# MPI2520

## High Current, Low Profile, Miniature Power Inductors

**Applications:**

- Mobile/smart phones
- Handheld/mobile equipment
- Digital cameras
- Media players
- GPS
- MP3 Players
- Tablets/eReaders

**Environmental data:**

- Storage temperature range (Component): -40°C to +125°C
- Operating temperature range: -40°C to +125°C (ambient + self temperature rise)
- Solder reflow temperature: J-STD-020D compliant

**Packaging:**

- Supplied in tape and reel packaging, 3000 parts per 7" diameter reel

**Product description:**

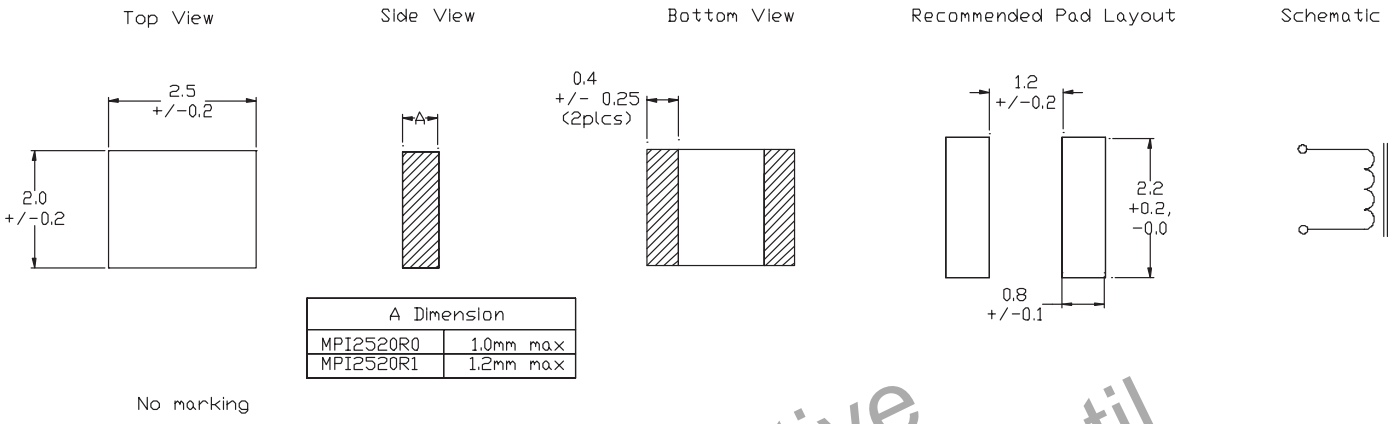
- Halogen free, lead free, RoHS compliant
- 125°C maximum total temperature operation
- 2.7 x 2.2 x 1.0 / 1.2mm maximum surface mount package
- Magnetically shielded, low EMI
- Inductance range from 0.47µH to 10.0µH
- Current range from 1.1 to 4.8 amps

## Product specifications

| Part Number[5] | OCL1 (µH)±20% | $I_{rms}$[2] (Amps) | $I_{sat}$[3] (Amps) | DCR (mΩ) @ 25°C typical | DCR (mΩ) @ 25°C max | K-Factor[4] |
|---|---|---|---|---|---|---|
| R0 —1.0mm Height | | | | | | |
| MPI2520R0-R47-R | 0.47 | 4.1 | 4.4 | 28 | 34 | 2887 |
| MPI2520R0-1R0-R | 0.9 | 3.2 | 3.2 | 50 | 60 | 1925 |
| MPI2520R0-1R5-R | 1.5 | 2.4 | 2.6 | 80 | 96 | 1444 |
| MPI2520R0-2R2-R | 2.2 | 2.2 | 2.4 | 103 | 124 | 1283 |
| MPI2520R0-3R3-R | 3.3 | 1.6 | 1.6 | 190 | 228 | 1050 |
| MPI2520R0-4R7-R | 4.7 | 1.4 | 1.4 | 240 | 288 | 825 |
| R1 - 1.2mm Height | | | | | | |
| MPI2520R1-R47-R | 0.47 | 4.5 | 4.8 | 20 | 24 | 2310 |
| MPI2520R1-1R0-R | 1.0 | 3.7 | 4.0 | 35 | 42 | 1925 |
| MPI2520R1-1R5-R | 1.5 | 2.9 | 3.2 | 55 | 66 | 1444 |
| MPI2520R1-2R2-R | 2.2 | 2.3 | 2.7 | 75 | 90 | 1255 |
| MPI2520R1-3R3-R | 3.3 | 1.8 | 2.4 | 105 | 126 | 962 |
| MPI2520R1-4R7-R | 4.7 | 1.6 | 1.9 | 150 | 180 | 825 |
| MPI2520R1-5R6-R | 5.6 | 1.5 | 1.5 | 200 | 240 | 679 |
| MPI2520R1-6R8-R | 6.8 | 1.3 | 1.3 | 300 | 360 | 679 |
| MPI2520R1-100-R | 10.0 | 1.1 | 1.2 | 390 | 468 | 525 |

