1 # EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3 EC - Type Examination Certificate Number: **BAS01ATEX7005 – Issue 8**

4 Equipment or Protective System: **A Range of Z-Series Shunt Zener Diode Safety Barriers**

5 Manufacturer: **Pepperl + Fuchs GmbH**

6 Address: **Lilienthalstrasse 200, 68307 Mannheim, Germany**

7 This re-issued certificate extends EC – Type Examination Certificate No. BAS01ATEX7005 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to

8 The original certificate was issued by The Electrical Equipment Certification Service, Notified Body Number 0600, which retains responsibility for its original documentation. Baseefa, Notified Body Number 1180, is responsible only for the additional work relating to this re-issued certificate and any other supplementary certificate it has issued.

The examination and test results are recorded in confidential Report No's. **GB/BAS/ExTR11.0310/00**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0: 2009 EN 60079-11: 2007 EN 61241-11: 2006

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

⟨Ex⟩ **II (1) GD [Ex ia Ga] IIC ($-20°C \leq T_a \leq +60°C$)**
[Ex ia Da] IIIC ($-20°C \leq T_a \leq +60°C$)

⟨Ex⟩ **I (M1) [Ex ia Ma] I ($-20°C \leq T_a \leq 60°C$)**

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0808**

Project File No. **11/0653**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

R.S SINCLAIR
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On behalf of
Baseefa

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Baseefa is a trading name of Baseefa Ltd
Registered in England No. 4305578. Registered address as above.

13

Schedule

14

Certificate Number BAS01ATEX7005 – Issue 8

15 Description of Equipment or Protective System

The Z Series Shunt Zener Diode Safety Barriers are designed to restrict the transfer of energy, from unspecified safe area equipment to intrinsically safe circuits, the limitation of voltage and current. The range consists of single, double, triple and quadruple channel barriers covering polarised – positive and negative, non-polarised, non-polarised-star connected barriers and diode return barriers.

The barriers consist of electronic components on a single printed circuit board encapsulated within a moulded plastic enclosure which incorporates two or four terminals with separate earth terminal at both the hazardous and non-hazardous area ends and an integral spring mounted foot, designed for a DIN rail.

The barriers are asymmetrical and have light blue hazardous area terminals.

Input Parameters

Single Channel - Terminals 7 & 8
Dual Channel - Terminals 5, 6, 7 & 8
Triple Channel - Terminals 5, 6, 7 & 8
Quad Channel - Terminals 5, 6, 7 & 8 w.r.t. GND

U_m = 250V

Output Parameters

Terminals 1, 2, 3 & 4

Configuration Legend

Config.	Description
A1	Channel 1 output with respect to earth
A2	Channel 2 output with respect to earth
A3	Channel 3 output with respect to earth
A4	Channel 4 output with respect to earth
B	Any two channels in parallel with respect to earth
B1	Any three channels in parallel with respect to earth
C	Any two channels in series with NO earth return
C1	Any two channels in parallel connected in series with the third channel with NO earth return.

Z700 Series Positive Polarity Shunt Zener Diode Barriers

Barrier	Config.	Fuse (mA)	U_o (V)	R_{min} (Ω)	I_o (mA)	P_o (W)	FOS IIC
Z705	A1	250	4.94	9.8	504	0.62	9.92
Z710	A1	100	9.56	49	195	0.47	25.64
Z710.CL	A1	100	9.56	49	195	0.47	25.64
Z713	A1	160	15.75	21.8	723	2.84	1.50
Z715	A1	100	14.7	98	150	0.55	9.80
Z715.CL	A1	100	14.7	98	150	0.55	9.80
Z715.1k	A1	100	14.7	980	15	0.06	98.0
Z722	A1	50	22	147	150	0.82	2.24
Z722.CL	A1	50	22	147	150	0.82	2.24
Z728	A1	50	28	301	93	0.65	1.93
Z728.CL	A1	50	28	301	93	0.65	1.93

Z700 Series Positive Polarity Shunt Zener Diode Barriers							
Barrier	**Config.**	**Fuse (mA)**	**U_o (V)**	**R_{min} (Ω)**	**I_o (mA)**	**P_o (W)**	**FOS IIC**
Z728.H	A1	80	28	235	120	0.83	1.50
Z731	A1	50	28	300	93	0.65	1.93
	A2	400	7.2	4.9	1470	2.64	3.40
	B		28	4.8	1570	2.95	3.18
Z755	A1	250	4.94	9.8	504	0.62	9.92
	A2	250	4.94	9.8	504	0.62	9.92
	B		4.94	4.9	1008	1.25	4.96
	C		6.14	19.6	314	0.49	15.92
Z757	A1	200	7.14	9.8	729	1.30	6.85
	A2	200	7.14	9.8	729	1.30	6.85
	B		7.14	4.9	1457	2.60	3.43
	C		8.34	19.6	426	0.89	11.73
Z763	A1	100	11.6	31.35	370	1.07	13.51
	A2	100	1.6	31.35	51	0.02	98.03
	B		13.2	15.67	422	0.70	6.44
Z764	A1	50	11.6	980	12	0.03	416
	A2	50	11.6	980	12	0.03	416
	B		11.6	490	24	0.06	208
	C		12.8	1960	6.6	0.03	510
Z765	A1	100	14.7	98	150	0.55	9.80
	A2	100	14.7	98	150	0.55	9.80
	B		14.7	49	300	1.10	4.90
	C		15.9	196	81.2	0.33	13.05
Z772	A1	50	22	147	150	0.82	2.24
	A2	50	22	147	150	0.82	2.24
	B	Not Permitted for Grp. IIC	22	73.5	300	1.64	-
	C		24.4	294	83	0.51	3.02
Z778	A1	50	28	607	46	0.32	3.91
	A2	50	28	607	46	0.32	3.91
	B		28	303.5	93	0.65	1.93
	C		30.4	1215.2	25.1	0.20	5.85
Z779	A1	50	28	301	93	0.65	1.93
	A2	50	28	301	93	0.65	1.93
	B	Not Permitted for Grp. IIC	28	150.5	186	1.30	-
	C		30.4	601.7	50.52	0.39	2.90
Z779.H	A1	80	28	235	120	0.83	1.50
	A2	80	28	235	120	0.83	1.50
	B	Not Permitted for Grp. IIC	28	117.5	238	1.67	-
	C		30.4	470.4	65	0.50	2.26
Z786	A1	50	28	Diode Return* - See Note Below			-
	A2	50	28	Diode Return* - See Note Below			-
	B		28	Diode Return* - See Note Below			-
Z787	A1	50	28	301	93	0.65	1.93
	A2	50	28	Diode Return* - See Note Below			-
	B		28	301	93	0.65	1.93
	C		30.4	322.6	94.24	0.72	1.55
Z787.H	A1	80	28	235	120	0.83	1.50
	A2	80	28	Diode Return* - See Note Below			-
	B		28	235	120	0.83	1.50
	C	Not Permitted for Grp. IIC	30.4	249.9	122	0.93	-
Z788	A1	50	28	301	93	0.65	1.93

