Features

- High saturation current
- Inductance range: 1.2 to 220 µH
- Heating current up to 5.3 A
- Dimensions: 5.8 x 5.2 x 4.5 mm
- AEC-Q200 compliant
- RoHS compliant* and halogen free**

SDE0604A Series - SMD Power Inductors

**RoHS and AEC-Q200 COMPLIANT

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WARNING  Cancer and Reproductive Harm - www.P65Warnings.ca.gov

<table>
<thead>
<tr>
<th>Bourns Part Number</th>
<th>Inductance (µH)</th>
<th>Test Freq./ Voltage</th>
<th>SRF (MHz) Typ.</th>
<th>DCR (Ω) Typ.</th>
<th>DCR (Ω) Max.</th>
<th>I rms (A)</th>
<th>I sat (A)</th>
<th>**K-Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDE0604A-1R2M</td>
<td>1.2 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.016</td>
<td>0.02</td>
<td>5.3</td>
<td>6.0</td>
<td>355</td>
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<tr>
<td>SDE0604A-1R5M</td>
<td>1.5 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.0185</td>
<td>0.024</td>
<td>5.0</td>
<td>5.3</td>
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<td>SDE0604A-2R2M</td>
<td>2.2 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.0229</td>
<td>0.031</td>
<td>4.35</td>
<td>4.2</td>
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<tr>
<td>SDE0604A-2R7M</td>
<td>2.7 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.0278</td>
<td>0.055</td>
<td>4.0</td>
<td>3.8</td>
<td>220</td>
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<tr>
<td>SDE0604A-3R3M</td>
<td>3.3 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.0299</td>
<td>0.06</td>
<td>3.8</td>
<td>3.5</td>
<td>200</td>
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<tr>
<td>SDE0604A-3R9M</td>
<td>3.9 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.034</td>
<td>0.065</td>
<td>3.6</td>
<td>3.2</td>
<td>184</td>
</tr>
<tr>
<td>SDE0604A-4R7M</td>
<td>4.7 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.0382</td>
<td>0.07</td>
<td>3.4</td>
<td>3.0</td>
<td>171</td>
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<tr>
<td>SDE0604A-5R6M</td>
<td>5.6 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.0419</td>
<td>0.075</td>
<td>3.2</td>
<td>2.75</td>
<td>159</td>
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<tr>
<td>SDE0604A-6R8M</td>
<td>6.8 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.0467</td>
<td>0.08</td>
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<tr>
<td>SDE0604A-8R2M</td>
<td>8.2 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.0537</td>
<td>0.09</td>
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<td>2.2</td>
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<tr>
<td>SDE0604A-100M</td>
<td>10 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.0621</td>
<td>0.10</td>
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<td>2.0</td>
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<tr>
<td>SDE0604A-120M</td>
<td>12 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.0675</td>
<td>0.12</td>
<td>2.5</td>
<td>1.85</td>
<td>107</td>
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<tr>
<td>SDE0604A-150M</td>
<td>15 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.0947</td>
<td>0.14</td>
<td>2.3</td>
<td>1.65</td>
<td>94</td>
</tr>
<tr>
<td>SDE0604A-180M</td>
<td>18 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.114</td>
<td>0.15</td>
<td>2.0</td>
<td>1.5</td>
<td>87</td>
</tr>
<tr>
<td>SDE0604A-220M</td>
<td>22 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.128</td>
<td>0.18</td>
<td>1.8</td>
<td>1.35</td>
<td>78</td>
</tr>
<tr>
<td>SDE0604A-270M</td>
<td>27 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.14</td>
<td>0.2</td>
<td>1.7</td>
<td>1.2</td>
<td>71</td>
</tr>
<tr>
<td>SDE0604A-330M</td>
<td>33 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.184</td>
<td>0.23</td>
<td>1.55</td>
<td>1.1</td>
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<tr>
<td>SDE0604A-390M</td>
<td>39 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.215</td>
<td>0.32</td>
<td>1.4</td>
<td>1.0</td>
<td>58</td>
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<tr>
<td>SDE0604A-470M</td>
<td>47 ± 20</td>
<td>1 MHz / 1 V</td>
<td>20</td>
<td>0.258</td>
<td>0.57</td>
<td>1.25</td>
<td>0.9</td>
<td>53</td>
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<tr>
<td>SDE0604A-560K</td>
<td>56 ± 10</td>
<td>1 MHz / 1 V</td>
<td>12</td>
<td>0.298</td>
<td>0.42</td>
<td>1.1</td>
<td>0.82</td>
<td>50</td>
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<tr>
<td>SDE0604A-680K</td>
<td>68 ± 10</td>
<td>1 MHz / 1 V</td>
<td>12</td>
<td>0.343</td>
<td>0.46</td>
<td>1.0</td>
<td>0.74</td>
<td>45</td>
</tr>
<tr>
<td>SDE0604A-820K</td>
<td>82 ± 10</td>
<td>1 MHz / 1 V</td>
<td>8</td>
<td>0.436</td>
<td>0.6</td>
<td>0.9</td>
<td>0.68</td>
<td>42</td>
</tr>
<tr>
<td>SDE0604A-101K</td>
<td>100 ± 10</td>
<td>1 kHz / 1 V</td>
<td>7.5</td>
<td>0.559</td>
<td>0.7</td>
<td>0.8</td>
<td>0.62</td>
<td>38</td>
</tr>
<tr>
<td>SDE0604A-121K</td>
<td>120 ± 10</td>
<td>1 kHz / 1 V</td>
<td>7.5</td>
<td>0.599</td>
<td>0.9</td>
<td>0.75</td>
<td>0.6</td>
<td>35</td>
</tr>
<tr>
<td>SDE0604A-151K</td>
<td>150 ± 10</td>
<td>1 kHz / 1 V</td>
<td>7</td>
<td>0.9</td>
<td>1.1</td>
<td>0.52</td>
<td>0.52</td>
<td>31</td>
</tr>
<tr>
<td>SDE0604A-181K</td>
<td>180 ± 10</td>
<td>1 kHz / 1 V</td>
<td>6</td>
<td>1.03</td>
<td>1.38</td>
<td>0.5</td>
<td>0.5</td>
<td>29</td>
</tr>
<tr>
<td>SDE0604A-221K</td>
<td>220 ± 10</td>
<td>1 kHz / 1 V</td>
<td>5</td>
<td>1.325</td>
<td>1.57</td>
<td>0.47</td>
<td>0.47</td>
<td>25.8</td>
</tr>
</tbody>
</table>

