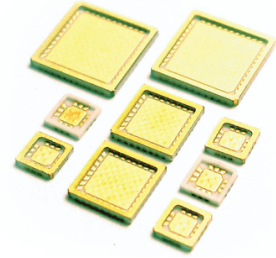
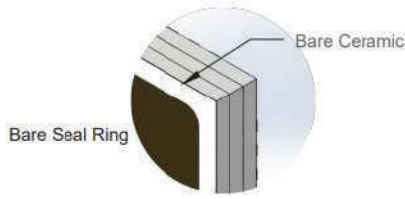


### Al<sub>2</sub>O<sub>3</sub> QFN w/ Air Cavity Features:

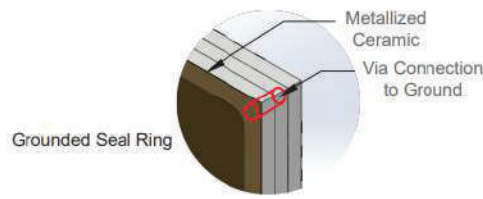
- 6 Sizes: 3mm to 8mm
- Air Cavity Design
- ENEPIG Plated
- HTCC Al<sub>2</sub>O<sub>3</sub>
- Broadband Performance
- JEDEC MO-220 Footprint
- Hermetically Sealable
- RoHS Compliant



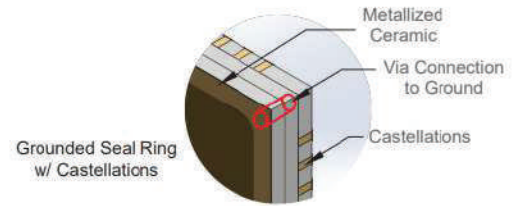
### Al<sub>2</sub>O<sub>3</sub> QFN w/ Air Cavity Options:



Bare Seal Ring



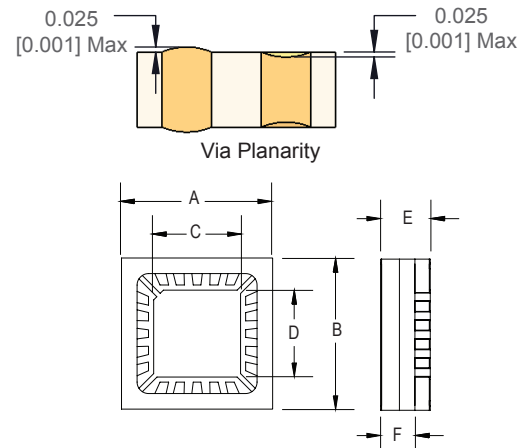
Grounded Seal Ring



Grounded Seal Ring w/ Castellations

### Al<sub>2</sub>O<sub>3</sub> QFN w/ Air Cavity Dimensions:

A & B	C & D	E	F	Pins
3.0 [0.118]	1.35 [0.053]	0.95 [0.038]	0.635 [0.025]	<b>12</b>
4.0 [0.157]	2.30 [0.091]	0.95 [0.038]	0.635 [0.025]	<b>20</b>
5.0 [0.197]	3.30 [0.130]	0.95 [0.038]	0.635 [0.025]	<b>32</b>
6.0 [0.236]	4.22 [0.166]	0.95 [0.038]	0.635 [0.025]	<b>36</b>
7.0 [0.276]	5.22 [0.206]	0.95 [0.038]	0.635 [0.025]	<b>44</b>
8.0 [0.315]	6.22 [0.245]	0.95 [0.038]	0.635 [0.025]	<b>48</b>



Dimensions in mm [inches]. Tolerance is ±0.254 [0.010] unless otherwise stated

### Al<sub>2</sub>O<sub>3</sub> QFN w/ Air Cavity Ordering Information:

Example Part Number: **QFN-4420-0522**

QFN	-	###	-	05	##
Ceramic QFN Prefix		Size		Construction	Configuration
		33 12 - 3mm C-QFN with 12 Pins		05 - HTCC Al <sub>2</sub> O <sub>3</sub>	0 - Bare Seal Ring
		44 20 - 4mm C-QFN with 20 Pins			1 - Grounded Seal Ring
		55 32 - 5mm C-QFN with 32 Pins		Cavity Depth:	2 - Grounded Seal Ring w/ Castellations
		66 36 - 6mm C-QFN with 36 Pins		2 - 0.635 [0.025]	
		77 44 - 7mm C-QFN with 44 Pins			
		88 48 - 8mm C-QFN with 48 Pins			



Plating (see following page for specifications):  
ENEPIG

RoHS	Magnetic	Solder	Epoxy	Wirebond
Yes	Yes	Yes	Yes	Yes

Barry Industries reserves the right to change part number and/or process without notification.

### Al<sub>2</sub>O<sub>3</sub> QFN w/ Air Cavity Electrical Specifications:

Frequency Range:	DC - 40GHz	
Return Loss (Typical):	20dB or Better	(DC - 12.4GHz)
	17dB or Better	(>12.4 - 18GHz)
	15dB or Better	(>18 - 35GHz)
	12.5dB or Better	(>35 - 40GHz)
Insertion Loss (Typical):	0.5dB Max	(DC - 18GHz)
	1.5dB Max	(>18 - 35GHz)
	4dB Max	(>35 - 40GHz)
Classification Temperature (J-STD-020):	260°C	
Helium Leak Rate:	10 <sup>-8</sup> atm-cc/sec	

Size:	Thermal Resistance:	Pin Count:	JEDEC MO-220 Footprint:
3mm	8°C/W	12	VEED-5
4mm	3°C/W	20	VGGD-5
5mm	1.5°C/W	32	VHHD-5
6mm	0.9°C/W	36	VJJD-5
7mm	0.6°C/W	44	VKKD-3
8mm	0.4°C/W	48	VLLD

### Al<sub>2</sub>O<sub>3</sub> QFN w/ Air Cavity Plating Configuration:

	Min.	Max.
EN (Electroless Nickel)	3.0 μm [118.1 μin]	12.0 μm [472.4 μin]
EP (Electroless Palladium)	0.05 μm [2.0 μin]	0.3 μm [11.8 μin]
IG (Immersion Gold)	0.03 μm [1.2 μin]	0.3 μm [11.8 μin]

### Al<sub>2</sub>O<sub>3</sub> QFN w/ Air Cavity Reliability Data:

Parameter:	Standard:	Condition:
Physical Dimensions	MIL-STD-883 Method 2016	
Workmanship	JEDEC JESD9C	
Solderability	MIL-STD-883 Method 2003	+245°C ±5°C
Thermal Shock	MIL-STD-883 Method 1011	C
High Temperature Bake	MIL-STD-883 Method 1008	1h @ 150°C
Lead Integrity	MIL-STD-883 Method 2004	D
Seal	MIL-STD-883 Method 1014	A4 Unlidded Cases
Metal Package Isolation	MIL-STD-883 Method 1003	600VDC - 100nA Max.

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