Z700 Series Positive Polarity Shunt Zener Diode Barriers							
Barrier	**Config.**	**Fuse (mA)**	**U_o (V)**	**R_{min} (Ω)**	**I_o (mA)**	**P_o (W)**	**FOS IIC**
	A2	50	9.56	49	195	0.47	25.64
	B		28	42	288	0.87	16.38
	C		29.2	349.9	83.5	0.61	1.94
Z788.R	A1	50	28	301	93	0.65	1.93
	A2	50	9.56	49	195	0.47	25.64
	B		28	42	288	0.87	16.38
	C		29.2	349.9	83.5	0.61	1.94
Z788.H	A1	80	28	235	120	0.83	1.50
	A2	80	9.56	49	195	0.47	25.64
	B		28	40	314	1.00	10.73
	C		29.2	284.2	103	0.75	1.57
Z788.R.H	A1	80	28	235	120	0.83	1.50
	A2	80	9.56	49	195	0.47	25.64
	B		28	40	314	1.00	10.73
	C		29.2	284.2	103	0.75	1.57
Z789	A1	50	28	613.8	45.6	0.32	3.94
	A2	50	28	613.8	45.6	0.32	3.94
	A3	50	28	Diode Return* - See Note Below			-
	A4	50	28	Diode Return* - See Note Below			-
	B		28	306.9	91.2	0.64	1.97
Z796	A1	50	26.6	314	85	0.56	2.38
	A2	50	20.5	407	50	0.26	8.54
	B		26.6	177	135	0.82	1.93
	C		29	720.3	40.3	0.30	4.09
Z796.L	A1	50	26.0	314	83	0.54	2.59
	A2	50	20.0	407	49	0.25	9.46
	B		26.0	177	132	0.77	2.10
	C		28.4	720.3	39.3	0.28	4.38
Z040	A1	100	5.88	42.14	140	0.206	35.71
	A2	100	5.88	42.14	140	0.206	35.71
	B	2 × 100	5.88	21.07	280	0.412	17.85
	C	100	7.08	84.28	84.1	0.149	59.45
Z041	A1	80	8.61	1980	4.4	0.0094	1136
	A2	80	8.61	1980	4.4	0.0094	1136
	B	2 × 80	8.61	990	8.7	0.0188	574
	C	80	9.81	3960	2.5	0.0062	2000
Z042	A1	100	5.88	198	30	0.044	166
	A2	100	5.88	198	30	0.044	166
	B	2 × 100	5.88	99	60	0.088	83
	C	100	7.08	396	18	0.032	277

Z800 Series Negative Polarity Shunt Zener Diode Barriers							
Barrier	**Config.**	**Fuse (mA)**	**U_o (V)**	**R_{min} (Ω)**	**I_o (mA)**	**P_o (W)**	**FOS IIC**
Z805	A1	250	4.94	9.8	504	0.62	9.92
Z810	A1	100	9.56	49	195	0.47	25.64
Z810.CL	A1	100	9.56	49	195	0.47	25.64
Z813	A1	160	15.75	21.8	723	2.84	1.50
Z815	A1	100	14.7	98	150	0.55	9.80

Z800 Series Negative Polarity Shunt Zener Diode Barriers							
Barrier	**Config.**	**Fuse (mA)**	**U_o (V)**	**R_{min} (Ω)**	**I_o (mA)**	**P_o (W)**	**FOS IIC**
Z815.CL	A1	100	14.7	98	150	0.55	9.80
Z815.1k	A1	100	14.7	980	15	0.06	98.0
Z822	A1	50	22	147	150	0.82	2.24
Z822.CL	A1	50	22	147	150	0.82	2.24
Z828	A1	50	28	301	93	0.65	1.93
Z828.CL	A1	50	28	301	93	0.65	1.93
Z828.H	A1	80	28	235	120	0.83	1.50
Z855	A1	250	4.94	9.8	504	0.62	9.92
	A2	250	4.94	9.8	504	0.62	9.92
	B		4.94	4.9	1008	1.25	4.96
	C		6.14	19.6	314	0.49	15.92
Z857	A1	200	7.14	9.8	729	1.30	6.85
	B2	200	7.14	9.8	729	1.30	6.85
	B		7.14	4.9	1457	2.60	3.43
	C		8.34	19.6	426	0.89	11.73
Z864	A1	50	11.6	980	12	0.03	416
	A2	50	11.6	980	12	0.03	416
	B		11.6	490	24	0.06	208
	C		12.8	1960	6.6	0.03	510
Z865	A1	100	14.7	98	150	0.55	9.80
	A2	100	14.7	98	150	0.55	9.80
	B		14.7	49	300	1.10	4.90
	C		15.9	196	81.2	0.33	13.05
Z872	A1	50	22	147	150	0.82	2.24
	A2	50	22	147	150	0.82	2.24
	B	Not Permitted for Grp. IIC	22	73.5	300	1.64	-
	C		24.4	294	83	0.51	3.02
Z878	A1	50	28	607	46	0.32	3.91
	A2	50	28	607	46	0.32	3.91
	B		28	303.5	93	0.65	1.93
	C		30.4	1215.2	25.1	0.20	5.85
Z879	A1	50	28	301	93	0.65	1.93
	A2	50	28	301	93	0.65	1.93
	B	Not Permitted for Grp. IIC	28	150.5	186	1.30	-
	C		30.4	601.7	50.52	0.39	2.9
Z879.H	A1	80	28	235	120	0.83	1.50
	A2	80	28	235	120	0.83	1.50
	B	Not Permitted for Grp. IIC	28	117.5	238	1.67	-
	C		30.4	470.4	65	0.50	2.26
Z886	A1	50	28	Diode Return* - See Note Below			-
	A2	50	28	Diode Return* - See Note Below			-
	B		28	Diode Return* - See Note Below			-
Z887	A1	50	28	301	93	0.65	1.93
	A2	50	28	Diode Return* - See Note Below			-
	B		28	301	93	0.65	1.93
	C		30.4	322.6	94.24	0.72	1.55
Z887.H	A1	80	28	235	120	0.83	1.50
	A2	80	28	Diode Return* - See Note Below			-
	B		28	235	120	0.83	1.50
	C	Not Permitted for Grp. IIC	30.4	249.9	122	0.93	-
Z888	A1	50	28	301	93	0.65	1.93

Z800 Series Negative Polarity Shunt Zener Diode Barriers							
Barrier	**Config.**	**Fuse (mA)**	**U_o (V)**	**R_{min} (Ω)**	**I_o (mA)**	**P_o (W)**	**FOS IIC**
	A2	50	9.56	49	195	0.47	25.64
	B		28	42	288	0.87	16.38
	C		29.2	349.9	83.5	0.61	1.94
Z888.R	A1	50	28	301	93	0.65	1.93
	A2	50	9.56	49	195	0.47	25.64
	B		28	42	288	0.87	16.38
	C		29.2	349.9	83.5	0.61	1.94
Z888.H	A1	80	28	235	120	0.83	1.50
	A2	80	9.56	49	195	0.47	25.64
	B		28	40	314	1.00	10.73
	C		29.2	284.2	103	0.75	1.57
Z888.R.H	A1	80	28	235	120	0.83	1.50
	A2	80	9.56	49	195	0.47	25.64
	B		28	40	314	1.00	10.73
	C		29.2	284.2	103	0.75	1.57
Z896	A1	50	26.6	314	85	0.56	2.38
	A2	50	20.5	407	50	0.26	8.54
	B		26.6	177	135	0.82	1.93
	C		29	720.3	40.3	0.30	4.09
Z896.L	A1	50	26.0	314	83	0.54	2.59
	A2	50	20.0	407	49	0.25	9.46
	B		26.0	177	132	0.77	2.10
	C		28.4	720.3	39.43	0.28	4.38

Z900 Series Fieldbus Barrier							
Barrier	**Config.**	**Fuse (mA)**	**U_o (V)**	**R_{min} (Ω)**	**I_o (mA)**	**P_o (W)**	**FOS IIC**
Z922 (+ / -)	A1	100	+11	50	218	0.60	22.93
	A2	100	-11	50	218	0.60	22.93
	B		22	101	218	1.20	1.54