***K-Factor: To calculate core flux density, Bp-p (gauss) = K x L(µH) x ΔI (peak-to-peak ripple current, A), determine core loss from Core Loss vs. Flux Density.

Core Loss vs. Flux Density

<table>
<thead>
<tr>
<th>Flux Density Bp-p (gauss)</th>
<th>Core Loss (mW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 MHz</td>
<td>10000</td>
</tr>
<tr>
<td>500 KHz</td>
<td>1000</td>
</tr>
<tr>
<td>50 KHz</td>
<td>100</td>
</tr>
<tr>
<td>100 KHz</td>
<td>15</td>
</tr>
</tbody>
</table>

General Specifications

Operating Temperature
-40 °C to +125 °C (Temperature rise included)

Storage Temperature
-40 °C to +125 °C

Resistance to Solder Heat
+250 °C for 10 sec.

Temperature Rise
40 °C typ. at rated Irms

Inductance Drop
10 % typ. at Isat

Temperature Sensitivity Level
1

ESD Classification (HBM)
N/A

Materials

Core: Ferrite Wire: Enameled copper

Terminal Finish: Sn

Packaging: 1000 pcs. per reel

Recommended Layout

Warning: Cancer and Reproductive Harm - www.P65Warnings.ca.gov

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** Bourns considers a product to be “halogen free” if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.
## Inductance vs. IDC

**SDE0604A-3R3M**

- L @ 25 °C
- L @ 125 °C

**SDE0604A-100M**

- L @ 25 °C
- L @ 125 °C

**SDE0604A-330M**

- L @ 25 °C
- L @ 125 °C

**SDE0604A-101K**

- L @ 25 °C
- L @ 125 °C

### Temperature Rise vs. IDC

**SDE0604A-3R3M**

- ΔT @ 25 °C

**SDE0604A-100M**

- ΔT @ 25 °C

**SDE0604A-330M**

- ΔT @ 25 °C

**SDE0604A-101K**

- ΔT @ 25 °C

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**How to Order**

- **Model**: SDE0604A - 100M
- **Value Code**: (see table)

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SDE0604A Series - SMD Power Inductors

Soldering Profile

Peak Temperature: 250 °C
Max. Peak Temperature -5 °C: 30 sec. max.
Max. Time Above 217 °C: 90-150 sec. max.

Packaging Specifications

QTY: 1,000 PCS. PER REEL

REV. 12/18
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