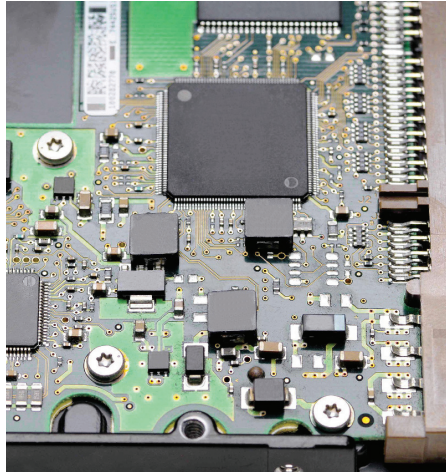


Coiltronics HCM0703 Series

High current power inductors



Product description

- High current carrying capacity
- Low core losses
- Magnetically shielded, low EMI
- Frequency range up to 5MHz
- Inductance range from 0.15μH to 33μH
- Current range from 1.8A to 52A
- 7.4x7.0mm footprint surface mount package in a 3.0mm height
- Powder iron core material
- Halogen free, lead free, RoHS compliant

Applications

- Voltage Regulator Module (VRM)
- Multi-phase regulators
- Point-of-load modules
- Desktop and server VRMs and EVRDs
- Base station equipment
- Notebook regulators
- Battery power systems
- Graphics cards
- Data networking and storage systems

Environmental data

- Storage temperature range (Component): -55°C to +125°C
- Operating temperature range: -55°C to +125°C (ambient + self-temperature rise)
- Solder reflow temperature: J-STD-020D compliant



Powering Business Worldwide



The Coiltronics brand of magnetics (formerly of the Bussmann Division of Cooper Industries) is now part of Eaton's Electrical Group, Electronics Division.

Coiltronics is now part of Eaton
Same great products plus even more.

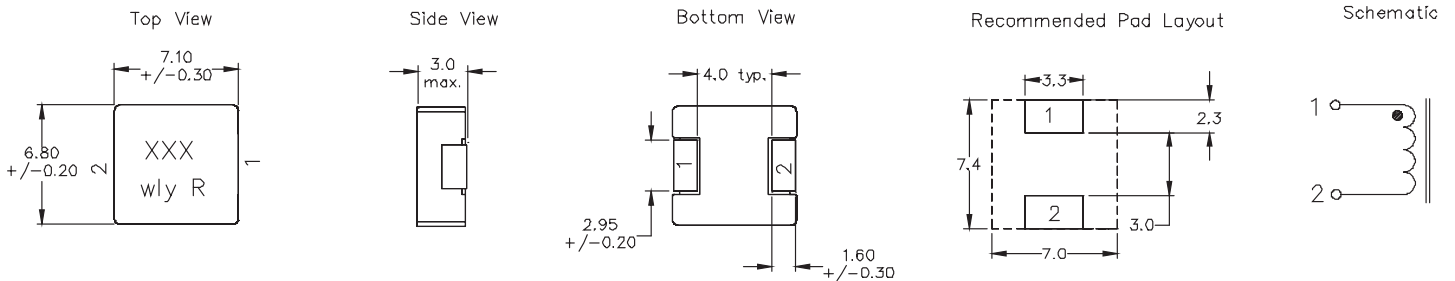
Product specifications

Part Number ⁶	OCL ¹ (μH) $\pm 20\%$	FLL min. ² (μH)	I_{rms} ³ (amps)	I_{sat} ⁴ (amps)	DCR ($\text{m}\Omega$) @ 20°C Typical	DCR ($\text{m}\Omega$) @ 20°C Maximum	K-factor ⁵
HCM0703-R15-R	0.15	0.09	26.0	52.0	1.90	2.50	1044
HCM0703-R22-R	0.22	0.13	23.0	40.0	2.50	2.80	986
HCM0703-R47-R	0.47	0.28	17.5	26.0	4.00	4.20	580
HCM0703-R68-R	0.68	0.41	15.5	25.0	5.00	5.50	455
HCM0703-R82-R	0.82	0.49	13.0	24.0	6.70	8.00	439
HCM0703-1R0-R	1.00	0.60	11.0	22.0	9.00	10.0	374
HCM0703-1R5-R	1.50	0.90	9.00	18.0	14.0	15.0	366
HCM0703-2R2-R	2.20	1.32	8.00	14.0	18.0	20.0	281
HCM0703-3R3-R	3.30	1.98	6.00	13.5	28.0	30.0	252
HCM0703-4R7-R	4.70	2.82	5.50	10.0	37.0	40.0	210
HCM0703-6R8-R	6.80	4.08	4.50	8.00	54.0	60.0	151
HCM0703-8R2-R	8.20	4.92	4.00	7.50	64.0	68.0	142
HCM0703-100-R	10.0	6.00	3.20	7.00	70.5	77.6	132
HCM0703-330-R	33.0	19.8	1.80	2.00	220	242	76

