NCB-HD Series

Ferrite Chip Beads
High Current, Ultra Low DCR

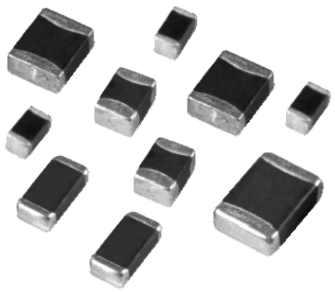
AEC-Q200 QUALIFIED

ROHS/REACH COMPLIANT HALOGEN FREE

NIC COMPONENTS

FEATURES

- STANDARD EIA 0402 ~ 1206 CASE SIZES
- HIGH CURRENT BEAD ULTRA LOW DCR
- CURRENT RATINGS UP TO 12 AMPS
- HIGH IMPEDANCE OVER A WIDE FREQUENCY RANGE
- COMPATIBLE WITH AUTOMATIC PICK AND PLACE EQUIPMENT
- BOTH FLOW AND REFLOW SOLDERING APPLICABLE
- AEQ200 Qualified (See Part Number Details For More Information)



SPECIFICATIONS

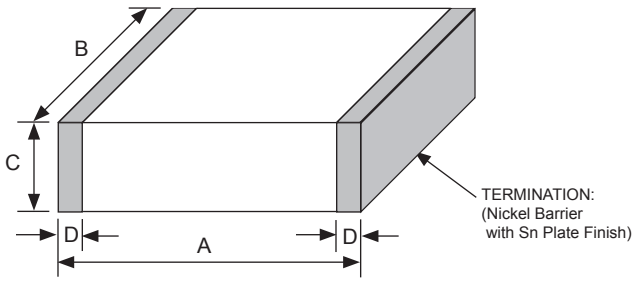
Specifications	Case Size			
	0402	0603	0805	1206
Impedance Range	10Ω ~ 600Ω	22Ω ~ 1000Ω	30Ω ~ 1000Ω	30Ω ~ 1000Ω
Inductance Tolerance	±25% @ 100Mhz			
Operating Temperature Range	-55°C ~ +125°C (Standard COTS Product)			
	-55°C ~ +150°C (High reliability. Refer to part number system below)			

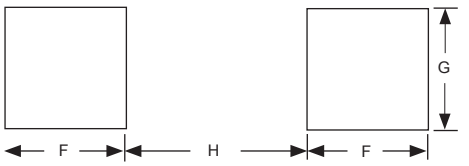
Note: Extended values, tolerances, and enhanced versions are available please contact NIC for more details.

DIMENSIONS (mm) & LAND PATTERNS (mm)

Case Size	A	B	C	D	F	G	H
0402	1.0 ± 0.1	0.5 ± 0.1	0.5 ± 0.1	0.25 ± 0.1	0.50	0.60	0.40
0603	1.6 ± 0.15	0.8 ± 0.15	0.8 ± 0.15*	0.3 ± 0.2	0.80	0.95	0.85
0805	2.0 ± 0.2	1.25 ± 0.2	0.85 ± 0.2	0.50 ± 0.3	1.05	1.45	1.00
1206	3.2 ± 0.2	1.6 ± 0.2	1.1 ± 0.2	0.50 ± 0.3	1.05	1.80	2.20

Note: NCB-HD0603Q220TR800F (C) dimension = 0.6 ± 0.15. Please refer to NIC part number and part number system for details.





PART NUMBER SYSTEM

NCB-HD 0805 A 121 TR 200 QY F

- F — RoHS Compliant
- QY — High reliability. Reliability test meet AEC-Q200, Operating Temperature -55~+150°C (Blank for COOTS product)
- 200 — DC Current Rating (see standard values and case size table)
- TR — Packaging: TR = Tape and Reel
- 121 — Impedance at 100Mhz; 3 digit code; first two digits are significant third digit is no. of zeros
- A — Part Thickness Max; A=1.05mm, B=1.3mm, C=1.5mm, D=1.7mm, E=1.8mm, K=2.8mm, L=3.1mm, N=0.33, P=0.6mm, Q = 0.75mm, R=0.95mm
- 0805 — Size
- NCB-HD — Series

