

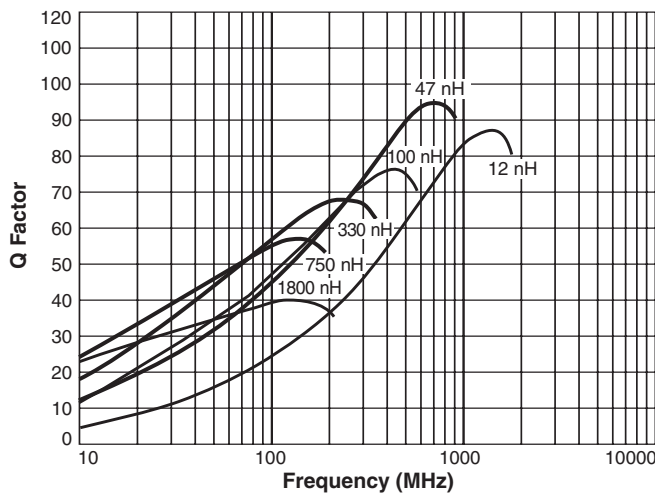
**PRELIMINARY**

# Chip Inductors – M1008CS Series (2520)

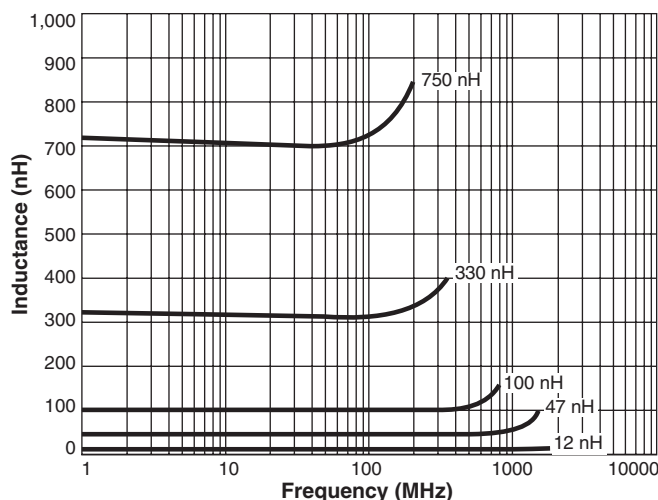
- High SRF and excellent Q values
- Tight tolerances, many values at 1%
- 39 inductance values from 10 nH to 802  $\mu$ H

This robust version of Coilcraft's standard 1008CS series features a high temperature encapsulant that allows operation in ambient temperatures up to 155°C and a leach-resistant base metalization with 63/37 tin-lead terminations that ensures the best possible board adhesion.

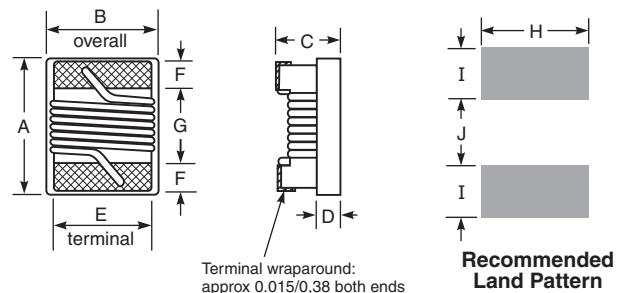
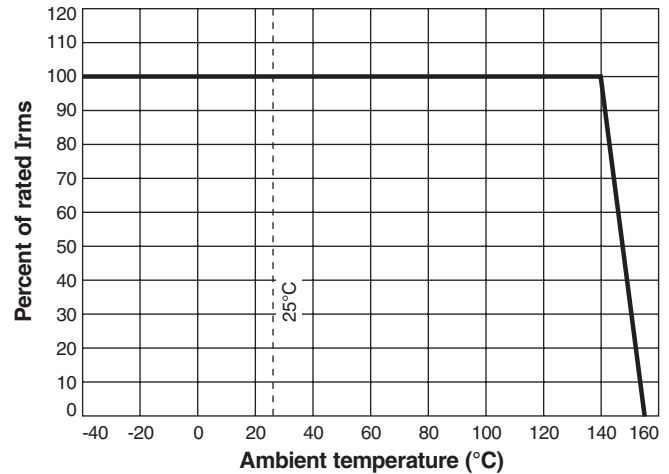
## Typical Q vs Frequency



