1 Absolute maximum ratings

Table 1. Absolute maximum ratings (limiting value)

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
P_{IN}	Input Power RFIN			20	dBm
V_{ESD}	ESD Ratings MIL STD883C (HBM:C=100 pF, R=1.5 kΩ, Air discharge)	800			V
	ESD ratings machine model (MM: C=200 pF, R=25 Ω, L=500 nH)	550			V
T_{OP}	Operating temperature	-40		+80	°C

2 Electrical characteristics

Table 2. Impedances

Symbol	Parameter	Value			Unit
		Min.	**Typ.**	**Max.**	
Z_{OUT}	Nominal differential output impedance	-	Conjugate match to GreenPeak IC	-	Ω
Z_{IN}	Nominal differential input impedance	-	100	-	Ω

Table 3. RF performance

Symbol	Parameter	Test condition	Value			Unit
			Min.	**Typ.**	**Max.**	
T_{OP}	Operating temperature	-	-40		+80	°C
f	Frequency range (bandwidth)	-	2400		2500	MHz
I_L	Insertion loss in bandwidth			-1.45	-1.7	dB
R_{L_ANT}	Return loss in bandwidth			-16	-11	dB
R_{L_IC}	Return loss in bandwidth	T_j = 25 °C		-15	-10.5	dB
2f0	2f0 attenuation			-41	-37	dB
3f0	3f0 attenuation			-34	-28	dB

2.1   RF measurements (on board)

Figure 2. Differential transmission
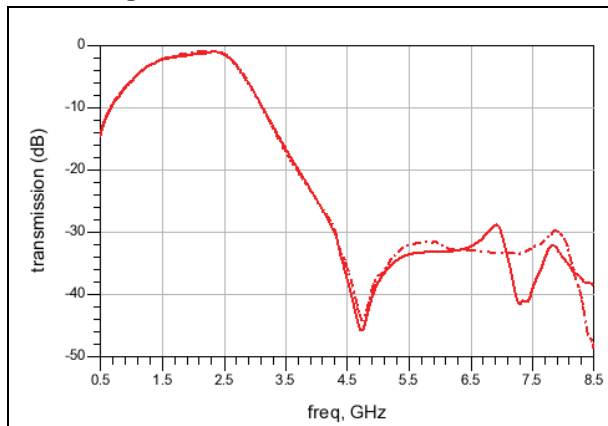
Figure 3. DIFF mode insertion loss (dB)
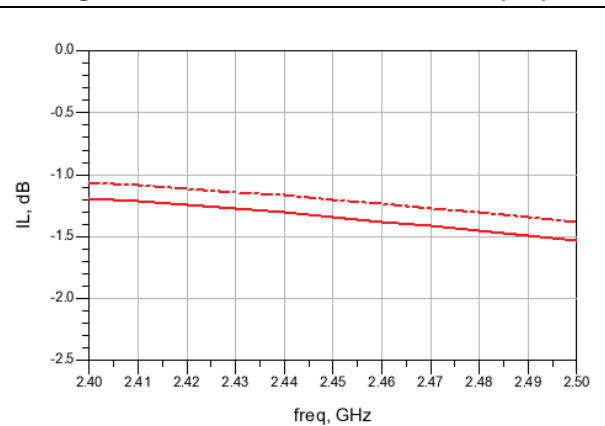
Figure 4. DIFF mode - 2f0 second harmonic (dB)
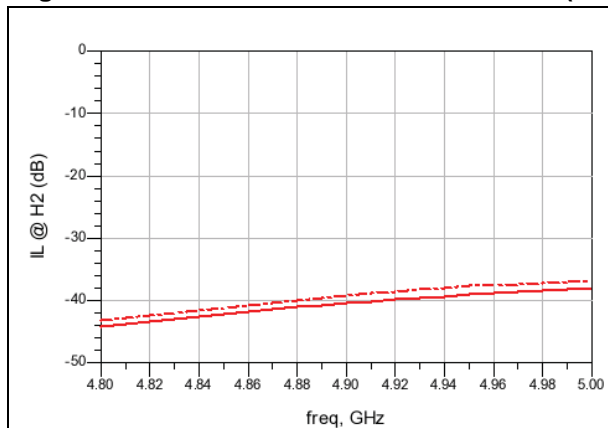
Figure 5. DIFF mode - 3f0 third harmonic (dB)
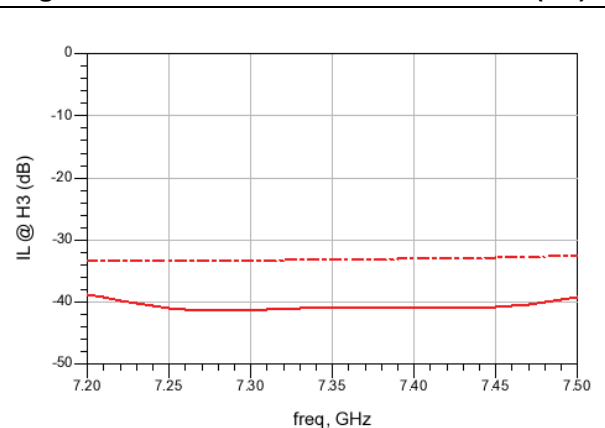
Figure 6. Return loss on ANT side (dB)
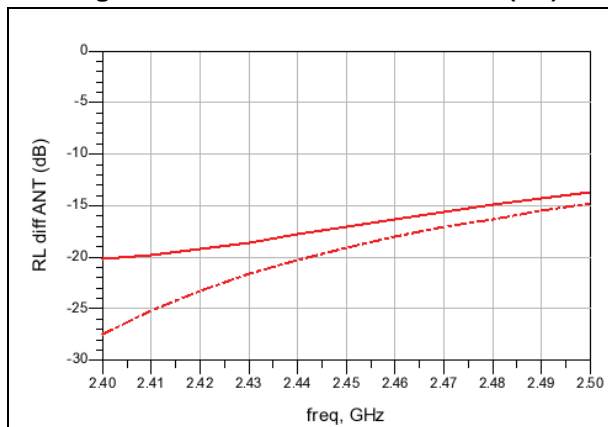
Figure 7. Return loss on IC side (dB)
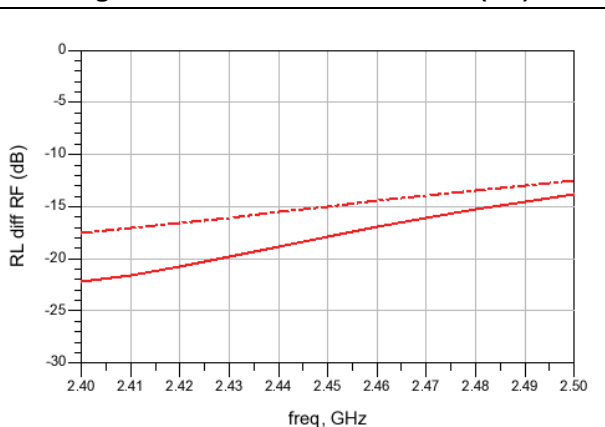
3   Package mechanical data