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NCB-HD Series

Ferrite Chip Beads
High Current, Ultra Low DCR

AEC-Q200 QUALIFIED

ROHS/REACH COMPLIANT HALOGEN FREE

NIC COMPONENTS

EIA Size	NIC P/N	Impedance at 100MHz Ω (±25% Tol.)	DC Resistance Max. (Ω)	DC Current Max. (mA)	AEC-Q200 NIC P/N
0402	NCB-HD0402P100TR400F	10	0.018	4000	NCB-HD0402P100TR400QYF
	NCB-HD0402P300TR300F	30	0.022	3000	NCB-HD0402P300TR300QYF
	NCB-HD0402P600TR250F	60	0.032	2500	NCB-HD0402P600TR250QYF
	NCB-HD0402P800TR230F	80	0.038	2300	NCB-HD0402P800TR230QYF
	NCB-HD0402P121TR200F	120	0.05	2000	NCB-HD0402P121TR200QYF
	NCB-HD0402P221TR150F	220	0.095	1500	NCB-HD0402P221TR150QYF
	NCB-HD0402P301TR120F	300	0.15	1200	NCB-HD0402P301TR120QYF
	NCB-HD0402P471TR110F	470	0.18	1100	NCB-HD0402P471TR110QYF
	NCB-HD0402P601TR100F	600	0.2	1000	NCB-HD0402P601TR100QYF

EIA Size	NIC P/N	Impedance at 100MHz Ω (±25% Tol.)	DC Resistance Max. (Ω)	DC Current Max. (mA)	AEC-Q200 NIC P/N
0603	NCB-HD0603Q220TR800F	22	0.004	8000	NCB-HD0603Q220TR800QYF
	NCB-HD0603R300TR500F	30	0.01	5000	NCB-HD0603R300TR500QYF
	NCB-HD0603R600TR400F	60	0.02	4000	NCB-HD0603R600TR400QYF
	NCB-HD0603R800TR300F	80	0.03	3000	NCB-HD0603R800TR300QYF
	NCB-HD0603R101TR300F	100	0.03	3000	NCB-HD0603R101TR300QYF
	NCB-HD0603R121TR300F	120	0.035	3000	NCB-HD0603R121TR300QYF
	NCB-HD0603R151TR250F	150	0.04	2500	NCB-HD0603R151TR250QYF
	NCB-HD0603R221TR230F	220	0.05	2300	NCB-HD0603R221TR230QYF
	NCB-HD0603R301TR220F	300	0.07	2200	NCB-HD0603R301TR220QYF
	NCB-HD0603R471TR200F	470	0.09	2000	NCB-HD0603R471TR200QYF
	NCB-HD0603R601TR200F	600	0.095	2000	NCB-HD0603R601TR200QYF
	NCB-HD0603R102TR150F	1000	0.15	1500	NCB-HD0603R102TR150QYF

EIA Size	NIC P/N	Impedance at 100MHz Ω (±25% Tol.)	DC Resistance Max. (Ω)	DC Current Max. (mA)	AEC-Q200 NIC P/N
0805	NCB-HD0805A300TR850F	30	0.004	8500	NCB-HD0805A300TR850QYF
	NCB-HD0805A700TR600F	70	0.009	6000	NCB-HD0805A700TR600QYF
	NCB-HD0805A111TR500F	110	0.013	5000	NCB-HD0805A111TR500QYF
	NCB-HD0805A181TR400F	180	0.02	4000	NCB-HD0805A181TR400QYF
	NCB-HD0805A331TR280F	330	0.04	2800	NCB-HD0805A331TR280QYF
	NCB-HD0805A471TR250F	470	0.05	2500	NCB-HD0805A471TR250QYF
	NCB-HD0805A601TR230F	600	0.06	2300	NCB-HD0805A601TR230QYF
	NCB-HD0805A102TR160F	1000	0.12	1600	NCB-HD0805A102TR160QYF

EIA Size	NIC P/N	Impedance at 100MHz Ω (±25% Tol.)	DC Resistance Max. (Ω)	DC Current Max. (mA)	AEC-Q200 NIC P/N
1206	NCB-HD1206B300TR1100F	30	0.0025	11000	NCB-HD1206B300TR1100QYF
	NCB-HD1206B500TR1200F	50	0.0025	12000	NCB-HD1206B500TR1200QYF
	NCB-HD1206B121TR600F	120	0.009	6000	NCB-HD1206B121TR600QYF
	NCB-HD1206B271TR450F	270	0.016	4500	NCB-HD1206B271TR450QYF
	NCB-HD1206B471TR400F	470	0.02	4000	NCB-HD1206B471TR400QYF
	NCB-HD1206B601TR290F	600	0.038	2900	NCB-HD1206B601TR290QYF
	NCB-HD1206B801TR250F	800	0.05	2500	NCB-HD1206B801TR250QYF
	NCB-HD1206B102TR200F	1000	0.075	2000	NCB-HD1206B102TR200QYF

