RC Snubber Network Metallized Polypropylene

F43 RC Snubber, 160VAC/250VDC, 220VAC/630VDC and Class X2, 275VAC

Construction

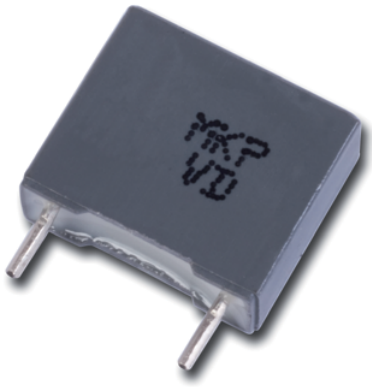
Metallized polypropylene film encapsulated with self-extinguishing resin in a box of material meeting the requirements of UL 94 V–0.

Benefits

- Approvals (for 275VAC only): ENEC, UL
- Rated voltage: 160VAC/250VDC, 220VAC/630VDC and Class X2, 275VAC
- Capacitance range: 0.01µF–1.0µF
- Pitch: 15.0mm–27.5mm
- Capacitance tolerance: ± 20%, ± 10%
- Climatic category: 55/100/56, IEC 60068-1 and 40/100/56 (275VAC), IEC 60068-1
- Tape and reel packaging in accordance with IEC 60286-2
- RoHS compliance and lead-free terminations
- Operating temperature range: -55˚C to +100˚C and -40˚C to +100˚C (275VAC)

Applications

For worldwide use in contact protection, contact interference suppression and transient suppression.



Ordering Information

F43	K	N	3100	ZX	01	M
Series	Rated Voltage	Pitch	Capacitance Code (pF)	Internal Use	Internal Use	Capacitance Tolerance
RC Snubber, Metallized Polypropylene	I = 250VDC M = 400VDC P = 630VDC K = 275VAC	I = 15.0 N = 22.5 R = 27.5	Digits 2-4 indicate the first three digits of the capacitance value. First digit indicates the number of zeros to be added.	progressive Digits Z_, includes R Value, Box Dimensions and Terminal Version		J = ±5% K = ±10% M = ±20%

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Ordering Options Table

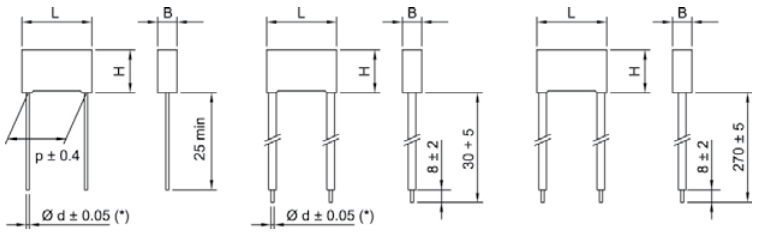
Standard Packaging Style	Lead Length (mm)	Taping Style			Ordering Code
		P2 (mm)	Fig. (No)	Pitch (mm)	
Reel 500mm					On request
Loose, short leads	4 $^{+2}$				On request
Loose, long leads	25 $^{-1/+2}$				On request
Loose, long leads	30 $^{+5}$				On request
Loose, insulated rigid leads	30 $^{+5}$				On request
Loose, insulated flexible leads	150 $^{\pm5}$				On request
Other options available on request					

Dimension Table

Pitch	Outer Dimension		
	B	H	L
15.0	7.5	14.5	18.0
15.0	8.5	14.5	18.0
15.0	10.0	16.0	18.0
22.5	6.0	15.0	26.5
22.5	7.0	16.0	26.5
22.5	8.5	17.0	26.5
22.5	10.0	18.5	26.5
22.5	10.0	20.0	26.5
22.5	11.0	20.0	26.5
27.5	11.0	20.0	32.0
27.5	13.0	22.0	32.0
27.5	18.0	33.0	32.0

Leadspacing Table

p	d	std l	max l	b
15.2 ± 0.4	0.8	25	30	± 0.4
20.3 ± 0.4	0.8	25	30	± 0.4
25.4 ± 0.4	1.0	25	30	± 0.7
Tolerance in Lead Length		< 30mm +2 / -0		
		30mm +5 / -0		



