

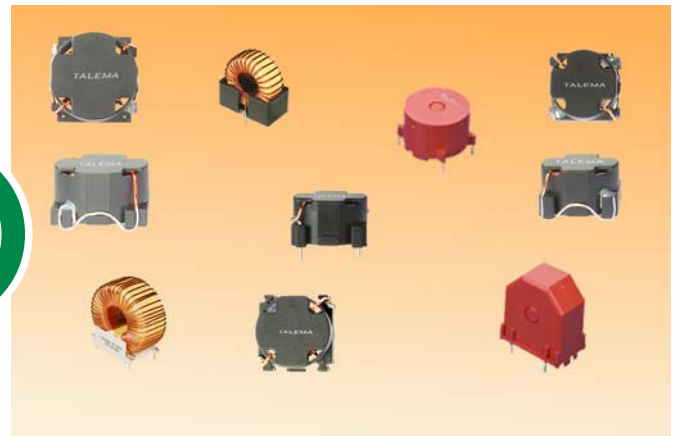


## SH50 Series • Inductors for National's 50kHz Simple Switcher™

Compatible with National Semiconductor's Simple Switcher™ Part Number's LM2574, LM2475 and LM2576

### Features

- High energy storage with minimum saturation
- High stability from no load to full load
- Available in both SMD and THT versions
- Manufactured in ISO-9001:2000, TS-16949:2002 and ISO-14001:2004 certified Talema facility
- Meets lead free reflow level J-STD-020C
- Fully RoHS compliant



### Electrical Specifications @ 25°C

Test voltage between windings: 500 Vrms

Operating temperature range: -40°C to +125°C

Climatic Category: IEC68-1 40/125/56

Test frequency: Inductance measured @ 10kHz / 10mV

| Part Number     | Rated Current (I <sub>DC</sub> ) | L <sub>N</sub> (μH) Typical * | L <sub>O</sub> (μH) ±20% No DC Load | ET <sub>OP</sub> (V-μSec) Max. | DCR (Ohms) Max. | Package |     |     |     |     |     |
|-----------------|----------------------------------|-------------------------------|-------------------------------------|--------------------------------|-----------------|---------|-----|-----|-----|-----|-----|
|                 |                                  |                               |                                     |                                |                 | "C"     | "S" | "T" | "B" | "F" | "V" |
| SH50_-3.0-47    | 3.0                              | 47                            | 38                                  | 90                             | 0.05            | 2       | 5   | 5   |     |     |     |
| SH50C-3.0-68    | 3.0                              | 68                            | 55                                  | 90                             | 0.02            | 4       |     |     |     |     |     |
| SH50C-5.0-36    | 5.0                              | 36                            | 55                                  | 90                             | 0.02            | 4       |     |     |     |     |     |
| SH50C-3.0-100   | 3.0                              | 100                           | 91                                  | 90                             | 0.04            | 4       |     |     |     |     |     |
| SH50_-2.0-150   | 2.0                              | 150                           | 130                                 | 90                             | 0.10            | 4       | 6A  | 6A  |     |     |     |
| SH50_-1.4-220   | 1.4                              | 220                           | 230                                 | 90                             | 0.38            |         | 5   | 5   |     | 2   | 2   |
| SH50_-1.4-176   | 1.4                              | 220                           | 176                                 | 90                             | 0.14            | 3       | 6A  | 6A  |     |     |     |
| SH50_-0.9-330   | 0.9                              | 330                           | 302                                 | 90                             | 0.74            |         | 5   | 5   |     | 2   | 2   |
| SH50_-0.9-267   | 0.9                              | 330                           | 267                                 | 90                             | 0.18            | 3       | 6A  | 6A  |     |     |     |
| SH50C-0.64-470  | 0.64                             | 470                           | 426                                 | 90                             | 0.16            | 4       |     |     |     |     |     |
| SH50_-0.85-680  | 0.85                             | 680                           | 657                                 | 90                             | 1.25            |         | 5   | 5   |     | 2   | 2   |
| SH50C-3.0-150   | 3.0                              | 150                           | 136                                 | 200                            | 0.10            | 4       |     |     |     |     |     |
| SH50C-3.0-220   | 3.0                              | 220                           | 167                                 | 200                            | 0.07            | 5       |     |     |     |     |     |
| SH50C-3.0-330   | 3.0                              | 330                           | 292                                 | 200                            | 0.15            | 5       |     |     |     |     |     |
| SH50C-2.0-470   | 2.0                              | 470                           | 369                                 | 200                            | 0.17            | 5       |     |     |     |     |     |
| SH50C-1.3-680   | 1.3                              | 680                           | 562                                 | 200                            | 0.20            | 5       |     |     |     |     |     |
| SH50C-0.95-1000 | 0.95                             | 1000                          | 762                                 | 200                            | 0.24            | 5       |     |     |     |     |     |
| SH50B-0.62-1500 | 0.62                             | 1500                          | 1150                                | 200                            | 1.00            |         |     |     | 8   |     |     |
| SH50B-0.42-2200 | 0.42                             | 2200                          | 1730                                | 200                            | 1.80            |         |     |     | 8   |     |     |