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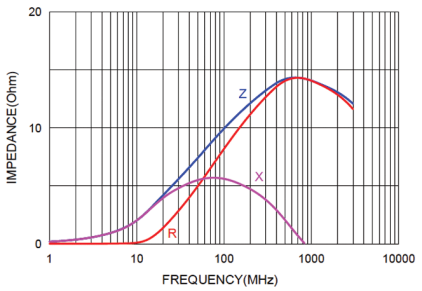
NCB-HD0402P100TR400QYF



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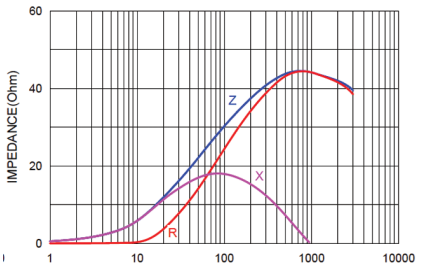

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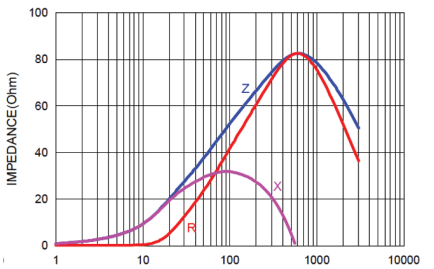

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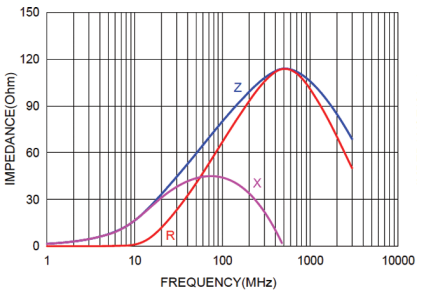

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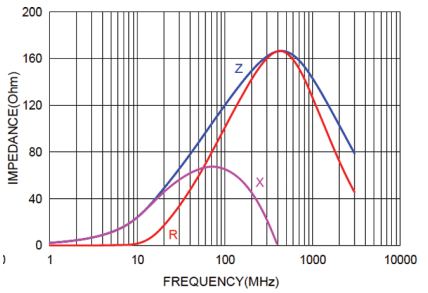

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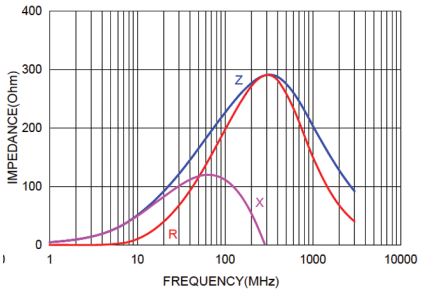

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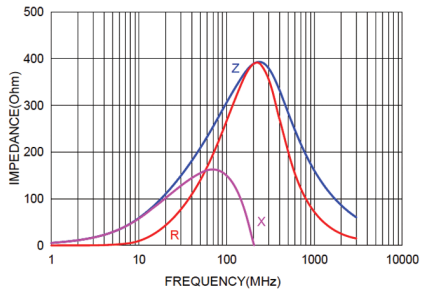

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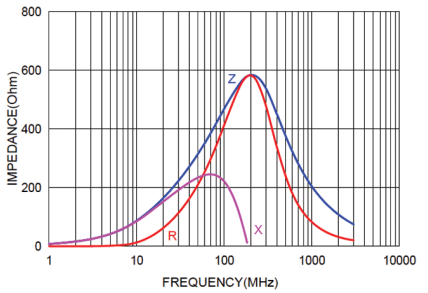

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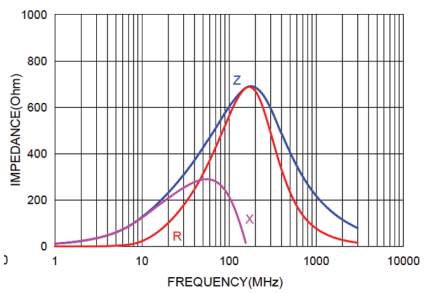