1. Open Circuit Inductance (OCL) Test Parameters: 100kHz, $0.25V_{\text{rms}}$, 0.0Adc , $+25^\circ\text{C}$.
2. Full Load Inductance (FLL) Test Parameters: 100kHz, $0.25V_{\text{rms}}$, I_{sat} @ $+25^\circ\text{C}$.
3. I_{rms} : DC current for an approximate temperature rise 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.

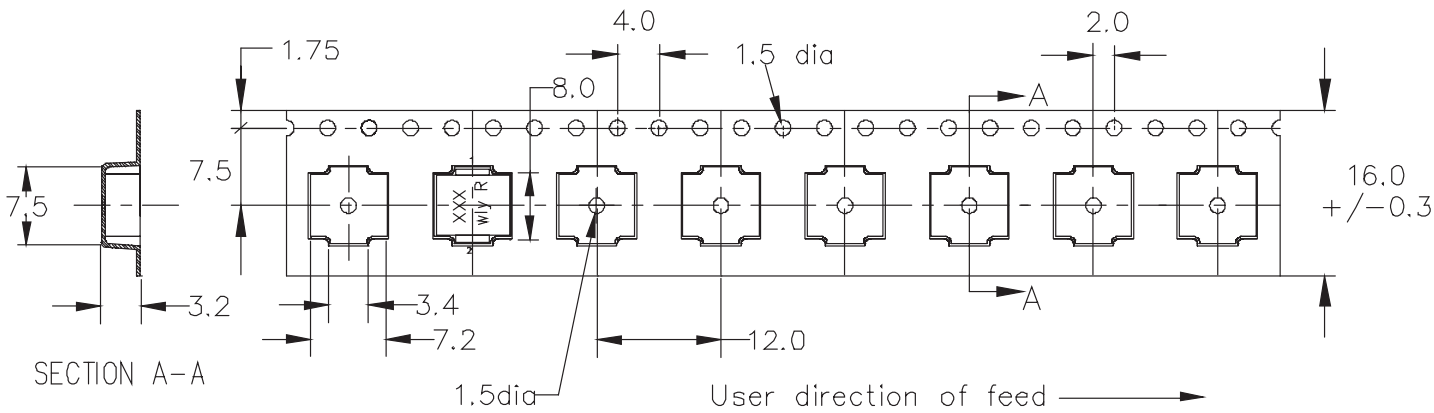
4. I_{sat} : Peak current for approximately 20% rolloff at $+25^\circ\text{C}$.
5. K-factor: Used to determine B_{pp} for core loss (see graph). $B_{\text{pp}} = K * L * \Delta I$.
 B_{pp} : (Gauss), K: (K-factor from table), L: (Inductance in μH), ΔI (Peak to peak ripple current in amps).
6. Part Number Definition: HCM0703-yyy-R
- HCM0703 = Product code and size
- yyy= Inductance value in μH , R = decimal point,
if no R is present then third character = number of zeros.
- "-R" suffix = RoHS compliant