Z900 Series a.c. Shunt Zener Diode Barriers							
Barrier	**Config.**	**Fuse (mA)**	**U_o (V)**	**R_{min} (Ω)**	**I_o (mA)**	**P_o (W)**	**FOS IIC**
Z905 (a.c.)	A1	250	4.9	9.8	500	0.62	10.0
Z910 (a.c.)	A1	100	9.94	49	203	0.50	24.63
Z915 (a.c.)	A1	100	15	98	153	0.57	8.82
Z915.1k (a.c.)	A1	100	15	980	15	0.06	90.0
Z928 (a.c.)	A1	50	28	301	93	0.65	1.93
Z954 (a.c.)	A1	50	4.5	11.76	383	0.43	13.05
	A2	50	4.5	11.76	383	0.43	13.05
	A3	50	4.5	11.76	383	0.43	13.05
	B		4.5	5.88	765	0.86	6.53
	B1		4.5	3.92	1150	1.29	4.34
	C1		9	17.64	511	1.15	9.8
Z955 (a.c.)	A1	250	4.9	9.8	500	0.62	10.0
	A2	250	4.9	9.8	500	0.62	10.0
	B		4.9	4.9	1000	1.24	5.0
	C		9.8	19.6	500	1.23	10
Z960 (Star)	A1	50	9.94	49	203	0.50	24.63

Z900 Series a.c. Shunt Zener Diode Barriers							
Barrier	**Config.**	**Fuse (mA)**	**U_o (V)**	**R_{min} (Ω)**	**I_o (mA)**	**P_o (W)**	**FOS IIC**
	A2	50	9.94	49	203	0.50	24.63
	B		9.94	24.5	406	1.00	12.31
	C		9.94	98	102	0.25	49.01
Z961 (a.c.)	A1	100	8.7	98	89	0.19	56.17
	A2	100	8.7	98	89	0.19	56.17
	B		8.7	49	178	0.39	28.08
	C		17.4	196	89	0.39	8.31
Z961.H (a.c.)	A1	50	8.7	352.8	25	0.05	200
	A2	50	8.7	352.8	25	0.05	200
	B		8.7	176	49	0.11	102
	C		17.4	705.6	25	0.11	29.6
Z964 (a.c.)	A1	50	12	980	12	0.04	416
	A2	50	12	980	12	0.04	416
	B		12	490	24	0.08	208
	C		24	1960	12	0.08	21.75
Z965 (Star)	A1	50	15	98	153	0.57	8.82
	A2	50	15	98	153	0.57	8.82
	B		15	49	306	1.14	4.41
	C		15	196	76.5	0.29	17.64
Z966 (a.c.)	A1	50	12	147	82	0.24	60.97
	A2	50	12	147	82	0.24	60.97
	B		12	73.5	164	0.48	30.48
	C		24	294	82	0.48	3.18
Z966.H (a.c.)	A1	100	12	73.5	164	0.49	30.48
	A2	100	12	73.5	164	0.49	30.48
	B		12	36.75	328	0.98	15.24
	C		24	147	164	0.98	1.59
Z967 (Star)	A1	50	16.8	117	143	0.60	5.87
	A2	50	16.8	117	143	0.60	5.87
	B		16.8	58	286	1.20	2.93
	C		16.8	234	72	0.30	11.66
Z969 (Special Star)	A1	80	14.24	35.6	400	1.42	4.12
	A2	80	17.6	50.5	349	1.53	2.03
	B		19.24	20.8	749	2.95	1.50
	C		19.24	86.1	224	1.08	2.33
Z972 (Star)	A1	50	22	301	73	0.40	4.61
	A2	50	22	301	73	0.40	4.61
	B		22	151	146	0.80	2.30
	C		22	602	36.5	0.20	9.23
Z978 (Star)	A1	50	28	607	46	0.32	3.91
	A2	50	28	607	46	0.32	3.91
	B		28	304	93	0.65	1.93
	C		28	1214	23	0.16	7.82

Notes: Barriers models marked * have channels with diode returns. The hazardous area terminals for the channels with diode returns should be regarded as 28V voltage sources. The 28V must be considered as the theoretical maximum up to which a capacitive load can be applied to the terminals due to the leakage current of the diode return. This voltage is only used in calculating the load capacitance.

LOAD PARAMETERS

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the load connected to the output terminals must not exceed the following values:

Z700 Series Positive Polarity Shunt Zener Diode Barriers													
Barrier	Config.	Group IIC			Group IIB			Group IIA			Group I		
		C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)
Z705	A1	100	0.14	57	1000	0.55	228	1000	1.11	456	1000	1.83	749
Z710	A1	3.6	0.93	76	26.0	3.74	305	210.0	7.48	610	500	12.27	1000
Z710.CL	A1	3.6	0.93	76	26.0	3.74	305	210.0	7.48	610	500	12.27	1000
Z713	A1	0.478	0.068	12	2.88	0.27	49	11.6	0.54	99	15.8	0.89	164
Z715	A1	0.62	1.58	64	3.86	6.32	257	14.9	12.64	515	18.6	20.74	846
Z715.CL	A1	0.62	1.58	64	3.86	6.32	257	14.9	12.64	515	18.6	20.74	846
Z715.1k	A1	0.62	158.0	644	3.86	632.09	2579	14.9	1264	5159	18.6	2074	8465
Z722	A1	0.165	1.58	43	1.14	6.32	172	4.20	12.64	345	6.0	20.74	566
Z722.CL	A1	0.165	1.58	43	1.14	6.32	172	4.20	12.64	345	6.0	20.74	566
Z728	A1	0.083	4.11	54	0.65	16.44	218	2.15	32.88	436	3.76	53.95	716
Z728.CL	A1	0.083	4.11	54	0.65	16.44	218	2.15	32.88	436	3.76	53.95	716
Z728.H	A1	0.083	2.46	42	0.65	9.87	170	2.15	19.75	341	3.76	32.40	559
Z731	A1	0.083	4.11	54	0.65	16.44	218	2.15	32.88	436	3.76	53.95	716
	A2	13.5	0.016	13	240	0.065	53	1000	0.13	107	1000	0.21	176
	B	0.083	0.014	12	0.65	0.057	50	2.15	0.11	101	3.76	0.18	157
Z755	A1	100	0.14	57	1000	0.55	228	1000	1.11	456	1000	1.83	749
	A2	100	0.14	57	1000	0.55	228	1000	1.11	456	1000	1.83	749
	B	100	0.034	28	1000	0.13	114	1000	0.27	228	1000	0.45	374
	C	34	0.36	73	790	1.44	295	1000	2.88	591	1000	4.73	970
Z757	A1	13.5	0.066	27	240	0.26	109	1000	0.53	218	1000	0.87	358
	A2	13.5	0.066	27	240	0.26	109	1000	0.53	218	1000	0.87	358
	B	13.5	0.016	13	240	0.066	54	1000	0.13	109	1000	0.21	179
	C	6.8	0.195	40	66.0	0.783	160	1000	1.56	320	1000	2.57	526
Z763	A1	1.59	0.25	33	10.8	1.03	132	43.0	2.07	265	46	3.40	434
	A2	100	13.66	1741	1000	54.67	6966	1000	109.35	13933	1000	179.41	22859
	B	0.94	0.19	12	5.8	0.79	51	21.0	1.59	102	27	2.62	167
Z764	A1	1.59	246.91	1035	10.8	987.65	4143	43.0	1975	8286	46	3240	13594
	A2	1.59	246.91	1035	10.8	987.65	4143	43.0	1975	8286	46	3240	13594
	B	1.59	61.72	517	10.8	246.91	2071	43.0	493.82	4143	46	810.18	6797
	C	1.06	816	1701	6.8	3264	6805	24.2	6529	13611	30.0	10713	22330
Z765	A1	0.62	1.58	64	3.86	6.32	257	14.9	12.64	515	18.6	20.74	846
	A2	0.62	1.58	64	3.86	6.32	257	14.9	12.64	515	18.6	20.74	846
	B	0.62	0.39	32	3.86	1.58	128	14.9	3.16	257	18.6	5.18	423
	C	0.469	5.39	110	2.81	21.57	441	11.3	43.14	882	15.4	70.77	1447
Z772	A1	0.165	1.58	43	1.14	6.32	172	4.20	12.64	345	6.0	20.74	566
	A2	0.165	1.58	43	1.14	6.32	172	4.20	12.64	345	6.0	20.74	566
	B	Not Permitted for Group IIC			1.14	1.58	86	4.20	3.16	172	6.0	5.18	283
	C	0.119	5.16	70	0.89	20.64	280	3.20	41.28	561	5.1	67.74	921
Z778	A1	0.083	16.80	110	0.65	67.21	440	2.15	134.42	880	3.76	220.54	1445
	A2	0.083	16.80	110	0.65	67.21	440	2.15	134.42	880	3.76	220.54	1445
	B	0.083	4.11	55	0.65	16.44	220	2.15	32.88	440	3.76	53.95	722
	C	0.064	56.43	187	0.542	225.7	748	1.76	451.4	1496	2.96	740.7	2454
Z779	A1	0.083	4.11	54	0.65	16.44	218	2.15	32.88	436	3.76	53.95	716
	A2	0.083	4.11	54	0.65	16.44	218	2.15	32.88	436	3.76	53.95	716
	B	Not Permitted for Group IIC			0.65	4.11	109	2.15	8.22	218	3.76	13.48	358
	C	0.064	13.93	92	0.542	55.72	370	1.76	111.4	740	2.96	182.8	1215
Z779.H	A1	0.083	2.46	42	0.65	9.87	170	2.15	19.75	341	3.76	32.40	559
	A2	0.083	2.46	42	0.65	9.87	170	2.15	19.75	341	3.76	32.40	559
	B	Not Permitted for Group IIC			0.65	2.51	85	2.15	5.02	170	3.76	8.23	279
	C	0.064	8.41	72	0.542	33.66	289	1.76	67.32	579	2.96	110.4	950
Z786	A1	0.083	1000	852	0.65	1000	1703	2.15	1000	2409	3.76	1000	3086
	A2	0.083	1000	852	0.65	1000	1703	2.15	1000	2409	3.76	1000	3086
	B	0.083	1000	852	0.65	1000	1703	2.15	1000	2409	3.76	1000	3086
Z787	A1	0.083	4.11	54	0.65	16.44	218	2.15	32.88	436	3.76	53.95	716
	A2	0.083	1000	852	0.65	1000	1703	2.15	1000	2409	3.76	1000	3086
	B	0.083	4.11	54	0.65	16.44	218	2.15	32.88	436	3.76	53.95	716
	C	0.064	4.00	49	0.542	16.01	198	1.76	32.03	397	2.96	52.55	651
Z787.H	A1	0.083	2.46	42	0.65	9.87	170	2.15	19.75	341	3.76	32.40	559
	A2	0.083	1000	852	0.65	1000	1703	2.15	1000	2409	3.76	1000	3086
	B	0.083	2.51	42	0.65	9.87	170	2.15	19.75	341	3.76	32.95	559
	C	Not Permitted for Group IIC			0.542	9.55	153	1.76	19.11	307	2.96	31.35	504
Z788	A1	0.083	4.11	54	0.65	16.44	218	2.15	32.88	436	3.76	53.95	716
	A2	3.60	0.93	76	26.0	3.74	305	210.0	7.48	610	500	12.27	1000
	B	0.083	0.42	40	0.65	1.71	160	2.15	3.42	321	3.76	5.62	526
	C	0.073	5.09	58	0.596	20.39	233	1.94	40.79	466	3.35	66.93	766