1. Open Circuit Inductance (OCL) Test Parameters: 1MHz, 0.1Vrms, 0.0Adc, 25°C
2. $I_{rms}$: 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.
3. $I_{sat}$: Peak current for approximately 10% rolloff at +25°C.
4. K-factor: Used to determine $B_{p-p}$ for core loss (see graph). $B_{p-p}$: $K * L * \Delta I$, $B_{p-p}$:(Gauss), K: (K-factor from table), L: (Inductance in µH), ΔI (Peak to peak ripple current in Amps).
5. Part Number Definition: MPI2520Rx-yyy-R
   - MPI2520Rx = 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

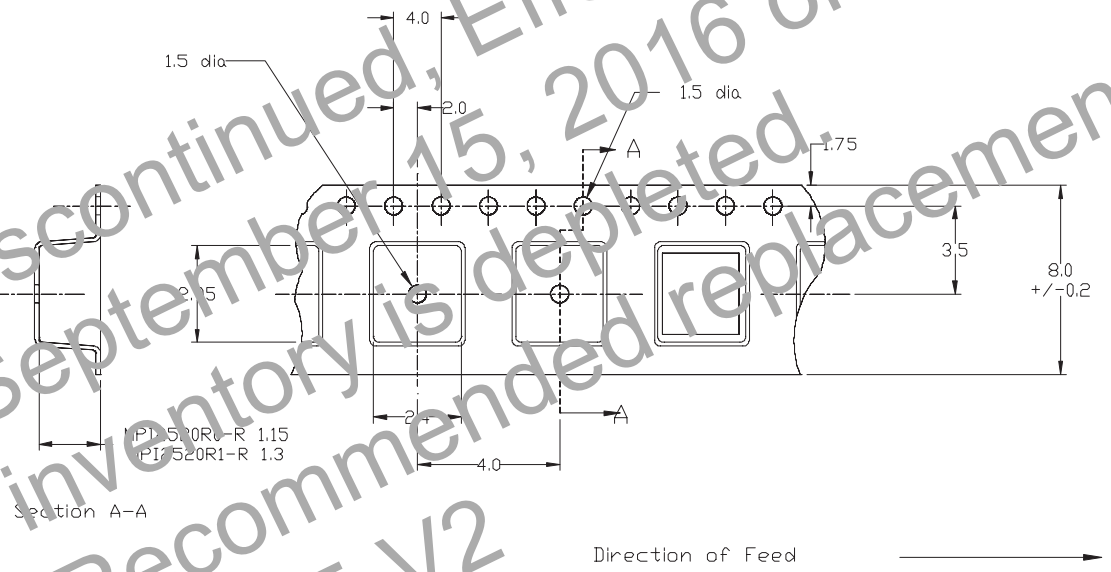
## Dimensions - mm



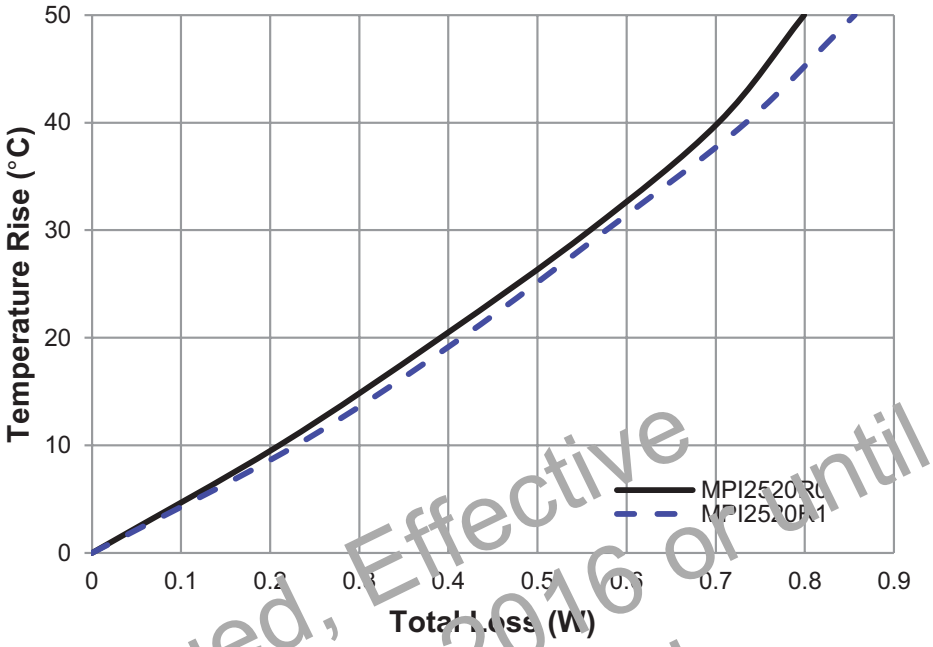

| A Dimension | |
|---|---|
| MPI2520R0 | 1.0mm max |
| MPI2520R1 | 1.2mm max |

No marking

## Packaging information - mm

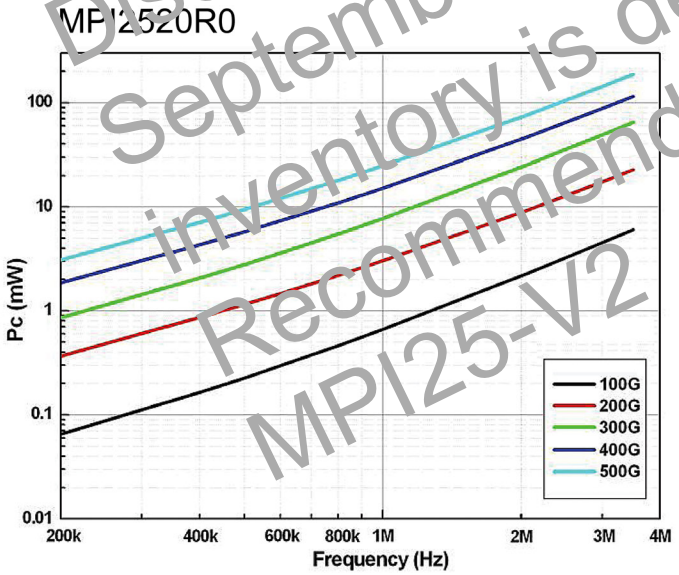


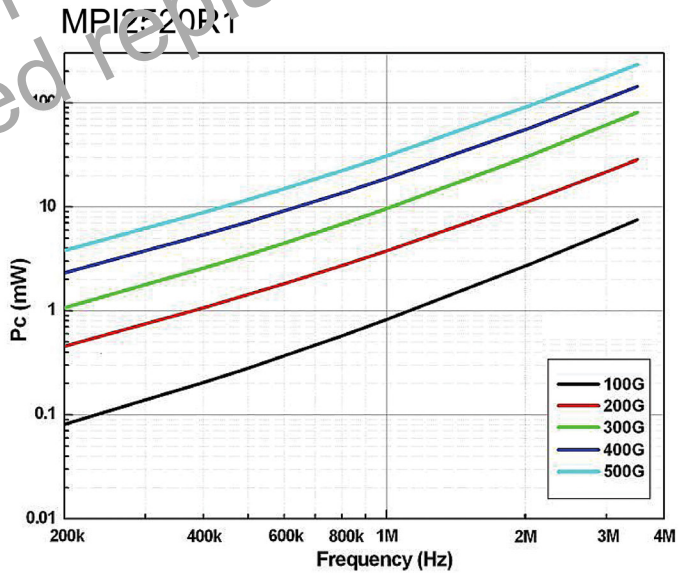
### Temperature rise vs. total loss



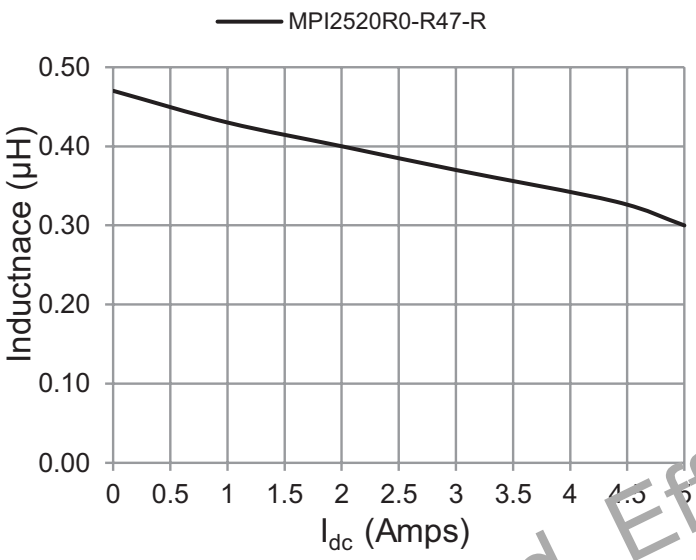


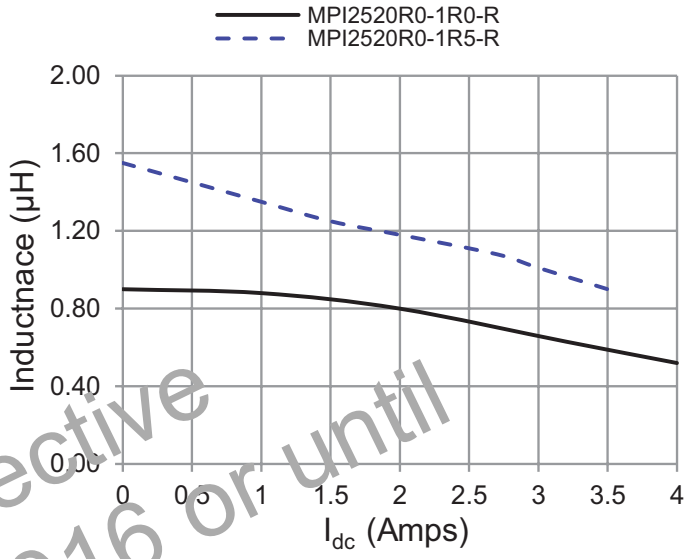

### Core loss

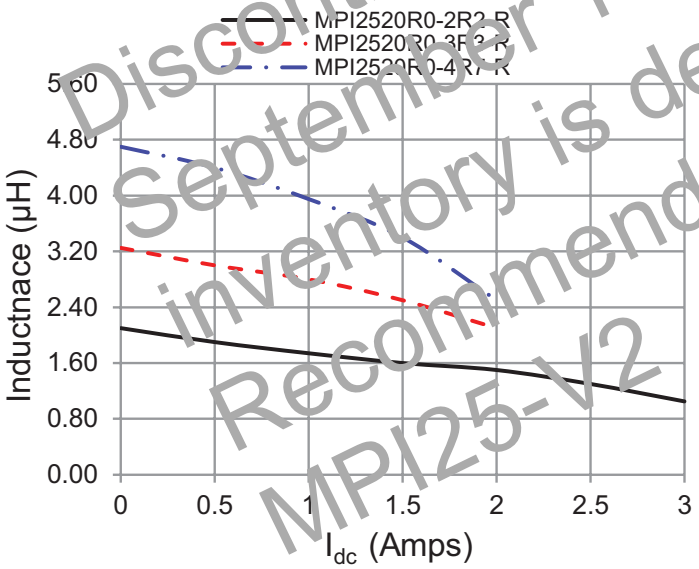


