Listing of PCNs

Introduction

This file contains PCN information for the product(s) referenced by the file name.

Note that the file may contain multiple PCNs. If this is the case, they are arranged in chronological order, so to see the most recent PCN scroll to the end.

TT Electronics
Fixed Resistor Business unit
4222 South Staples Street
Corpus Christi, Texas 787411

Telephone: (361)992-7900
Facsimile: (361) 992-3377

PRODUCT/ PROCESS CHANGE NOTICE

PCN Number	PCN – 20110824-1a
Date	8/24/11
Product(s) Affected	PFC-W1505, PFC-W2010, PFC-W2512
Date Effective	November 1, 2011
Mfg. Location	Corpus Christi

Type of Change ☒**End of Life** ☐**Material** ☐ **Process** ☐**Other**

Description of Change	**End of life notice. The revision of the PCN extends the last time buy to February 29, 2012.**
Reason for Change	**IRC is discontinuing the manufacturing.**
Implementation Plan	**IRC will accept last-time-buys to support current business only until February 29, 2012. After February 29, only orders to deplete stock WIP will be accepted.**
Recommendations	**IRC recommends the PFC precision needs. IRC makes no recommendation where Tan material is required.**
Availability of Previously Manufactured Products	**N/A**
Sales Contact	
Title	
Phone	
Fax	
Email	

Approvals

Operations Manager/Date	**Global Product Line Director/Date**	**VP & FRBU/ Date**
Chuck Stout **Approved on 11/23/11 @ 7:42AM**	**Philip Fullmer** **Approved on 11/22/11 @ 9:42 AM**	**Gareth Mycock** **Approved on 11/23/11 @ 6:50AM**

FRBU C PCN; Revision Date: October 6, 2011

Resistors Product Change Notification

PCN Number and Title	**2013-RBU04:** Notice of Additional Ceramic Source Qualification for Commercial PFC Resistors		
Notification Launch Date	November 7, 2013		
Type of Change	☐ End of Life Notification ☐ Manufacturing Facility Change or Addition ☐ Datasheet Specification Change ☒ Other: *Qualification of Additional Ceramic Source*	☐ Material Change ☐ Process Change ☐ Design Change	
Manufacturing Location(s) Affected	Corpus Christi, TX USA	**Date of Change Implementation**	January 2, 2014

Products Affected		
Product Family	**Datasheet Link(s)**	**Comment**
1206 Case Size Commercial PFC	http://www.irctt.com/file.aspx?product_id=161&file_type=datasheet http://www.welwyn-tt.com/pdf/datasheet/PFC.pdf	**ONLY 1206 Case Size Commercial Grade**

Description of Change	TT electronics has qualified an additional ceramic source for high-volume manufacturing of commercial-grade 1206 case size PFC precision resistors. This notice affects all tolerances and TCR values of commercial-grade 1206 case size PFC resistors. Commercial-grade PFC resistors are identified by the TCR code in the part number as listed on the datasheet. TCR codes 01, 02, 03, 11, and 12 designate a commercial-grade PFC resistor. Any PFC manufactured with a TT electronics internal part number with a commercial PFC tolerance code is affected by this change. ***There is no change to form, fit, or function of the finished product as described in the datasheet. This notice is for informational purposes only.***
Reason for Change	In order to support long-term continuity to our valued customers in the unlikely event of a sudden ceramic raw material shortage from existing sources, TT electronics has qualified an additional source of ceramic for commercial PFC product in the popular 1206 case size.
Implementation Plan	Effective January 2, 2014 customers may receive product manufactured with ceramic from all qualified sources.

	MIL-Screened resistors (ordered by 04, 05, 06, 07, 14, 15, and 16 TCR codes) and resistors ordered by MIL-PRF-55342 part number are **NOT** impacted by this change.
Customer Impact	Customers will experience no impact from the qualification of the additional ceramic source.
Recommendations	As this notice is provided for information purposes only, no recommendations are required.
Availability of Previously Manufactured Product	N/A
Sales Contacts	EMEA: Armando Marnati Armando.Marnati@ttelectronics.com Americas: Mike Graham Mike.Graham@ttelectronics.com Asia/Pacific: Janson Chuen Janson.Chuen@ttelectronics.com

Title	Name	Signature / Date
Director of Product Management	Philip Fulmer	*Philip Fulmer* October 10, 2013
Operations Director	Chuck Stout	*Chuck Stout* October 10, 2013
Global Sales Director	Klaus Zwerschina	*Klaus Zwerschina* October 10, 2013
SVP/ General Manager	Gareth Mycock	*Gareth Mycock* October 11, 2013

Additional Information:

Please see the following page of this change notice for a reference table providing further information on part numbers impacted by this change.

PFC Type	IRC PFC Part Number	Welwyn PFC Part Number	Is this part number impacted by PCN?
Commercial	PFC-W0402R-XX-YYYY-Z PFC-W0402LF-XX-YYYY-Z PFC-W0603R-XX-YYYY-Z PFC-W0603LF-XX-YYYY-Z PFC-W0805R-XX-YYYY-Z PFC-W0805LF-XX-YYYY-Z Where XX = All Commercial TCR Codes: 01 = ± 100ppm/°C 02 = ± 50ppm/°C 03 = ± 25ppm/°C 11 = ± 15ppm/°C 12 = ± 10ppm/°C Where YYY = Resistance Value Where Z = Tolerance Code	W0402XXX-YYYYZI W0603XXX-YYYYZI W0805XXX-YYYYZI Where XXX = TCR Code Where YYYY = Resistance Value Where Z = Tolerance Code	Not Impacted
Commercial	PFC-W1206R-XX-YYYY-Z PFC-W1206LF-XX-YYYY-Z Where XX = All Commercial TCR Codes: 01 = ± 100ppm/°C 02 = ± 50ppm/°C 03 = ± 25ppm/°C 11 = ± 15ppm/°C 12 = ± 10ppm/°C Where YYY = Resistance Value Where Z = Tolerance Code	W1206XXX-YYYYZI	Additional ceramic source used for volume production per this PCN notice
MIL-Screened	PFC-W0402R-XX-YYYY-Z PFC-W0603R-XX-YYYY-Z PFC-W0805R-XX-YYYY-Z PFC-W1206R-XX-YYY-Z Where XX = All MIL-Screened TCR Codes: 04 = ± 300ppm/°C 05 = ± 100ppm/°C 06 = ± 50ppm/°C 07 = ± 25ppm/°C 14 = ± 20ppm/°C 15 = ± 15ppm/°C 16 = ± 10ppm/°C	N/A	Not Impacted
MIL-PRF-55342	D55342XXXXXXXXX	N/A	Not Impacted
MIL-PRF-55342	M55342XXXXXXXXX	N/A	Not Impacted

