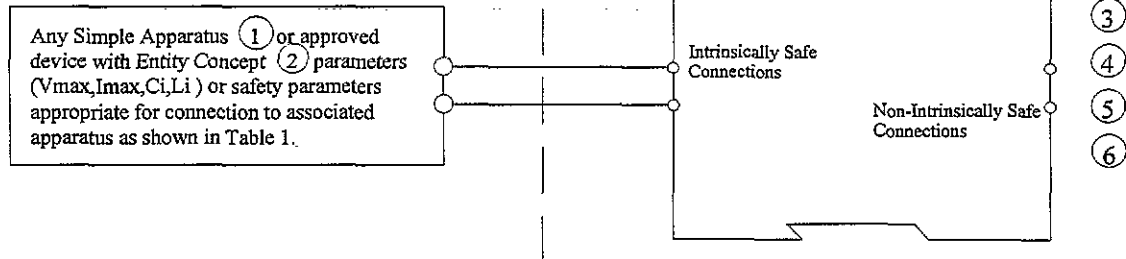


HAZARDOUS (CLASSIFIED) LOCATION
 CLASS I, ZONE 0,1, GROUPS IIC,IIB,IIA
 OR
 CLASS I, DIVISION 1, GROUPS A,B,C,D
 CLASS II, DIVISION 1, GROUPS E,F,G
 CLASS III, DIVISION 1

NON-HAZARDOUS LOCATION OR
 CLASS I, ZONE 2, GROUPS IIC,IIB, IIA
 CLASS I, DIVISION 2 GROUPS A,B,C,D;



Notes:

1. A switch non-inductive resistive device or thermocouple may be connected to the barrier.
2. The Entity Concept allows interconnection of intrinsically safe apparatus with associated apparatus not specifically examined in combination as a system when the approved values of V_{oc} and I_{sc} for the associated apparatus are less than or equal to V_{max} and I_{max} for the intrinsically safe apparatus and the approved values of C_a and L_a for the associated apparatus are greater than $C_i + C_{cable}$ and $L_i + L_{cable}$, respectively, for the intrinsically safe apparatus.
3. Wiring methods must be in accordance with the Canadian Electrical Code, CSA C22.1, Part F.
4. Barriers shall not be connected to any device which uses or generates internally any voltage in excess of 250 Vrms or DC unless the device has been determined to adequately isolate the voltage from the barrier.
5. WARNING: Substitution of components may impair intrinsic safety.
 AVERTISSEMENT: La substitution de composants peut compromettre la sécurité intrinseque.
6. Barriers must be connected to a suitable ground electrode. The resistance of the ground path must be less than 1 ohm. Any terminals 2, 3, 6, 7, or the two wire clamp terminals at the base of the barrier may be used for this purpose. Alternatively, the ground connection may be established by mounting the barrier on standard 35mm DIN rail, when meeting the following requirements:
 - a. DIN rail must be standard 35mm DIN rail ($35mm \pm 0.3mm$).
 - b. Any corrosion on the DIN rail must be removed before mounting barriers. Once the corrosion is removed, the DIN rail must be checked for the standard tolerance of $35mm \pm 0.3mm$.
 - c. A continuity check must be conducted between the DIN rail and any ground terminal of the barrier, terminals 2, 3, 6, 7 or the two wire clamp terminals at the base of the barrier.
 - d. Connect 35mm DIN rail to the ground electrode using hardware suitable to provide a ground path resistance of less than 1 ohm.
7. WARNING – Do not replace fuse while circuit is live unless location is known to be nonhazardous. This applies to fuse replaceable zener barriers identified by the addition of a .F to the model number.

						Title: CONTROL DRAWING FOR ZENER DIODE BARRIERS CSA
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a	12-09-99	W.B.			ECO-2930	
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0	3-4-94	P.S.			<small>This document is controlled. Any changes/ revisions must be approved by proper authority before release.</small>	
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TABLE 1 - ENTITY/SYSTEM PARAMETERS