Z700 Series Positive Polarity Shunt Zener Diode Barriers													
Barrier	Config.	Group IIC			Group IIB			Group IIA			Group I		
		C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)
Z788.R	A1	0.083	4.11	54	0.65	16.44	218	2.15	32.88	436	3.76	53.95	716
	A2	3.60	0.93	76	26.0	3.74	305	210.0	7.48	610	500	12.27	1000
	B	0.083	0.42	40	0.65	1.71	160	2.15	3.42	321	3.76	5.62	526
	C	0.073	5.09	58	0.596	20.39	233	1.94	40.79	466	3.35	66.93	766
Z788.H	A1	0.083	2.46	42	0.65	9.87	170	2.15	19.75	341	3.76	32.40	559
	A2	3.60	0.93	76	26.0	3.74	305	210.0	7.48	610	500	12.27	1000
	B	0.083	0.36	34	0.65	1.44	138	2.15	2.88	277	3.76	4.73	455
	C	0.073	3.35	47	0.596	13.40	189	1.94	26.81	379	3.35	43.98	622
Z788.R.H	A1	0.083	2.46	42	0.65	9.87	170	2.15	19.75	341	3.76	32.40	559
	A2	3.60	0.93	76	26.0	3.74	305	210.0	7.48	610	500	12.27	1000
	B	0.083	0.36	34	0.65	1.44	138	2.15	2.88	277	3.76	4.73	455
	C	0.073	3.35	47	0.596	13.40	189	1.94	26.81	379	3.35	43.98	622
Z789	A1	0.083	17.09	111	0.65	68.39	445	2.15	136.79	890	3.76	224.42	1461
	A2	0.083	17.09	111	0.65	68.39	445	2.15	136.79	890	3.76	224.42	1461
	A3	0.083	1000	852	0.65	1000	1703	2.15	1000	2409	3.76	1000	3086
	A4	0.083	1000	852	0.65	1000	1703	2.15	1000	2409	3.76	1000	3086
	B (A1+2)	0.083	4.27	55	0.65	17.09	222	2.15	34.19	445	3.76	56.10	730
Z796	A1	0.094	4.92	63	0.73	19.68	252	2.42	39.36	504	4.27	64.59	828
	A2	0.203	14.22	137	1.33	56.88	550	5.12	113.77	1101	7.5	186.66	1807
	B	0.094	1.95	43	0.73	7.80	142	2.42	15.60	284	4.27	25.60	573
	C	0.074	21.89	121	0.605	87.57	487	1.97	175.14	974	3.42	287.34	1598
Z796.L	A1	0.099	5.16	66	0.77	20.64	264	2.60	41.28	528	4.5	67.74	867
	A2	0.22	14.80	144	1.41	59.23	578	5.50	118.46	1157	8.0	194.36	1899
	B	0.099	2.04	45	0.77	8.16	148	2.60	16.32	297	4.5	26.78	603
	C	0.079	22.86	127	0.632	91.47	508	2.07	182.95	1016	3.64	300.16	1667
Z040	A1	43	1.81	173	1000	7.25	693	1000	14.51	1386	1000	23.80	2275
	A2	43	1.81	173	1000	7.25	693	1000	14.51	1386	1000	23.80	2275
	B	43	0.45	86.6	1000	1.81	346	1000	3.62	693	1000	5.95	1137
	C	14.6	5.02	239	268	20.10	956	1000	40.21	1913	1000	65.98	3138
Z041	A1	5.9	1836	3798	50	7346	15194	1000	14692	30388	1000	24104	49856
	A2	5.9	1836	3798	50	7346	15194	1000	14692	30388	1000	24104	49856
	B	5.9	459.13	1899	50	1836	7597	1000	3673	15194	1000	6026	24928
	C	3.2	5688	5852	22	22755	23409	115	45511	46818	190	74666	76811
Z042	A1	43	39.50	814	1000	158.02	3257	1000	316.04	6515	1000	518.51	10689
	A2	43	39.50	814	1000	158.02	3257	1000	316.04	6515	1000	518.51	10689
	B	43	9.87	407	1000	39.50	1628	1000	79.01	3257	1000	129.62	5344
	C	14.6	109.73	1123	268	438.95	4494	1000	877.90	8988	1000	1440	14746

