Low-Profile, Shielded Drum Core, Tapped Inductor

SDT30 Series

Description

- Halogen Free
- Approved for use with Maxim® MAX14521 chip set
- 125°C maximum total temperature operation
- 3.1 x 3.1 x 1.0mm shielded drum core
- Ferrite core material
- Low losses
- High efficiency
- Reduces peak output currents
- Magnetically shielded, low EMI
- RoHS compliant

Applications

- Keypads
- Instrument clusters
- EL backlighting
- Buck or boost inductor

Environmental Data

- Storage temperature range: -40°C to +125°C
- Operating temperature range: -40°C to +125°C (with derated current)
- Solder reflow temperature: J-STD-020D compliant

Packaging

- Supplied in tape-and-reel packaging, 5000 parts per reel, 13” diameter reel
- Also supplied in tape-and-reel packaging, 7” diameter reel. See product specifications table note 5 below.

Product Specifications

Part Number[5]	Pin Numbers	OCL[1] (µH)	Part Marking Designator	Turns Raito Primary:Secondary	I_{rms}[2] (Amps)	I_{sat}[3] (Amps) @25°C	DCR (mΩ) @20°C	K-factor[4]
SDT30-127-R	(1 - 2) Primary	2.9 ± 30%	A	1:7	0.60	0.85	0.41 ± 15%	856.0
	(2 - 3) Secondary	148 ± 20%			0.13	0.12	9.0 ± 15%	N/A

1 Open Circuit Inductance (OCL) Test Parameters: 100kHz, 0.10V_{rms}, 0.0Adc

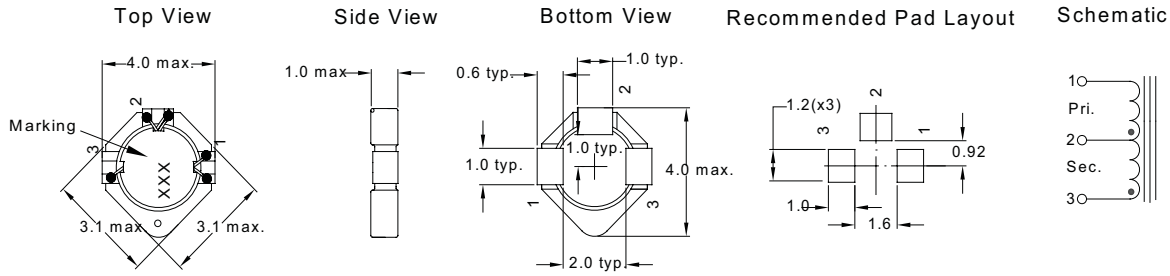
2 I_{rms}: DC current for an approximate temperature rise of 40°C without core loss when either the primary or secondary winding is running separately. Derating is necessary for AC currents. PCB pad layout, trace thickness and width, air-flow and proximity of other heat generating components will affect the temperature rise. It is recommended the part temperature not exceed 125°C under worst case operating conditions verified in the end application.

3 I_{sat}: Peak current for approximately 30% rolloff at +25°C of primary or secondary with another winding open.

4 K-factor: Used to determine B_{p-p} for core loss (see graph). $B_{p-p} = K * L * \Delta I$. B_{p-p}: (Gauss), K: (K-factor from table), L: (primary inductance in µH), ΔI (peak-to-peak ripple current in amps).