Resistors Product Change Notification

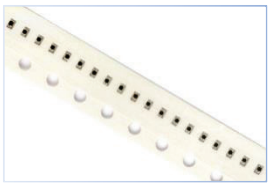
PCN Number	PCN-2018-RBU12
PCN Title	PFC 0402 & 0805 PFC Process Upgrade
PCN Date	**05 October 2018**
Type of Change	☐ End of Life Notification ☒ Manufacturing Facility Change or Addition ☒ Datasheet Specification Change ☐ Other: ☒ Material Change ☒ Process Change ☒ Design Change
Manufacturing Location(s) Affected	Corpus Christi (USA)
Date of Change Implementation	Phased Implementation by case size: (1) 0805 (Orders placed beginning week commencing 05 November 2018) (2) 0402 (Orders placed beginning week commencing 19 November 2018) Case sizes 0603, 1206, planned Q1 2019, to be addressed by separate PCN. Existing orders at the time of implementation will be supported by either the current our new design product. Product with new and old construction will be supplied until inventories are consumed

Products Affected

Product Series	Product Type(s)	Datasheet Link
PFC	PFC-W0402LF PFC-W0805LF	Commercial products covered by this PCN: http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PFC.pdf Special products (tight tolerance / TCR / Sn-Pb, etc) outside scope of this PCN but previously included in the PFC datasheet, are addressed in a separate datasheet: http://www.ttelectronics.com/sites/default/files/resistors-datasheets/PFC-S.pdf

Change Detail

Description of Change	(1) No change to part number or form/fit/function. Updated product will fit the same solder pads but minor tolerance changes have been made (summarized in "Additional Information"). (2) Termination modified to align with modern design rules and process techniques, see details below: a. Simplified termination stack incorporating thick film conductor inks (Ag / Au) that replace sputtered precious metals in the current design

	b. NiCr sputtered wraparound edges c. Outer plated layers are unchanged (3) Introduce state of the art trimming methods as a replacement to photolithography to achieve resistor pattern (4) Switch from diced to scribed ceramics (5) Employ electrical overload screening to 100% of product to remove non typical components from shipped product (6) Introduce digital marking on product size 0805 (7) Package product on paper tape for improved pocket definition. (8) New Product is easily distinguished from legacy product by packaging tape (white punched paper tape instead of embossed black plastic) and top coat protection color – black instead of blue, and presence of digital marking on updated product for 0805.   (9) MOQ is 5000 pieces on all sizes. Standard packaging will be 5K per reel. 1K reel sizes will be available for quotation.
Reason for Change	Changes implemented will provide stable cost basis to support market expectations. Establish capacity increase for PFC using modern manufacturing techniques, materials, and equipment.
Implementation Plan	(1) Included product a. Case size 0402, 0805 b. TCR Codes: i. -01: 100 ppm ii. -02: 50 ppm iii. -03: 25 ppm iv. -11: 15 ppm v. -12: 10 ppm c. Tolerance: i. –B (±0.1%) ii. –C (±0.25%) iii. –D (±0.5%) iv. –F (±1%) v. –G (±2%) vi. –J (±5%) d. R values: i. 0402: 15R – 30K ii. 0805: 5R0 – 267K (2) Notify all potentially affected customer, notification to include 2 yr usage, PNs
Customer Impact	(1) No change to form / fit / function. (2) Product encapsulation color will change from blue to black; potential impact on PCB automated inspection processes. (3) Reel size change to 5K SPQ will reduce frequency of reel changes in PCB assembly processes.

Recommendations	Change MRP Systems: • MOQ: 5000 pieces • Country of Origin: Taiwan
Availability of Previously Manufactured Product	Previously manufactured product will ship until inventory is exhausted.
Availability of Approval Samples	Product functions identically in for purposes of Form / Fit / Function. Sample requests will be considered individually, will be subject to pr oduct lead time.
Sales Contacts	Americas: Kevin Marzano kevin.marzano@ttelectronics.com Asia: Janson Chuen janson.chuen@ttelectronics.com Europe (EMEA): Peter Bauer peter.bauer@ttelectronics.com Distribution (Global): David Burns david.burns@ttelectronics.com http://www.ttelectronics.com/resistors

Approval			
	Name	**Title**	**Date**
Issued by	David Winkler	Product Line Manager, Thin Film Products	25 Sept 2018
Approved by	Barry Peters	VP, Product Management & Engineering	25 Sept 2018
Approved by	David Kertes	VP, Global Sales and Marketing	26 Sept 2018
Approved by	Guy Millard	Vice President & General Manager, Resistors Business Unit	1 Oct 2018

Additional Information

Minor Modifications to dimensional tolerances: dimension al nominal values are unchanged, but some minor changes will be implemented. Dimensional tolerances ar e summarized below, with changed values highlighted yellow.

Style		L	W	H	A	B
W0402	Inches	±0.003	±0.005	±0.003	-0.004 / +0.008	±0.006
	(mm)	(±0.07)	(±0.12)	(±0.08)	(-0.1 / +0.2)	(±0.15)
W0805	Inches	±0.006	±0.007	±0.006	±0.009	±0.008
	(mm)	(±0.16)	(±0.18)	(±0.14)	(±0.23)	(±0.21)

Price sheet attached for reference

Resistors Product Change Notification

PCN Number	PCN-2018-RBU14
PCN Title	PFC 0603 & 1206 PFC Process Upgrade
PCN Date	**21 December 2018**
Type of Change	☐ End of Life Notification ☒ Manufacturing Facility Change or Addition ☒ Datasheet Specification Change ☐ Other: ☒ Material Change ☒ Process Change ☒ Design Change
Manufacturing Location(s) Affected	Corpus Christi (USA)
Date of Change Implementation	Phased Implementation by case size: (1) 0603 (Orders placed beginning week commencing 01 April 2019) (2) 1206 (Orders placed beginning week commencing 01 April 2019) Existing orders at the time of implementation will be supported by either the current or new design product. Product with new and old construction will be supplied until inventories are consumed

Products Affected

Product Series	Product Type(s)	Datasheet Link
PFC	PFC-W0603LF PFC-W1206LF	Commercial products covered by this PCN are described at https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/PFC.pdf. The datasheet is also attached to the end of this announcement for convenience. Special products (tight tolerance / TCR / Sn-Pb, etc) outside scope of this PCN but previously included in the PFC datasheet, are addressed in a separate datasheet, available at https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/PFC-S.pdf. If these hyperlinks to datasheets do not function directly, please copy and paste the address into your browser.

Change Detail

Description of Change	(1) No change to part number or form/fit/function. Updated product will solder reliably to industry standard solder pads but minor tolerance changes have been made (summarized in "Additional Information") to account for pre- and post-PCN product shipments during inventory consumption. (2) Termination modified to align with modern design rules and process techniques,

	see details below: a. Simplified termination stack incorporating thick film conductor inks (Ag / Au) that replace sputtered precious metals in the current design b. NiCr sputtered wraparound edges c. Outer plated layers are unchanged (3) Introduce state of the art trimming methods as a replacement to photolithography to achieve resistor pattern (4) Switch from diced to scribed ceramics (5) Employ electrical overload screening to 100% of product to remove non typical components from shipped product (6) Introduce digital marking (7) Package product on paper tape for improved pocket definition. (8) New Product is easily distinguished from legacy product by packaging tape (white punched paper tape instead of embossed black plastic) and top coat protection color – black instead of blue, and presence of digital marking on updated product.   (9) MOQ is 5000 pieces on all sizes. Standard packaging will be 5K per reel. 1K reel sizes will be available for quotation.
Reason for Change	Changes implemented will provide stable cost basis to support market expectations. Establish capacity increase for PFC using modern manufacturing techniques, materials, and equipment.
Implementation Plan	(1) Included product a. Case size 0603, 1206 b. TCR Codes: i. -01: 100 ppm ii. -02: 50 ppm iii. -03: 25 ppm iv. -11: 15 ppm v. -12: 10 ppm c. Tolerance: i. –B (±0.1%) ii. –C (±0.25%) iii. –D (±0.5%) iv. –F (±1%) v. –G (±2%) vi. –J (±5%) d. R values: i. 0603: 5R0 – 100K ii. 1206: 5R0 – 1M (2) Notify all potentially affected customer, notification to include 2 yr usage, PNs
Customer Impact	(1) No change to form / fit / function. (2) Product encapsulation color will change from blue to black; potential impact on PCB automated inspection processes. (3) Reel size change to 5K SPQ will reduce frequency of reel changes in PCB assembly processes.

