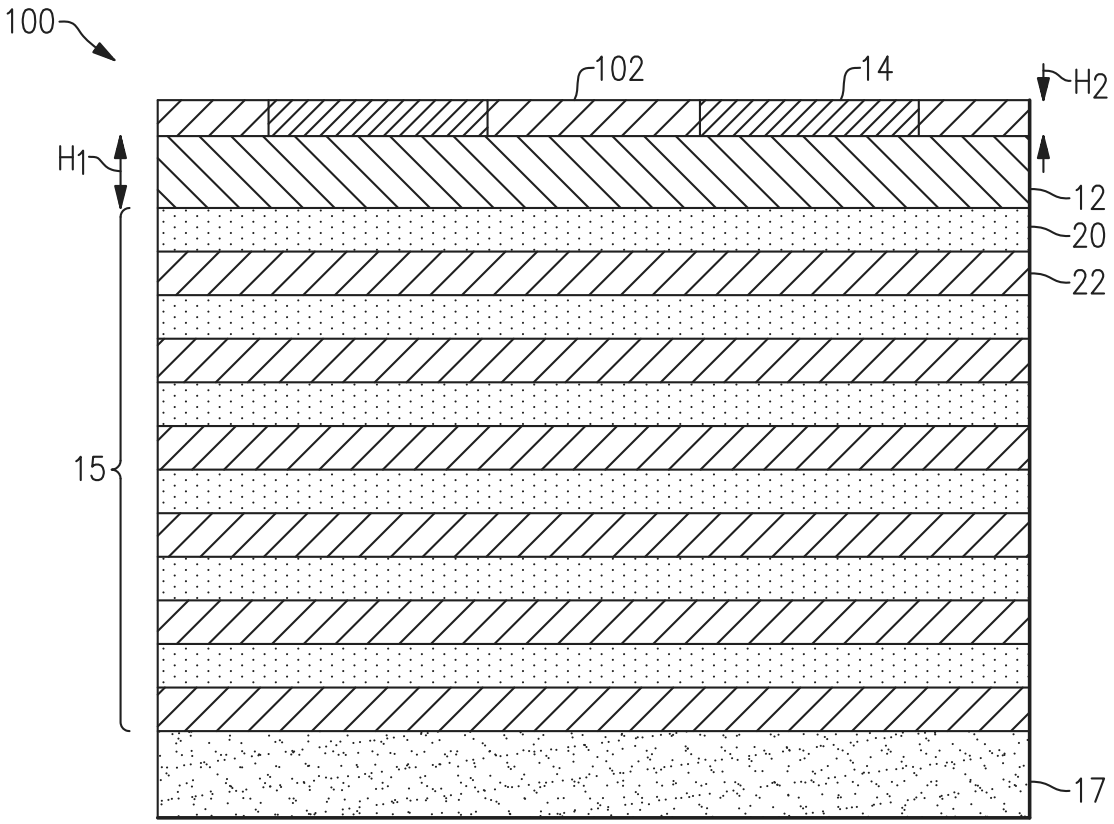


FIG.10F

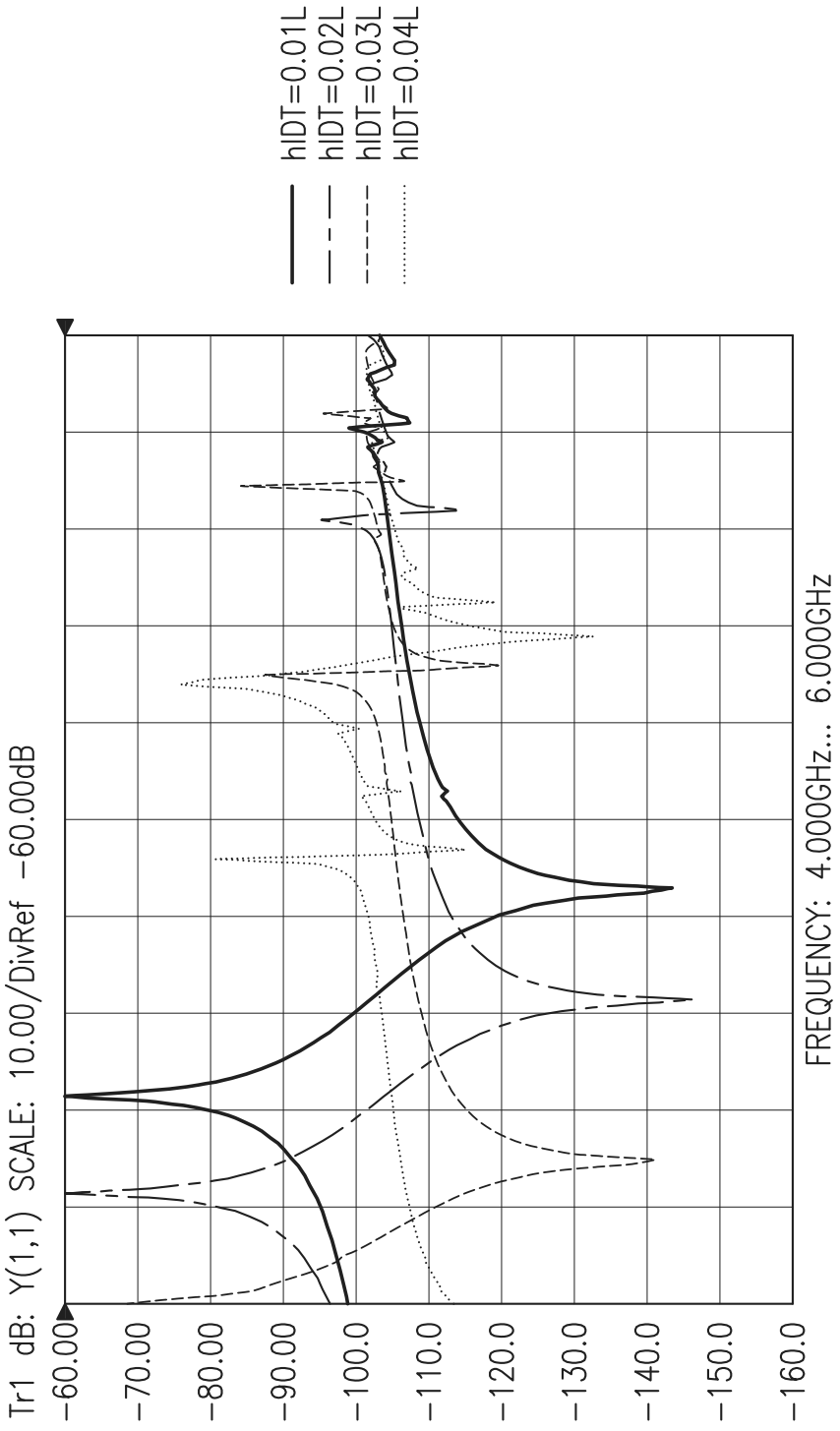

hIDT=0.01L
hIDT=0.02L
hIDT=0.03L
hIDT=0.04L
Tr1 dB: Y(1,1) SCALE: 10.00/DivRef −60.00dB
−60.00
−70.00
−80.00
−90.00
−100.0
−110.0
−120.0
−130.0
−140.0
−150.0
−160.0
FREQUENCY: 4.000GHz... 6.000GHz