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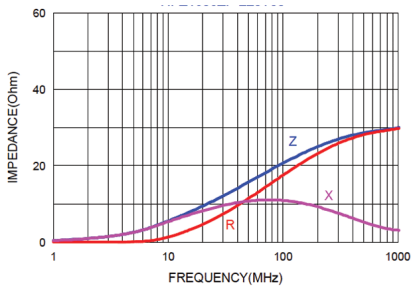

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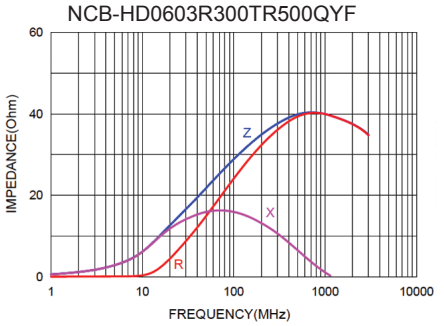

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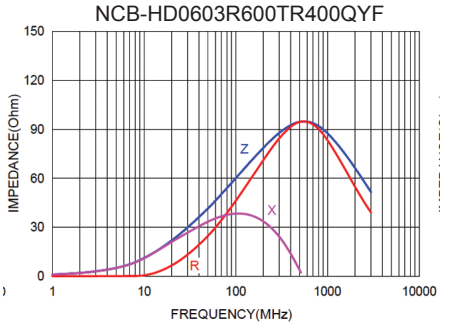

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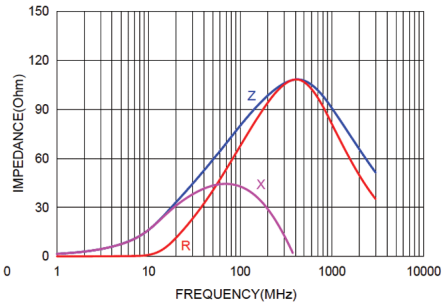

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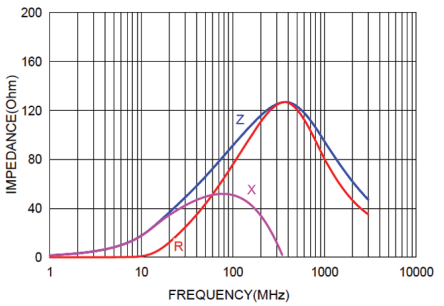

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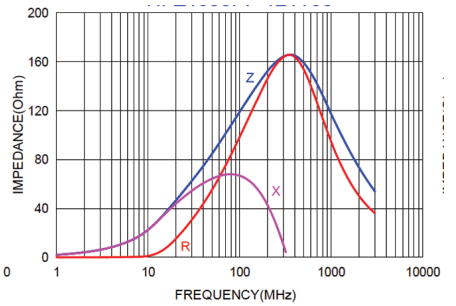

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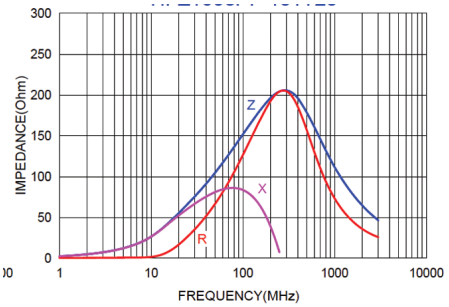

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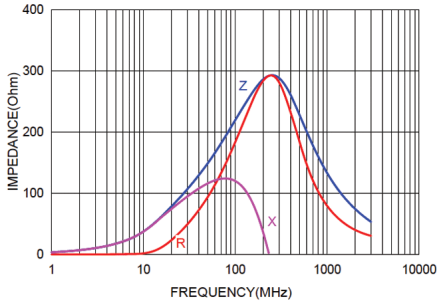

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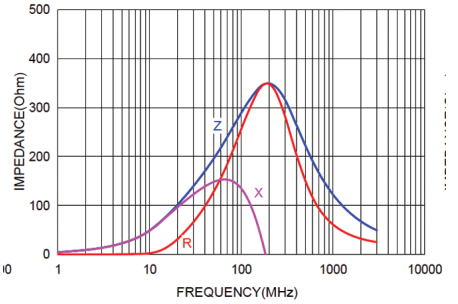