Recommendations	Change MRP Systems: • MOQ: 5000 pieces • Country of Origin: Taiwan
Availability of Previously Manufactured Product	Previously manufactured product will ship until inventory is exhausted.
Availability of Approval Samples	Product functions identically in for purposes of Form / Fit / Function. Sample requests will be considered individually, will be subject to product lead time.
Sales Contacts	Americas: Kevin Marzano kevin.marzano@ttelectronics.com Asia: Janson Chuen janson.chuen@ttelectronics.com Europe (EMEA): Peter Bauer peter.bauer@ttelectronics.com Distribution (Global): David Burns david.burns@ttelectronics.com http://www.ttelectronics.com/resistors

Approval			
	Name	**Title**	**Date**
Issued by	David Winkler	Product Line Manager, Thin Film Products	21 Dec 2018
Approved by	Barry Peters	VP, Product Management & Engineering	21st Dec 2018
Approved by	David Kertes	VP, Global Sales and Marketing	21 Dec 2018
Approved by	Guy Millard	Vice President & General Manager, Resistors Business Unit	7th Jan 2019

Additional Information

Minor Modifications to dimensional tolerances: dimensional nominal values are unchanged, but some insignificant changes to the dimensional tolerances are in place. The PCN-affected part will solder reliably to existing EIA-standard landing pads with no need for design changes.

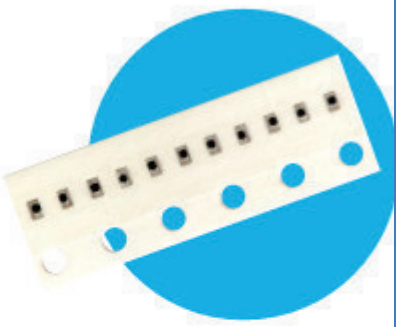
Resistors

TT Electronics

Precision Thin Film Chip Resistors

PFC Commercial Series

- High stability tantalum nitride film
- Available in 0402, 0603, 0805 and 1206
- AEC-Q200 qualified
- Absolute TCR to ±10ppm/°C
- Sulfur resistant to ASTM B809-95



All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

PFC chip resistor series provides the high precision and ultra stable performance of tantalum nitride resistive film system in 0402, 0603, 0805 and 1206 sizes. The unique characteristics of the passivated tantalum nitride film ensure long term life stability and reliability in most environments.

Qualified for resistance to sulfur bearing gases, the PFC series is an excellent solution for automotive and heavy equipment applications where precision, exceptional reliability with anti-sulfuration characteristics is imperative.

Electrical Data

Model	Power Rating (70°C)	Max Voltage Rating ($\leq \sqrt{P \times R}$)	Temperature Range	ESD Sensitivity	Noise	Termination	Substrate
W0402	50mW	75V	-65°C to +150°C	2KV to 4KV (HBM)	<-25dB	100% matte tin (RoHS compliant) plated over nickel barrier	96.5% Alumina
W0603	100mW	75V					
W0805	250mW	100V					
W1206	333mW	200V					

Environmental Data

Environmental Test	Test Method	Performance	
		Typical	Maximum
Sulfuration Test	ASTM B809-95 humid vapor	±0.02%	±0.05%
Thermal Shock	MIL-PRF-55342	±0.02%	±0.10%
Low Temperature Operation	MIL-PRF-55342	±0.01%	±0.05%
Short Time Overload	MIL-PRF-55342	±0.01%	±0.05%
High Temperature Exposure	MIL-PRF-55342	±0.03%	±0.10%
Effects of Solder	MIL-PRF-55342	±0.01%	±0.10%
Moisture Resistance	MIL-PRF-55342	±0.03%	±0.10%
Life	MIL-PRF-55342	±0.03%	±0.10%

General Note

TT Electronics reserves the right to make changes in product specification without notice or liability.

All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

BI Technologies IRC Welwyn

www.ttelectronics.com/resistors

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Precision Thin Film
Chip Resistors

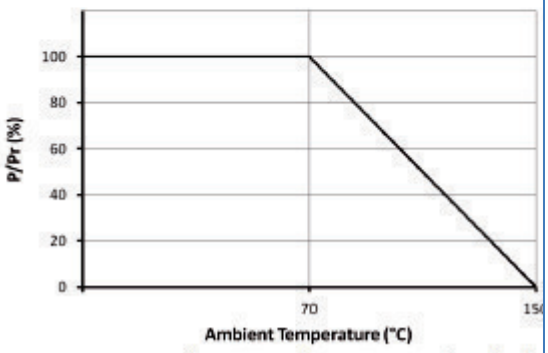
TT Electronics

PFC Commercial Series

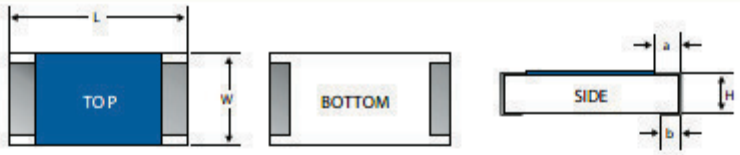
Manufacturing Capabilities Data

TCR ppm/°C	Tolerance 0.1% to 5%			
	W0402	W0603	W0805	W1206
10	100Ω-16kΩ	100Ω-50kΩ	100Ω-100kΩ	100Ω-400kΩ
15	50Ω-16kΩ	50Ω-50kΩ	50Ω-100kΩ	50Ω-400kΩ
25	15Ω-30kΩ	10Ω-100kΩ	10Ω-267kΩ	10Ω-1MΩ
50, 100	15Ω-30kΩ	5Ω-100kΩ	5Ω-267kΩ	5Ω-1MΩ

Power Derating Curve



Physical Data



Model	L	W	H	a	b
W0402	0.04 ±0.003 (1.02 ±0.07)	0.021 ±0.005 (0.53 ±0.12)	0.012 ±0.003 (0.3 ±0.08)	0.008 -0.004, +0.008 (0.2 -0.1/+0.2)	0.01 ±0.006 (0.25 ±0.15)
W0603	0.063 ±0.004 (1.6 ±0.1)	0.031 ±0.004 (0.79 ±0.11)	0.02 ±0.004 (0.51 ±0.11)	0.012 ±0.008 (0.3 ±0.2)	0.015 ±0.009 (0.38 ±0.23)
W0805	0.081 ±0.006 (2.06 ±0.16)	0.05 ±0.007 (1.27 ±0.18)	0.02 ±0.006 (0.51 ±0.14)	0.015 ±0.009 (0.38 ±0.23)	0.016 ±0.008 (0.41 ±0.21)
W1206	0.126 ±0.008 (3.2 ±0.2)	0.063 ±0.004 (1.6 ±0.1)	0.024 ±0.006 (0.61 ±0.16)	0.025 ±0.017 (0.64 ±0.44)	0.025 ±0.017 (0.64 ±0.44)