FIG.10G

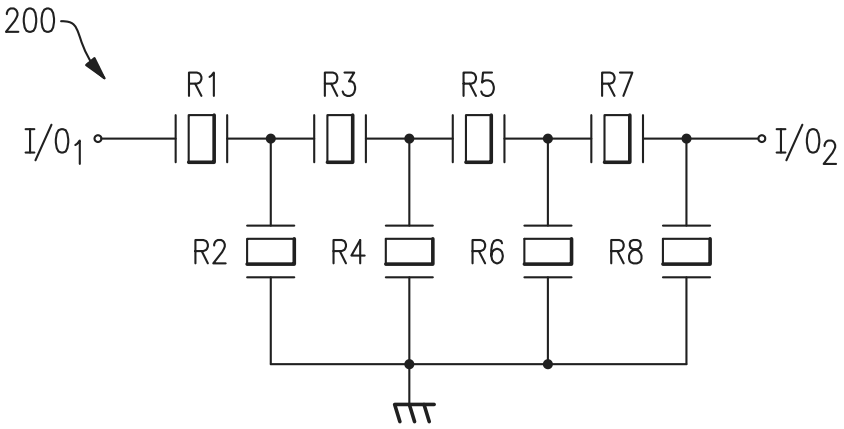


FIG.11

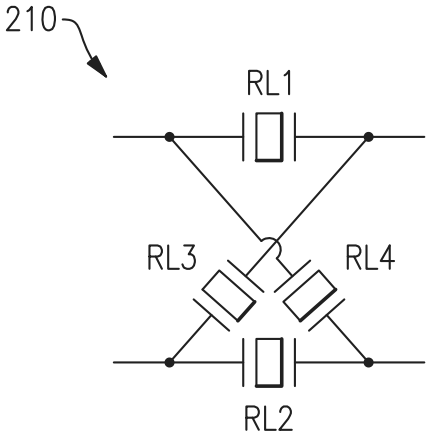


FIG.12

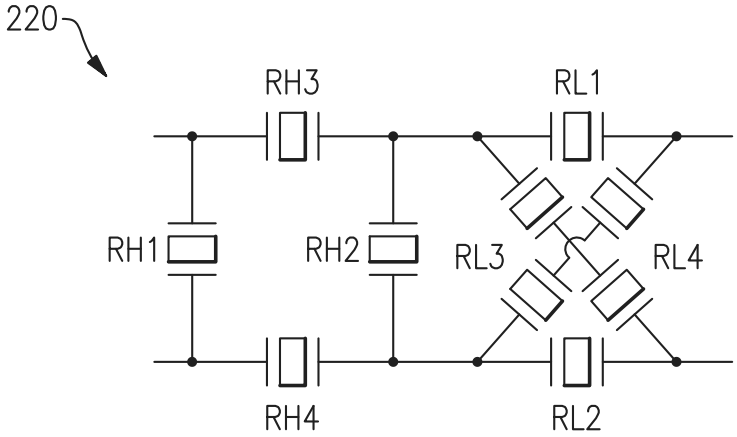


FIG.13

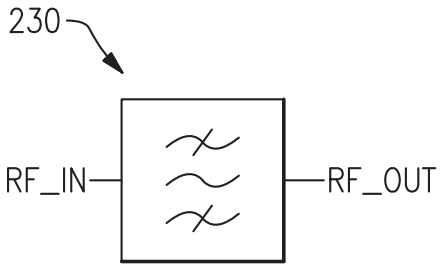


FIG.14A

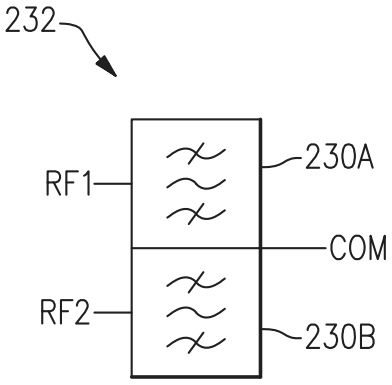


FIG.14B