Dimensions - mm



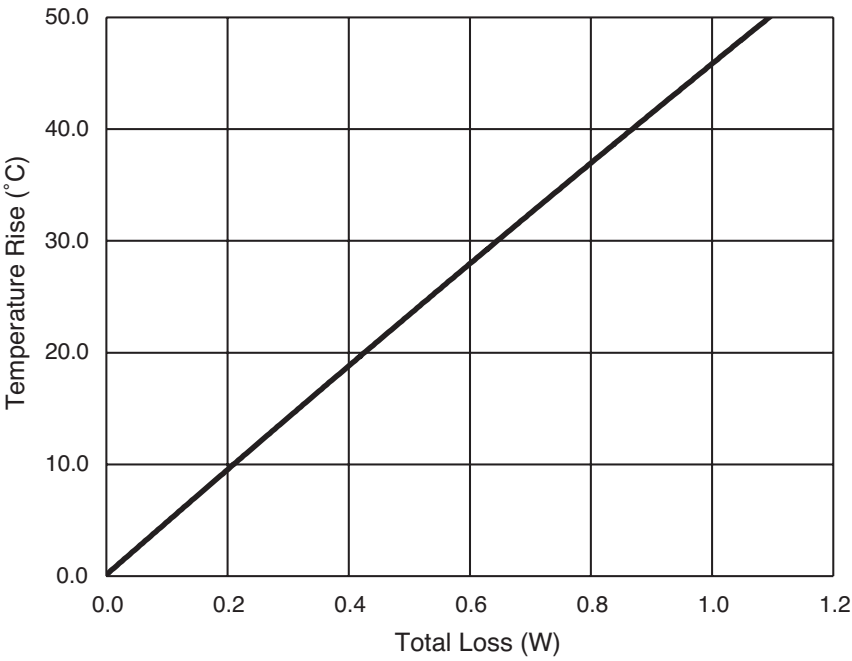
Part marking: xxx= Inductance value in μH , R= decimal point, If no R is present then last digit is # of zeroes
wly= Date code, R= Revision level
All soldering surfaces to be coplanar within 0.10 millimeters
Tolerances are ± 0.3 millimeters unless stated otherwise.
Color: Grey

Packaging information - mm

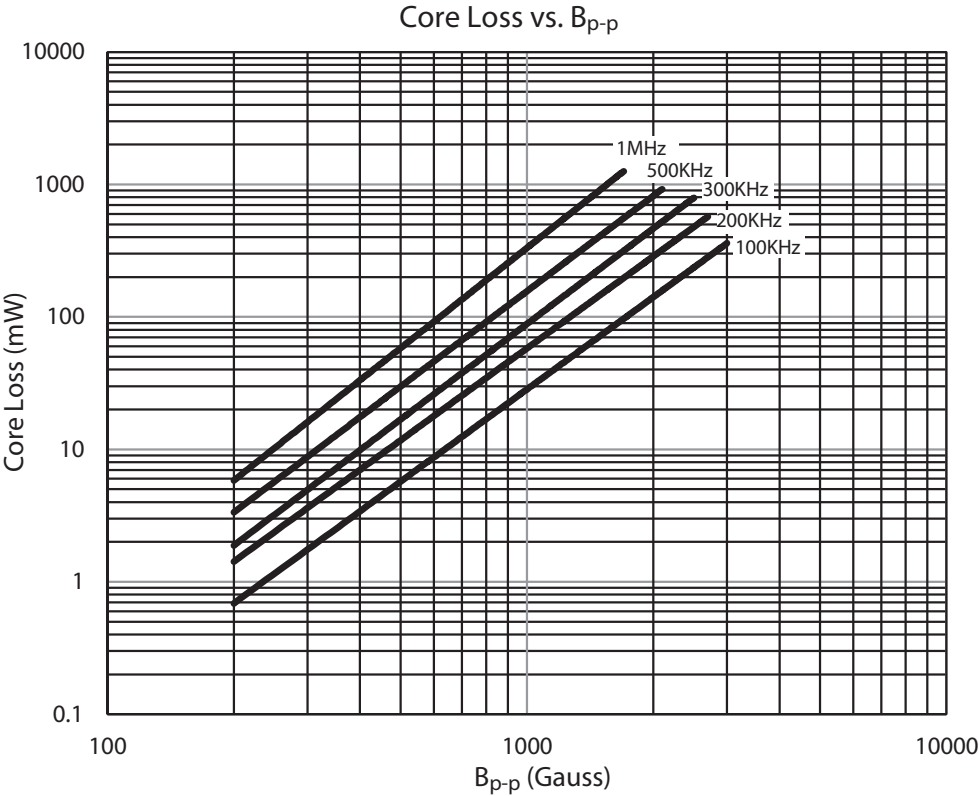


Supplied in tape and reel packaging, 1500 parts per 13" diameter reel.