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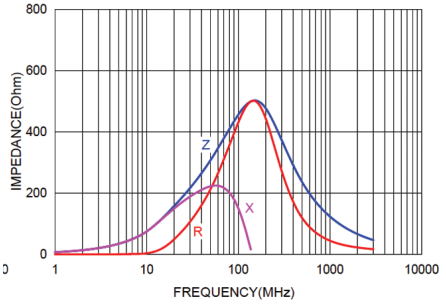

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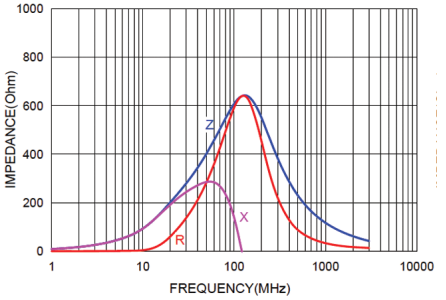

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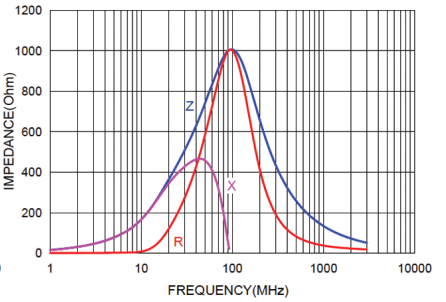

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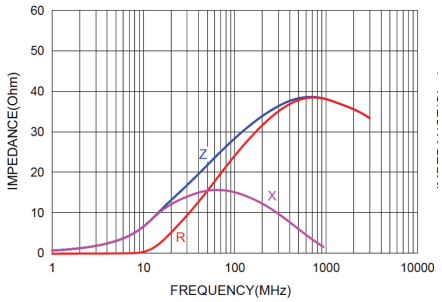

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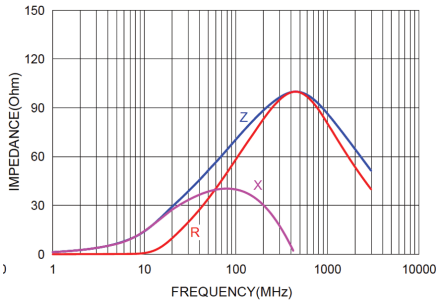

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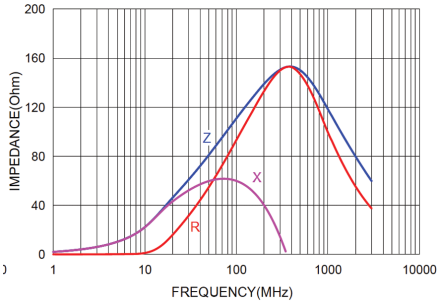

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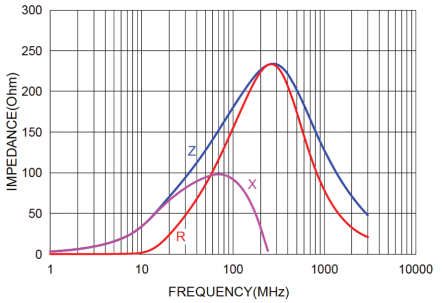

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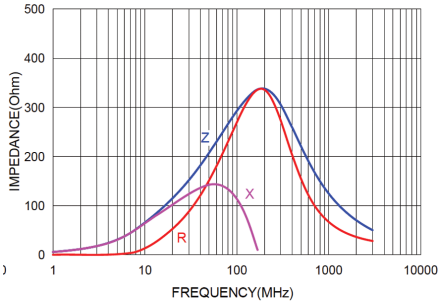

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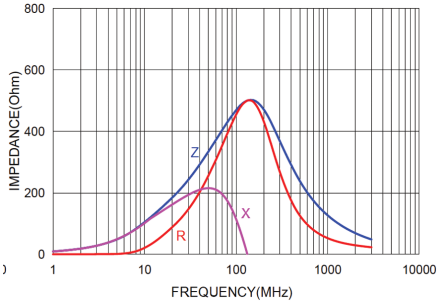

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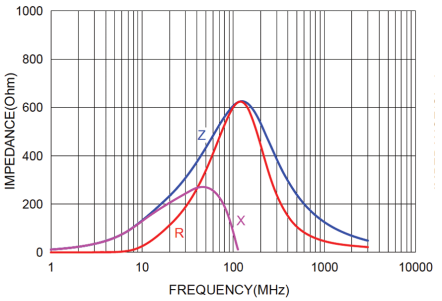