Model Number	Terminals	System				Entity					
		Vmax (V)	Res. (Ω)	Voc (V) (Uo)	Isc (mA) (Io)	Groups Ca (μF)			Groups La (mH)		
						A,B (IIC)	C,E (IIB)	D,F,G (IIA)	A,B (IIC)	C,E (IIB)	D,F,G (IIA)
Z705	1,2	4.7	10	4.97	507	1000	3000	8000	0.10	0.17	1.17
Z710	1,2	9.1	50	9.77	200	3.51	10.5	28.1	0.48	4.08	7.50
Z710.CL	1,2	9.1	50	9.77	200	3.51	10.5	28.1	0.48	4.08	7.50
Z713	1,2	15	22	15.75	724	0.67	2.02	5.38	0.07	0.21	0.57
Z715	1,2	14	100	15.2	155	0.76	2.27	6.06	1.09	6.65	12.4
Z715.1k	1,2	14	1000	15.2	15.5	0.76	2.27	6.06	1.37	480	1215
Z715.CL	1,2	14	100	15.2	155	0.76	2.27	6.06	1.09	6.65	12.4
Z715.F	1,2	14	100	15.2	155	0.76	2.27	6.06	1.09	6.65	12.4
Z722	1,2	22	150	22.7	155	0.24	0.72	1.92	1.10	6.67	12.5
Z722.CL	1,2	22	150	22.7	155	0.24	0.72	1.92	1.10	6.67	12.5
Z726	1,2	27	174	27.0	159.0	-	0.46	1.24	-	6.36	11.87
Z728	1,2	28	307	28.0	93.0	0.13	0.39	1.04	3.0	12.4	24
Z728.CL	1,2	28	307	28.0	93.0	0.13	0.39	1.04	3.0	12.4	24
Z728.F	1,2	28	307	28.0	93.0	0.13	0.39	1.04	3.0	12.4	24
Z728.H	1,2	28	240	28.0	119.2	-	0.39	1.04	-	10.2	19.7
Z728.H.F	1,2	28	240	28.0	119.2	-	0.39	1.04	-	10.2	19.7
Z731	1,2	28	300	28.0	93.3	0.13	0.39	1.04	3.0	12.4	24
	3,2;4,2	6.8	10	7.14	1456	10	30	80	0.03	0.09	0.26
	1,2,3,4	-	-	30.0	1549	0.11	0.33	0.88	0.03	0.09	0.26
Z755	1,2,3,4	4.7	10	4.97	507	1000	3000	8000	0.10	0.17	1.17
	1,4	-	-	5.97	1014	128	385	1026	0.02	0.05	0.15
Z757	1,2,3,4	6.8	10	7.30	745	12.3	36.8	98.2	0.03	0.09	0.29
	1,4	-	-	8.30	1489	6.89	20.7	55.1	0.01	0.02	0.07
Z764	1,2,3,4	11	1000	11.9	12.1	1.69	5.07	13.5	2.20	767	1966
	1,4	-	-	12.9	24.3	1.28	3.83	10.2	57	202	495
Z765	1,2,3,4	14	100	15.2	155	0.76	2.27	6.06	1.09	6.65	12.4
	1,4	-	-	16.2	309	0.62	1.87	4.98	0.20	1.56	3.13
Z765.F	1,2,3,4	14	100	15.2	155	0.76	2.27	6.06	1.09	6.65	12.4
	1,4	-	-	16.2	305	0.62	1.87	4.98	0.20	1.56	3.13
Z772	1,2,3,4	22	150	22.7	155	0.24	0.72	1.92	1.10	6.67	12.5
	1,4	-	-	24.7	309	-	0.58	1.55	-	1.56	3.14
Z778	1,2,3,4	28	620	28.0	46.0	0.13	0.39	1.04	15.6	57.2	130
	1,4	-	-	30.0	93.0	0.11	0.34	0.91	3.0	12.4	24
Z779	1,2,3,4	28	307	28.0	93.0	0.13	0.39	1.04	3.0	12.4	24
	1,4	-	-	30.0	186	-	0.34	0.91	-	4.39	8.08
Z779.F	1,2,3,4	28	307	28.0	93.0	0.13	0.39	1.04	3.0	12.4	24
	1,4	-	-	30.0	186	-	0.34	0.91	-	4.39	8.08
Z779.H	1,2,3,4	28	240	28.0	119.2	-	0.39	1.04	-	10.2	19.7
	1,4	-	-	30.0	235.5	-	0.34	0.91	-	2.67	4.97
Z779.H.F	1,2,3,4	28	240	28.0	119.2	-	0.39	1.04	-	10.2	19.7
	1,4	-	-	30.0	235.5	-	0.34	0.91	-	2.67	4.97
Z786	1,2,3,4	28	Diode	28.0	0.0	0.13	0.39	1.04	1000	1000	1000
	1,4	-	-	30.0	0.0	0.11	0.34	0.91	1000	1000	1000
Z787	1,2	28	307	28.0	93.0	0.13	0.39	1.04	3.0	12.4	24
	3,4	28	Diode	28.0	0.0	0.13	0.39	1.04	1000	1000	1000
	1,4	-	-	30.0	93.0	0.11	0.34	0.91	3.0	12.4	24


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TABLE 1 - ENTITY/SYSTEM PARAMETERS (Continued)