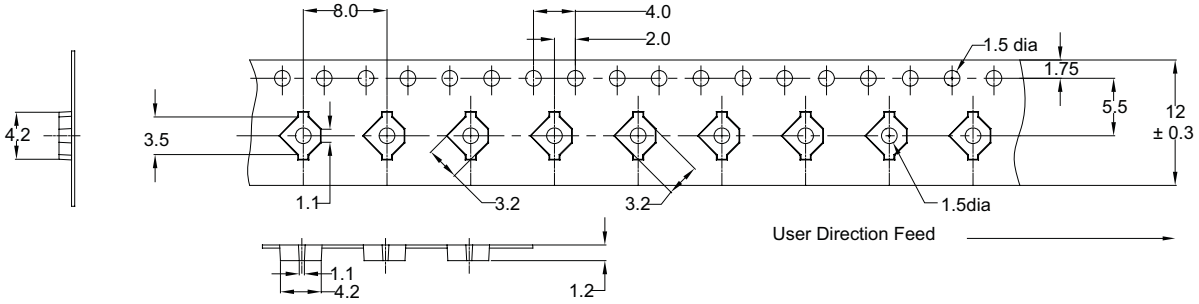
5 Part Number Definition: SDT30-x2x-yy-R
- SDT30 = Product code and size
- -x2x = Turns ratio (first “x” = primary winding, “2” = “:” and second “x” = secondary winding) e.g., -127 = 1:7 primary to secondary turns ratio.
- -yy = add “T7” for 7 inch tape-and-reel package. Leave blank for 5000 parts on 13 inch tape-and-reel package.
- “-R” suffix = RoHS compliant

Dimensions - mm



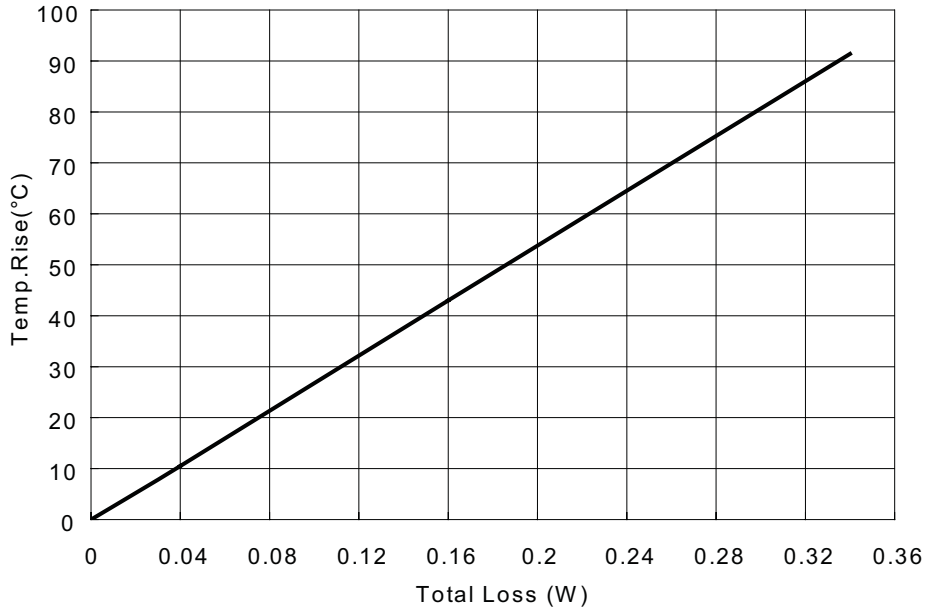
Part Marking: Three digit marking; 1st digit indicated inductance value per Part Marking Designator chart, 2nd digit indicated bi-weekly production date code, 3rd digit is last digit of the year produced.

