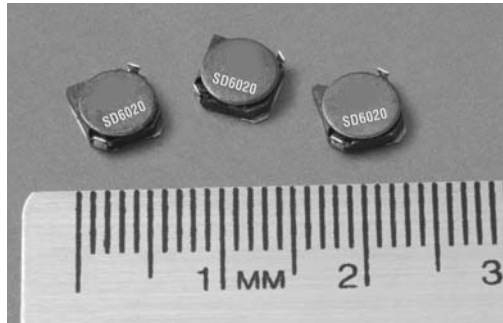


# SD6020

## Low profile shielded drum core power inductors



### Product features

- Low profile surface mount shielded drum core inductors
- 6.0 mm x 6.0 mm x 2.0 mm surface mount package
- Ferrite core material
- Inductance range from 1.99 uH to 100 uH
- Current range from 0.36 A to 4.2 A
- Frequency range up to 1 MHz

### Applications

- Notebook, laptop computers
- Digital cameras
- LED Drivers
- TFT LCD Bias supplies
- Wireless handsets,
- Handheld instruments
- Gaming consoles
- GPS devices
- Battery backup/power
- DC-DC Converters,
- Buck-boost regulators

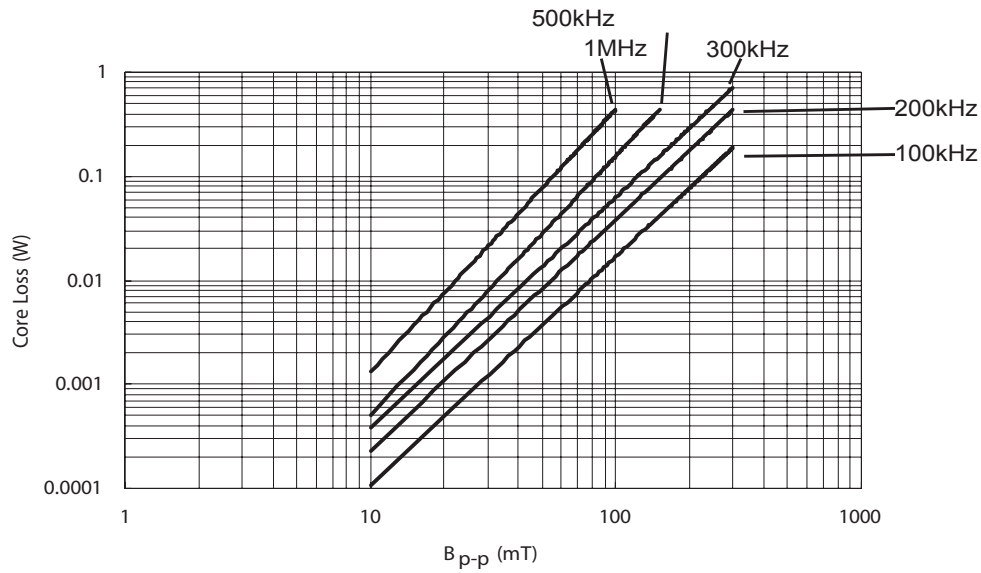
### Environmental data

- Storage temperature range (component): -40 °C to +125 °C
- Operating temperature range: -40 °C to +125 °C (ambient plus self-temperature rise)
- Solder reflow temperature: J-STD-020 (latest revision) compliant