### Notes:

- 1) Inductance will be typical for the I<sub>DC</sub> and ET<sub>OP</sub> values listed above.
- 2) No load Inductance measured at B<sub>OP</sub> maximum of 10 gauss (10mV @ 20kHz).
- 3) Simple Switcher™ is a trademark of National Semiconductor Corporation.

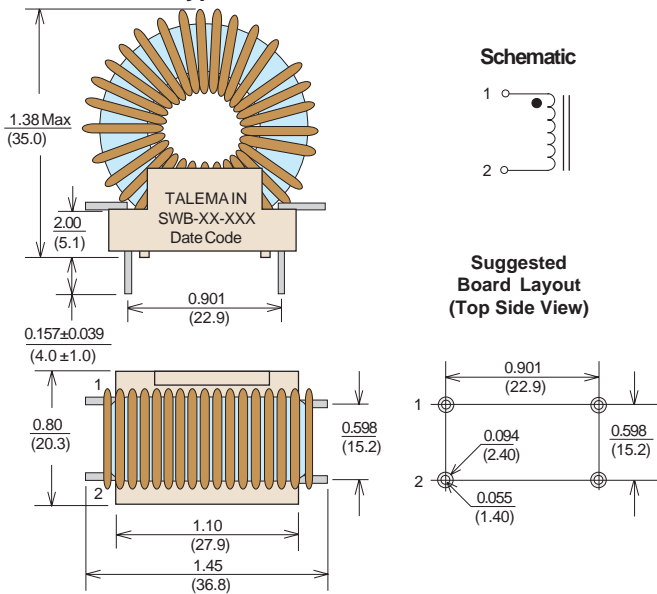
### Ordering Key

SH50 C - 3.0 - 47

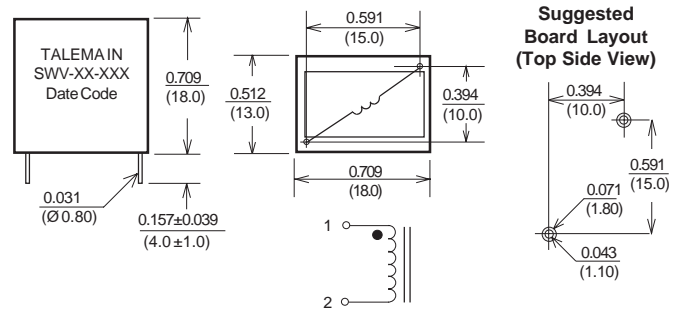
- Inductance Value in μH
- Current Rating (Amps)
- Mounting Style - Specify the appropriate suffix
  - C = Clip Mount
  - S = Surface Mount (S5 or S6)
  - T = Low Profile TH Mount
  - B = Base Mount
  - F = Flat Encapsulated
  - V = Vertical Encapsulated
- Basic Series Designation