For PCB mounting pad recommendations see
http://www.ttelectronics.com/sites/default/files/resistors/TN006%20-%20Recommended%20Layouts%20for%20SMD%20Resistors.pd

Construction

Conductors and tantalum nitride resistive element are applied to an alumina substrate. The product is laser trimmed to value, and a protective black epoxy coat is applied. The product is then metallized and plated to provide a wrap-around solderable termination with a 100% matte tin finish on a nickel barrier layer. It is 100% tested and provided on standard paper carrier tape.

Marking

The 0402 chips are not marked. 3 digit marking is used on the 0603 size and 4 digit marking on larger sizes and E96 values.

Special Variants

For PFC resistors with tighter tolerances, SnPb terminations or MIL screening, refer to the separate PFC Special Series datasheet.

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Ordering Procedure

This product has two valid part numbers:

European (Welwyn) Part Number: W1206R-01-1K0BI (1206, 100ppm/°C, 1 kilohm ±0.1%, Pb-free)

W	1	2	0	6	R	-	0	1	-	1	K	0	B	I
1		2			3					4			5	6

1 Type	2 Size	3 TCR	4 Value	5 Tolerance	6 Termination & Packing
W=PFC	0402	R-12 = ±10ppm/°C	E24 = 3/4 characters E96 = 3/4 characters R = ohms K = kilohms M = megohms	B = ±0.1%	I = Pb-free, Standard pack
	0603	R-11 = ±15ppm/°C		D = ±0.5%	All sizes 5000/reel*
	0805	R = ±25ppm/°C		F = ±1%	
	1206	R-02 = ±50ppm/°C		G = ±2%	
		R-01 = ±100ppm/°C		J = ±5%	

USA (IRC) Commercial Part Number: PFC-W1206LF-01-1001-B (1206, 100ppm/°C, 1 kilohm ±0.1%, Pb-free)

P	F	C	-	W	1	2	0	6	L	F			-	0	1	-	1	0	0	1	-	B
1				2					3					4			5					6

1 Family	2 Model	3 Termination	4 TCR	5 Value	6 Tolerance	Packing
PFC	W0402	LF = Pb-free (100%Sn)	12 = ±10ppm/°C	3 digits + multiplier	B = ±0.1%	All sizes 5000/ree
	W060		11 = ±15ppm/°C	R = ohms for	D = ±0.5%	
	W0805		03 = ±25ppm/°C	values <100 ohms	F = ±1%	
	W1206		02 = ±50ppm/°C		G = ±2%	
			01 = ±100ppm/°C		J = ±5%	

* Non-standard pack quantity 1000/reel may be available by special request – contact factory.

Resistors Product Change Notification

PCN Number	PCN-2020-RBU09
PCN Title	**Manufacturing Facility Change**: Corpus Christi Manufactured Resistors
PCN Date	**15th July 2020**
Type of Change	☐ End of Life Notification ☒ Manufacturing Facility Change or Addition ☐ Datasheet Specification Change ☐ Other: ☐ Material Change ☐ Process Change ☐ Design Change
Manufacturing Location(s) Affected	TT Electronics Corpus Christi
Date of Change Implementation	**August 2021**

Products Affected

TTE Product Series	Datasheet Link
PFC & All Custom Variants	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/PFC.pdf
PFC Special & All Custom Variants	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/PFC-S.pdf
PFC Divider & All Custom Variants	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/PFC-D.pdf
PFC High Temperature & All Custom Variants	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/PFC-HT.pdf
M55342 & D55342	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/MIL-CHIP.pdf
WIN & All Custom Variants	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/WIN.pdf
Automotive Sensors (ASR/PSR)	No Datasheet available
GUS – TS005	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/TS005.pdf
GUS – QS001	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/QS001.pdf
GUS - QSOP	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/QSOP.pdf
GUS - SOIC	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/SOIC.pdf
GUS - TSSOP	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/TSSOP.pdf
GUS – AC Line Terminator	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/AC-Line-Terminator.pdf
GUS – R2R	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/R-2R.pdf
GUS – Tapped Filter	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/Tapped-Filter.pdf
GUS – T Filter	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/T-Filter.pdf
CCN & All Custom Variants	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/CCN.pdf

SIP & All Custom Variants	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/4700.pdf
CHC & All Custom Variants	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/CHC.pdf
CHC Precision & All Custom Variants	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/CHC-Precision.pdf
SOT23/DIV23 & All custom Variants	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/DIV23.pdf
SOT143 & All custom Variants	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/SOT143.pdf
SPD & All custom Variants	No Datasheet available
SON & All Custom Variants	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/SON.pdf
GUB & All Custom Variants	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/GUB.pdf
Ultra Precision Networks – All Styles	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/TaN-U.pdf
DIP & All Custom Variants	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/1900.pdf
M900 & All Custom Variants	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/M900.pdf
FP & All Custom Variants	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/8900.pdf
SOIC (GL & GS) & All Custom Variants	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Resistors/Datasheets/SOIC-C.pdf
TFA & All Custom Variants	No Datasheet Available
PLC & All Custom Variants	No Datasheet Available

Change Detail	
Description of Change TT Electronics is declaring that production of the products listed above is being transferred from TT Electronics Corpus Christi to TT Electronics Dallas	
Reason for Change	TT Electronics are creating a Thin Film Resistor Centre Of Excellence in Dallas, USA
Implementation Plan	There will be no disruption to the supply chain. Any customers who do wish to place a Last Time Buy order of Corpus Christi manufactured product must do so by 31st January 2021 with a final ship date of 31st August 2021 All products will be qualified in line with their respective datasheets and qualification test reports will be available upon request.
Customer Impact	There is no impact on product fit, form or function & there will be no disruption to the supply chain. All product qualifications will remain unchanged
Recommendations	Customers are advised to order in line with their qualification requirements.
Availability of Previously Manufactured Product	N/A

Availability of Approval Samples	Samples manufacture in the Dallas facility will be available from Q1 2022
Sales Contacts	Americas OEM: Mike Graham Mike.graham@ttelectronics.com Europe OEM: Klaus Zwerschina Klaus.zwerschina@ttelectronics.com Asia OEM: Janson Chuen janson.chuen@ttelectronics.com Americas Distribution: Corey Harrelson Corey.harrelson@ttelectronics.com Europe Distribution: Claudia Patzak-Kruger Claudia.patzak@ttelectronics.com Asia Distribution: Kuek Joo Wee joowee.kuek@ttelectronics.com

Approvals			
	Name	**Title**	**Date**
Issued by	David Peters	Product Line Manager	15th July 2020
Approved by	Barry Peters	VP Product Management & Engineering	15th July 2020
Approved by	Klaus Zwerschina	Global Sales Director	15th July 2020

