

# Product Change Notification

## CHIP RESISTORS



July, 2016

## **Bourns® Model CRA, CRE and CRF Series High Power Current Sense Chip Resistors**

### *TCR and Resistance Value Range Improvements*

The *Temperature Coefficient of Resistance (TCR)* value of the Bourns® Model [CRA](#), [CRE](#), and [CRF](#) Series Chip Resistors has been improved from  $\pm 275$ ,  $\pm 100$ , or  $\pm 75$  ppm/°C to  $\pm 50$  ppm/°C, uniformly. This improvement impacts all sizes and resistance values of the Model CRA, CRE, and CRF metal strip chip resistor series. The TCR code "Z" ( $\pm 50$  ppm/°C) should be used in all part numbers. The table on pages 2 and 3 shows these changes.

The available resistance range of the CRF Series 0805 size has also been extended from 0.005 - 0.02 ohms to 0.003 - 0.02 ohms.

In summary, the product's TCR has been improved to  $\pm 50$  ppm/°C for all sizes and resistance values. This change has no impact to the fit and form of the product. Electrical performance is improved and quality and reliability criteria have been tightened.

Implementation dates are as follows:

*Bourns will begin phasing in this process: **December, 2016***

*First date code applying the above changes: **1248***

If you have any questions or need additional information, please feel free to contact [Customer Service/ Inside Sales](#).