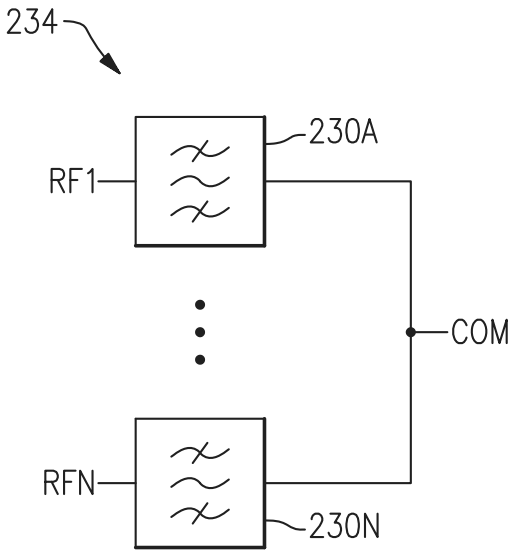


FIG.14C

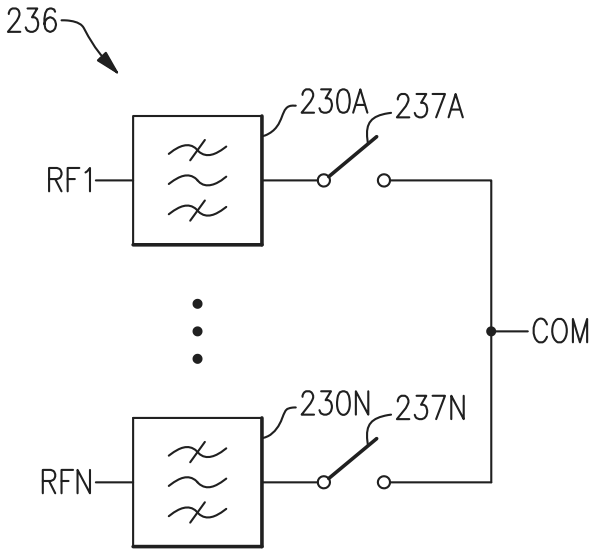


FIG.14D

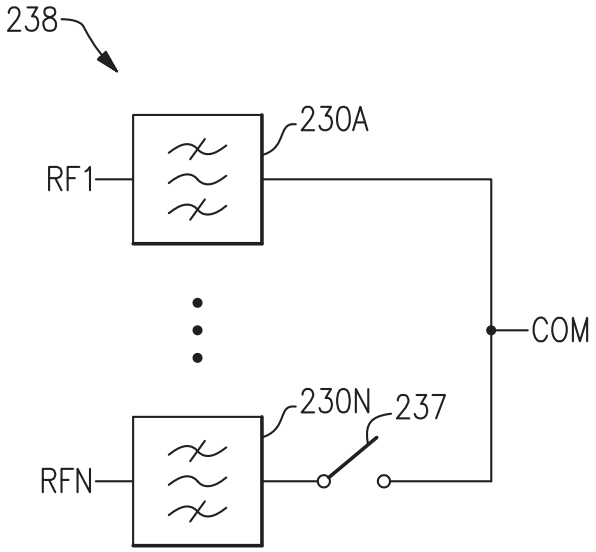


FIG.14E

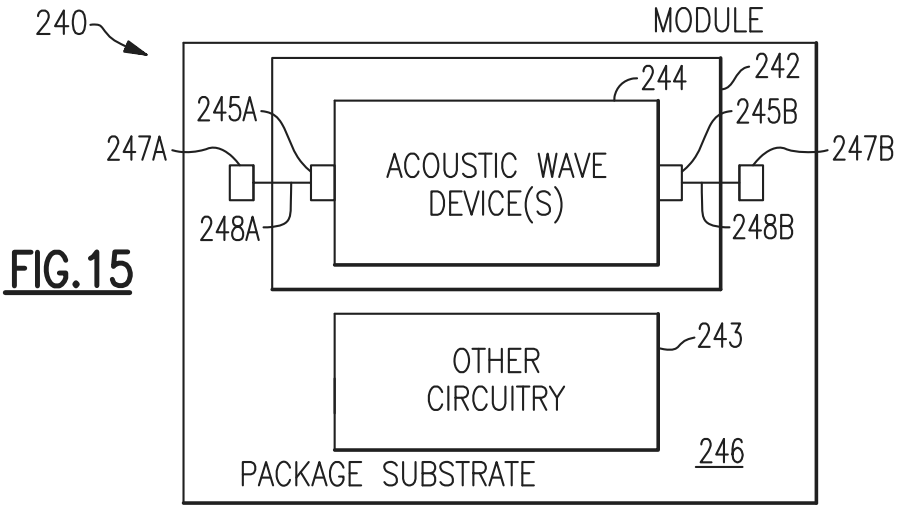

240
MODULE
244
242
245A
245B
247A
247B
ACOUSTIC WAVE
DEVICE(S)
248A
248B
243
OTHER
CIRCUITRY