Z800 Series Negative Polarity Shunt Zener Diode Barriers													
Barrier	Config.	Group IIC			Group IIB			Group IIA			Group I		
		C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)
Z805	A1	100	0.14	57	1000	0.55	228	1000	1.11	456	1000	1.83	749
Z810	A1	3.6	0.93	76	26.0	3.74	305	210.0	7.48	610	500	12.27	1000
Z810.CL	A1	3.6	0.93	76	26.0	3.74	305	210.0	7.48	610	500	12.27	1000
Z813	A1	0.478	0.068	12	2.88	0.27	49	11.6	0.54	99	15.8	0.89	164
Z815	A1	0.62	1.58	64	3.86	6.32	257	14.9	12.64	515	18.6	20.74	846
Z815.CL	A1	0.62	1.58	64	3.86	6.32	257	14.9	12.64	515	18.6	20.74	846
Z815.1k	A1	0.62	158.0	644	3.86	632.09	2579	14.9	1264	5159	18.6	2074	8465
Z822	A1	0.165	1.58	43	1.14	6.32	172	4.20	12.64	345	6.0	20.74	566
Z822.CL	A1	0.165	1.58	43	1.14	6.32	172	4.20	12.64	345	6.0	20.74	566
Z828	A1	0.083	4.11	54	0.65	16.44	218	2.15	32.88	436	3.76	53.95	716
Z828.CL	A1	0.083	4.11	54	0.65	16.44	218	2.15	32.88	436	3.76	53.95	716
Z828.H	A1	0.083	2.46	42	0.65	9.87	170	2.15	19.75	341	3.76	32.40	559
Z855	A1	100	0.14	57	1000	0.55	228	1000	1.11	456	1000	1.83	749
	A2	100	0.14	57	1000	0.55	228	1000	1.11	456	1000	1.83	749
	B	100	0.034	28	1000	0.13	114	1000	0.27	228	1000	0.45	374
	C	34.0	0.36	73	790	1.44	295	1000	2.88	591	1000	4.73	970
Z857	A1	13.5	0.066	27	240	0.26	109	1000	0.53	218	1000	0.87	358
	A2	13.5	0.066	27	240	0.26	109	1000	0.53	218	1000	0.87	358
	B	13.5	0.016	13	240	0.066	54	1000	0.13	109	1000	0.21	179
	C	6.8	0.195	40	66.0	0.783	160	1000	1.56	320	1000	2.57	526
Z864	A1	1.59	246.91	1035	10.8	987.65	4143	43.0	1975	8286	46	3240	13594
	A2	1.59	246.91	1035	10.8	987.65	4143	43.0	1975	8286	46	3240	13594
	B	1.59	61.72	517	10.8	246.91	2071	43.0	493.82	4143	46	810.18	6797
	C	1.06	816	1701	6.8	3264	6805	24.2	6529	13611	30.0	10713	22330
Z865	A1	0.62	1.58	64	3.86	6.32	257	14.9	12.64	515	18.6	20.74	846
	A2	0.62	1.58	64	3.86	6.32	257	14.9	12.64	515	18.6	20.74	846
	B	0.62	0.39	32	3.86	1.58	128	14.9	3.16	257	18.6	5.18	423

Z800 Series Negative Polarity Shunt Zener Diode Barriers

Barrier	Config.	Group IIC			Group IIB			Group IIA			Group I		
		C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)
	C	0.469	5.39	110	2.81	21.57	441	11.3	43.14	882	15.4	70.77	1447
Z872	A1	0.165	1.58	43	1.14	6.32	172	4.20	12.64	345	6.0	20.74	566
	A2	0.165	1.58	43	1.14	6.32	172	4.20	12.64	345	6.0	20.74	566
	B	Not Permitted for Group IIC			1.14	1.58	86	4.20	3.16	172	6.0	5.18	283
	C	0.119	5.16	70	0.89	20.64	280	3.20	41.28	561	5.1	67.74	921
Z878	A1	0.083	16.80	110	0.65	67.21	440	2.15	134.42	880	3.76	220.54	1445
	A2	0.083	16.80	110	0.65	67.21	440	2.15	134.42	880	3.76	220.54	1445
	B	0.083	4.11	55	0.65	16.44	220	2.15	32.88	440	3.76	53.95	722
	C	0.064	56.43	187	0.542	225.7	748	1.76	451.4	1496	2.96	740.7	2454
Z879	A1	0.083	4.11	54	0.65	16.44	218	2.15	32.88	436	3.76	53.95	716
	A2	0.083	4.11	54	0.65	16.44	218	2.15	32.88	436	3.76	53.95	716
	B	Not Permitted for Group IIC			0.65	4.11	109	2.15	8.22	218	3.76	13.48	358
	C	0.064	13.93	92	0.542	55.72	370	1.76	111.4	740	2.96	182.8	1215
Z879.H	A1	0.083	2.46	42	0.65	9.87	170	2.15	19.75	341	3.76	32.40	559
	A2	0.083	2.46	42	0.65	9.87	170	2.15	19.75	341	3.76	32.40	559
	B	Not Permitted for Group IIC			0.65	2.51	85	2.15	5.02	170	3.76	8.23	279
	C	0.064	8.41	72	0.542	33.66	289	1.76	67.32	579	2.96	110.45	950
Z886	A1	0.083	1000	852	0.65	1000	1703	2.15	1000	2409	3.76	1000	3086
	A2	0.083	1000	852	0.65	1000	1703	2.15	1000	2409	3.76	1000	3086
	B	0.083	1000	852	0.65	1000	1703	2.15	1000	2409	3.76	1000	3086
Z887	A1	0.083	4.11	54	0.65	16.44	218	2.15	32.88	436	3.76	53.95	716
	A2	0.083	1000	852	0.65	1000	1703	2.15	1000	2409	3.76	1000	3086
	B	0.083	4.11	54	0.65	16.44	218	2.15	32.88	436	3.76	53.95	716
	C	0.064	4.00	49	0.542	16.01	198	1.76	32.03	397	2.96	52.5	651
Z887.H	A1	0.083	2.46	42	0.65	9.87	170	2.15	19.75	341	3.76	32.40	559
	A2	0.083	1000	852	0.65	1000	1703	2.15	1000	2409	3.76	1000	3086
	B	0.083	2.46	42	0.65	9.87	170	2.15	19.75	341	3.76	32.40	559
	C	Not Permitted for Group IIC			0.542	9.55	153	1.76	19.11	307	2.96	31.35	504
Z888	A1	0.083	4.11	54	0.65	16.44	218	2.15	32.88	436	3.76	53.95	716
	A2	3.60	0.93	76	26.0	3.74	305	210.0	7.48	610	500	12.27	1000
	B	0.083	0.42	40	0.65	1.71	160	2.15	3.42	321	3.76	5.62	526
	C	0.073	5.09	58	0.596	20.39	233	1.94	40.79	466	3.35	66.93	765
Z888.R	A1	0.083	4.11	54	0.65	16.44	218	2.15	32.88	436	3.76	53.95	716
	A2	3.60	0.93	76	26.0	3.74	305	210.0	7.48	610	500	12.27	1000
	B	0.083	0.42	40	0.65	1.71	160	2.15	3.42	321	3.76	5.62	526
	C	0.073	5.09	58	0.596	20.39	233	1.94	40.79	466	3.35	66.93	765
Z888.H	A1	0.083	2.46	42	0.65	9.87	170	2.15	19.75	341	3.76	32.40	559
	A2	3.60	0.93	76	26.0	3.74	305	210.0	7.48	610	500	12.27	1000
	B	0.083	0.36	34	0.65	1.44	138	2.15	2.88	277	3.76	4.73	455
	C	0.073	3.35	47	0.596	13.40	189	1.94	26.81	379	3.35	43.98	622
Z888.R.H	A1	0.083	2.46	42	0.65	9.87	170	2.15	19.75	341	3.76	32.40	559
	A2	3.60	0.93	76	26.0	3.74	305	210.0	7.48	610	500	12.27	1000
	B	0.083	0.36	34	0.65	1.44	138	2.15	2.88	277	3.76	4.73	455
	C	0.073	3.35	47	0.596	13.40	189	1.94	26.81	379	3.35	43.98	622
Z896	A1	0.094	4.92	63	0.73	19.68	252	2.42	39.36	504	4.27	64.59	828
	A2	0.203	14.22	137	1.33	56.88	550	5.12	113.77	1101	7.5	186.66	1807
	B	0.094	1.95	43	0.73	7.80	142	2.42	15.60	284	4.27	25.60	573
	C	0.074	21.89	121	0.605	87.57	487	1.97	175.14	974	3.42	287.34	1598
Z896.L	A1	0.099	5.16	66	0.77	20.64	264	2.60	41.28	528	4.5	67.74	867
	A2	0.22	14.80	144	1.41	59.23	578	5.50	118.46	1157	8.0	194.36	1899
	B	0.099	2.04	45	0.77	8.16	148	2.60	16.32	297	4.5	26.78	603
	C	0.079	22.86	127	0.632	91.47	508	2.07	182.95	1016	3.64	300.16	1667