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<b>Part Number</b>	<b>Description</b>	<b>Part Number</b>	<b>Description</b>
CRA2512-FZ-R010ELF	ResMetalStrip 2512 R010 1% 3W TC75	No change	ResMetalStrip 2512 R010 1% 3W TC50
CRA2512-FZ-R015ELF	ResMetalStrip 2512 R015 1% 3W TC75	No change	ResMetalStrip 2512 R015 1% 3W TC50
CRA2512-FZ-R018ELF	ResMetalStrip 2512 R018 1% 3W TC75	No change	ResMetalStrip 2512 R018 1% 3W TC50
CRA2512-FZ-R020ELF	ResMetalStrip 2512 R020 1% 3W TC75	No change	ResMetalStrip 2512 R020 1% 3W TC50
CRA2512-FZ-R025ELF	ResMetalStrip 2512 R025 1% 3W TC75	No change	ResMetalStrip 2512 R025 1% 3W TC50
CRA2512-FZ-R030ELF	ResMetalStrip 2512 R030 1% 3W TC75	No change	ResMetalStrip 2512 R030 1% 3W TC50
CRA2512-FZ-R040ELF	ResMetalStrip 2512 R040 1% 3W TC75	No change	ResMetalStrip 2512 R040 1% 3W TC50
CRA2512-FZ-R050ELF	ResMetalStrip 2512 R050 1% 3W TC75	No change	ResMetalStrip 2512 R050 1% 3W TC50
CRA2512-FZ-R060ELF	ResMetalStrip 2512 R060 1% 3W TC75	No change	ResMetalStrip 2512 R060 1% 3W TC50
CRA2512-FZ-R070ELF	ResMetalStrip 2512 R070 1% 3W TC75	No change	ResMetalStrip 2512 R070 1% 3W TC50
CRA2512-FZ-R075ELF	ResMetalStrip 2512 R075 1% 3W TC75	No change	ResMetalStrip 2512 R075 1% 3W TC50
CRA2512-FZ-R080ELF	ResMetalStrip 2512 R080 1% 3W TC75	No change	ResMetalStrip 2512 R080 1% 3W TC50
CRA2512-FZ-R100ELF	ResMetalStrip 2512 R100 1% 3W TC75	No change	ResMetalStrip 2512 R100 1% 3W TC50
CRA2512-JZ-R010ELF	ResMetalStrip 2512 R010 5% 3W TC75	No change	ResMetalStrip 2512 R010 5% 3W TC50
CRA2512-JZ-R017ELF	ResMetalStrip 2512 R017 5% 3W TC75	No change	ResMetalStrip 2512 R017 5% 3W TC50
CRA2512-JZ-R020ELF	ResMetalStrip 2512 R020 5% 3W TC75	No change	ResMetalStrip 2512 R020 5% 3W TC50
CRA2512-JZ-R025ELF	ResMetalStrip 2512 R025 5% 3W TC75	No change	ResMetalStrip 2512 R025 5% 3W TC50
CRA2512-JZ-R030ELF	ResMetalStrip 2512 R030 5% 3W TC75	No change	ResMetalStrip 2512 R030 5% 3W TC50
CRA2512-JZ-R034ELF	ResMetalStrip 2512 R034 5% 3W TC75	No change	ResMetalStrip 2512 R034 5% 3W TC50
CRA2512-JZ-R040ELF	ResMetalStrip 2512 R040 5% 3W TC75	No change	ResMetalStrip 2512 R040 5% 3W TC50
CRA2512-JZ-R045ELF	ResMetalStrip 2512 R045 5% 3W TC75	No change	ResMetalStrip 2512 R045 5% 3W TC50
CRA2512-JZ-R050ELF	ResMetalStrip 2512 R050 5% 3W TC75	No change	ResMetalStrip 2512 R050 5% 3W TC50
CRA2512-JZ-R055ELF	ResMetalStrip 2512 R055 5% 3W TC75	No change	ResMetalStrip 2512 R055 5% 3W TC50