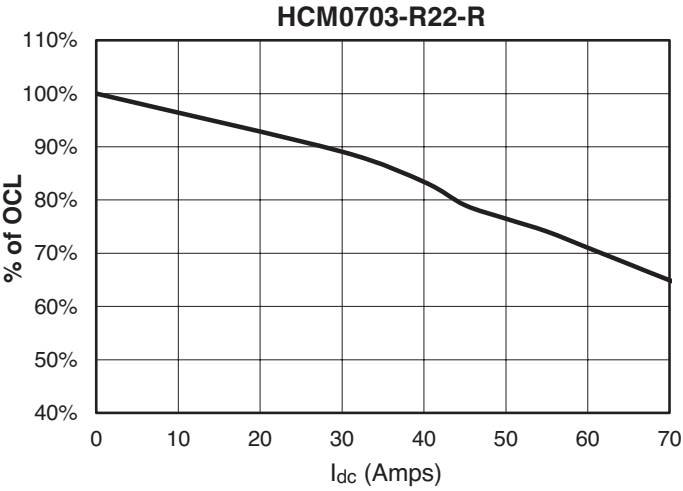
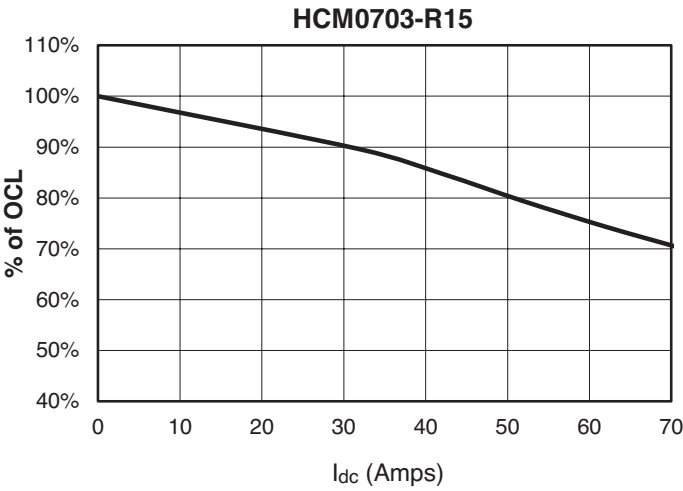
Temperature rise vs. total loss



