

SMT HYBRID COUPLER

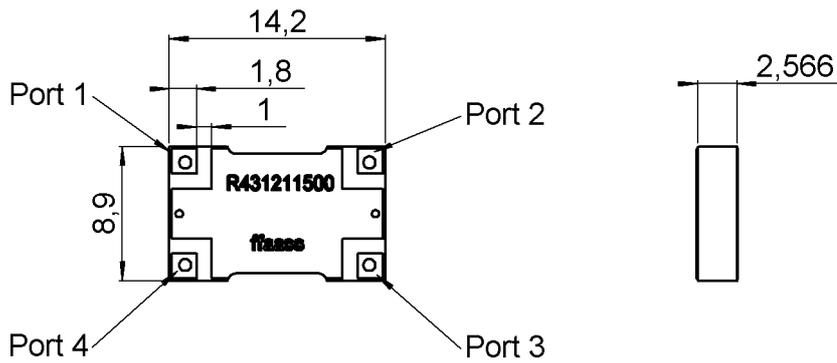
0.8 - 1 GHz

R431.211.505

Series : Coupler

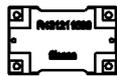
R431.211.505 : R431.211.500 packaged in reel of 100 couplers

R431.211.505W : for unit order

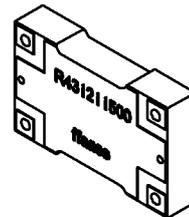


RF Port configuration

	Input	Isol.	-90°	0
Port	1	2	3	4
	2	1	4	3
	3	4	1	2
	4	3	2	1



Scale 1:1



All dimensions are in mm.



Issue : 0746 A

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ELECTRICAL CHARACTERISTICS

	Specified band	Extended band
Frequency (GHz)	0.869 - 0.96	0.811 - 1
V.S.W.R	≤ 1.12	1.15
Impedance (Ω)	50	
Nominal coupling (dB)	3	3
Amplitude balance (dB)	± 0.3	0.55
Phase balance : 90 (°)	± 3	3
Isolation (dB)	≥ 25	23
Insertion loss (dB)	≤ 0.12	0.15
Average power at 25°C (W)	225	200

MECHANICAL CHARACTERISTICS

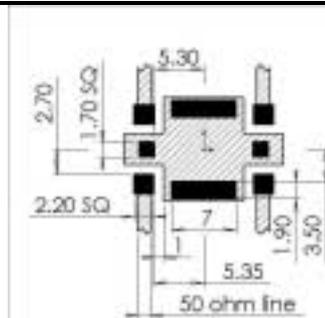
Mounting	Surface Mount Technology
RF Port finish	Chemical Sn
Weight	<u>337,1000 g</u>

ENVIRONMENTAL

Operating temperature range	-55 : +85	°C
Storage temperature range	-55 / +85	°C

SPECIFICATION

SOLDERING PATTERN



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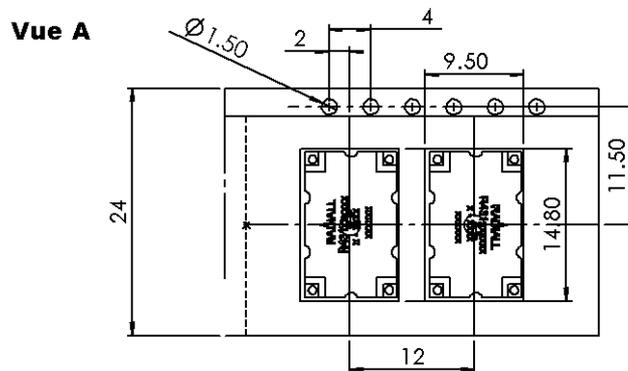
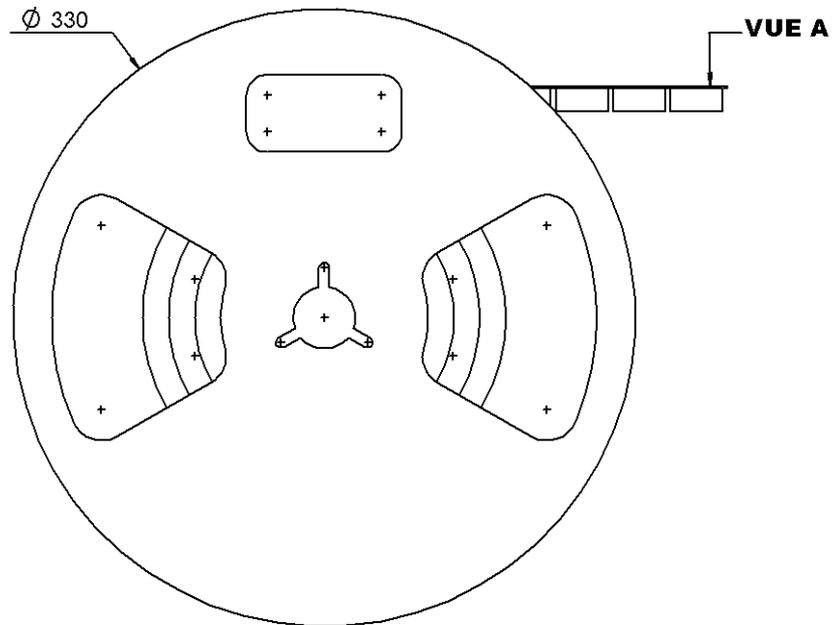
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PACKAGING