CRA2512-JZ-R060ELF	ResMetalStrip 2512 R060 5% 3W TC75	No change	ResMetalStrip 2512 R060 5% 3W TC50
CRA2512-JZ-R065ELF	ResMetalStrip 2512 R065 5% 3W TC75	No change	ResMetalStrip 2512 R065 5% 3W TC50
CRA2512-JZ-R070ELF	ResMetalStrip 2512 R070 5% 3W TC75	No change	ResMetalStrip 2512 R070 5% 3W TC50
CRA2512-JZ-R075ELF	ResMetalStrip 2512 R075 5% 3W TC75	No change	ResMetalStrip 2512 R075 5% 3W TC50
CRA2512-JZ-R080ELF	ResMetalStrip 2512 R080 5% 3W TC75	No change	ResMetalStrip 2512 R080 5% 3W TC50
CRA2512-JZ-R085ELF	ResMetalStrip 2512 R085 5% 3W TC75	No change	ResMetalStrip 2512 R085 5% 3W TC50
CRA2512-JZ-R095ELF	ResMetalStrip 2512 R095 5% 3W TC75	No change	ResMetalStrip 2512 R095 5% 3W TC50
CRA2512-JZ-R100ELF	ResMetalStrip 2512 R100 5% 3W TC75	No change	ResMetalStrip 2512 R100 5% 3W TC50
CRE2512-FZ-R001E-2	ResMetalStrip 2512 R001 1% 2W TC75	No change	ResMetalStrip 2512 R001 1% 2W TC50
CRE2512-FZ-R001E-3	ResMetalStrip 2512 R001 1% 3W TC75	No change	ResMetalStrip 2512 R001 1% 3W TC50
CRE2512-FZ-R002E-2	ResMetalStrip 2512 R002 1% 2W TC75	No change	ResMetalStrip 2512 R002 1% 2W TC50
CRE2512-FZ-R002E-3	ResMetalStrip 2512 R002 1% 3W TC75	No change	ResMetalStrip 2512 R002 1% 3W TC50
CRE2512-FZ-R003E-2	ResMetalStrip 2512 R003 1% 2W TC75	No change	ResMetalStrip 2512 R003 1% 2W TC50
CRE2512-FZ-R003E-3	ResMetalStrip 2512 R003 1% 3W TC75	No change	ResMetalStrip 2512 R003 1% 3W TC50
CRE2512-FZ-R004E-2	ResMetalStrip 2512 R004 1% 2W TC75	No change	ResMetalStrip 2512 R004 1% 2W TC50
CRE2512-FZ-R004E-3	ResMetalStrip 2512 R004 1% 3W TC75	No change	ResMetalStrip 2512 R004 1% 3W TC50
CRE2512-FZ-R005E-2	ResMetalStrip 2512 R005 1% 2W TC75	No change	ResMetalStrip 2512 R005 1% 2W TC50
CRE2512-FZ-R005E-3	ResMetalStrip 2512 R005 1% 3W TC75	No change	ResMetalStrip 2512 R005 1% 3W TC50
CRE2512-FZ-R006E-2	ResMetalStrip 2512 R006 1% 2W TC75	No change	ResMetalStrip 2512 R006 1% 2W TC50
CRE2512-FZ-R006E-3	ResMetalStrip 2512 R006 1% 3W TC75	No change	ResMetalStrip 2512 R006 1% 3W TC50
CRE2512-FZ-R007E-2	ResMetalStrip 2512 R007 1% 2W TC75	No change	ResMetalStrip 2512 R007 1% 2W TC50
CRE2512-FZ-R007E-3	ResMetalStrip 2512 R007 1% 3W TC75	No change	ResMetalStrip 2512 R007 1% 3W TC50
CRE2512-FZ-R008E-2	ResMetalStrip 2512 R008 1% 2W TC75	No change	ResMetalStrip 2512 R008 1% 2W TC50
CRE2512-FZ-R008E-3	ResMetalStrip 2512 R008 1% 3W TC75	No change	ResMetalStrip 2512 R008 1% 3W TC50