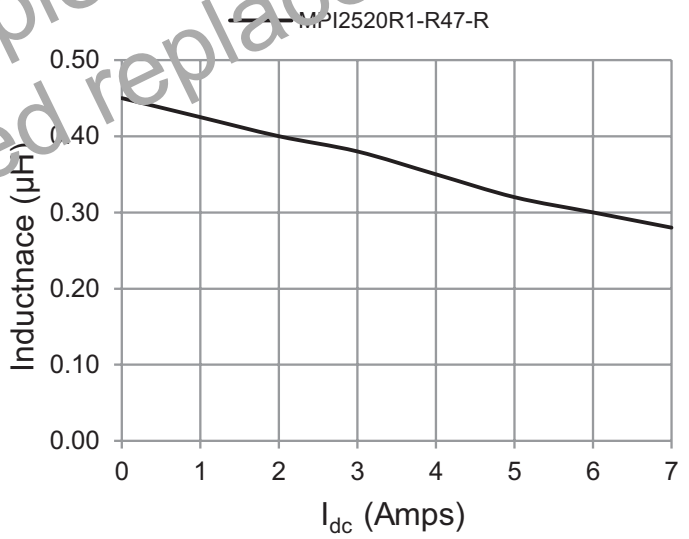



**Inductance characteristics**

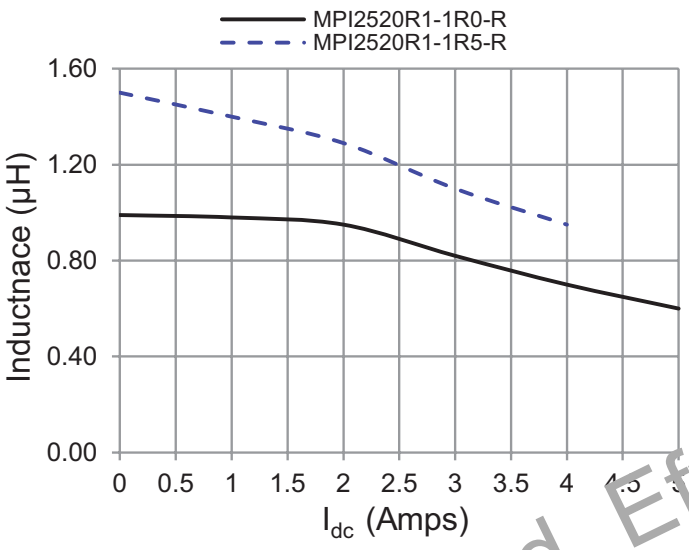


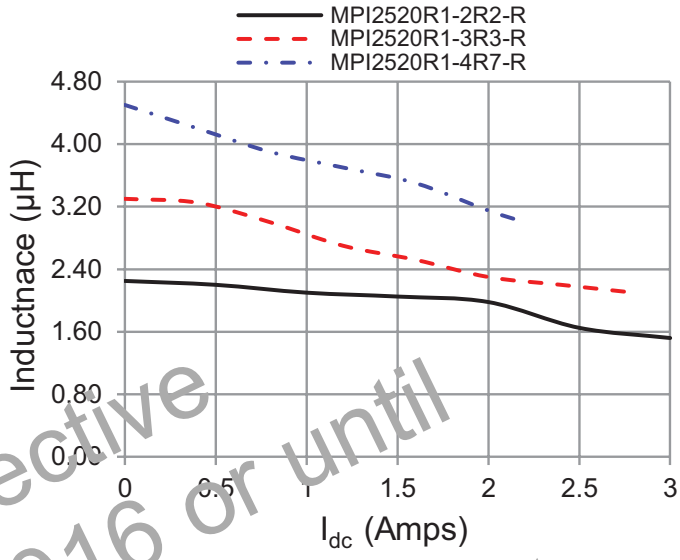



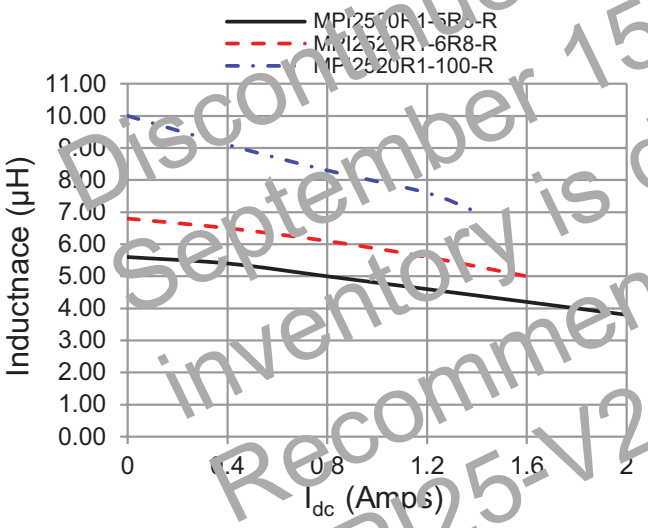



**Inductance characteristics**



## Solder reflow profile

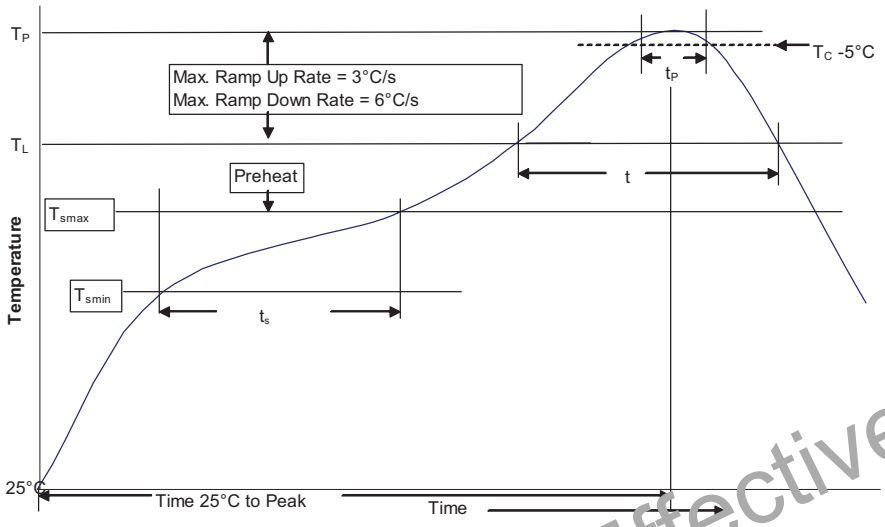



**Table 1 - Standard SnPb Solder ($T_C$)**

| 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 ($T_L$) | | 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.





**Eaton**
**Electronics Division**
1000 Eaton Boulevard