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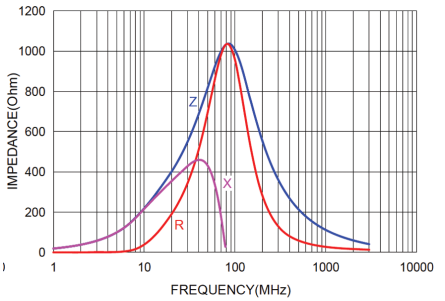

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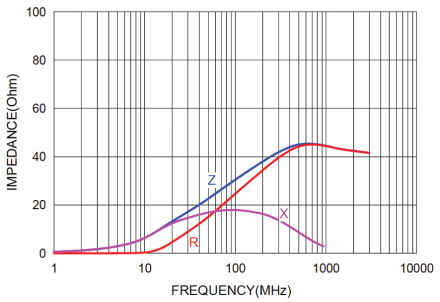

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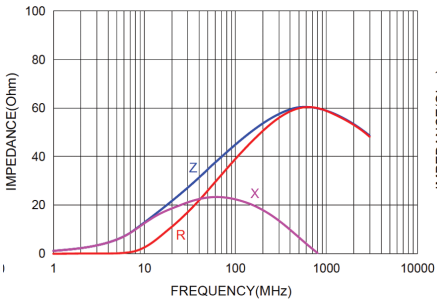

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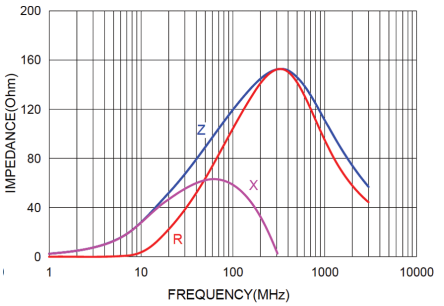

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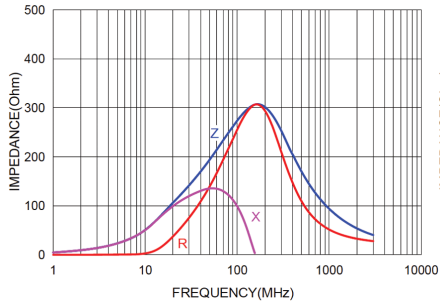

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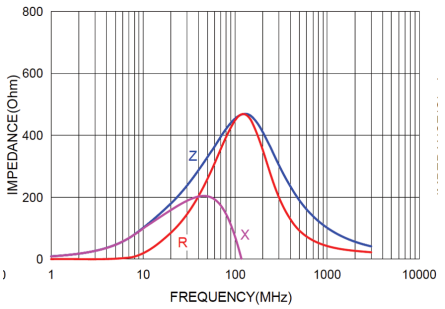

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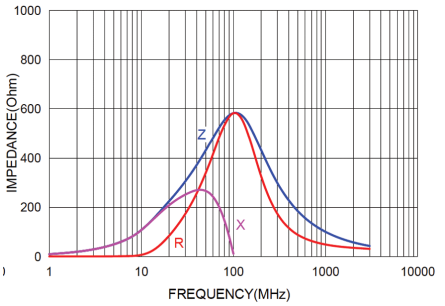

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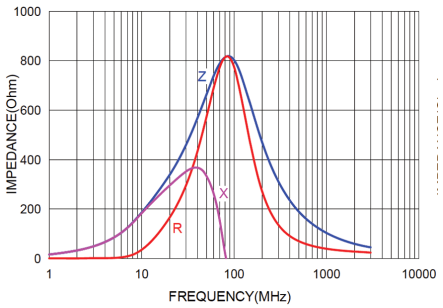

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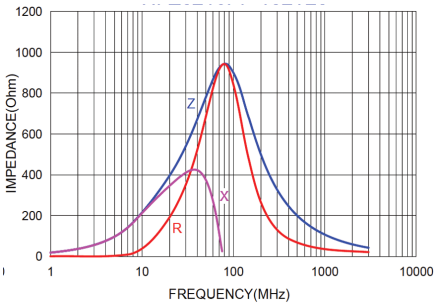