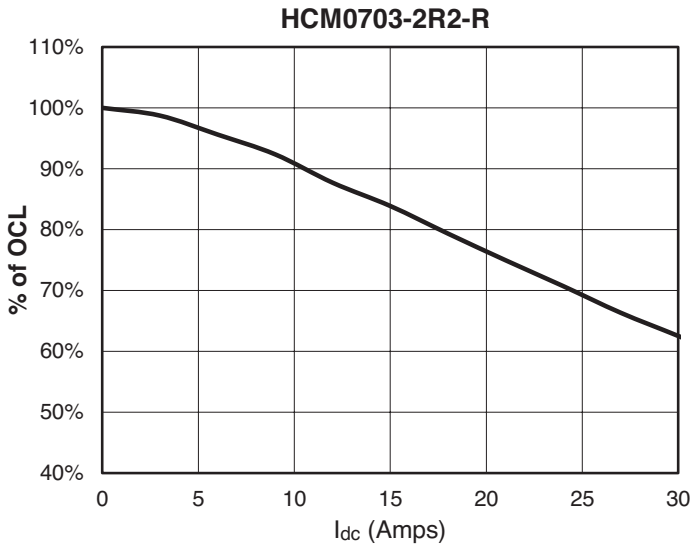
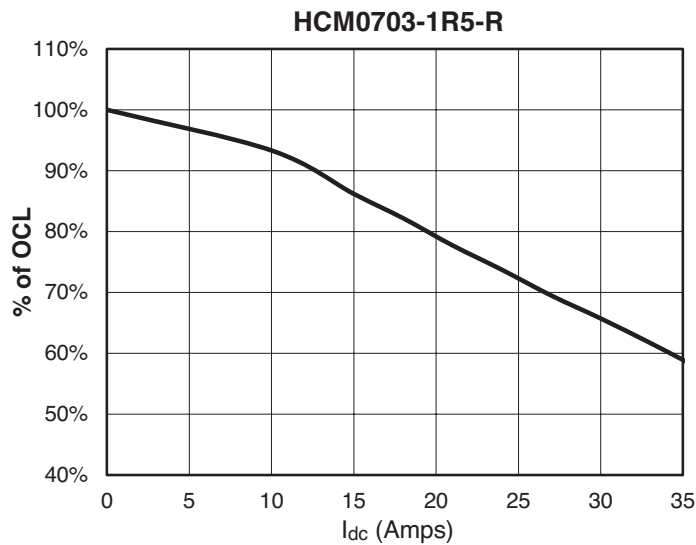
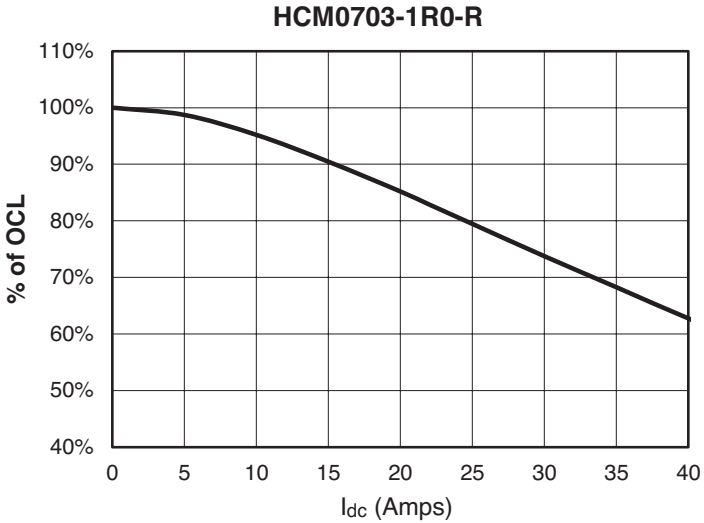
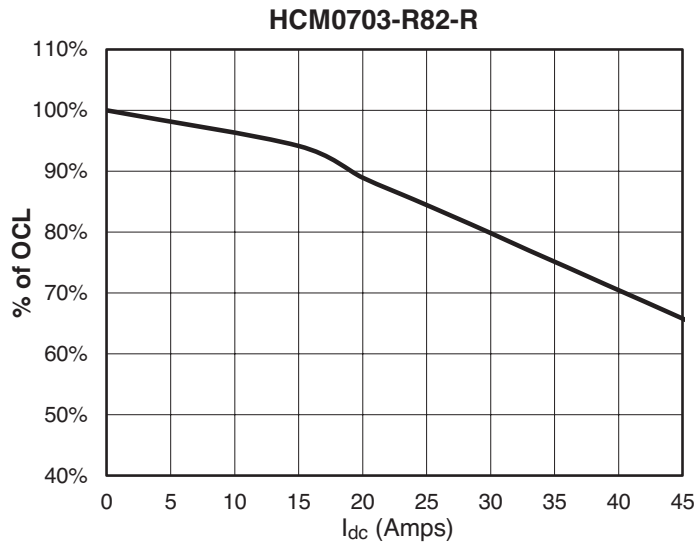
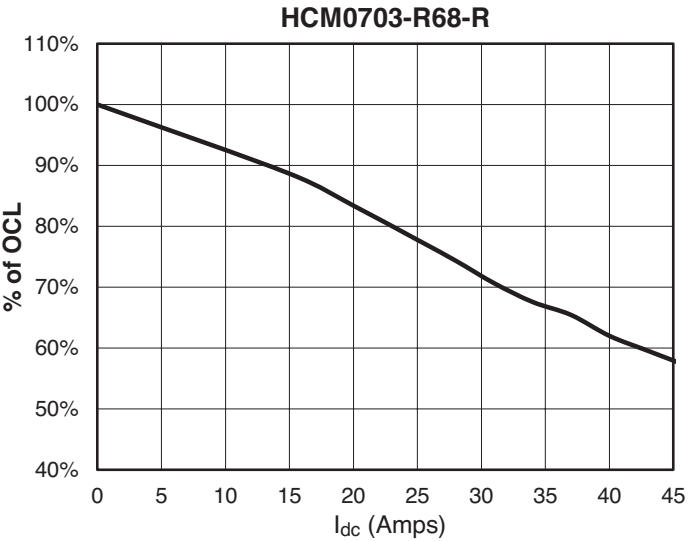
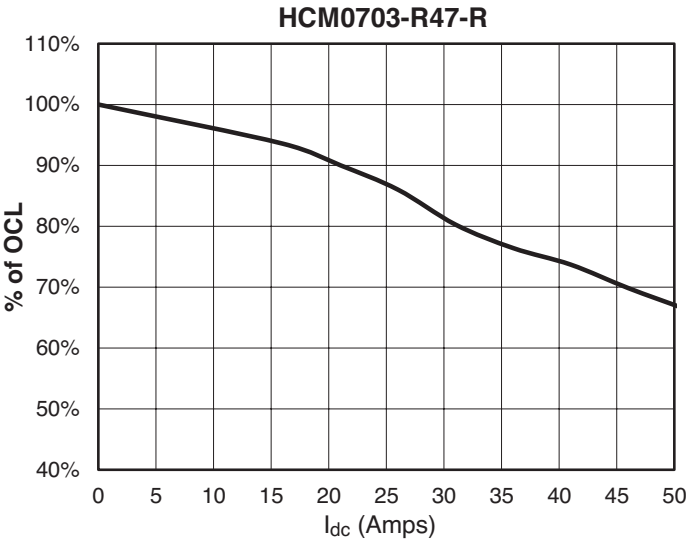
Core loss