# Mounting Styles • SH50 Series - Low Cost Toroidal Inductors

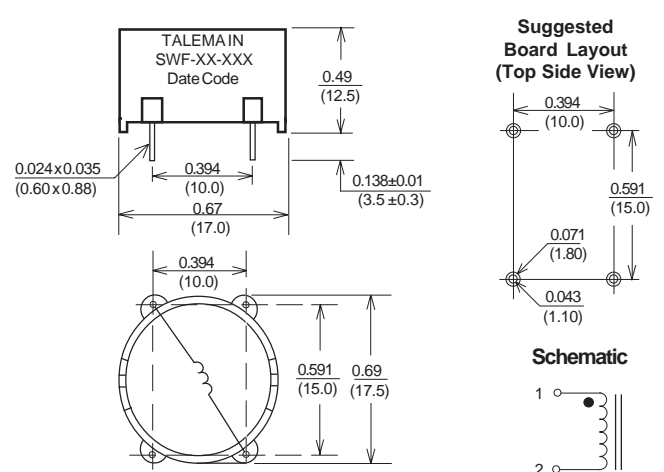
## Type SH50B - Vertical Mount



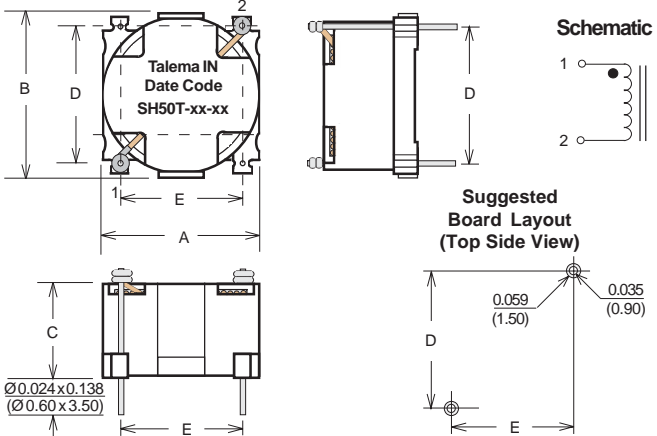
## Type SH50V - Vertical Mount - Size 2



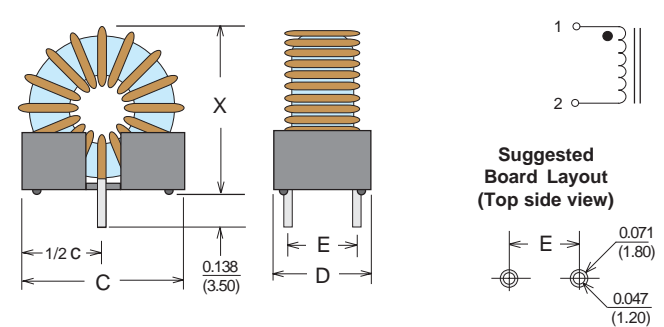
## Type SH50F - Flat Mount - Size 2



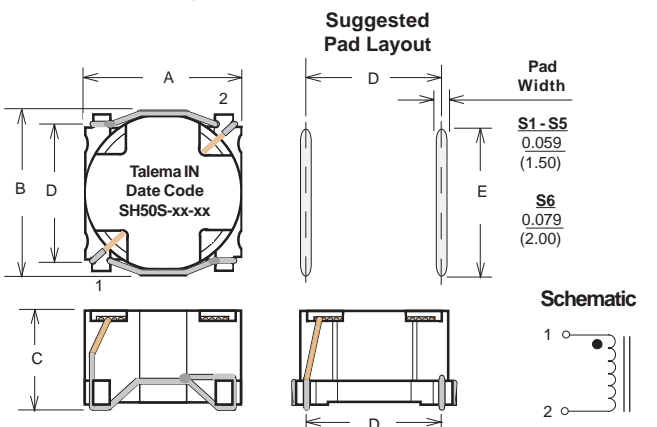
## Type SH50T - Through Hole Mount



## Type SH50C - Clip Mount



## Type SH50S - Surface Mount



Surface Coplanarity will be <0.005(0.13)

| Mounting Style          | Size Code | Dimensions - Inches (mm) |              |              |                 |
|-------------------------|-----------|--------------------------|--------------|--------------|-----------------|
|                         |           | C                        | D            | E            | X = Coil O.D. + |
| "C" Vertical Clip Mount | C2        | 0.650 (16.5)             | 0.449 (11.4) | 0.299 (7.60) | 0.110 (2.80)    |
|                         | C3        | 0.827 (21.0)             | 0.449 (11.4) | 0.299 (7.60) | 0.110 (2.80)    |
|                         | C4        | 0.949 (24.1)             | 0.598 (15.2) | 0.449 (11.4) | 0.110 (2.80)    |
|                         | C5        | 1.252 (31.8)             | 0.701 (17.8) | 0.500 (12.7) | 0.130 (3.30)    |

| Mounting Style | Size Code | Dimensions - Inches ±0.010 (mm ±0.25) |              |              |              |              | Mounting Style | Size Code | Dimensions - Inches ±0.010 (mm ±0.25) |              |              |               |               |
|----------------|-----------|---------------------------------------|--------------|--------------|--------------|--------------|----------------|-----------|---------------------------------------|--------------|--------------|---------------|---------------|
|                |           | A                                     | B            | C            | D            | E            |                |           | A                                     | B            | C            | D             | E             |
| "S" SMD        | S5        | 0.669 (17.0)                          | 0.701 (17.8) | 0.441 (11.2) | 0.591 (15.0) | 0.630 (16.0) | "T" THT        | T5        | 0.669 (17.0)                          | 0.701 (17.8) | 0.409 (10.4) | 0.600 (15.24) | 0.500 (12.7)  |
|                | SH6A      | 0.925 (23.5)                          | 0.957 (24.3) | 0.445 (11.3) | 0.843 (21.4) | 0.748 (19.0) |                | TH6A      | 0.925 (23.5)                          | 0.957 (24.3) | 0.386 (9.8)  | 0.650 (16.51) | 0.800 (20.32) |