Z900 Fieldbus Barrier

Barrier	Config.	Group IIC			Group IIB			Group IIA			Group I		
		C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)
Z922 (+ / -)	A1	1.97	0.74	58	13.8	2.99	235	60.0	5.98	470	67.5	9.81	771
	A2	1.97	0.74	58	13.8	2.99	235	60.0	5.98	470	67.5	9.81	771
	B	0.165	0.74	29	1.14	2.99	118	4.20	5.98	237	6.0	9.81	389

Z900 Series a.c. Shunt Zener Diode Barriers

Barrier	Config.	Group IIC			Group IIB			Group IIA			Group I		
		C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)
Z905 (a.c)	A1	100	0.14	58	1000	0.56	232	1000	1.13	464	1000	1.86	761
Z910 (a.c)	A1	3.0	0.86	70	20.0	3.45	282	100	6.90	564	180	11.32	925

Z900 Series a.c. Shunt Zener Diode Barriers													
Barrier	Config.	Group IIC			Group IIB			Group IIA			Group I		
		C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)
Z915 (a.c)	A1	0.58	1.51	61	3.55	6.07	247	14.0	12.15	495	17.8	19.93	813
Z915.1k (a.c)	A1	0.58	158	619	3.55	632.09	2477	14.0	1264	4955	17.8	2074	8130
Z928 (a.c)	A1	0.083	4.11	54	0.65	16.44	218	2.15	32.88	436	3.76	53.95	716
Z954 (a.c.)	A1	100	0.24	82	1000	0.96	330	1000	1.93	660	1000	3.18	1084
	A2	100	0.24	82	1000	0.96	330	1000	1.93	660	1000	3.18	1084
	A3	100	0.24	82	1000	0.96	330	1000	1.93	660	1000	3.18	1084
	B	100	0.06	41	1000	0.24	165	1000	0.48	330	1000	0.79	542
	B1	100	0.026	27	1000	0.10	110	1000	0.21	220	1000	0.35	361
	C1	4.9	0.13	30	40.0	0.54	123	500	1.09	247	1000	1.79	406
Z955 (a.c.)	A1	100	0.14	58	1000	0.56	232	1000	1.13	464	1000	1.86	761
	A2	100	0.14	58	1000	0.56	232	1000	1.13	464	1000	1.86	761
	B	100	0.035	29	1000	0.14	116	1000	0.28	232	1000	0.46	382
	C	3.3	0.14	29	23	0.568	116	135	1.13	232	268	1.86	381
Z960 (a.c. Star)	A1	3.0	0.86	70	20.0	3.45	282	100	6.90	564	180	11.32	925
	A2	3.0	0.86	70	20.0	3.45	282	100	6.90	564	180	11.32	925
	B	3.0	0.21	35	20.0	0.86	141	100	1.72	282	180	2.83	462
	C	3.0	3.41	141	20.0	13.67	564	100	27.33	1128	180	44.85	1851
Z961 (a.c.)	A1	5.9	4.48	184	50.0	17.95	736	1000	35.91	1473	1000	58.91	2416
	A2	5.9	4.48	184	50.0	17.95	736	1000	35.91	1473	1000	58.91	2416
	B	5.9	1.12	92	50.0	4.48	368	1000	8.97	736	1000	14.72	1208
	C	0.346	4.48	92	2.02	17.95	368	8.40	35.91	736	11.6	58.91	1208
Z961.H (a.c.)	A1	5.9	56.88	662	50.0	227.55	2651	1000	455.11	5303	1000	746.66	8700
	A2	5.9	56.88	662	50.0	227.55	2651	1000	455.11	5303	1000	746.66	8700
	B	5.9	14.80	330	50.0	59.23	1322	1000	118.46	2645	1000	194.36	4340
	C	0.346	56.88	331	2.02	227.55	1325	8.40	455.11	2651	11.6	746.66	4350
Z964 (a.c.)	A1	1.41	246.9	967	9.00	987.65	3871	36.0	1975	7743	38	3240	12703
	A2	1.41	246.9	967	9.00	987.65	3871	36.0	1975	7743	38	3240	12703
	B	1.41	61.0	483	9.00	246.91	1935	36.0	493.82	3871	38	810.18	6351
	C	0.125	246.9	483	0.93	987.65	1935	3.35	1975	3871	5.25	3240	6351
Z965 (a.c. Star)	A1	0.58	1.51	61	3.55	6.07	247	14.0	12.15	495	17.8	19.93	813
	A2	0.58	1.51	61	3.55	6.07	247	14.0	12.15	495	17.8	19.93	813
	B	0.58	0.37	30	3.55	1.51	123	14.0	3.03	247	17.8	4.98	406
	C	0.58	6.07	123	3.55	24.30	495	14.0	48.60	991	17.8	79.74	1626
Z966 (a.c.)	A1	1.41	5.28	145	9.00	21.15	580	36.0	42.30	1161	38	69.40	1905
	A2	1.41	5.28	145	9.00	21.15	580	36.0	42.30	1161	38	69.40	1905
	B	1.41	1.32	72	9.00	5.28	290	36.0	10.57	580	38	17.35	952
	C	0.125	5.28	72	0.93	21.15	290	3.35	42.30	580	5.25	69.40	952
Z966.H (a.c.)	A1	1.41	1.32	72	9.00	5.28	290	36.0	10.57	580	38	17.35	952
	A2	1.41	1.32	72	9.00	5.28	290	36.0	10.57	580	38	17.35	952
	B	1.41	0.33	36	9.0	1.32	145	36.0	2.64	290	38	4.33	476
	C	0.125	1.32	36	0.93	5.28	145	3.35	10.57	290	5.25	17.35	476
Z967 (a.c. Star)	A1	0.39	1.73	58	2.29	6.95	235	9.30	13.90	471	13.16	22.82	773
	A2	0.39	1.73	58	2.29	6.95	235	9.30	13.90	471	13.16	22.82	773
	B	0.39	0.43	29	2.29	1.73	116	9.30	3.47	233	13.16	5.70	383
	C	0.39	6.85	117	2.29	27.43	471	9.30	54.86	943	13.16	90.02	1547
Z969 (a.c. Special Star)	A1	0.68	0.22	24	4.28	0.88	99	16.1	1.77	199	19.64	2.91	327
	A2	0.333	0.29	23	1.93	1.16	92	8.10	2.33	185	11	3.83	304
	B	0.248	0.063	12	1.52	0.25	48	6.03	0.50	96	8.68	0.83	158
	C	0.248	0.70	33	1.52	2.83	132	6.03	5.66	264	8.68	9.30	434
Z972 (a.c. Star)	A1	0.165	6.67	88	1.14	26.68	353	4.20	53.37	707	6.0	87.57	1160
	A2	0.165	6.67	88	1.14	26.68	353	4.20	53.37	707	6.0	87.57	1160
	B	0.165	1.66	44	1.14	6.67	177	4.20	13.34	354	6.0	21.89	582
	C	0.165	26.68	176	1.14	106.75	707	4.20	213.50	1415	6.0	350.28	2321
Z978 (a.c. Star)	A1	0.083	16.80	110	0.65	67.21	440	2.15	134.42	880	3.76	220.54	1445
	A2	0.083	16.80	110	0.65	67.21	440	2.15	134.42	880	3.76	220.54	1445
	B	0.083	4.11	55	0.65	16.44	220	2.15	32.88	441	3.76	53.95	723
	C	0.083	67.21	220	0.65	268.85	880	2.15	537.70	1761	3.76	882.16	2890

Notes:

- The above load parameters apply when one of the two conditions below is given:
  - the total L_i of the external circuit (excluding the cable) is < 1% of the L_o value or
  - the total C_i of the external circuit (excluding the cable) is < 1% of the C_o value.