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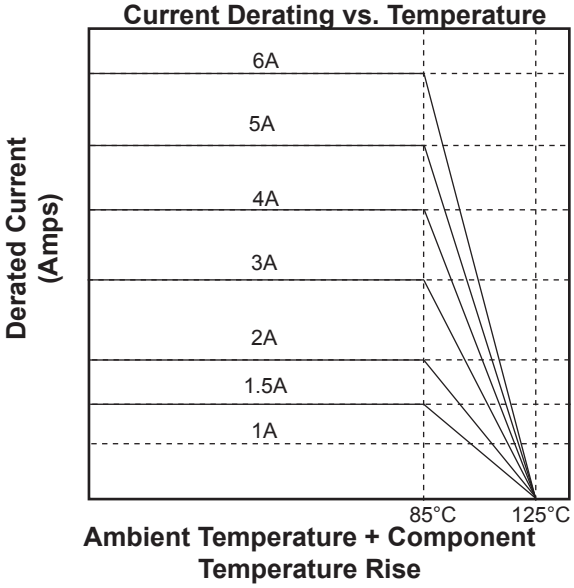
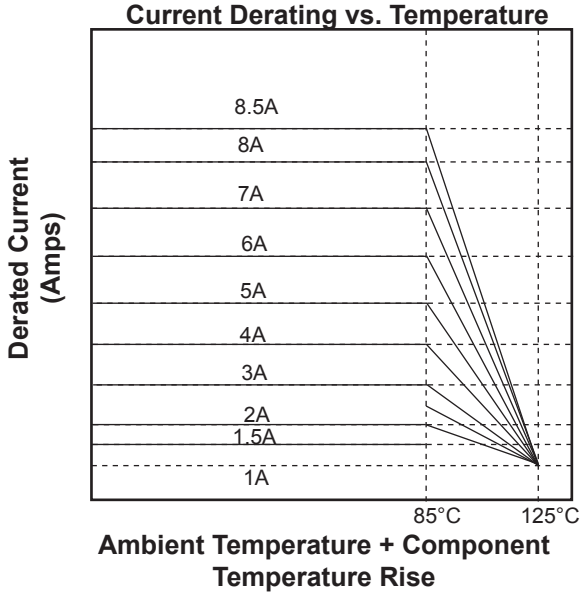
NCB-HD0402 & NCB-HD0603

Current Derating vs. Temperature



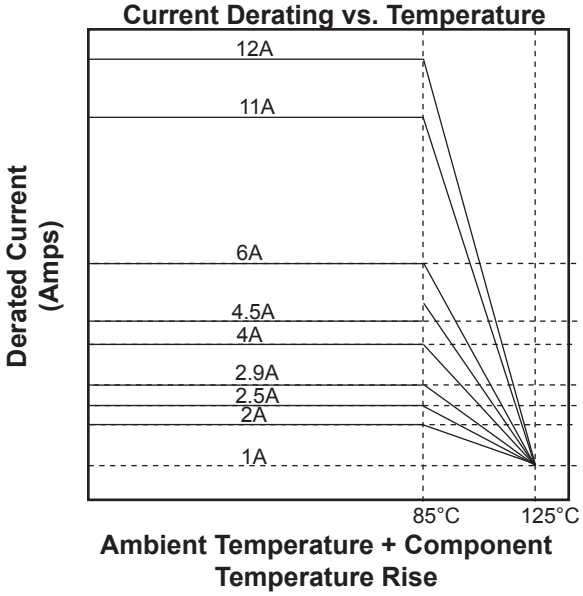
NCB-HD0805

Current Derating vs. Temperature



NCB-HD1206

Current Derating vs. Temperature



Note: Extended values, tolerances, and enhanced versions are available please contact NIC for more details.

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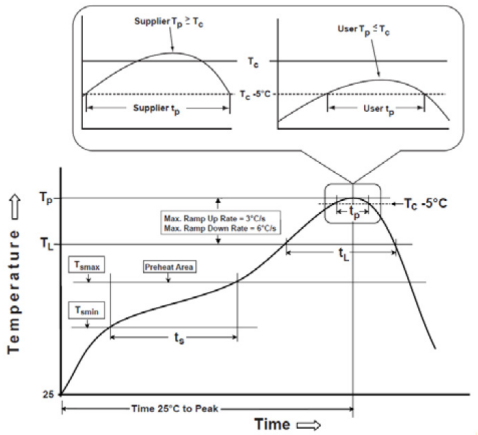
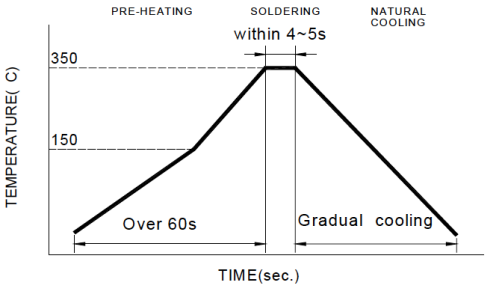
Reflow Soldering