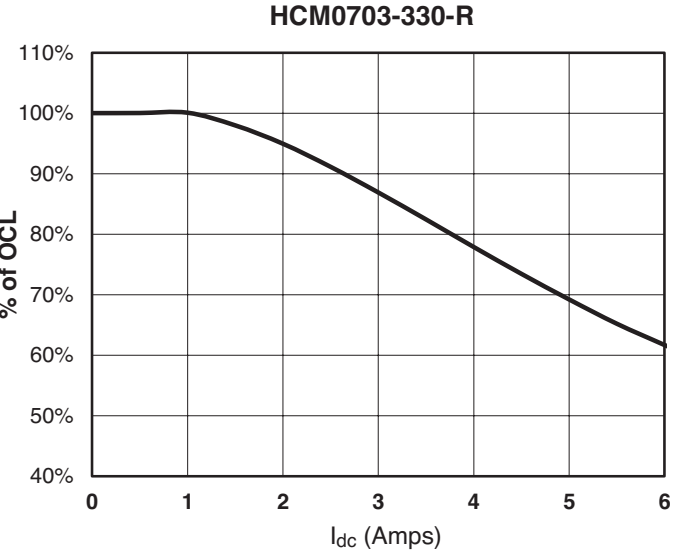
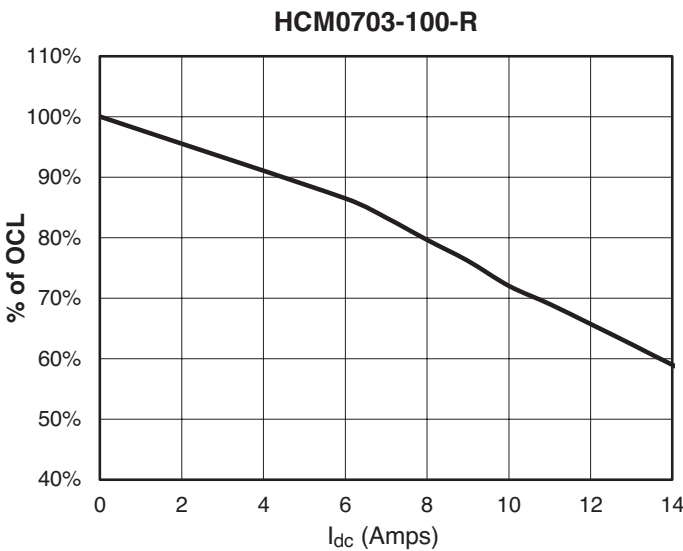
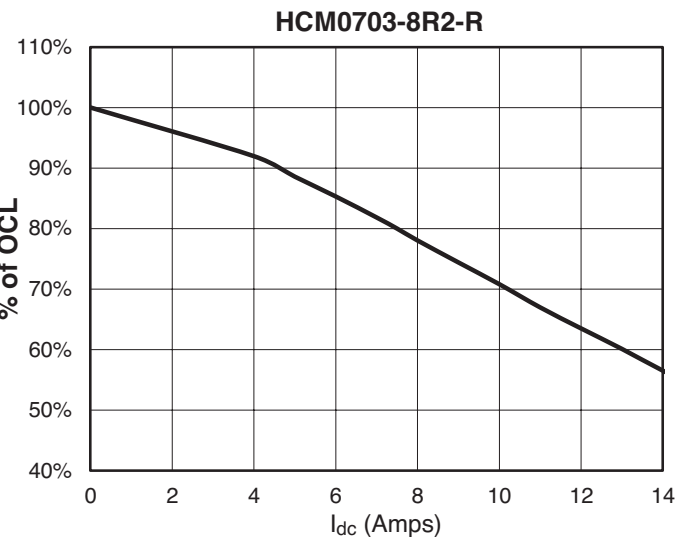