246
PACKAGE SUBSTRATE

FIG.15

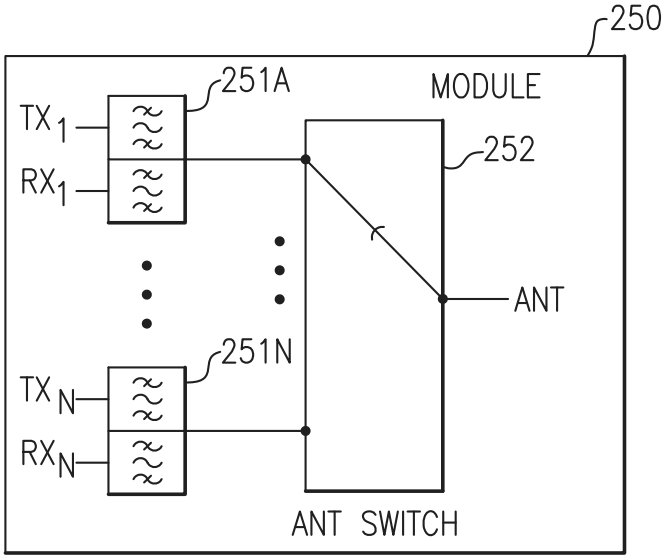

250
251A
MODULE
TX 1
RX 1
252
ANT
251N
TX N
RX N
ANT SWITCH

FIG.16

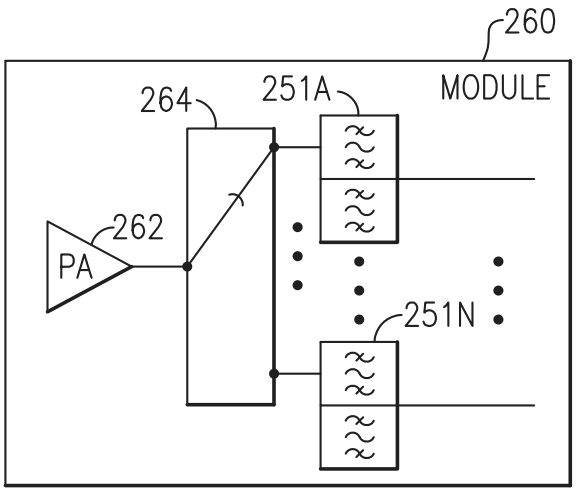


FIG. 17

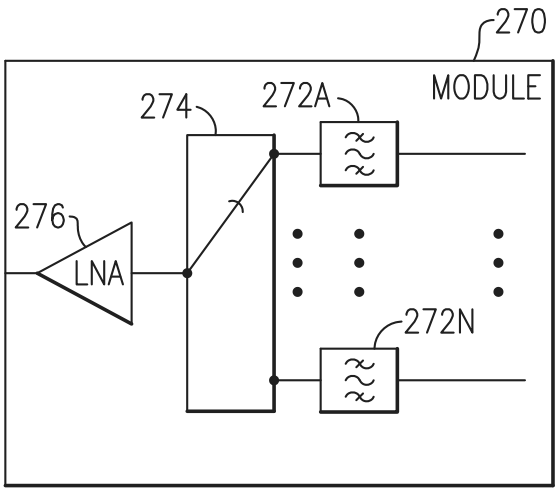


FIG.18

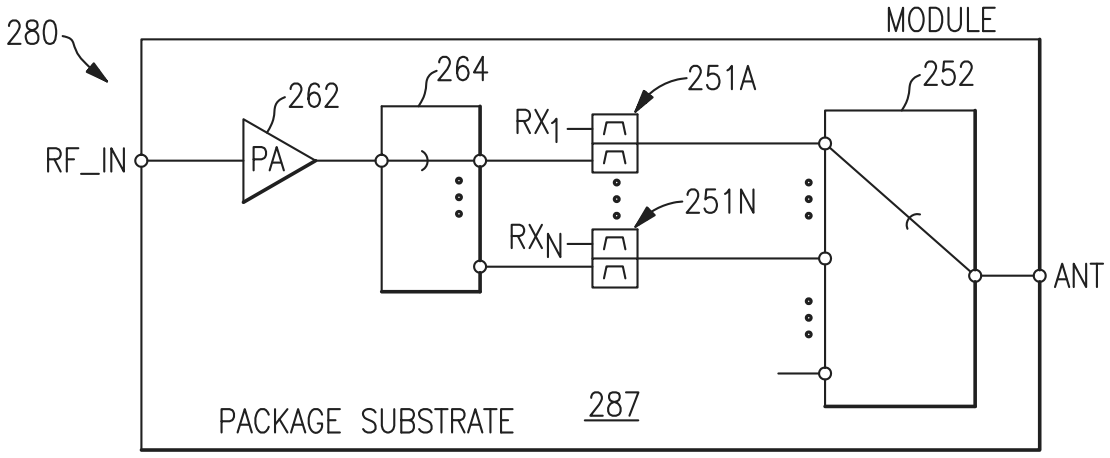