Reflow times: 3 times max

Recommended temperature profiles for lead free re-flow soldering in reflow profile table & package thickness table (J-STD-020E)

Iron Soldering



Iron Soldering times：1 times max

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.

- Preheat circuit and products to 150
- Never contact the ceramic with the iron tip
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- 350°C tip temperature (max)
- 1.0mm tip diameter (max)
- Limit soldering time to 4~5sec.

Reflow Profiles

Profile Type	Pb-Free Assembly
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(ts)from(Tsmin to Tsmax)	150°C 200°C 60-120seconds
Ramp-up rate(TLto Tp)	3°C/second max.
Liquidus temperature(TL) Time(tL)maintained above TL	217°C 60-150 seconds
Classification temperature(Tc)	See Table (1.2)
Time(tp) at Tc- 5°C (Tp should be equal to or less than Tc.)	< 30 seconds
Ramp-down rate(Tp to TL)	6°C /second max.
Time 25°C to peak temperature	6°C /second max.

Tp: maximum peak package body temperature, **Tc**: the classification temperature.
For user (customer) **Tp** should be equal to or less than **Tc**.

Package Thickness/Volume and Classification Temperature (Tc)

	Package Thickness	Volume mm3 <350	Volume mm3 350-2000	Volume mm3 >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	260°C	245°C	245°C

Reflow is referred to standard IPC/JEDEC J-STD-020E

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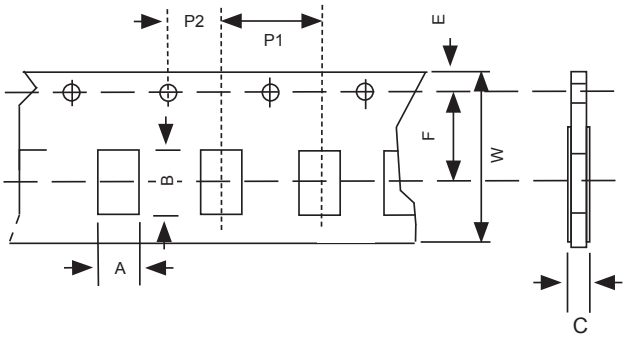
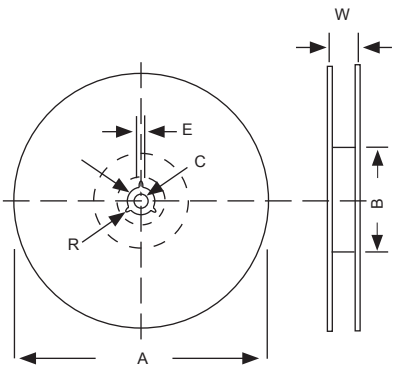


NCB-HD TAPE DIMENSIONS (mm)

Dimensions	NCB-HD0402	NCB-HD0603	NCB-HD0603Q	NCB-HD0805	NCB-HD1206
A	0.62 ± 0.03	1.10 ± 0.05	0.97 ± 0.03	1.30 ± 0.05	1.75 ± 0.10
B	1.12 ± 0.03	1.90 ± 0.05	1.78 ± 0.03	2.10 ± 0.05	3.35 ± 0.10
C	0.6 ± 0.03	0.95 ± 0.05	0.78 Max	0.95 ± 0.05	1.25 ± 0.10
W	8.0 ± 0.1				
E	1.75 ± 0.1				
F	3.5 ± 0.05	3.5 ± 0.1			3.5 ± 0.05
P1	2.0 ± 0.10	4.0 ± 0.10			
P2	N/A	2.0 ± 0.05	2.0 ± 0.1		2.0 ± 0.05
Chips/Reel	10,000	4,000			3,000

Dim	Size: 0402, 0603, 0805 & 1206
A	178 ± 2.0
B	60 ± 2.0
C	13.5 ± 0.5
E	2.0 ± 0.5
W	9.0 ± 0.5
R	1.9



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