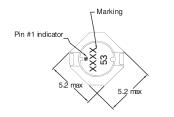
Product Specifications

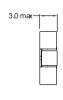
Part Number⁵	OCL1 (μH) ±20%	Part marking	I _{rms} ² (A)	3 sat (A)	DCR (Ω) typical @ 20 °C	DCR (Ω) maximum @ 20 °C	K-factor4
SD53-1R1-R	1.10	А	3.25	4.80	0.017	0.020	48
SD53-2R0-R	2.00	В	2.64	3.30	0.023	0.027	35
SD53-3R3-R	3.30	С	2.26	2.60	0.029	0.034	28
SD53-4R7-R	4.70	D	2.01	2.10	0.039	0.045	21
SD53-6R8-R	6.80	Е	1.65	1.85	0.059	0.068	20
SD53-100-R	10.0	F	1.41	1.40	0.077	0.090	15
SD53-150-R	15.0	G	1.10	1.10	0.122	0.142	12
SD53-220-R	22.0	Н	0.81	0.94	0.179	0.208	10
SD53-330-R	33.0	1	0.75	0.76	0.221	0.257	8
SD53-470-R	47.0	J	0.64	0.64	0.303	0.352	7
SD53-680-R	68.0	K	0.52	0.58	0.452	0.525	6
SD53-101-R	100	L	0.44	0.45	0.689	0.801	5

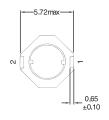
- 1. 1. Open Circuit Inductance (OCL) Test Parameters: 100 kHz, 0.1 Vrms, 0.0 Adc.
- 2. Irms: DC current for an approximate ΔT of 40 °C without core loss. Derating is necessary for AC currents. PCB layout, trace thickness and width, air-flow, and proximity of other heat generating components will affect the temperature rise. It is recommended that the temperature of the part not exceed 125 °C under worst case operating conditions verified in the end application
- 3. Isat: Peak current for approximately 30% rolloff @ 25 °C.

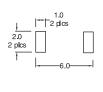
- 4. K-factor: Used to determine B p-p for core loss (see graph). B p-p = $K^*L^*\Delta I$, B p-p(mT), K: (K factor from table),
- L: (Inductance in uH), Δ I (Peak to peak ripple current in Amps). 5. Part Number Definition: SD53-xxx-R
 - SD53 = Product code and size; -xxx = Inductance value in uH; R = decimal point;
 - If no R is present then third character equals the number of zeros.
 - -R suffix = RoHS compliant.

Dimensions (mm)









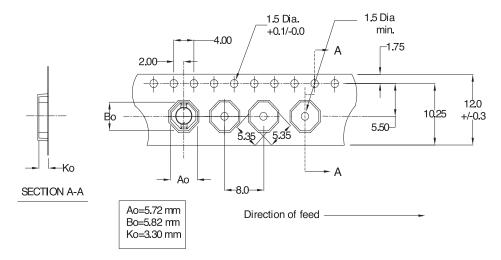
RECOMMENDED PCB LAYOUT

Part Marking: Line 1: (1st digit= inductance value per Part Marking Designator); (2nd digit= Bi-weekly production date code); (3rd digit= Last digit of the year produced), (4th digit= Internal manufacturing code). Line 2: 53=product size code)

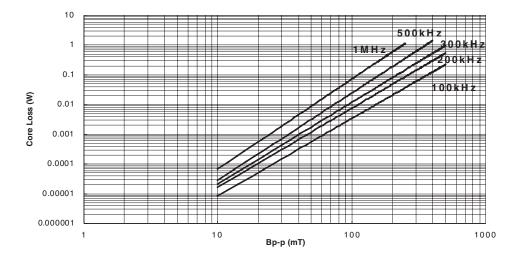
Do not route traces or vias underneath the inductor

Packaging information (mm)

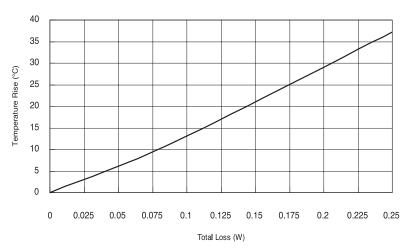
Parts packaged on 13" diameter reel, 2,600 parts per reel.



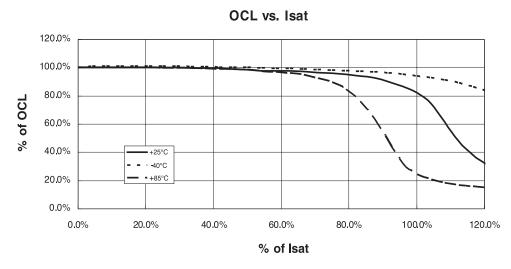
Core loss vs. Bp-p



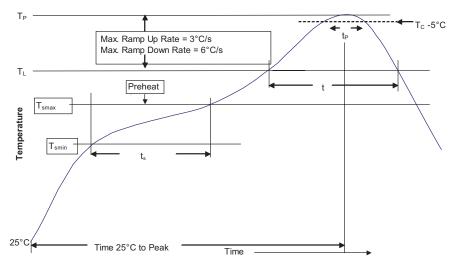
Temperature rise vs. total loss



Inductance characteristics



Solder reflow profile



-_{Tc-5°C} 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		
• 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 (TL) Time at liquidous (tL)	183°C 60-150 Seconds	217°C 60-150 Seconds	
Peak package body temperature (Tp)*	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 $_{\rm p}$) is defined as a supplier minimum and a user maximum.

Life Support Policy: Eaton does not authorize the use of any of its products for use in life support devices or systems without the express written approval of an officer of the Company. Life support systems are devices which support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

Eaton reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Eaton also reserves the right to change or update, without notice, any technical information contained in this bulletin.

Eaton Electronics Division 1000 Eaton Boulevard Cleveland, OH 44122 United States

www.eaton.com/elx

© 2015 Eaton All Rights Reserved Printed in USA Publication No. 4149 November 2015

Eaton is a registered trademark.

All other trademarks are property of their respective owners.



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