Technical Data

Rated Voltage	160VAC/250VDC, 220VAC/630VDC, 275VAC	
Capacitance Range	0.01µF–1.0µF	
Capacitance Tolerance		
Temperature Range	-55 °C to +100°C	
Climatic Category	55/100/56, 40/100/56 (275VAC)	
Approvals	ENEC, UL	
Dissipation Factor	Maximum Values at +23°C	
	1 kHz	0.1%
Test Voltage Between Terminals	The 100% screening factory test is carried out at 1.6 UR, 4.3 U_R for 275VAC. The voltage level is selected to meet the requirements in applicable equipment standards. All electrical characteristics are checked after the test. This test may not be repeated due to potential capacitor damage. KEMET is not liable in such case for any failures.	
Insulation Resistance	C ≤ 0.33µF: ≥ 10,000MΩ C > 0.33µF : ≥ 3,000s	
In DC applications	Recommended Voltage ≤ 800 VDC	

Environmental Test Data

Test	IEC Publication	Procedure
Vibration	IEC 60068–2–6 Test Fc	3 directions at 2 hours each 10-500Hz at 0.75mm or 98m/s2
Bump	IEC 60068-2-29 Test Eb	4000 bumps at 390m/s2
Solderability	IEC 60068-2-20 Test Ta	Wetting time dor d > 0.8 < 1.5s
Active Flammability	IEC 60384-14	UR + 20 surge pulses at 2.5kV (pulse every 5s)
Passive Flammability	IEC 60384-14	IEC 60384-1, IEC 60695-11-5 Needle flame test
Damp Heat Steady State	IEC 60068-2-78 Test Cab	+40°C and 93% R.H., 56 days

Environmental Compliance

All KEMET EMI capacitors are RoHS compliant.

RoHS Compliant

Approvals

Certification Body	Specification	File Number
	EN/IEC 60384-14	
	UL 1414 (250VAC)	

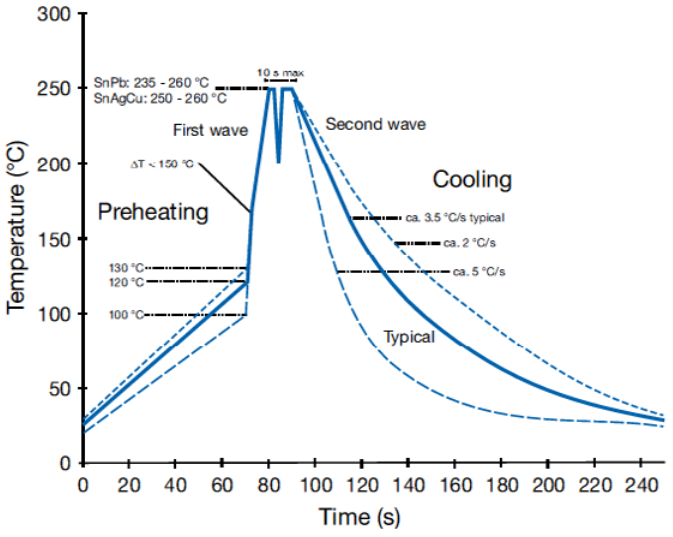
Table 1 – Ratings & Part Number Reference