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: *www.st.com*. ECOPACK® is an ST trademark.

Figure 8. Mechanical specifications (bump view)


```
ANT1P : - 400 ; -1250
ANT1N : - 400 ; - 750
ANT2P : - 400 ;  750
ANT2N : - 400 ;  1250
RF1P  :   400 ; -1500
GND1  :     0 ; -1000
RF1N  :   400 ; - 500
VCM   :   400 ;  0
RF2P  :   400 ;  500
GND2  :     0 ;  1000
RF2N  :   400 ;  1500
```
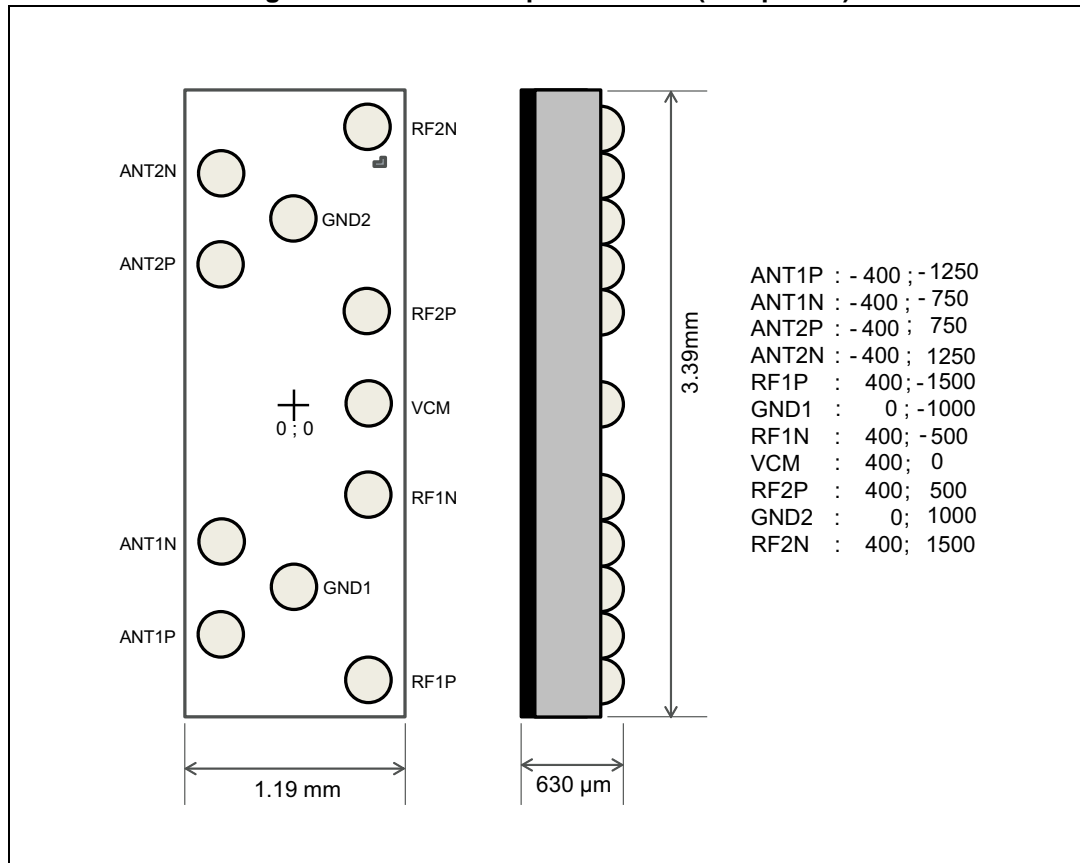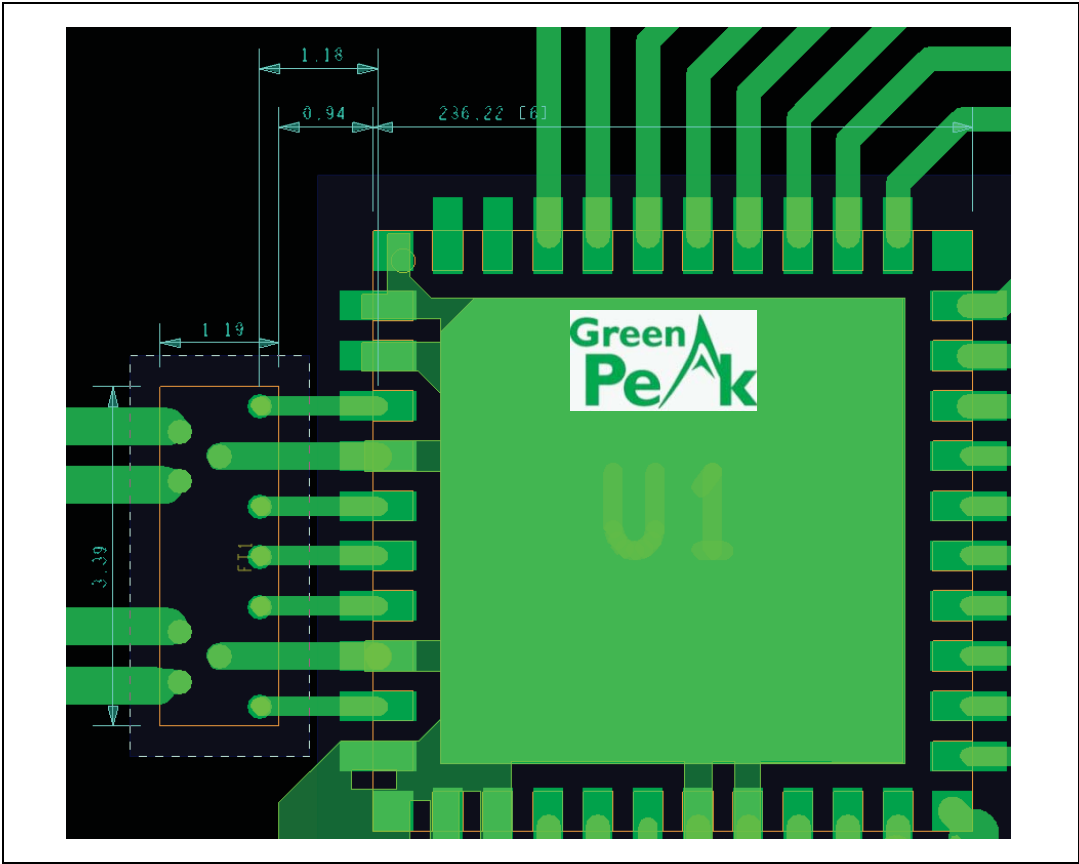
Figure 9. Layout recommendations