## Typical L vs Frequency



## Irms Derating



| A max | B max | C max | D ref | E     | F     | G     | H     | I     | J     |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.115 | 0.110 | 0.080 | 0.020 | 0.080 | 0.020 | 0.060 | 0.100 | 0.040 | 0.050 |
| 2,92  | 2,79  | 2,03  | 0,51  | 2,03  | 0,51  | 1,52  | 2,54  | 1,02  | 1,27  |

**Core material** Ceramic

**Terminations** Tin-lead (63/37) over silver-palladium-platinum-glass frit

**Ambient temperature** -55°C to +140°C with I<sub>rms</sub> current, +140°C to +155°C with derated current

**Storage temperature** Component: -55°C to +155°C.  
Packaging: -55°C to +80°C

**Resistance to soldering heat** Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles

**Temperature Coefficient of Inductance (TCL)** +25 to +125 ppm/°C

**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°C / 85% relative humidity)

**Enhanced Crush-Resistant Packaging** 2000 per 7" reel  
Plastic tape: 8 mm wide, 0.3 mm thick, 4 mm pocket spacing, 2.0 mm pocket depth



These parts are preproduction products for electrical evaluation only.  
Specification subject to change without notice.

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**PRELIMINARY****M1008CS Series (2520)**

| Part number <sup>1</sup> | Inductance <sup>2</sup><br>(nH) | Percent<br>tolerance | Q min <sup>3</sup> | SRF min <sup>4</sup><br>(MHz) | DCR max <sup>5</sup><br>(Ohms) | Irms <sup>6</sup><br>(mA) |
|--------------------------|---------------------------------|----------------------|--------------------|-------------------------------|--------------------------------|---------------------------|
| M1008CS-100X_S_          | 10 @ 50 MHz                     | 5,2                  | 50 @ 500 MHz       | 4100                          | 0.08                           | 1000                      |
| M1008CS-120X_S_          | 12 @ 50 MHz                     | 5,2                  | 50 @ 500 MHz       | 3300                          | 0.09                           | 1000                      |
| M1008CS-150X_S_          | 15 @ 50 MHz                     | 5,2                  | 50 @ 500 MHz       | 2500                          | 0.10                           | 1000                      |
| M1008CS-180X_S_          | 18 @ 50 MHz                     | 5,2                  | 50 @ 350 MHz       | 2500                          | 0.11                           | 1000                      |
| M1008CS-220X_S_          | 22 @ 50 MHz                     | 5,2,1                | 55 @ 350 MHz       | 2400                          | 0.12                           | 1000                      |
| M1008CS-270X_S_          | 27 @ 50 MHz                     | 5,2                  | 55 @ 350 MHz       | 1600                          | 0.13                           | 1000                      |
| M1008CS-330X_S_          | 33 @ 50 MHz                     | 5,2                  | 60 @ 350 MHz       | 1600                          | 0.14                           | 1000                      |
| M1008CS-390X_S_          | 39 @ 50 MHz                     | 5,2                  | 60 @ 350 MHz       | 1500                          | 0.15                           | 1000                      |
| M1008CS-470X_S_          | 47 @ 50 MHz                     | 5,2,1                | 65 @ 350 MHz       | 1500                          | 0.16                           | 1000                      |
| M1008CS-560X_S_          | 56 @ 50 MHz                     | 5,2,1                | 65 @ 350 MHz       | 1300                          | 0.18                           | 1000                      |
| M1008CS-680X_S_          | 68 @ 50 MHz                     | 5,2,1                | 65 @ 350 MHz       | 1300                          | 0.20                           | 1000                      |
| M1008CS-820X_S_          | 82 @ 50 MHz                     | 5,2,1                | 60 @ 350 MHz       | 1000                          | 0.22                           | 1000                      |
| M1008CS-101X_S_          | 100 @ 25 MHz                    | 5,2,1                | 60 @ 350 MHz       | 1000                          | 0.56                           | 650                       |
| M1008CS-121X_S_          | 120 @ 25 MHz                    | 5,2,1                | 60 @ 350 MHz       | 950                           | 0.63                           | 650                       |
| M1008CS-151X_S_          | 150 @ 25 MHz                    | 5,2,1                | 45 @ 100 MHz       | 850                           | 0.70                           | 580                       |
| M1008CS-181X_S_          | 180 @ 25 MHz                    | 5,2,1                | 45 @ 100 MHz       | 750                           | 0.77                           | 620                       |
| M1008CS-221X_S_          | 220 @ 25 MHz                    | 5,2,1                | 45 @ 100 MHz       | 700                           | 0.84                           | 500                       |