Rated Voltage	Lead Space	Cap Value (µF)	Resist-ance Ω	Power R [W]	Max dimensions in mm			Pack QTY	Terminal Type	Terminal Length	F Article Code	Part Number
					B	H	L					
275 VAC	15	0.033	100	0.5	7.5	14.5	18	250	Cav.	155 mm	43KI2330ZB01K	F43KI2330ZB01K
275 VAC	15	0.033	100	0.5	7.5	14.5	18	250	Cav.	55 mm	43KI2330ZC01K	F43KI2330ZC01K
275 VAC	22.5	0.033	100	0.5	6	15	26.5	250	Cav.	150 ÷ 160 mm	43KN2330ZF01K	F43KN2330ZF01K
275 VAC	15	0.047	100	0.5	7.5	14.5	18	1000	Reof.	3,5 ÷ 4,5 mm	43KI2470ZA01K	F43KI2470ZA01K
275 VAC	15	0.047	100	0.5	7.5	14.5	18	250	Cav.	155 mm	43KI2470ZC01K	F43KI2470ZC01K
275 VAC	15	0.047	100	0.5	7.5	14.5	18	900	Reof.	25 ÷ 30 mm	43KI2470ZD01K	F43KI2470ZD01K
275 VAC	22.5	0.1	100	0.5	8.5	17	26.5	300	Reof.	25 ÷ 35 mm	43KN3100ZB01K	F43KN3100ZB01K
275 VAC	22.5	0.1	100	0.5	8.5	17	26.5	300	Reof.	25 ÷ 35 mm	43KN3100ZB04K	F43KN3100ZB04K
275 VAC	22.5	0.1	100	0.5	8.5	17	26.5	200	Cav.	110 mm	43KN3100ZF01K	F43KN3100ZF01K
275 VAC	22.5	0.1	100	0.5	8.5	17	26.5	100	Cav.	270 mm	43KN3100ZM01K	F43KN3100ZM01K
275 VAC	22.5	0.1	100	0.5	8.5	17	26.5	468	Reof.	04 ÷ 06 mm	43KN3100ZX01K	F43KN3100ZX01K
275 VAC	22.5	0.1	470	1	8.5	17	26.5	200	Cav.	45 mm	43KN3100ZE01K	F43KN3100ZE01K
275 VAC	15	0.1	1000	0.5	8.5	14.5	18	1000	Reof.	2,5 ÷ 3 mm	43KI3100ZB01M	F43KI3100ZB01M
275 VAC	15	0.12	470	1	8.5	14.5	18	1000	Reof.	2,5 ÷ 3 mm	43KI3120ZA01R	F43KI3120ZA01R
275 VAC	22.5	0.22	47	1	11	20	26.5	100	Cav.	270 mm	43KN3220ZG01K	F43KN3220ZG01K
275 VAC	27.5	0.47	100	1	13	22	32	100	Cav.	200 mm	43KR3470ZA01K	F43KR3470ZA01K
275 VAC	27.5	0.5	100	1	13	22	32	100	Cav.	270 mm	43KR3500ZA01K	F43KR3500ZA01K
275 VAC	27.5	0.68	39	1	13	22	32	230	Cav.	55 mm	43KR3680ZE00M	F43KR3680ZE00M
275 VAC	27.5	1	39	1	13	22	32	200	Cav.	80mm // 38mm	43KR4100ZD00M	F43KR4100ZD00M
630 VDC	22.5	0.25	220	0.5	11	20	26.5	360	Reof.	4 ÷ 6 mm	43PN3250ZF01K	F43PN3250ZF01K
Rated Voltage	Lead Space	Cap **Value** (µF)	**Resist-ance Ω**	**Power R** [W]	B **(mm)**	H **(mm)**	L **(mm)**	Pack QTY	**Terminal Type**	**Terminal Length**	**F Article Code**	**Part Number**

Roll Over for Order Info.

Soldering Process

The implementation of RoHS Directive has forced to select SnAuCu (SAC) alloys or SnCu alloys as primary solder. This has increased the liquidus temperature from that of 183ºC for SnPb eutectic alloy to 217–221ºC for the new alloys. This means that the heat stress to components, even in wave soldering, has increased considerably due to higher pre-heat and wave temperatures. The Polypropylene Capacitors are especially sensitive to heat (melting point of Polypropylene is 160–170ºC). The wave soldering can be destructive especially for mechanically small Polypropylene Capacitors (lead spacings 5-10 mm), and great care has to be taken when soldering them. The recommended solder profiles from KEMET should be used. In case of doubt, KEMET should be consulted. In general the wave soldering curve from IEC Publication 61760-1 edition 2 gives a good guideline for successful soldering.



