

S-Band Surface Mount Ferrite Circulator, 3.45 – 3.65 GHz

Technical Data Sheet

3SMH5NA

FEATURES

- Compact surface-mount package: 0.561" dia. × 0.201" max height
- Low insertion loss: 0.5 dB max (0°C to +70°C)
- High isolation: 20 dB min (0°C to +70°C)
- Excellent VSWR: 1.25:1 max
- Handles up to 10 W CW forward power
- Rugged stainless-steel housing
- SMD pick-and-place / reflow-solder compatible
- Three-port, 120° symmetric footprint

APPLICATIONS

- S-band radar transmit/receive front ends
- Electronic warfare (EW) and receiver protection
- SATCOM ground terminal and payload RF chains
- Airborne, shipboard, and ground-based radar
- Telemetry and range-safety systems
- Automated test and measurement systems



3SMH5NA
surface-mount circulator

DESCRIPTION

The 3SMH5NA is a surface-mount ferrite circulator from Renaissance Electronics & Communications, LLC, an AEM company, providing low-loss, high-isolation signal routing for S-band systems from 3.45 to 3.65 GHz. Housed in a compact stainless-steel package just 0.561" in diameter and 0.201" max height, it mounts with standard SMD pick-and-place and reflow-solder processes for space-constrained RF/microwave assemblies, with three RF terminals in a symmetric 120° pattern. The device delivers up to 20 dB isolation and as low as 0.5 dB insertion loss while handling 10 W forward CW power, with guaranteed performance across both a 0°C to +70°C commercial range and an extended –40°C to +85°C range — well suited to radar, electronic warfare, and satellite communication systems where board space and reliability are critical.

ELECTRICAL CHARACTERISTICS

PARAMETER	0°C TO +70°C	–40°C TO +85°C	UNITS
Frequency Range	3.45 – 3.65	3.45 – 3.65	GHz
Isolation (min)	20	18	dB
Insertion Loss (max)	0.5	0.6	dB
VSWR (max)	1.25 : 1	1.30 : 1	—
Forward Power, CW (max)	10	10	W
Operating Temperature	0 to +70	–40 to +85	°C

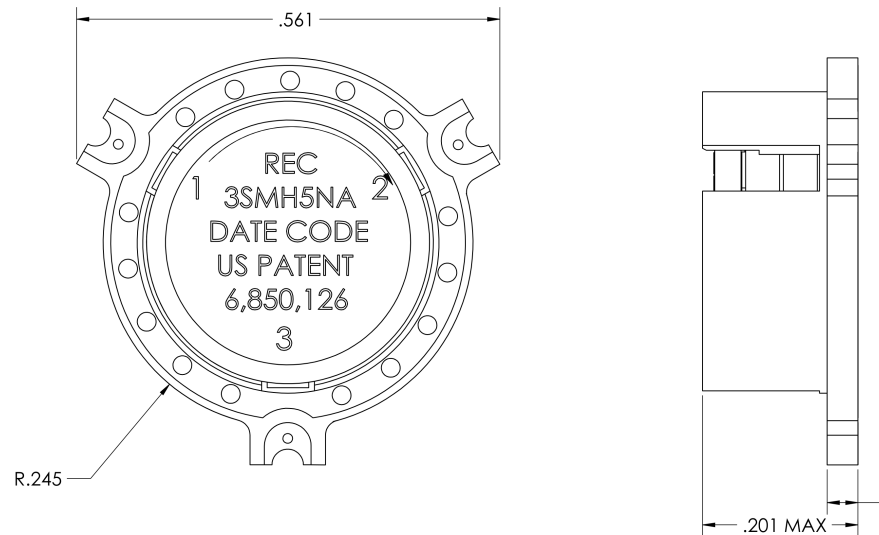
Specifications apply over the full temperature range indicated for each column. Impedance: 50 Ω.

MECHANICAL SPECIFICATIONS

Diameter	0.561" [14.3 mm]	Mounting	SMT, 3-pad, 120° symmetric
Height (max)	0.201" [5.1 mm]	Pad Size	0.062" × 0.100" (3 places)
Base Thickness	0.041" [1.04 mm]	Assembly	Pick-and-place, reflow solder
Housing Material	Stainless steel	Ports	3-port; 1 & 2 = RF, 3 = ground
Finish	PCB, silver or tin/lead	Weight	Lightweight SMD package

U.S. Patent 6,850,126. Specifications subject to change without notice. Contact factory for connectorized, waveguide, or custom frequency-band variants, screening options, or export-control documentation.

PACKAGE OUTLINE DRAWING



Front and side views, dimensions in inches. Simplified from factory outline drawing C-3SMH5NA (Rev. B); full manufacturing drawing available under NDA.

ORDERING INFORMATION

Part Number	3SMH5NA
Description	S-Band Surface Mount Ferrite Circulator, 3.45 – 3.65 GHz
Packaging	Tape & reel or bulk — specify at time of order
Lead Time	Contact factory for current lead time and MOQ

QUALITY & COMPLIANCE

- Designed and manufactured in Harvard, Massachusetts, USA
- Renaissance Electronics, an AEM company, is AS9100 certified¹
- Export-control classification (ITAR/EAR) documentation available upon request
- Screening, burn-in, and custom test data packages available for aerospace and defense programs

CONTACT

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¹ AEM, "Renaissance Electronics" brand page, <https://www.aeminc.com/en-us/aem-brands/renaissance/>