- The above parameters are reduced to 50% when both of the two conditions below are given:
  - the total L_i of the external circuit (excluding the cable) is ≥ 1% of the L_o value and

- the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

- The reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for Group IIB and 600nF for Group IIC.

16 Report Number

GB/BAS/ExTR11.0310/00

17 Special Conditions for Safe Use

None.

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

New drawings submitted for this issue of certificate.

Number	Sheet	Issue	Date	Description
266-011BS-00	1 – 9	-	2011-Aug-23	Description
266-011BS-02	1 of 1	-	2011-Aug-04	Relevant Components, Z040, Z041 & Z042
266-011BS-10A	1 – 6	A	2011-Aug-16	Type Label

Current drawings associated with this certificate.

Number	Sheet	Issue	Date	Description
251-0219C	1 of 1	C	07.02.01	Circuit Diagram for Z705 (positive) & Z805 (negative) Version
251-0220D	1 of 1	D	07.02.01	Circuit Diagram for 3 Diode Z7.. (positive) & Z8.. (negative) Polarity Versions
251-0222B	1 of 1	B	08.03.01	Circuit Diagram for 3 Diode Dual Channel Positive and Negative Polarity Versions
251-0224B	1 of 1	B	07.02.01	Circuit Diagram for Single Channel Positive and Negative Polarity Versions
251-0225B	1 of 1	B	07.02.01	Circuit Diagram for 6 Diode Positive and Negative Polarity CL Versions
251-0226D	1 of 1	D	07.02.01	Circuit Diagram for Single Channel Z9.. (a.c.) Versions
251-0227C	1 of 1	C	07.02.01	Circuit Diagram for Z755 (positive) & Z855 (negative) Polarity Versions
251-0229C	1 of 1	C	07.02.01	Circuit Diagram for Z788, Z888, Z788.H and Z888.H
251-0230C	1 of 1	C	07.02.01	Circuit Diagram for Z788.R, Z888.R, Z788.R.H & Z888.R.H
251-0231B	1 of 1	B	07.02.01	Circuit Diagram for Dual Channel A.C. Versions
251-0232B	1 of 1	B	08.02.01	Circuit Diagram for Dual Channel 9 Diode A.C. Versions
251-0233B	1 of 1	B	07.02.01	Circuit Diagram for Dual Channel Positive and Negative Polarity Versions
251-0234B	1 of 1	B	07.02.01	Circuit Diagram for Z786 and Z886
251-0235C	1 of 1	C	07.02.01	Circuit Diagram for Z787, Z887, Z787.H and Z887.H
251-0236B	1 of 1	B	08.02.01	Circuit Diagram for Z954

Number	Sheet	Issue	Date	Description
251-0237B	1 of 1	B	08.02.01	Circuit Diagram for Z928
251-0238C	1 of 1	C	07.02.01	Circuit Diagram for Z905 (a.c.) Barrier
251-0239C	1 of 1	C	07.02.01	Circuit Diagram for Z955 (a.c.) Barrier
251-0240B	1 of 1	B	08.02.01	Circuit Diagram for Dual Channel 18 Diode A.C. Versions
251-0251C	1 of 1	C	08.02.01	Circuit Diagram for Z922
251-0274C	1 of 1	C	07.02.01	Circuit Diagram for 3 Diode Z7.. (positive) & Z8.. (negative) Polarity CL Versions
251-0276C	1 of 1	C	07.02.01	Circuit Diagram for 3 Diode Dual Channel Z7.. (positive) & Z8.. (negative) Polarity
251-0283B	1 of 1	B	07.02.01	Circuit Diagram for Single Channel Z7.. (positive) & Z8.. (negative) Polarity Versions
251-0284B	1 of 1	B	07.02.01	Circuit Diagram for Z969
251-0290C	1 of 1	C	14.01.10	Circuit Diagram for Z966.H & Z961
251-0434B	1 of 1	B	12.06.01	Circuit Diagram for Z763
251-0450A	1 of 1	A	08.02.01	Circuit Diagram (Ref.) for Z731
251-5058	1 of 1	Original	31.03.04	Circuit Diagram Z789
252-0928D	1 of 1	D	30.01.01	Parts List for Z705 and Z805
252-0930G	1 of 1	G	14.01.10	Parts List for Z710 and Z810
252-0931G	1 & 2	G	14.01.10	Parts List for Z710.CL and Z810.CL
252-0933G	1 of 1	G	14.01.10	Parts List for Z715 and Z815
252-0934G	1 & 2	G	14.01.10	Parts List for Z715.CL and Z815.CL
252-0935G	1 of 1	G	14.01.10	Parts List for Z715.1k and Z815.1k
252-0936E	1 & 2	E	30.01.01	Parts List for Z722 and Z822
252-0937E	1 & 2	E	30.01.01	Parts List for Z722.CL and Z822.CL
252-0938E	1 & 2	E	30.01.01	Parts List for Z728 and Z828
252-0939E	1 & 2	E	30.01.01	Parts List for Z728.CL and Z828.CL
252-0940D	1 & 2	D	30.01.01	Parts List for Z905
252-0941G	1 & 2	G	14.01.10	Parts List for Z910
252-0942C	1 & 2	C	05.02.01	Parts List for Z928
252-0943D	1 & 2	D	30.01.01	Parts List for Z755 and Z855
252-0944E	1 & 2	E	30.01.01	Parts List for Z772 and Z872
252-0945E	1 & 2	E	30.01.01	Parts List for Z778 & Z878
252-0946E	1 & 2	E	30.01.01	Parts List for Z779 and Z879
252-0947F	1 & 2	F	05.03.04	Parts List for Z786 and Z886
252-0948F	1 & 2	F	05.03.04	Parts List for Z787 and Z887
252-0949E	1 & 2	E	30.01.01	Parts List for Z788 and Z888
252-0950E	1 & 2	E	30.01.01	Parts List for Z788.R and Z888.R
252-0951D	1 & 2	D	30.01.01	Parts List for Z955
252-0952C	1 & 2	C	05.02.01	Parts List for Z960
252-0953G	1 & 2	G	14.01.10	Parts List for Z961
252-0954F	1 & 2	F	30.01.01	Parts List for Z964
252-0955C	1 & 2	C	05.02.01	Parts List for Z965
252-0956F	1 & 2	F	30.01.01	Parts List for Z966