Resistors Product Change Notification

PCN Number	PCN-2021-RBU09
PCN Title	Datasheet Update – PFC Special Series
PCN Date	**16/06/2021**
Type of Change	☐ End of Life Notification ☐ Manufacturing Facility Change or Addition ☒ Datasheet Specification Change ☐ Other: ☐ Material Change ☐ Process Change ☐ Design Change
Manufacturing Location(s) Affected	TT Electronics, Corpus Christi, Texas
Date of Change Implementation	**16th June 2021**

Products Affected	
TTE Series	**Datasheet Link**
PFC-S	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Datasheets/PFC-S.pdf

Change Detail	
Description of Change	Update to the PFC-S Datasheet to align it to our manufacturing capability, as it is not possible to manufacture Anti-Sulphur resistors below 100 Ohms. There will be no change to the product form, fit or function of the device and this PCN is for notification only.
Reason for Change	Copper is required in the termination stack for Anti-Sulphur and regular resistors below 100 Ohms. This Results in parts failing some of the Sulphur Tests.
Implementation Plan	Immediate implementation – June 2021
Customer Impact	Product form, fit or function is unchanged, however values below 100 ohms are no longer available with the anti-sulphur option.

Recommendations	N/A
Availability of Previously Manufactured Product	N/A
Availability of Approval Samples	N/A
Sales Contacts	Americas: Kevin Marzano Kevin.Marzano@ttelectronics.com Asia: Janson Chuen Janson.Chuen@ttelectronics.com Europe (EMEA): Claudia Patzak-Kruger Claudia.Patzak@ttelectronics.com

Approval			
	Name	**Title**	**Date**
Issued by	Mark Beeston	Product Line Manager	16/06/2021
Approved by	Barry Peters	VP Product Management and Engineering	16/06/2021
Approved by	Klaus Zwerschina	Global Sales Director	16/06/2021

Resistors Product Change Notification

PCN Number	PCN-2022-RBU01
PCN Title	Lead (Pb) bearing Commercial PFC Process Upgrade.
PCN Date	**11th April 2022**
Type of Change	☐ End of Life Notification ☒ Manufacturing Facility Change or Addition ☒ Datasheet Specification Change ☐ Other: ☒ Material Change ☒ Process Change ☒ Design Change
Manufacturing Location(s) Affected	Dallas (USA)
Date of Change Implementation	Implementation by case size: (1) 0402 (Orders shipped commencing 1st July 2022) (2) 0603 (Orders shipped commencing 1st July 2022) (3) 0805 (Orders shipped commencing 1st July 2022) (4) 1206 (Orders shipped commencing 1st July 2022) Existing orders at the time of implementation and any new orders, will be supported by either the current or new design product. Product with new and old construction will be supplied until inventories are consumed

Products Affected		
TT Series	**Types**	**Affected Variants**
PFC	PFC-W0402R PFC-W0603R PFC-W0805R PFC-W1206R W0402xxPB W0603xxPB W0805xxPB W1206xxPB	Commercial products covered by this PCN: Included product. **(Note: This relates to Commercial Pb bearing Terminations parts only)** a. Case size 0402, 0603, 0805, 1206 b. TCR Codes: (USA) (EMEA) i. -01: 100 ppm R-01: 100 ppm ii. -02: 50 ppm R-02: 50 ppm iii. -03: 25 ppm R: 25 ppm iv. -11: 15 ppm R-11: 15 ppm v. -12: 10 ppm R-12: 10 ppm c. Tolerance: i. –B (±0.1%) ii. –D (±0.5%) iii. –F (±1%) iv. –G (±2%) v. –J (±5%)

		d. R values: i. 0402: 15R – 30K ii. 0603: 5R – 100K iii. 0805: 50R0 – 100K (For Low TCR values : 10 – 15ppm) iv. 0805: 5R0 – 267K (For Higher TCR Values : 25 – 100ppm) v. 1206: 5R0 – 1M The Leaded commercial PFC products identified above will move from the PFC Special Series to the PFC Commercial Series as defined by the relevant datasheet which can be accessed via the following links: https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Datasheets/PFC.pdf https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Datasheets/PFC-S.pdf

Change Detail	
Description of Change	(1) No change to part number or form/fit/function. Updated product will fit the same solder pads but minor tolerance changes have been made to account for pre- and post-PCN product shipments during inventory consumption. (2) Termination modified to align with modern design rules and process techniques, see details below: a. Simplified termination stack incorporating thick film conductor inks (Ag / Au) that replace sputtered precious metals in the current design b. NiCr sputtered wraparound edges c. Outer plated layers are unchanged (3) Introduce state of the art trimming methods as a replacement to photolithography to achieve resistor pattern (4) Switch from diced to scribed ceramics (5) Employ electrical overload screening to 100% of product to remove non typical components from shipped product (6) Introduce digital marking on product size 0603, 0805, 1206 only. (0402 not marked). (7) New Product is easily distinguished from legacy product by topcoat protection color – black instead of blue, and presence of digital marking on updated product.  MOQ is 5000 pieces on all sizes. Standard packaging will be 5K per reel. 1K reel sizes will be available for quotation.
Reason for Change	Establish capacity increase for PFC using modern manufacturing techniques, materials, and equipment.

Implementation Plan	(1) Notify all potentially affected customer, notification to include 2year usage, PNs
Customer Impact	(1) No change to form / fit / function. (2) Product encapsulation color will change from blue to black; potential impact on PCB automated inspection processes. (3) Reel size change to 5K SPQ will reduce frequency of reel changes in PCB assembly processes.
Recommendations	Change MRP Systems: • MOQ: 5000 pieces • Country of Origin: Taiwan
Availability of Previously Manufactured Product	Previously manufactured product will ship until inventory is exhausted.
Availability of Approval Samples	Product functions identically for purposes of Form / Fit / Function. Sample requests will be considered individually and will be subject to product lead time.
Sales Contacts	Americas: Kevin Marzano kevin.marzano@ttelectronics.com Europe: Claudia Patzak-Kruger Claudia.patzak@ttelectronics.com Asia: Janson Chuen janson.chuen@ttelectronics.com

Approvals			
	Name	**Title**	**Date**
Issued by	Mark Beeston	Product Line Manager	11/04/2022
Approved by	Barry Peters	VP Product Management and Engineering	11/04/2022
Approved by	Klaus Zwerschina	Global Sales Director	11/04/2022

Resistors Product Change Notification

PCN Number	PCN-2025-RBU10
PCN Title	**Changes to PFC family**
PCN Date	11th June 2025
Type of Change	☐ End of Life Notification ☐ Manufacturing Facility Change or Addition ☒ Datasheet Specification Change ☒ Other: Ordering Part Number Change ☐ Material Change ☐ Process Change ☐ Design Change
Manufacturing Location(s) Affected	TT Electronics Plano
Date of Change Implementation	**11th of June 2025**

Products Affected	
TT Series	**Datasheet Link**
PFC	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Datasheet/PFC.pdf