Packaging Information - mm

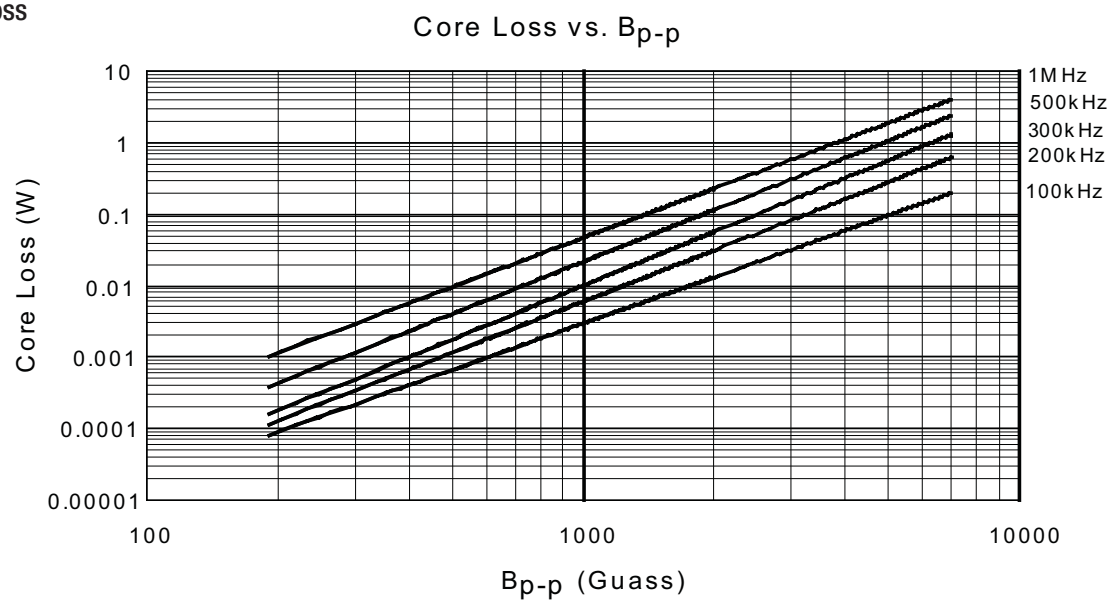


Supplied in tape-and-reel packaging, 5000 parts per reel, 13" diameter reel.
Also supplied in tape-and-reel packaging on 7" diameter reel (not shown above). See product specifications table note 5 on page 1 for ordering details.