Number	Sheet	Issue	Date	Description
252-0957C	1 & 2	C	05.02.01	Parts List for Z967
252-0958C	1 & 2	C	05.02.01	Parts List for Z978
252-0959E	1 & 2	E	30.01.01	Parts List for Z796 and Z896
252-0960E	1 & 2	E	14.01.10	Parts List for Z954
252-0966J	1 & 2	J	14.01.10	Parts List for Z915
252-0967J	1 & 2	J	14.01.10	Parts List for Z915.1k
252-0969C	1 & 2	C	05.02.01	Parts List for Z972
252-0970G	1 & 2	G	14.01.10	Parts List for Z765 and Z865
252-0971D	1 & 2	D	05.02.01	Parts List for Z764 and Z864
252-1015E	1 & 2	E	14.01.10	Parts List for Z922
252-1074C	1 & 2	C	30.01.01	Parts List for Z757 and Z857
252-1109D	1 to 4	D	14.01.10	Parts List for Z731
252-1111C	1 & 2	C	30.01.01	Parts List for Z713 and Z813
252-1128C	1 & 2	C	30.01.01	Parts List for Z728.H and Z828.H
252-1129D	1 & 2	D	05.03.04	Parts List for Z787.H and Z887.H
252-1143B	1 & 2	B	30.01.01	Parts List for Z779.H and Z879.H
252-1144B	1 & 2	B	30.01.01	Parts List for Z788.H and Z888.H
252-1145B	1 & 2	B	30.01.01	Parts List for Z788.R.H and Z888.R.H
252-1149B	1 & 2	B	05.02.01	Parts List for Z969
252-1156B	1 & 2	B	30.01.01	Parts List for Z961.H
252-1157D	1 & 2	D	14.01.10	Parts List for Z966.H
252-1297A	1 & 2	A	30.10.00	Parts List for Z763
252-5011A	1 & 2	A	26.10.01	Parts List for Z796.L and Z896.L
252-5023	1 to 3	Original	01.04.04	Parts List for Z789
253-0260A	1 of 1	A	08.03.01	Component Overlay for 3 Diode Dual Z7.. (positive) & Z8.. (negative) Polarity Versions
253-0261A	1 of 1	A	31.10.00	Component Overlay (Ref.) for Z763 (PCB 255-1519A)
253-0274A	1 of 1	A	12.02.01	Component Overlay for 3 Diode Z7.. (positive) & Z8.. (negative) Polarity Versions
253-0275A	1 of 1	A	12.02.01	Component Overlay for Single Channel A.C Versions
253-0276A	1 of 1	A	12.02.01	Component Overlay for Single Channel Z7.. (positive) and Z8.. (negative) Polarity Versions
253-0277A	1 of 1	A	12.02.01	Component Overlay for Z788, Z788.H (positive) and Z888, Z888.H (negative) Barriers
253-0278A	1 of 1	A	26.02.01	Component Overlay for Z788.R, Z788.R.H (positive) & Z888.R, Z888.R.H (negative) Barriers
253-0279A	1 of 1	A	26.02.01	Component Overlay for Dual Channel A.C. Versions
253-0280A	1 of 1	A	26.02.01	Component Overlay for Dual Channel Z7.. (positive) & Z8.. (negative) Polarity Versions
253-0281A	1 of 1	A	26.02.01	Component Overlay for Z787, Z787.H (positive) & Z887, Z887.H (negative) Polarity Barriers
253-0282A	1 of 1	A	26.02.01	Component Overlay for Z786 (positive) and Z886 (negative) Polarity Barriers
253-0283A	1 of 1	A	26.02.01	Component Overlay for 3 Diode Dual Z7.. (positive) & Z8.. (negative) Polarity Versions

Number	Sheet	Issue	Date	Description
253-0284A	1 of 1	A	26.02.01	Component Overlay for Z713 (positive) & Z813 (negative) Polarity Barriers
253-0285B	1 of 1	B	14.01.10	Component Overlay for Z966.H & Z961
253-0286A	1 of 1	A	27.02.01	Component Overlay for Z705 (positive) & Z805 (negative) Versions
253-0287A	1 of 1	A	27.02.01	Component Overlay for 6 Diode Z7.. (positive) and Z8.. (negative) Polarity CL Versions
253-0288A	1 of 1	A	27.02.01	Component Overlay for Z755 (positive) & Z855 (negative) Barriers
253-0289A	1 of 1	A	27.02.01	Component Overlay for Z905 a.c. Barrier
253-0290A	1 of 1	A	27.02.01	Component Overlay for Z955 a.c. Barrier
253-0291A	1 of 1	A	27.02.01	Component Overlay for 3 Diode Z7.. (positive) & Z8.. (negative) Polarity CL Versions
253-0292A	1 of 1	A	27.02.01	Component Overlay for Zener Barrier Z954
253-0293A	1 of 1	A	27.02.01	Component Overlay for Z969
253-5017A	1 of 1	A	10.10.01	Component Overlay for Z928
253-5019A	1 of 1	A	10.10.01	Component Overlay for A.C. Star Connected 9 Diode Barrier
253-5020A	1 of 1	A	10.10.01	Component Overlay for A.C. Star Connected 18 Diode Barrier
253-5082	1 of 1	Original	2004 Mar 31	Component Overlay for Z789
255-1519B	1 to 3	B	09.04.01	P.C.B Master for Z763
255-1521A	1 to 3	A	08.03.01	PCB Master for Single and Dual Channel Zener Barriers (P.C.B 255-1521A)
255-1529A	1 to 3	A	27.02.01	PCB Master for Z731
255-1535A	1 to 3	A	27.02.01	PCB Master for Z922
255-1538A	1 to 3	A	27.02.01	PCB Master for A.C. Star Connected Barriers (Z7.., Z8.. & Z9.. Type)
255-1541A	1 to 3	A	27.02.01	PCB Master for Z954
255-3457C	1 of 1	C	16.12.94	Component Overlay for Z922
255-5038	1 & 2	Original	2004 Mar 31	P.C.B Master for Z789
266-011BS-04A	1 & 2	A	2009-Nov-09	General Assembly Z7.., Z8.. & Z9.. Series Zener Barriers

20 Certificate History

Certificate No.	Date	Comments
BAS01ATEX7005	26 June 2001	The release of the prime certificate. The associated test and assessment against the requirements of EN 50014: 1997 + Amendments 1 & 2 and EN 50020: 1994 is documented in Test Report No. 00(C)0982.
BAS01ATEX7005/1	16 November 2001	To permit the inclusion of drawings, an alternative place of manufacturer of the barriers and permit minor changes to the Z796 & Z896 barriers to form the Z796.L and Z896.L variants.
BAS01ATEX7005/2	9 March 2004	To permit the inclusion of 'Combined No Earth' parameters for the Z969 Barrier model not affecting the original assessment.
BAS01ATEX7005/3	26 April 2004	To permit the use of alternative diodes type in some of the barrier designs not affecting the original assessment.

Certificate No.	Date	Comments
BAS01ATEX7005/4	23 April 2004	To permit the additional of the Z789 Four Channel Shunt Zener Diode Safety Barrier to the range. The certification of this model is detailed in Baseefa Certification Report No. 04(C)0278.
BAS01ATEX7005/5	21 July 2006	To permit alternative enclosure materials to be specified not affecting the original assessment. General Assembly Drawing No. 254-0312A replaced.
BAS01ATEX7005 Issue 6	19 January 2010	The certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current design meets the requirements of EN 60079-0: 2006, EN 60079-11: 2007 & EN 61241-11: 2006 including the revision of the equipment marking and load parameters in accordance with these standards. All models of the barriers were additionally assessed as Associated Electrical Apparatus to category [Ex ia] I in an ambient temperature range of -20°C to +60°C. The equipment markings were revised to include the group I markings and the load parameters listed in section 15 above revised to include group I parameters. Minor circuit changes were made to the Z954 model not affecting the output parameters previously specified. The above test and assessment is detailed in Report No. GB/BAS/ExTR09.0217/00. The certificate's listed manufacturer was also changed to: Pepperl + Fuchs GmbH, Lilienthalstrasse 200, 68307 Mannheim, Germany.
BAS01ATEX7005 Issue 7	14 May 2010	This issue of the certificate adds Group IIB and IIA load parameters figures to the equipment description. This addition does not affect the original assessment.
BAS01ATEX7005 Issue 8	28 February 2012	To permit the introduction of the Z040, Z041 & Z042 barriers to the range, a change in how the parameters are presented and minor drawing changes. This issue of the certificate also confirms the current design meets the requirements of EN 60079-0: 2009; the equipment is now marked as follows: [Ex ia Ga] IIC [Ex ia Da] IIIC [Ex ia Ma] I
For drawings applicable to each issue, see original of that issue.		