Change Detail	
Description of Change	TT Electronics is adding new detail to the datasheet of PFC family and enhancing the Ordering Procedure with uniform part number coding. Datasheet change (See **Appendix A)**: 1-ESD Sensitivity value updated for each size Ordering Procedure enhanced and simplified (**Appendix B**): 2-From 2 Ordering Procedures ('European (Welwyn)', 'USA(IRC)') to one single Ordering Procedure All the crossing included into Excel File distributed with this PCN, with the name as **Appendix B**: PCN-2025-RBU10 PFC COMMERCIAL SERIES PART NUMBER CHANGE APPENDIX B
Reason for Change	Adding ESD detail at size-specific level and reducing confusion and order handling mistakes from customer purchasing departments.
Implementation Plan	N/A
Customer Impact	For logistic, the Ordering Part Number for future order is into new data sheet and into cross Excel file.
Recommendations	In case of doubts about the new Ordering Part number contact local TT Electronics experts

Availability of Previously Manufactured Product	N/A
Availability of Approval Samples	N/A
Sales Contacts	Americas: Greg Hawkins greg.hawkins@ttelectronics.com Europe: Simon Webb simon.webb@ttelectronics.com Asia: Praveen Kumar Praveen.Kumar@ttelectronics.com

Approvals			
	Name	**Title**	**Date**
Issued by	Mario Garsi	Product Line Manager	11th June 2025
Approved by	Klaus Zwerschina	VP Sales	11th June 2025

Appendix A

1-ESD Sensitivity value added for each size

Current data sheet:

Electrical Data

Model	Power Rating (70°C)	Max Voltage Rating ($\leq \sqrt{P \times R}$)	Temperature Range	ESD Sensitivity	Noise	Termination	Substrate
W0402	50mW	75V	-65°C to +150°C	2KV to 4KV (HBM)	<-25dB	100% matte tin or 60/40 SnPb plated over nickel barrier	96.5% Alumina
W0603	100mW	75V					
W0805	250mW	100V					
W1206	333mW	200V					

New data sheet:

Electrical Data

		PFC0402	PFC0603	PFC0805	PFC1206
Power rating @70°C	mW	50	100	250	333
Rated operating voltage not to exceed √(PxR)	V	75		100	200
Resistance range	ohms	15R to 30K	10R to 100K	10R to 267K	10R to 1M0
Tolerance	%	0.1, 0.25, 0.5, 1, 2, 5			
TCR	ppm/°C	10, 15, 25, 50, 100 [1]			
ESD sensitivity HBM	kV	0.5	1	1.5	2
Noise	dB	<-25			
Operating temperature	°C	-65 to 150			
Values		E24 or E192			

Note that all products with size 0402 and SnPb finish and all products with values <10R are still available on the datasheet at the following link: https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Datasheet/pfc-s.pdf

Appendix B

All the crossing included into Excel File distributed with this PCN, with the name as **Appendix B**:

PCN-2025-RBU10 PFC COMMERCIAL SERIES PART NUMBER CHANGE APPENDIX B.xlsx

Existing Ordering Procedure:

European (Welwyn) Part Number: W1206R-01-1K0BI (1206, 100ppm/°C, 1 kilohm ±0.1%, Pb-free)

W	1	2	0	6	R	-	0	1	-	1	K	0	B	I
1	2				3					4			5	6

1 Type	2 Size	3 TCR	4 Value	5 Tolerance	6 Termination & Packing	
W=PFC	0402	R-12 = ±10ppm/°C	E24 = 3/4 characters E96 = 3/4 characters R = ohms K = kilohms M = megohms	B = ±0.1%	I = Pb-free, Standard pack	
	0603	R-11 = ±15ppm/°C		D = ±0.5%	PB = SnPb finish, Standard Pack	
	0805	R = ±25ppm/°C		F = ±1%	All sizes	Up to 5000/reel
	1206	R-02 = ±50ppm/°C		G = ±2%		
		R-01 = ±100ppm/°C		J = ±5%		

USA (IRC) Commercial Part Number: PFC-W1206LF-01-1001-B (1206, 100ppm/°C, 1 kilohm ±0.1%, Pb-free)

P	F	C	-	W	1	2	0	6	L	F			-	0	1	-	1	0	0	1	-	B
1				2						3				4			5					6

1 Family	2 Model	3 Termination	4 TCR	5 Value	6 Tolerance	Packing	
PFC	W0402	R = SnPb (60/40)	12 = ±10ppm/°C	3 digits + multiplier	B = ±0.1%	All sizes	Up to 5000/reel
	W0603	LF = Pb-free (100%Sn)	11 = ±15ppm/°C	R = ohms for	D = ±0.5%		
	W0805		03 = ±25ppm/°C	values <100 ohms	F = ±1%		
	W1206		02 = ±50ppm/°C		G = ±2%		
			01 = ±100ppm/°C		J = ±5%		

New Ordering Procedure:

Example: PFC0402LFD1002BT10 (0402, 25ppm/°C at 10 kilohms ±0.1%, Pb-free)

P	F	C	0	4	0	2	L	F	D	1	0	0	2	B	T	1	0
1			2				3		4				5		6	7	

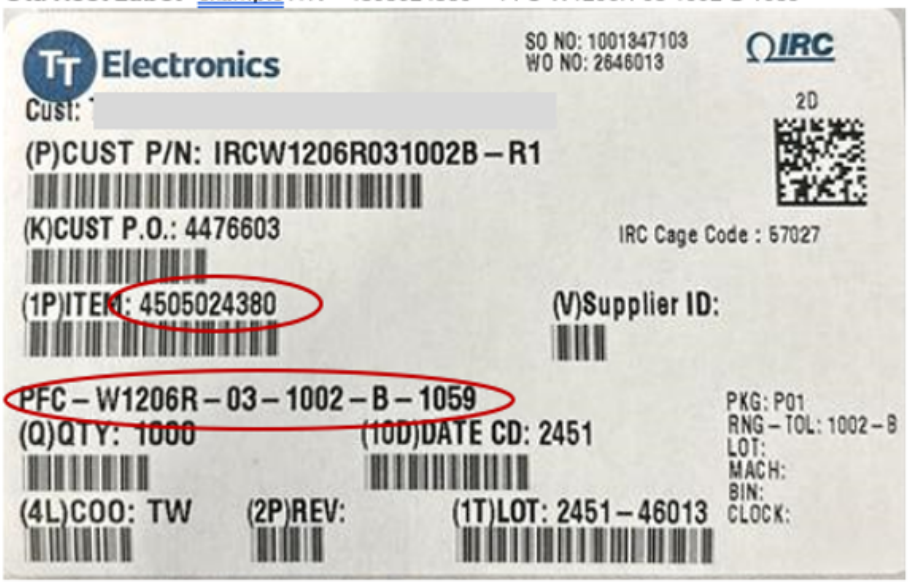
1 Series	2 Size	3 Termination	4 TCR (ppm/°C)	5 Value	6 Tolerance	7 Packing		
PFC	0402	LF = Pb-free (100%Sn)	T = ±10	3 digits + multiplier	B = ±0.1%	Pb-free (LF) product		
	0603	PB = SnPb (60/40)	Y = ±15	R = ohms for values	C = ±0.25%	T10	0402	10,000/reel
	0805	(0603, 0805, 1206 only)	D = ±25	<100 ohms	D = ±0.5%	T5	0603, 0805, 1206	5000/reel
	1206		C = ±50		F = ±1%	T1	All sizes [1]	1000/reel
			Z = ±100		G = ±2%	SnPb (PB) product		
					J = ±5%	T1	0603, 0805, 1206	1000/reel

Note 1: Non-standard packing option – consult factory for availability.