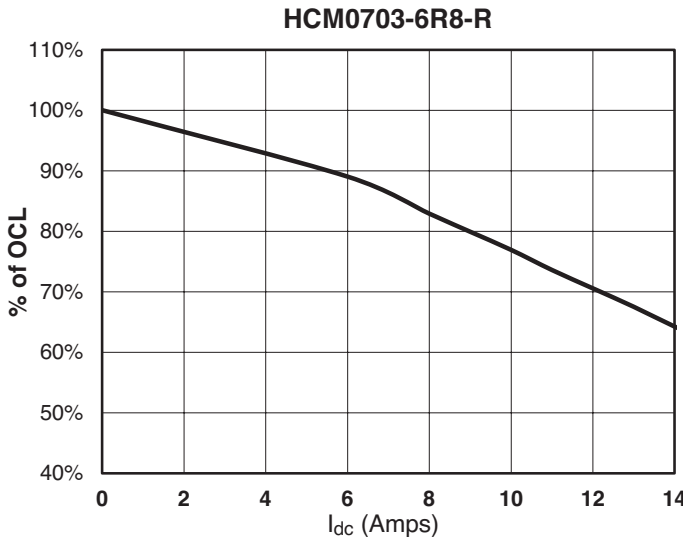
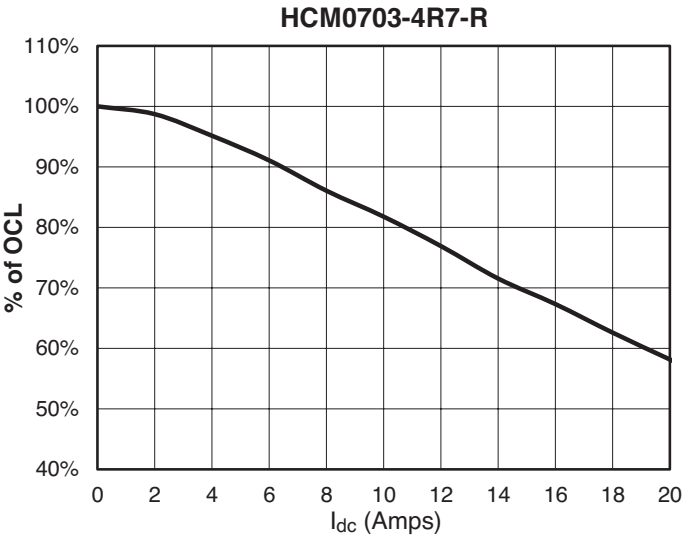
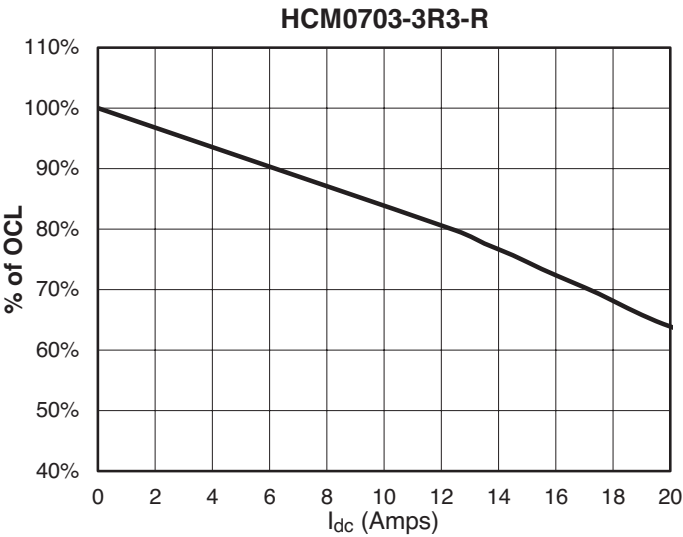
Inductance characteristics