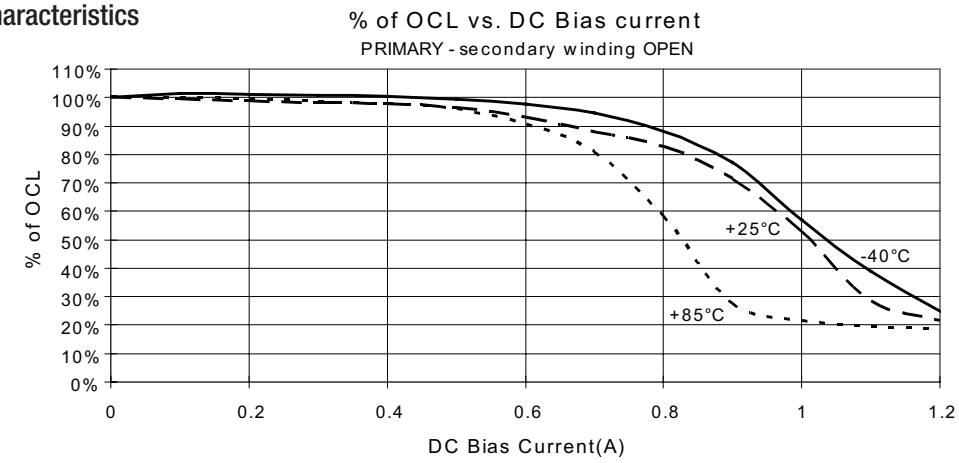
Temperature Rise vs.Total Loss

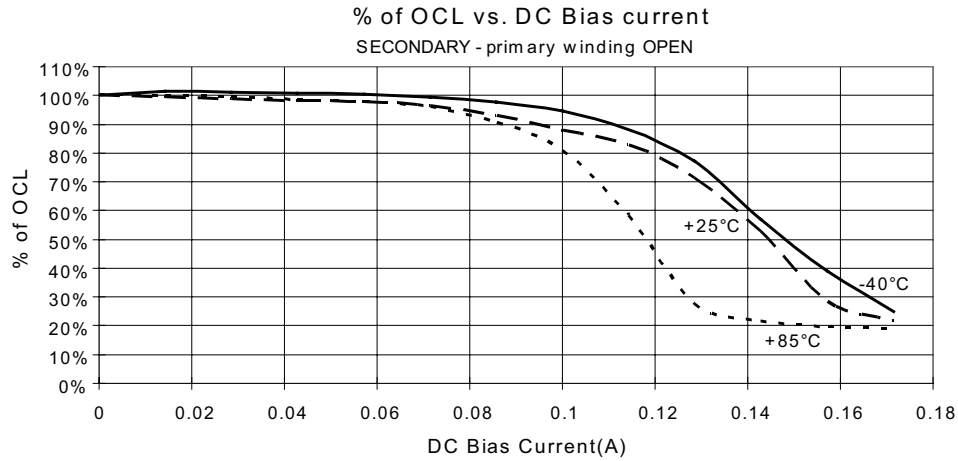


Core Loss



Inductance Characteristics





Solder Reflow Profile

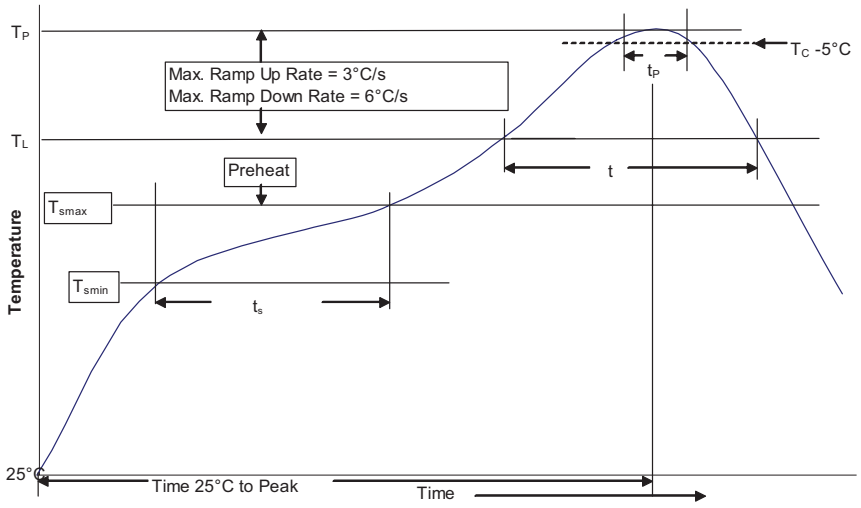


Table 1 - Standard SnPb Solder (T_C)

Package Thickness	Volume mm³ <350	Volume mm³ ≥350
<2.5mm	235°C	220°C
≥2.5mm	220°C	220°C

Table 2 - Lead (Pb) Free Solder (T_C)

Package Thickness	Volume mm³ <350	Volume mm³ 350 - 2000	Volume mm³ >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-020D

Profile Feature		Standard SnPb Solder	Lead (Pb) Free Solder
Preheat and Soak	• Temperature min. (T_{smin})	100°C	150°C
	• Temperature max. (T_{smax})	150°C	200°C
	• Time (T_{smin} to T_{smax}) (t_s)	60-120 Seconds	60-120 Seconds
Average ramp up rate T_{smax} to T_p		3°C/ Second Max.	3°C/ Second Max.
Liquidous temperature (T_L) Time at liquidous (t_L)		183°C 60-150 Seconds	217°C 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.

North America
Cooper Electronic Technologies
1225 Broken Sound Parkway NW
Suite F
Boca Raton, FL 33487-3533
Tel: 1-561-998-4100
Fax: 1-561-241-6640
Toll Free: 1-888-414-2645

Cooper Bussmann
P.O. Box 14460
St. Louis, MO 63178-4460
Tel: 1-636-394-2877
Fax: 1-636-527-1607

Europe
Cooper Electronic Technologies
Cooper (UK) Limited
Burton-on-the-Wolds
Leicestershire • LE12 5TH UK
Tel: +44 (0) 1509 882 737
Fax: +44 (0) 1509 882 786

Cooper Electronic Technologies
Avda. Santa Eulalia, 290
08223
Terrassa, (Barcelona), Spain
Tel: +34 937 362 812
+34 937 362 813
Fax: +34 937 362 719

Asia Pacific
Cooper Electronic Technologies
1 Jalan Kilang Timor
#06-01 Pacific Tech Centre
Singapore 159303
Tel: +65 278 6151
Fax: +65 270 4160