Marking

- Manufacturer's logo
- Article series
- Rated capacitance
- Rated resistance
- Rated voltage
- Capacitor class
- Approval marks
- Manufacturing date code
- IEC climatic category
- Passive flammability class
- Manufacturing date code

Lead Taping and Packaging of Radial Components for Automatic Insertion Machines

Technical terms: IEC 60286-2

Pitch = 5 and 7.5 mm

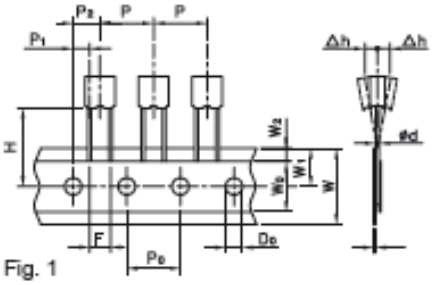


Fig. 1

Pitch = 7.5 mm

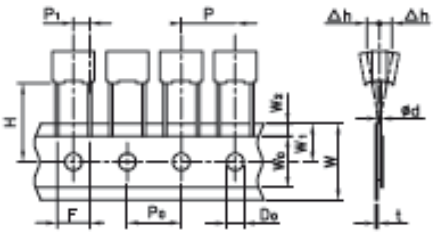
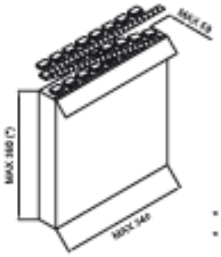


Fig. 2

Description	Symbol	Dimensions (mm)			
		Pitch			Tol.
		5 mm	7.5 mm	7.5 mm	
		Fig.1	Fig.1	Fig. 2	
Lead wire diameter	d	0.5 ... 0.6	0.5 ... 0.6	0.5 ... 0.6	±0.05
Taping pitch	P	12.7	12.7	12.7	±1
Feed hole pitch	P_0	12.7	12.7	12.7	±0.2*
Centering of the lead wire	P_1	3.85	2.6	3.75	±0.7
Centering of the body	P_2	6.35	6.35		±1.3
Lead spacing (pitch)	F	5	7.5	7.5	+0.6 -0.1
Component alignment	Δh	0	0	0	±2
Height of component from tape center	H**	18.5	18.5	18.5	±0.5
Carrier tape width	W	18	18	18	+1 -0.5
Hold down tape width	W_0	6	6	6	min.
Hole position	W_1	9	9	9	±0.5
Hold down tape position	W_2	3	3	3	max.
Feed hole diameter	D_0	4	4	4	±0.2
Tape thickness	t	0.7	0.7	0.7	±0.2

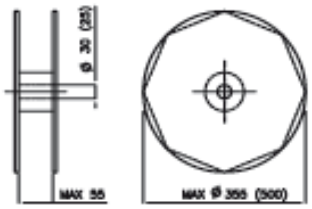
Packaging detail
Two different containers are available:
Fan-fold box (Ammo-pack)
Reel Ø 355 mm only.

Ammo-pack (dimensions in mm)



* Lower dimension available
* upon request (max. 295mm)

Reel (dimensions in mm)



Remarks

* Max 1mm on 20 pitches
** H = 16.5 mm is available upon request.

For orders of capacitors with pitch = 7.5 mm, please specify the requested version (fig.1 or fig.2).

NUMBER OF PIECES FOR PACKING UNIT

Box dimensions B (mm)	H (mm)	L (mm)	Pitch (mm)	Loose *short leads (pcs)	Loose **long leads (pcs)	Ammo (pcs)	Reel Ø355mm (pcs)
2.5	6.5	7.2	5.0	3000	4000	3500	2500
3.5	7.5	7.2	5.0	2000	3000	2500	1800
4.5	9.5	7.2	5.0	1500	2000	1900	1400
5.0	10.0	7.2	5.0	1000	1500	1700	1200
6.0	11.0	7.2	5.0	2000	1000	1400	1000
7.2	13.0	7.2	5.0	1500	750	1150	800

Box dimensions B (mm)	H (mm)	L (mm)	Pitch (mm)	Loose *short leads (pcs)	Loose **long leads (pcs)	Ammo (pcs)	Reel Ø355mm (pcs)
3.0	8.0	10.0	7.5	1500	1750	2800	2100
4.0	9.0	10.0	7.5	2000	1500	2100	1500
5.0	10.5	10.0	7.5	1500	1000	1600	1200
6.0	12.0	10.5	7.5	1000	800	1350	1000

* Short leads: lead length = $4^{+1.5}$ mm (pitch = 5mm); 4^{+2} mm (pitch = 7.5mm)
** Long leads: lead length = $17^{+1/2}$ mm