No extra components required thanks to DLPF-GP-01D3.

Dimensions (distances) from center pad to center pad (filter GP chip) shall be respected as much as possible in order to avoid any deviation in performances.

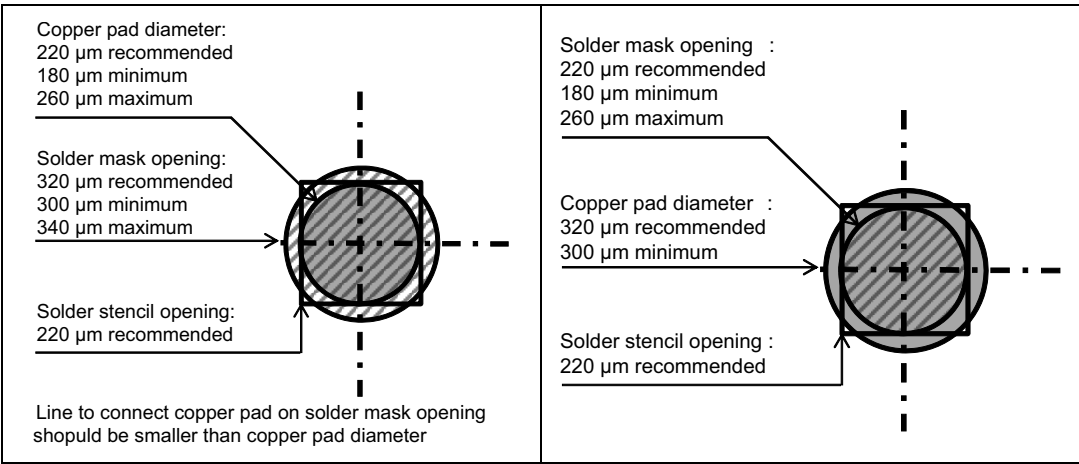**Figure 10. Footprint - non solder mask defined**　　**Figure 11. Footprint - solder mask defined**

Copper pad diameter:
220 μm recommended
180 μm minimum
260 μm maximum

Solder mask opening:
320 μm recommended
300 μm minimum
340 μm maximum

Solder stencil opening:
220 μm recommended

Line to connect copper pad on solder mask opening shopuld be smaller than copper pad diameter