Inductance characteristics



Inductance characteristics



Solder reflow profile

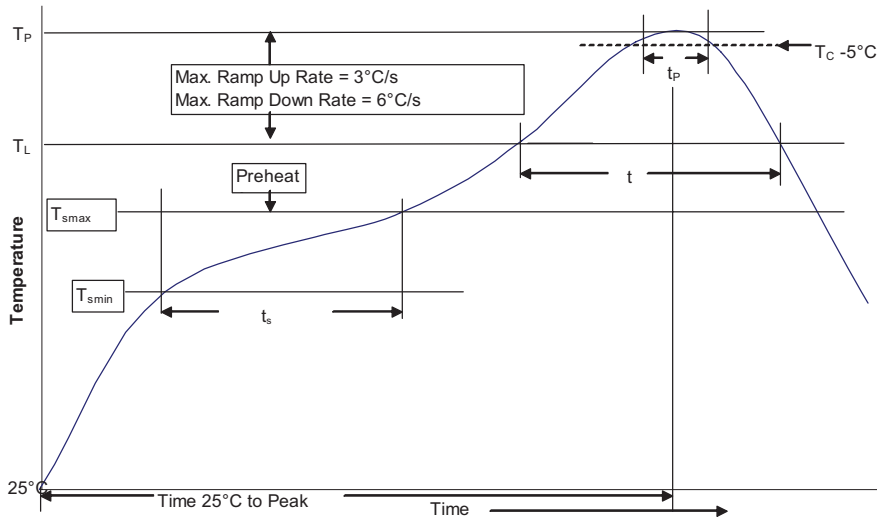


Table 1 - Standard SnPb Solder (T_C)

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

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

Package Thickness	Volume mm^3 <350	Volume mm^3 350 - 2000	Volume 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 JEDEC 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)	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.

North America

Eaton's Electrical Group
Electronics Division
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

Eaton's Electrical Group
Electronics Division
P.O. Box 14460
St. Louis, MO 63178-4460
Tel: 1-636-394-2877
Fax: 1-636-527-1607

Europe

Eaton's Electrical Group
Electronics Division
Burton-on-the-Wolds
Leicestershire, LE 12 5th UK
Phone: +44 (0) 1509 882 600
Fax: +44 (0) 1509 882 786

Eaton's Electrical Group
Electronics Division
Avda Santa Eulalia, 290
Terrassa, Barcelona 08223 Spain
Phone: +34-93-736-2813
Fax: +34-93-783-5055

Asia Pacific

Eaton's Electrical Group
Electronics Division
No.2, #06-01
Serangoon North Avenue 5
Singapore 554911
Tel: +65 6645 9888
Fax: +65 6728 3155

The only controlled copy of this Data Sheet is the electronic read-only version located on the Bussmann Network Drive. All other copies of this document are by definition uncontrolled. This bulletin is intended to clearly present comprehensive product data and provide technical information that will help the end user with design applications. Bussmann reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Bussmann also reserves the right to change or update, without notice, any technical information contained in this bulletin. Once a product has been selected, it should be tested by the user in all possible applications. Life Support Policy: Bussmann 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's Electrical Group
Electronics Division
114 Old State Road
Ellisville, MO 63021
United States
www.eaton.com/elx

© 2014 Eaton
All Rights Reserved
Publication No. 4085 — BU-SB14460
June 2014

Eaton is a registered trademark.

All other trademarks are property
of their respective owners.

www.eaton.com/elx



Powering Business Worldwide

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Cooper Bussmann:

[HCM0703-100-R](#) [HCM0703-1R5-R](#) [HCM0703-4R7-R](#) [HCM0703-6R8-R](#) [HCM0703-8R2-R](#) [HCM0703-R47-R](#)
[HCM0703-R82-R](#)