| M1008CS-271X_S_          | 270 @ 25 MHz                    | 5,2,1                | 45 @ 100 MHz       | 600                           | 0.91                           | 500                       |
| M1008CS-331X_S_          | 330 @ 25 MHz                    | 5,2,1                | 45 @ 100 MHz       | 570                           | 1.05                           | 450                       |
| M1008CS-391X_S_          | 390 @ 25 MHz                    | 5,2,1                | 45 @ 100 MHz       | 500                           | 1.12                           | 470                       |
| M1008CS-471X_S_          | 470 @ 25 MHz                    | 5,2,1                | 45 @ 100 MHz       | 450                           | 1.19                           | 470                       |
| M1008CS-561X_S_          | 560 @ 25 MHz                    | 5,2,1                | 45 @ 100 MHz       | 415                           | 1.33                           | 400                       |
| M1008CS-621X_S_          | 620 @ 25 MHz                    | 5,2,1                | 45 @ 100 MHz       | 375                           | 1.40                           | 300                       |
| M1008CS-681X_S_          | 680 @ 25 MHz                    | 5,2,1                | 45 @ 100 MHz       | 375                           | 1.47                           | 400                       |
| M1008CS-751X_S_          | 750 @ 25 MHz                    | 5,2,1                | 45 @ 100 MHz       | 360                           | 1.54                           | 360                       |
| M1008CS-821X_S_          | 820 @ 25 MHz                    | 5,2,1                | 45 @ 100 MHz       | 350                           | 1.61                           | 400                       |
| M1008CS-911X_S_          | 910 @ 25 MHz                    | 5,2,1                | 35 @ 50 MHz        | 320                           | 1.68                           | 380                       |
| M1008CS-102X_S_          | 1000 @ 25 MHz                   | 5,2,1                | 35 @ 50 MHz        | 290                           | 1.75                           | 370                       |
| M1008CS-122X_S_          | 1200 @ 7.9 MHz                  | 5,2                  | 35 @ 50 MHz        | 250                           | 2.0                            | 310                       |
| M1008CS-152X_S_          | 1500 @ 7.9 MHz                  | 5,2                  | 28 @ 50 MHz        | 200                           | 2.3                            | 330                       |
| M1008CS-182X_S_          | 1800 @ 7.9 MHz                  | 5,2                  | 28 @ 50 MHz        | 160                           | 2.6                            | 300                       |
| M1008CS-222X_S_          | 2200 @ 7.9 MHz                  | 5,2                  | 28 @ 50 MHz        | 160                           | 2.8                            | 280                       |
| M1008CS-272X_S_          | 2700 @ 7.9 MHz                  | 5,2                  | 22 @ 25 MHz        | 140                           | 3.2                            | 290                       |
| M1008CS-332X_S_          | 3300 @ 7.9 MHz                  | 5,2                  | 22 @ 25 MHz        | 110                           | 3.4                            | 290                       |
| M1008CS-392X_S_          | 3900 @ 7.9 MHz                  | 5,2                  | 20 @ 25 MHz        | 100                           | 3.6                            | 260                       |
| M1008CS-472X_S_          | 4700 @ 7.9 MHz                  | 5,2                  | 20 @ 25 MHz        | 90                            | 4.0                            | 260                       |
| M1008CS-562X_S_          | 5600 @ 7.9 MHz                  | 5                    | 16 @ 7.9 MHz       | 20                            | 4.0                            | 240                       |
| M1008CS-682X_S_          | 6800 @ 7.9 MHz                  | 5                    | 18 @ 7.9 MHz       | 40                            | 4.9                            | 200                       |
| M1008CS-822X_S_          | 8200 @ 7.9 MHz                  | 5                    | 18 @ 7.9 MHz       | 25                            | 6.0                            | 170                       |

1. When ordering, please specify **tolerance** code:

M1008CS-822X **J**

**Tolerance:** F = 1% G = 2% J = 5%

2. Inductance measured using a Coilcraft SMD-A fixture in an Agilent/HP 4286A impedance analyzer with Coilcraft-provided correlation pieces.

3. Q measured using an Agilent/HP 4291A with an Agilent/HP 16193 test fixture.

4. SRF measured using an Agilent/HP 8753D network analyzer and a Coilcraft SMD-D test fixture.

5. DCR measured on a Cambridge Technology micro-ohmmeter and a Coilcraft CCF840 test fixture.

6. Current that causes a 15°C temperature rise from 25°C ambient.

7. Electrical specifications at 25°C.

Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



**Critical Products**

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