FIG.19

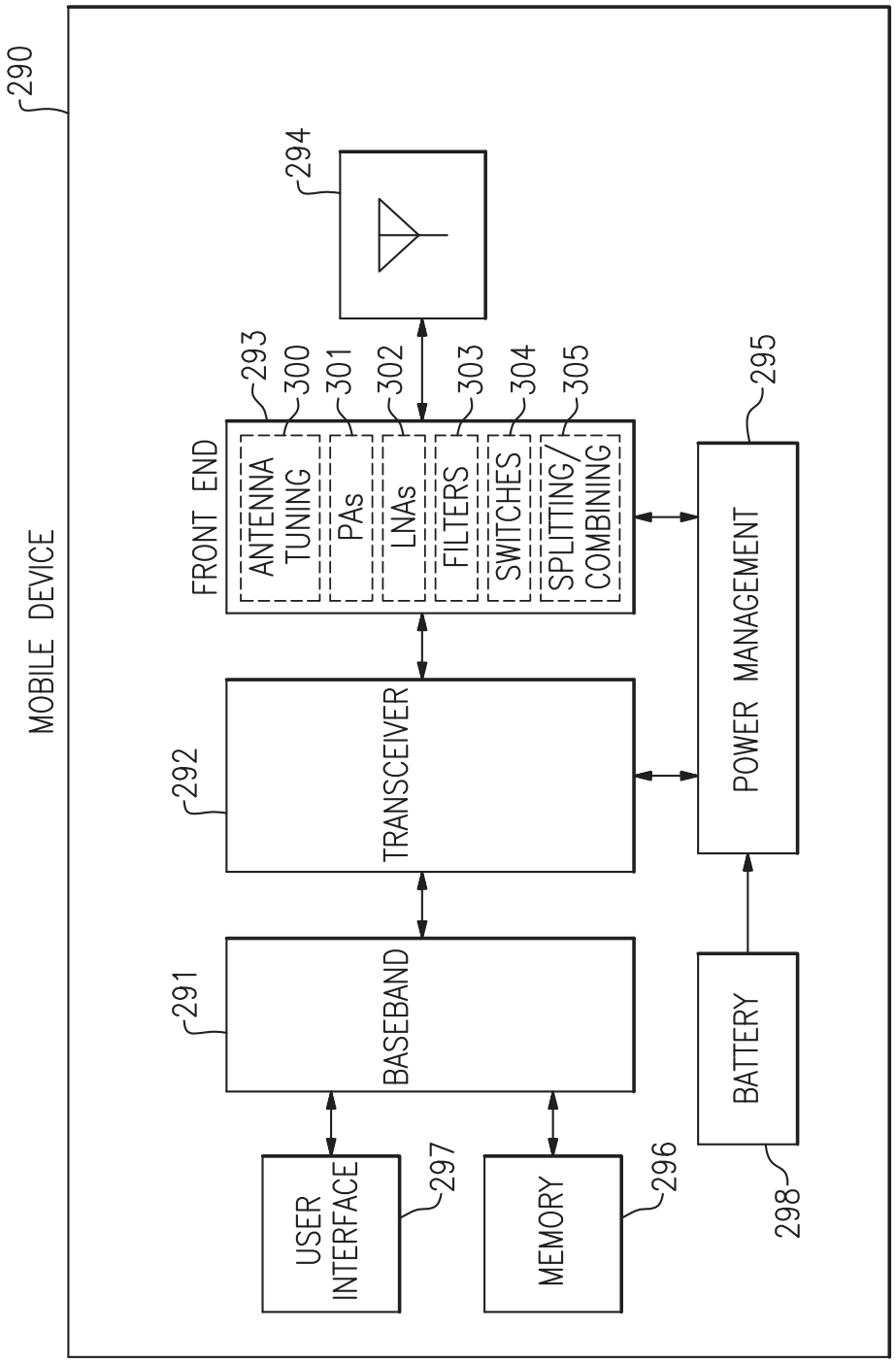

MOBILE DEVICE
290
294
293
300
301
302
303
304
305
FRONT END
ANTENNA TUNING
PAs
LNAs
FILTERS
SWITCHES
SPLITTING/ COMBINING
295
POWER MANAGEMENT
292
TRANSCEIVER
291
BASEBAND
USER INTERFACE
297
MEMORY
296
BATTERY
298

FIG.20