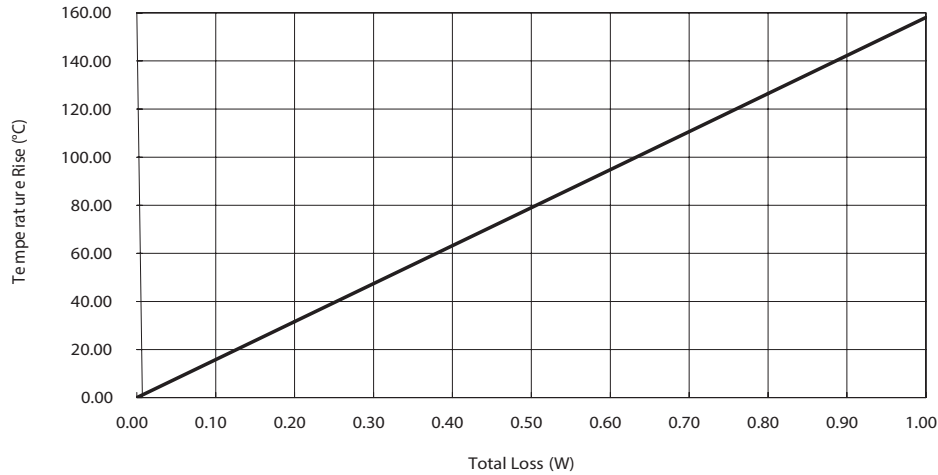




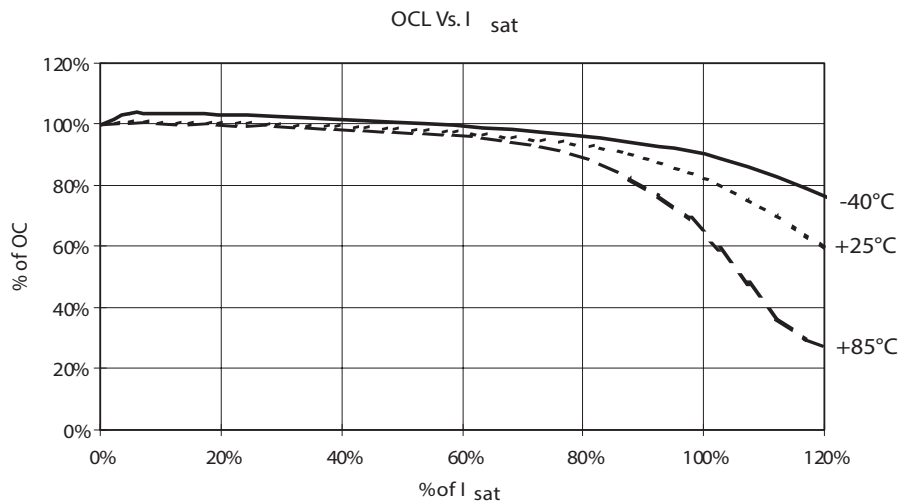
**Core loss vs Bp-p**



**Temperature rise vs total loss**



**Inductance characteristics**



### Solder Reflow Profile

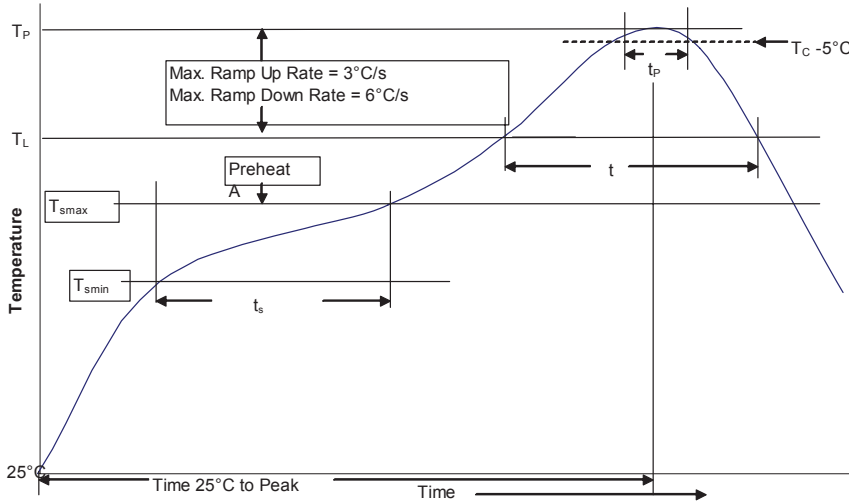


Table 1 - Standard SnPb Solder ( $T_c$ )

| Package Thickness | Volume $\text{mm}^3$ <350 | Volume $\text{mm}^3$ $\geq$ 350 |
|-------------------|---------------------------|---------------------------------|
| <2.5mm            | 235°C                     | 220°C                           |
| $\geq$ 2.5mm      | 220°C                     | 220°C                           |

Table 2 - Lead (Pb) Free Solder ( $T_c$ )

| Package Thickness | Volume $\text{mm}^3$ <350 | Volume $\text{mm}^3$ 350 - 2000 | Volume $\text{mm}^3$ >2000 |
|-------------------|---------------------------|---------------------------------|----------------------------|
| <1.6mm            | 260°C                     | 260°C                           | 260°C                      |
| 1.6 – 2.5mm       | 260°C                     | 250°C                           | 245°C                      |
| >2.5mm            | 250°C                     | 245°C                           | 245°C                      |

### Reference JDEC J-STD-020

| Profile Feature  | Standard SnPb Solder                          | Lead (Pb) Free Solder |
|--|---|-----------------------|
| Preheat and Soak   | • Temperature min. ( $T_{smin}$ )             | 100°C                 |
|  | • Temperature max. ( $T_{smax}$ )             | 150°C                 |
|  | • Time ( $T_{smin}$ to $T_{smax}$ ) ( $t_s$ ) | 60-120 Seconds        |
| Average ramp up rate $T_{smax}$ to $T_p$   | 3°C/ Second Max.                              | 3°C/ Second Max.      |
| Liquidous temperature ( $T_L$ )  | 183°C   | 217°C                 |
| Time at liquidous ( $t_L$ )  | 60-150 Seconds                                | 60-150 Seconds        |
| Peak package body temperature ( $T_p$ )*   | Table 1                                       | Table 2               |
| Time ( $t_p$ )** within 5 °C of the specified classification temperature ( $T_c$ ) | 20 Seconds**                                  | 30 Seconds**          |
| Average ramp-down rate ( $T_p$ to $T_{smax}$ )                                     | 6°C/ Second Max.                              | 6°C/ Second Max.      |
| Time 25°C to Peak Temperature  | 6 Minutes Max.                                | 8 Minutes Max.        |

\* Tolerance for peak profile temperature ( $T_p$ ) is defined as a supplier minimum and a user maximum.

\*\* Tolerance for time at peak profile temperature ( $t_p$ ) is defined as a supplier minimum and a user maximum.

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