Lead Taping and Packaging of Radial Components for Automatic Insertion Machines

Technical terms: IEC 60286-2

Pitch = 10 mm

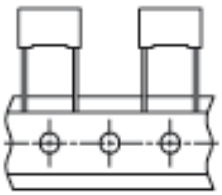


Fig. 1

Pitch = 15 mm

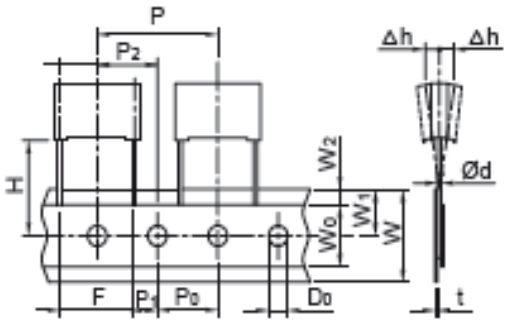


Fig. 2

Pitch = 22.5 mm
Pitch = 27.5 mm

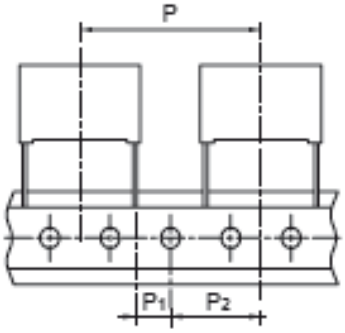


Fig. 3

Description	Symbol	Dimensions (mm)				
		Pitch				Tol.
		10 mm	15 mm	22.5mm	27.5mm	
		Fig.1	Fig.2	Fig.3	Fig.3	
Lead wire diameter	d	0.6	0.6/0.8	0.8	0.8	±0.05
Taping pitch	P	25.4	25.4	38.1	38.1	±1
Feed hole pitch*	P_0	12.7	12.7	12.7	12.7	±0.2**
Centering of the lead wire	P_1	7.7	5.2	7.8	5.3	±0.7
Centering of the body	P_2	12.7	12.7	19.05	19.05	±1.3
Lead spacing (pitch) ***	F	10	15	22.5	27.5	+ 0.6 - 0.1
Component alignment	Δh	0	0	0	0	±2
Height of component from tape center	H****	18.5	18.5	18.5	18.5	±0.5
Carrier tape width	W	18	18	18	18	+1-0. 5
Hold down tape width	W_0	9	10	10	10	min.
Hole position	W_1	9	9	9	9	±0.5
Hold down tape position	W_2	3	3	3	3	max.
Feed hole diameter	D_0	4	4	4	4	±0.2
Tape thickness	t	0.7	0.7	0.7	0.7	±0.2

Remarks

* Available also 15mm.

** Max 1mm on 20 pitches.

*** Pitches 15mm and 10mm taped to 7.5mm (crimped leads) available upon request.

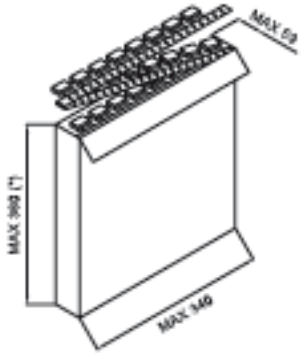
**** H = 18.5 mm is available upon request.

Packaging detail

Packaging detail
Two different containers are available: fan-fold box (ammo-pack) and reel:

Ammopack (dimensions in mm)

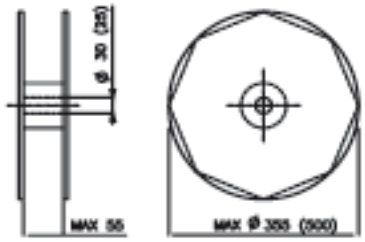
for pitch ≤22.5 mm



* Lower dimension available
* upon request (max. 295mm)

Reel (dimensions in mm)