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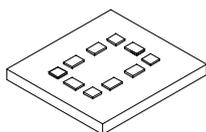
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SOLDERING GUIDELINES

① Solder cream deposition :



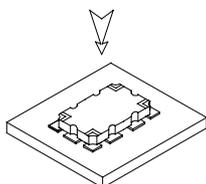
RADIALL recommends using a solder cream Sn96.5 Ag3 Cu0.5 type " no clean - low residue " (50 % solid residue of flux quantity) that will permit the elimination of the cleaning operation step after soldering . When using a conventional solder cream with high level of flux solid residue , it is important to incorporate a good cleaning operation step in the fifteen minutes after soldering .

The substrate must have chemical Sn protection . Please optically verify that the edges of the zones are clean , without contaminates and that the PCB zoned areas have not oxydated .

Solder cream may be applied on the board with screen printing or dispenser techniques . For either method , the paste solder must be coated to appropriate thickness and shapes to achieve good solder wetting and adequate insulation .

The design of the mounting pads and the stencilling area are given in the applicable note , for a thickness of the silk-screen printing of 150 µm .

② Placement of the coupler :

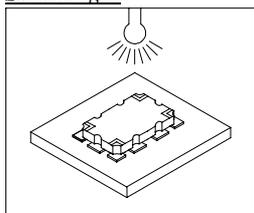


For small , lightweight components such as chip components , a self - alignment effect can be expected if small placement errors exist . However , this effect is not as expected for couplers components and they require precise positioning on their soldering pads ; typically ± 0.25 mm .

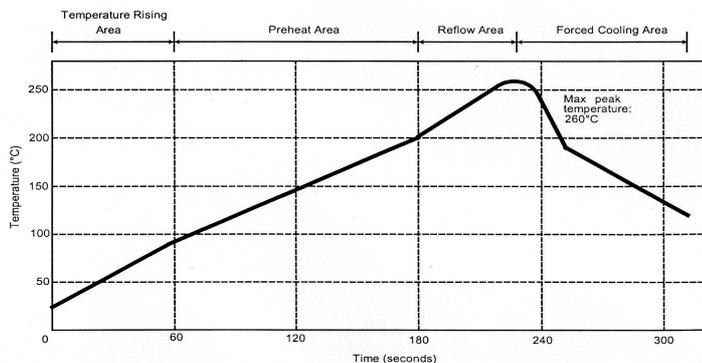
Place the coupler onto the PCB with automatic pick and place equipment . Various types of suction can be used .

RADIALL does not recommend using adhesive agents on the component or on the PCB .

③ Soldering :



Please follow RADIALL's recommended temperature profile . This profile can be used with Infra - red reflow , Vapor phase soldering and Forced air convection .



Parameter	Value	Unit
Temperature rising Area	1 - 4	°C/sec
Max Peak Temperature	260	°C
Max dwell time @ 260°C	10	sec
Min dwell time @ 235°C	20	sec
Max dwell time @ 235°C	60	sec
Temperature drop in cooling Area	-1 to - 4	°C/sec
Max dwell time above 100°C	420	sec

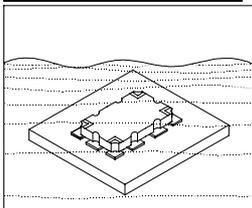
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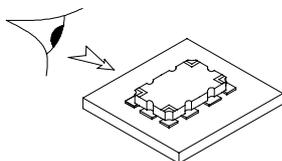


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4 Cleaning of the PCB :

When using a conventional solder cream with high level of residue , please clean the PCB with a substitute product , similar to CFC , that complies to the International Environment Agency rules . It is important to do the cleaning operation step less than fifteen minutes after reflow .
RADIALL recommends using ultrasonic waves or vapor phase process .

5 Quality check :

Verify by visual inspection that component is centred on the mounting pads .
Solder joints : verify by visual inspection that the formation of meniscus on the pads are proper , and have a capilarity amount upper the third of the height .

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