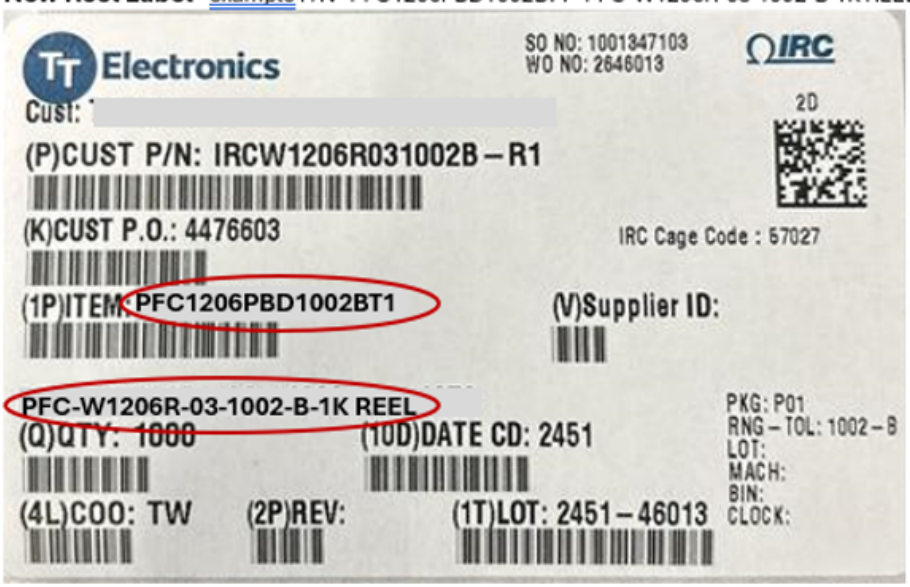
See below a comparison example between current and new labels:

Appendix B: Example Label changes

Old Reel Label example P/N 4505024380 PFC-W1206R-03-1002-B-1059



New Reel Label example P/N PFC1206PBD1002BT1 PFC-W1206R-03-1002-B-1K REEL



Resistors Product Change Notification

PCN Number	PCN-2025-RBU11
PCN Title	**EOL Announcement –** Plano manufactured Product Families
PCN Date	1st July 2025
Type of Change	☒ End of Life Notification ☐ Manufacturing Facility Change or Addition ☐ Datasheet Specification Change ☐ Other: ☐ Material Change ☐ Process Change ☐ Design Change
Manufacturing Location(s) Affected	TT Electronics PLANO
Date of Change Implementation	**1st of July 2025**

Products Affected
TT Series
1900, 4700, 8900, CCN, CHC, CHC-Precision, DIP-U, DIV 23, FP-U, GUB, GUL, GUS, IGN, M900, M83401, M/D55342 (Mil Chip), PFC Special, PFC-D, PFC-HTD, PFC-HT, PFC-UD, QS001, QSOP, QSOP-C, R2R, SIP-U, SOIC, SOIC-C, SON, SON-U, SOT143, SOT23, TSSOP (Note - PFC Commercial series is not affected by this PCN)

Change Detail	
Description of Change	TT Electronics is announcing that the above stated product families are being taken End of Life, (EOL). This applies to all standard versions and custom variants of these series.
Reason for Change	TT Electronics facility in Plano will be closed by the end of October 2025.
Implementation Plan	A Last Time Buy is not available.
Customer Impact	All part numbers are EOL with immediate effect and no new orders can be accepted. TT Electronics will try to fulfil the current open order book. Orders which cannot be manufactured will be communicated to the customers under separate communication on an incident by incident basis
Recommendations	Contact your local Sales Representative for any further guidance
Availability of Previously Manufactured Product	N/A
Availability of Approval Samples	N/A
Sales Contacts	Americas: Shannon Rosene shannon.rosene@ttelectronics.com Europe: Simon Webb simon.webb@ttelectronics.com Asia: Praveen Kumar Praveen.Kumar@ttelectronics.com

Approvals			
	Name	**Title**	**Date**
Issued by	Mario Garsi	Product Line Manager	1st July 2025
Approved by	Klaus Zwerschina	VP Sales	1st July 2025

Resistors Product Change Notification

PCN Number	PCN-2025-RBU12
PCN Title	**Updates to PFC data sheet**
PCN Date	12th August 2025
Type of Change	☐ End of Life Notification ☒ Manufacturing Facility Change or Addition ☒ Datasheet Specification Change ☐ Other: ☐ Material Change ☐ Process Change ☐ Design Change
Manufacturing Location(s) Affected	TT Electronics Dallas
Date of Change Implementation	**12th of August 2025**

Products Affected	
TT Series	**Datasheet Link**
PFC	https://www.ttelectronics.com/TTElectronics/media/ProductFiles/Datasheet/PFC.pdf

Change Detail	
Description of Change	The data sheet has been updated to reflect the following changes: 1- New Global part numbers should be used going forward (refer to PCN-2025-RBU10) but old part numbers are still orderable 2- The SnPb option for 0402 size is no longer available 3- Ohmic values <40R are no longer available for 0402 and 0603 sizes. 4- Tolerance Q, 0,02% is no longer available 5- Ohmic range only available in official E-values 6- COO Taiwan A list of affected part numbers is given in **Appendix A** at the end of this document
Reason for Change	Harmonization of production line.
Implementation Plan	A Last Time Buy is not available.
Customer Impact	The data sheet changes come in with immediate effect. TT Electronics will try to fulfil the current open order book. Orders which cannot be manufactured will be communicated to the customers under separate communication on an incident by incident basis.
Recommendations	Contact your local responsible for any further guidance.
Availability of Previously Manufactured Product	N/A

Availability of Approval Samples	N/A
Sales Contacts	Americas: Shannon Rosene shannon.rosene@ttelectronics.com Europe: Simon Webb simon.webb@ttelectronics.com Asia: Praveen Kumar Praveen.Kumar@ttelectronics.com

Approvals			
	Name	**Title**	**Date**
Issued by	Mario Garsi	Product Line Manager	12th August 2025
Approved by	Klaus Zwerschina	VP Sales	12th August 2025

Appendix A

All the SnPb 0402, all the ohmic values < 40R no longer available for 0402 and 0603 sizes. The following part numbers are no longer available due to these changes:

Material	Description
4505099916	PFC-W0402R-02-4R99-B-4155
4505094471	PFC-W0402LF-02-7R68-D-4013
4505096457	PFC-W0402R-02-10R0-B-4155
4505096573	PFC-W0402R-03-10R0-B-4155
4505096574	PFC-W0402LF-03-10R0-B-4013
4505089625	PFC-W0603LF-03-10R0-D-4013
4505093842	PFC-W0603LF-03-10R5-B-4013
4505083774	PFC-W0603LF-03-12R1-B-4013
4505083484	PFC-W0603LF-03-15R0-B-4013
4505094689	PFC-W0603LF-03-17R8-B-4013
4505086630	PFC-W0603LF-03-18R0-B-4013
4505083775	PFC-W0603LF-03-20R0-B-4013
4505091927	PFC-W0603LF-03-24R3-B-4013
4505084942	PFC-W0603LF-03-28R0-B-4013
4505096538	PFC-W0603LF-03-29R4-B-4013
4505090557	PFC-W0603LF-03-30R9-B-4013
4505086286	PFC-W0603LF-03-31R6-B-4013
4505095551	PFC-W0603LF-03-34R0-B-4013
4505096458	PFC-W0603R-02-10R0-B-3085
4505043519	PFC-W0603R-03-10R0-B-3085
4505047276	PFC-W0603R-03-15R0-B-3085

4505090369	PFC-W0603R-03-18R0-F-3085
4505048192	PFC-W0603R-03-20R0-B-3085
4505055921	PFC-W0603R-03-23R2-B-3085
4505053008	PFC-W0603R-03-28R0-B-3085
4505058260	PFC-W0603R-03-31R6-B-3085
4505093494	PFC-W0603LF-02-10R0-B-4013
4505070914	PFC-W0603LF-03-10R0-B-4013
4505096508	PFC-W0603LF-03-16R2-B-4013
4505085684	PFC-W0603LF-03-23R2-B-4013
4505090794	PFC-W0603LF-02-1R64-H-4013
4505089522	PFC-W0603LF-02-2R05-G-4013
4505056304	PFC-W0603R-02-5R00-D-3085
4505070853	PFC-W0603R-02-5R00-F-3085
4505087267	PFC-W0603LF-02-5R00-F-4013
4505090347	PFC-W0603LF-02-5R11-F-4013
4505090430	PFC-W0603R-02-9R10-F-3085
4505089627	PFC-W0603R-03-10R0-D-3085
4505090777	PFC-W0603R-03-10R0-F-3085
4505069161	PFC-W0603R-03-10R1-B-3085
4505090432	PFC-W0603LF-03-11R3-B-4013
4505048191	PFC-W0603R-03-12R1-B-3085
4505090632	PFC-W0603LF-02-13R7-B-4013
4505094249	PFC-W0603LF-03-13R7-B-4013
4505087602	PFC-W0603R-03-15R0-F-3085
4505093864	PFC-W0603R-03-16R2-F-3085
4505069165	PFC-W0603R-03-18R0-B-3085
4505090558	PFC-W0603LF-03-18R2-B-4013
4505090249	PFC-W0603LF-03-19R1-B-4013
4505091493	PFC-W0603LF-03-19R3-B-4013
4505057122	PFC-W0603R-03-19R6-B-3085
4505085988	PFC-W0603LF-03-19R6-B-4013
4505053838	PFC-W0603R-02-20R0-B-3085
4505054876	PFC-W0603R-03-20R0-F-3085
4505069328	PFC-W0603R-01-20R0-B-3085
4505090247	PFC-W0603LF-03-22R6-B-4013
4505069019	PFC-W0603R-02-22R9-B-3085
4505048036	PFC-W0603R-03-24R9-B-3085
4505057024	PFC-W0603R-01-24R9-B-3085
4505083728	PFC-W0603LF-03-24R9-B-4013
4505088793	PFC-W0603LF-02-24R9-B-4013
4505056663	PFC-W0603R-03-25R0-B-3085
4505055065	PFC-W0603R-03-26R1-B-3085

4505085457	PFC-W0603LF-03-26R1-B-4013
4505091096	PFC-W0603R-03-27R0-B-3085
4505096510	PFC-W0603LF-03-27R0-B-4013
4505055514	PFC-W0603R-03-27R4-B-3085
4505048193	PFC-W0603R-03-30R1-B-3085
4505052401	PFC-W0603R-02-30R1-F-3085
4505083776	PFC-W0603LF-03-30R1-B-4013
4505084780	PFC-W0603LF-02-30R1-F-4013
4505054857	PFC-W0603R-03-33R2-B-3085
4505085390	PFC-W0603LF-03-33R2-B-4013
4505091769	PFC-W0603LF-02-34R8-B-4013
4505090968	PFC-W0603LF-03-37R4-B-4013
4505091073	PFC-W0603R-03-39R0-B-3085
4505096512	PFC-W0603LF-03-39R0-B-4013
PFC0603LFD10R0DT5	PFC-W0603LF-03-10R0-D-5K REEL
PFC0603LFD10R5BT5	PFC-W0603LF-03-10R5-B-5K REEL
PFC0603LFD12R1BT5	PFC-W0603LF-03-12R1-B-5K REEL
PFC0603LFD15R0BT5	PFC-W0603LF-03-15R0-B-5K REEL
PFC0603LFD17R8BT5	PFC-W0603LF-03-17R8-B-5K REEL
PFC0603LFD18R0BT5	PFC-W0603LF-03-18R0-B-5K REEL
PFC0603LFD20R0BT5	PFC-W0603LF-03-20R0-B-5K REEL
PFC0603LFD24R3BT5	PFC-W0603LF-03-24R3-B-5K REEL
PFC0603LFD28R0BT5	PFC-W0603LF-03-28R0-B-5K REEL
PFC0603LFD29R4BT5	PFC-W0603LF-03-29R4-B-5K REEL
PFC0603LFD30R9BT5	PFC-W0603LF-03-30R9-B-5K REEL
PFC0603LFD31R6BT5	PFC-W0603LF-03-31R6-B-5K REEL
PFC0603LFD34R0BT5	PFC-W0603LF-03-34R0-B-5K REEL
PFC0603PBC10R0BT1	PFC-W0603R-02-10R0-B-1K REEL
PFC0603PBD10R0BT1	PFC-W0603R-03-10R0-B-1K REEL
PFC0603PBD15R0BT1	PFC-W0603R-03-15R0-B-1K REEL
PFC0603PBD18R0FT1	PFC-W0603R-03-18R0-F-1K REEL
PFC0603PBD20R0BT1	PFC-W0603R-03-20R0-B-1K REEL
PFC0603PBD23R2BT1	PFC-W0603R-03-23R2-B-1K REEL
PFC0603PBD28R0BT1	PFC-W0603R-03-28R0-B-1K REEL
PFC0603PBD31R6BT1	PFC-W0603R-03-31R6-B-1K REEL
PFC0603LFC10R0BT5	PFC-W0603LF-02-10R0-B-5K REEL
PFC0603LFD10R0BT5	PFC-W0603LF-03-10R0-B-5K REEL
PFC0603LFD16R2BT5	PFC-W0603LF-03-16R2-B-5K REEL
PFC0603LFD23R2BT5	PFC-W0603LF-03-23R2-B-5K REEL
4505096191	PFC-W0402R-01-47R0-F-4155
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4505091007	PFC-W0402R-02-2492-B-4155
4505092498	PFC-W0402R-02-3012-B-4155
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4505089727	PFC-W0402R-03-1001-B-4155
4505089912	PFC-W0402R-03-1002-B-4155
4505089913	PFC-W0402R-03-1102-B-4155
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4505093650	PFC-W0402R-03-6041-B-4155
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