Solder mask opening　:
220 μm recommended
180 μm minimum
260 μm maximum

Copper pad diameter　:
320 μm recommended
300 μm minimum

Solder stencil opening :
220 μm recommended

Figure 12. Marking specification   **Figure 13. Footprint coordinates**

ANT1P   : - 400 ; +1250
ANT1N   : - 400 ; +750
ANT2P   : - 400 ; -750
ANT2N   : - 400 ; -1250
RF1P   :   400 ; +1500
GND1   :   0 ; +1000
RF1N   :   400 ; +500
VCM   :   400 ; 0
RF2P   :   400 ; - 500
GND2   :   0 ; -1000
RF2N   :   400 ; -1500
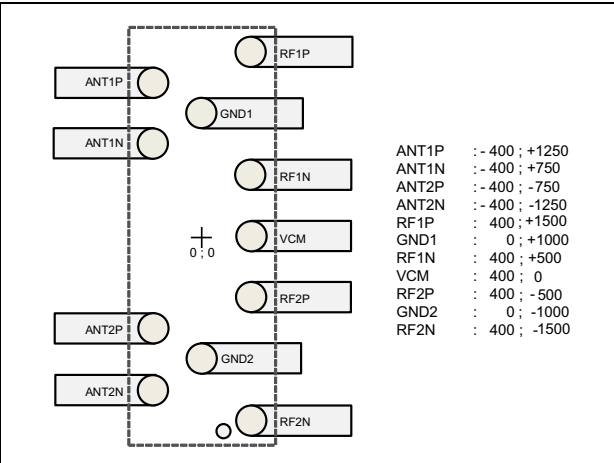
Figure 14. Tape and reel specification
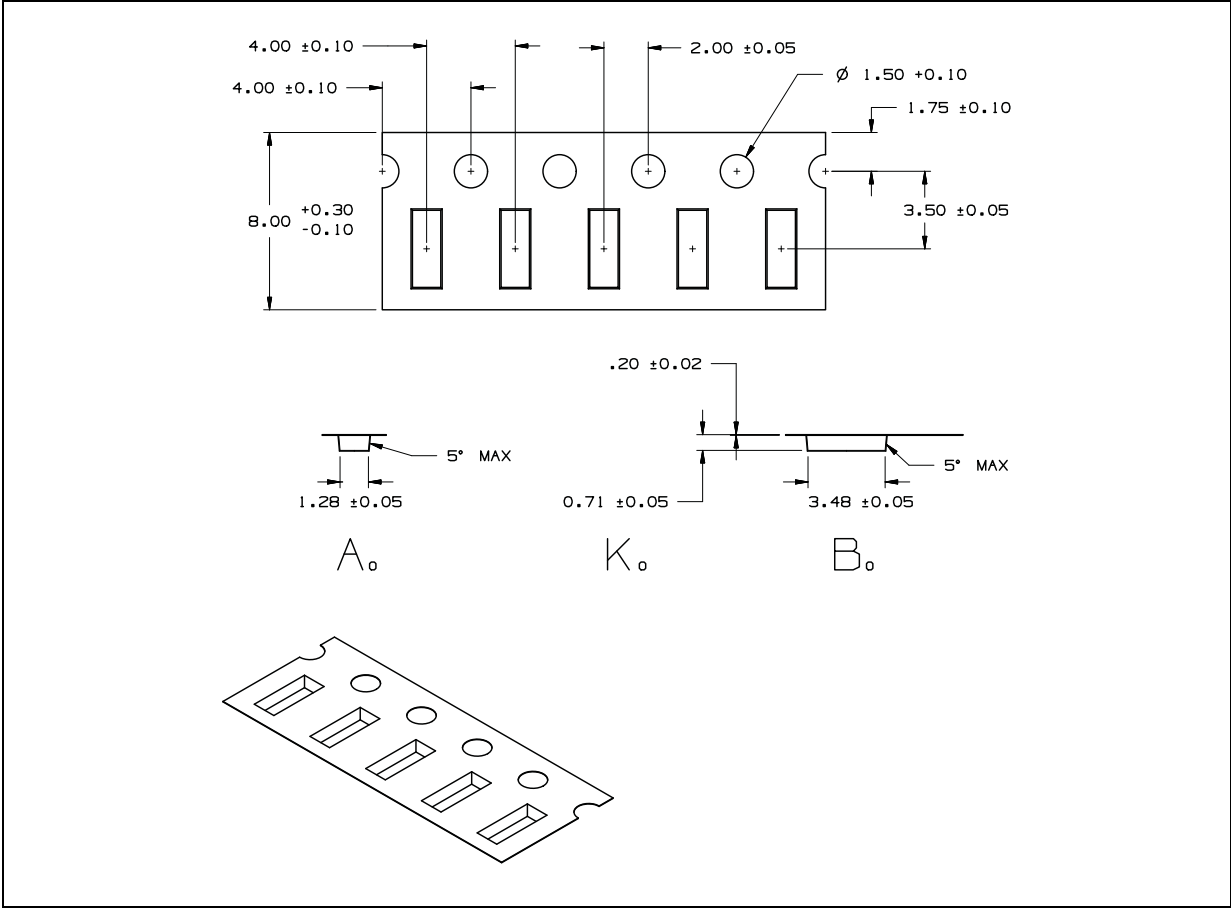
Note: *The dimensions shown on this proposed drawing are for illustrative purpose. Dimensions from actual carrier may vary slightly*

More information is available in the application notes AN2348: "Flip Chip: Package description and recommendations for use".

4　Ordering information

Table 4. Ordering information

Part number	Marking	Weight	Base qty	Delivery mode
DLPF-GP-01D3	SW	4.43 mg	5000	Tape and reel

5　Revision history

Table 5. Document revision history

Date	Revision	Changes
10-Oct-2014	1	Initial release.

IMPORTANT NOTICE – PLEASE READ CAREFULLY