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<b>Part Number</b>	<b>Description</b>	<b>Part Number</b>	<b>Description</b>
CRE2512-FZ-R009E-2	ResMetalStrip 2512 R009 1% 2W TC75	No change	ResMetalStrip 2512 R009 1% 2W TC50
CRE2512-FZ-R009E-3	ResMetalStrip 2512 R009 1% 3W TC75	No change	ResMetalStrip 2512 R009 1% 3W TC50
CRF0805-FX-R005ELF	ResMetalStrip 0805 R005 1% 500mW TC100	CRF0805-FZ-R005ELF	ResMetalStrip 0805 R005 1% 500mW TC50
CRF0805-FX-R009ELF	ResMetalStrip 0805 R009 1% 500mW TC100	CRF0805-FZ-R009ELF	ResMetalStrip 0805 R009 1% 500mW TC50
CRF0805-FX-R010ELF	ResMetalStrip 0805 R010 1% 500mW TC100	CRF0805-FZ-R010ELF	ResMetalStrip 0805 R010 1% 500mW TC50
CRF0805-FX-R020ELF	ResMetalStrip 0805 R020 1% 500mW TC100	CRF0805-FZ-R020ELF	ResMetalStrip 0805 R020 1% 500mW TC50
CRF1206-FX-R002ELF	ResMetalStrip 1206 R002 1% 1W TC100	CRF1206-FZ-R002ELF	ResMetalStrip 1206 R002 1% 1W TC50
CRF1206-FX-R010ELF	ResMetalStrip 1206 R010 1% 1W TC100	CRF1206-FZ-R010ELF	ResMetalStrip 1206 R010 1% 1W TC50
CRF1206-FZ-R010ELF	ResMetalStrip 1206 R010 1% 1W TC75	No change	ResMetalStrip 1206 R010 1% 1W TC50
CRF1206-FZ-R012ELF	ResMetalStrip 1206 R012 1% 1W TC75	No change	ResMetalStrip 1206 R012 1% 1W TC50
CRF1206-FZ-R020ELF	ResMetalStrip 1206 R020 1% 1W TC75	No change	ResMetalStrip 1206 R020 1% 1W TC50
CRF1206-FZ-R025ELF	ResMetalStrip 1206 R025 1% 1W TC75	No change	ResMetalStrip 1206 R025 1% 1W TC50
CRF2512-FV-R001ELF	ResMetalStrip 2512 R001 1% 2W TC275	CRF2512-FZ-R001ELF	ResMetalStrip 2512 R001 1% 2W TC50
CRF2512-FX-R002ELF	ResMetalStrip 2512 R002 1% 2W TC100	CRF2512-FZ-R002ELF	ResMetalStrip 2512 R002 1% 2W TC50
CRF2512-FX-R003ELF	ResMetalStrip 2512 R003 1% 2W TC100	CRF2512-FZ-R003ELF	ResMetalStrip 2512 R003 1% 2W TC50
CRF2512-FX-R004ELF	ResMetalStrip 2512 R004 1% 2W TC100	CRF2512-FZ-R004ELF	ResMetalStrip 2512 R004 1% 2W TC50
CRF2512-FX-R005ELF	ResMetalStrip 2512 R005 1% 2W TC100	CRF2512-FZ-R005ELF	ResMetalStrip 2512 R005 1% 2W TC50
CRF2512-FX-R006ELF	ResMetalStrip 2512 R006 1% 2W TC100	CRF2512-FZ-R006ELF	ResMetalStrip 2512 R006 1% 2W TC50
CRF2512-FX-R007ELF	ResMetalStrip 2512 R007 1% 2W TC100	CRF2512-FZ-R007ELF	ResMetalStrip 2512 R007 1% 2W TC50
CRF2512-FX-R008ELF	ResMetalStrip 2512 R008 1% 2W TC100	CRF2512-FZ-R008ELF	ResMetalStrip 2512 R008 1% 2W TC50
CRF2512-FX-R010ELF	ResMetalStrip 2512 R010 1% 2W TC100	CRF2512-FZ-R010ELF	ResMetalStrip 2512 R010 1% 2W TC50
CRF2512-FZ-R012ELF	ResMetalStrip 2512 R012 1% 2W TC75	No change	ResMetalStrip 2512 R012 1% 2W TC50
CRF2512-FZ-R015ELF	ResMetalStrip 2512 R015 1% 2W TC75	No change	ResMetalStrip 2512 R015 1% 2W TC50
CRF2512-FZ-R018ELF	ResMetalStrip 2512 R018 1% 2W TC75	No change	ResMetalStrip 2512 R018 1% 2W TC50
CRF2512-FZ-R020ELF	ResMetalStrip 2512 R020 1% 2W TC75	No change	ResMetalStrip 2512 R020 1% 2W TC50
CRF2512-FZ-R025ELF	ResMetalStrip 2512 R025 1% 2W TC75	No change	ResMetalStrip 2512 R025 1% 2W TC50
CRF2512-FZ-R030ELF	ResMetalStrip 2512 R030 1% 2W TC75	No change	ResMetalStrip 2512 R030 1% 2W TC50
CRF2512-FZ-R033ELF	ResMetalStrip 2512 R033 1% 2W TC75	No change	ResMetalStrip 2512 R033 1% 2W TC50
CRF2512-FZ-R033SLF	ResMetalStrip 2512 R033 1% 2W TC75	No change	ResMetalStrip 2512 R033 1% 2W TC50
CRF2512-FZ-R035ELF	ResMetalStrip 2512 R035 1% 2W TC75	No change	ResMetalStrip 2512 R035 1% 2W TC50
CRF2512-FZ-R040ELF	ResMetalStrip 2512 R040 1% 2W TC75	No change	ResMetalStrip 2512 R040 1% 2W TC50
CRF2512-FZ-R050ELF	ResMetalStrip 2512 R050 1% 2W TC75	No change	ResMetalStrip 2512 R050 1% 2W TC50
CRF2512-JV-R001ELF	ResMetalStrip 2512 R001 5% 2W TC275	CRF2512-JZ-R001ELF	ResMetalStrip 2512 R001 5% 2W TC50
CRF2512-JV-R002ELF	ResMetalStrip 2512 R002 5% 2W TC100	CRF2512-JZ-R002ELF	ResMetalStrip 2512 R002 5% 2W TC50
CRF2512-JX-R003ELF	ResMetalStrip 2512 R003 5% 2W TC100	CRF2512-JZ-R003ELF	ResMetalStrip 2512 R003 5% 2W TC50
CRF2512-JX-R005ELF	ResMetalStrip 2512 R005 5% 2W TC100	CRF2512-JZ-R005ELF	ResMetalStrip 2512 R005 5% 2W TC50
CRF2512-JX-R007ELF	ResMetalStrip 2512 R007 5% 2W TC100	CRF2512-JZ-R007ELF	ResMetalStrip 2512 R007 5% 2W TC50
CRF2512-JX-R010ELF	ResMetalStrip 2512 R010 5% 2W TC100	CRF2512-JZ-R010ELF	ResMetalStrip 2512 R010 5% 2W TC50
CRF2512-JZ-R020ELF	ResMetalStrip 2512 R020 5% 2W TC75	No change	ResMetalStrip 2512 R020 5% 2W TC50
CRF2512-JZ-R030ELF	ResMetalStrip 2512 R030 5% 2W TC75	No change	ResMetalStrip 2512 R030 5% 2W TC50
CRF2512-JZ-R033ELF	ResMetalStrip 2512 R033 5% 2W TC75	No change	ResMetalStrip 2512 R033 5% 2W TC50