Ø 355 mm for pitch ≤15 mm
Ø 500 mm for pitch ≥10 mm



Box Dimensions			Pitch (mm)	Loose short leads (pcs)	Loose long leads (pcs)	Ammo (pcs)	Reel Ø355 (pcs)	Reel Ø500 (pcs)
B (mm)	H (mm)	L (mm)						
4.0	9.0	13.0	10.0	2000	1800	1000	750	1500
5.0	11.0	13.0	10.0	1300	1500	800	600	1250
6.0	12.0	13.0	10.0	1000	1200	680	500	1000
4.0	10.0	18.0	15.0	2500	1500	1000		1500
5.0	11.0	18.0	15.0	2000	1000	800	600	1250
6.0	12.0	18.0	15.0	1750	900	680	500	1000
7.5	13.5	18.0	15.0	1000	700	500	350	800
6.0	17.5	18.0	15.0	1000	700	680	500	1000
7.5	14.5	18.0	15.0	1000	700	500	350	800
8.5	14.5	18.0	15.0	1000	500	440	300	700
9.0	12.5	18.0	15.0	1000	520	410	270	650
7.5	18.5	18.0	15.0	900	500	500		800
10.0	16.0	18.0	15.0	750	500	380	300	600
13.0	12.0	18.0	15.0	750	490	280	200	480
11.0	19.0	18.0	15.0	450	350	340		500
6.0	15.0	26.5	22.5	805	500	464		700
7.0	16.0	26.5	22.5	700	500	380		550
8.5	17.0	26.5	22.5	468	300	280		450
10.0	18.5	26.5	22.5	396	300	235		350
11.0	20.0	26.5	22.5	360	250	217		350
13.0	22.0	26.5	22.5	300	200			300

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Paris, France
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Sasso Marconi, Italy
Tel: 39-051-939111

Milan, Italy
Tel: 39-02-57518176

Rome, Italy
Tel: 39-06-23231718

Madrid, Spain
Tel: 34-91-804-4303

Central Europe
Landsberg, Germany
Tel: 49-8191-3350800

Dortmund, Germany
Tel: 49-2307-3619672

Kwidzyn, Poland
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Northern Europe
Bishop's Stortford, United Kingdom
Tel: 44-1279-757201

Weymouth, United Kingdom
Tel: 44-1305-830747

Coatbridge, Scotland
Tel: 44-1236-434455

Färjestaden, Sweden
Tel: 46-485-563934

Espoo, Finland
Tel: 358-9-5406-5000

Asia

Northeast Asia
Hong Kong
Tel: 852-2305-1168

Shenzhen, China
Tel: 86-755-2518-1306

Beijing, China
Tel: 86-10-5829-1711

Shanghai, China
Tel: 86-21-6447-0707

Taipei, Taiwan
Tel: 886-2-27528585

Southeast Asia
Singapore
Tel: 65-6586-1900

Penang, Malaysia
Tel: 60-4-6430200

Bangalore, India
Tel: 91-806-53-76817

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Other KEMET Resources

Tools	
Resource	Location
Configure A Part: CapEdge	http://capacitoredge.kemet.com
SPICE & FIT Software	http://www.kemet.com/spice
Search Our FAQs: KnowledgeEdge	http://www.kemet.com/keask

Product Information	
Resource	Location
Products	http://www.kemet.com/products
Technical Resources (Including Soldering Techniques)	http://www.kemet.com/technicalpapers
RoHS Statement	http://www.kemet.com/rohs
Quality Documents	http://www.kemet.com/qualitydocuments

Product Request	
Resource	Location
Sample Request	http://www.kemet.com/sample
Engineering Kit Request	http://www.kemet.com/kits

Contact	
Resource	Location
Website	www.kemet.com
Contact Us	http://www.kemet.com/contact
Investor Relations	http://www.kemet.com/ir
Call Us	1-877-MyKEMET
Twitter	http://twitter.com/kemetcapacitors

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Statements of suitability for certain applications are based on our knowledge of typical operating conditions for such applications, but are not intended to constitute – and we specifically disclaim – any warranty concerning suitability for a specific customer application or use. This Information is intended for use only by customers who have the requisite experience and capability to determine the correct products for their application. Any technical advice inferred from this Information or otherwise provided by us with reference to the use of our products is given gratis, and we assume no obligation or liability for the advice given or results obtained.

Although we design and manufacture our products to the most stringent quality and safety standards, given the current state of the art, isolated component failures may still occur. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage.

Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated or that other measures may not be required.

Digitally signed by Marcy Brand
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Date: 2011.10.13 16:19:39 -04'00'