Cleveland, OH 44122
United States
www.eaton.com/elx

Powering Business Worldwide


Publication No. 10199 — BU-SB131200
January 2014

# X-ON Electronics

Largest Supplier of Electrical and Electronic Components

***Click to view similar products for*** Fixed Inductors ***category:***

***Click to view products by*** Eaton ***manufacturer:***

Other Similar products are found below :

CR43NP-680KC CR54NP-820KC CR54NP-8R5MC CTX32CT-100 70F224AI MGDQ4-00004-P MHL1ECTTP18NJ MHL1JCTTD12NJ PE-51506NL PE-53601NL PE-53602NL PE-53630NL PE-53824SNLT PE-92100NL PG0434.801NLT PG0936.113NLT 9310-16 PM06-2N7 PM06-39NJ A01TK 1206CS-471XJ HC2-2R2TR HC2LP-R47-R HC3-2R2-R 1206CS-151XG RCH664NP-140L RCH664NP-4R7M RCH8011NP-221L RCP1317NP-332L RCP1317NP-391L RCR1010NP-470M RCR110DNP-331L DH2280-4R7M DS1608C-106 ASPI-4020HI-R10M-T B10TJ B82477P4333M B82498B3101J000 B82498B3680J000 ELJ-RE27NJF2 1812CS-153XJ 1812CS-183XJ 1812CS-223XJ 1812LS-104XJ 1812LS-105XJ 1812LS-124XJ 1812LS-154XJ 1812LS-223XJ 1812LS-224XJ 1812LS-563XJ