Model Number	Terminals	System				Entity					
		Vmax (V)	Res. (Ω)	Voc (V) (Uo)	Isc (mA) (Io)	Groups Ca (μF)			Groups La (mH)		
						A,B (IIC)	C,E (IIB)	D,F,G (IIA)	A,B (IIC)	C,E (IIB)	D,F,G (IIA)
Z787.F	1,2	28	307	28.0	93.0	0.13	0.39	1.04	3.0	12.4	24
	3,4	28	Diode	28.0	0.0	0.13	0.39	1.04	1000	1000	1000
	1,4	-	-	30.0	93.0	0.11	0.34	0.91	3.0	12.4	24
Z787.H	1,2	28	240	28.0	119.2	-	0.39	1.04	-	10.2	19.7
	3,4	28	Diode	28.0	0.0	-	0.39	1.04	-	1000	1000
	1,4	-	-	30.0	119.2	-	0.34	0.91	-	10.2	19.7
Z787.H.F	1,2	28	240	28.0	119.2	-	0.39	1.04	-	10.2	19.7
	3,4	28	Diode	28.0	0.0	-	0.39	1.04	-	1000	1000
	1,4	-	-	30.0	119.2	-	0.34	0.91	-	10.2	19.7
Z788	1,2	28	307	28.0	93.0	0.13	0.39	1.04	3.0	12.4	24
	3,4	9.1	50	9.77	200	3.51	10.5	28.1	0.48	4.08	7.50
	1,4	-	-	29.0	293	0.12	0.37	0.98	0.21	1.74	3.43
Z788.H	1,2	28	240	28.0	119.2	-	0.39	1.04	-	10.2	19.7
	3,4	9.1	50	9.77	200	-	10.5	28.1	-	4.08	7.50
	1,4	-	-	30.0	319	-	0.34	0.91	-	1.40	2.89
Z788.R	1,2	28	307	28.0	93.0	0.13	0.39	1.04	3.0	12.4	24
	3,4	9.1	50	9.77	200	3.51	10.5	28.1	0.48	4.08	7.50
	1,4	-	-	29.0	293	0.12	0.37	0.98	0.21	1.74	3.43
Z788.R.H	1,2	28	240	28.0	119.2	-	0.39	1.04	-	10.2	19.7
	3,4	9.1	50	9.77	200	-	10.5	28.1	-	4.08	7.5
	1,4	-	-	30.0	319	-	0.34	0.91	-	1.40	2.89
Z796	1,2	26.6	320	27.5	87.7	0.15	0.45	1.19	4.71	18.7	38.4
	3,4	20.5	415	20.8	51.0	0.30	0.91	2.44	13.6	50.3	113
	1,4	-	-	29.5	139	0.12	0.38	1.01	1.60	8.13	15.4
Z805	1,2	4.7	10	-4.97	507	1000	3000	8000	0.10	0.17	1.17
Z810	1,2	9.1	50	-9.77	200	3.51	10.5	28.1	0.48	4.08	7.5
Z810.CL	1,2	9.1	50	-9.77	200	3.51	10.5	28.1	0.48	4.08	7.5
Z813	1,2	15	22	-15.75	724	0.67	2.02	5.38	0.07	0.21	0.57
Z815	1,2	14	100	-15.2	155	0.76	2.27	6.06	1.09	6.65	12.4
Z815.1k	1,2	14	1000	-15.2	15.5	0.76	2.27	6.06	137	480	1215
Z815.CL	1,2	14	100	-15.2	155	0.76	2.27	6.06	1.09	6.65	12.4
Z815.F	1,2	14	100	-15.2	155	0.76	2.27	6.06	1.09	6.65	12.4
Z822	1,2	22	150	-22.7	155	0.27	0.72	1.92	1.10	6.67	12.5
Z822.CL	1,2	22	150	-22.7	155	0.27	0.72	1.92	1.10	6.67	12.5
Z828	1,2	28	307	-28.0	93.0	0.13	0.39	1.04	3.0	12.4	24
Z828.CL	1,2	28	307	-28.0	93.0	0.13	0.39	1.04	3.0	12.4	24
Z828.F	1,2	28	307	-28.0	93.0	0.13	0.39	1.04	3.0	12.4	24
Z828.H	1,2	28	240	-28.0	119.2	-	0.39	1.04	-	10.2	19.7
Z828.H.F	1,2	28	240	-28.0	119.2	-	0.39	1.04	-	10.2	19.7
Z855	1,2,3,4	4.7	10	-4.97	507	1000	3000	8000	0.10	0.17	1.17
	1,4	-	-	5.97	1014	128	385	1026	0.02	0.05	0.15
Z857	1,2,3,4	6.8	10	-7.3	745	12.3	36.8	98.2	0.03	0.09	0.29
	1,4	-	-	8.3	1489	6.89	20.7	55.1	0.01	0.02	0.07
Z864	1,2,3,4	11	1000	-11.9	12.1	1.69	5.07	13.5	220	767	1966
	1,4	-	-	12.9	24.3	1.28	3.83	10.2	57	202	495

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TABLE 1 – ENTITY/SYSTEM PARAMETERS (Continued)

Model Number	Terminals	System		Entity							
		Vmax (V)	Res. (Ω)	Voc (V) (Uo)	Isc (mA) (Io)	Groups Ca (μF)			Groups La(mH)		
						A,B (IIC)	C,E (IIB)	D,F,G (IIA)	A,B (IIC)	C,E (IIB)	D,F,G (IIA)
Z865	1,2,3,4	14	100	-15.2	155	0.76	2.27	6.06	1.09	6.65	12.4
	1,4	-	-	16.2	309	0.62	1.87	4.98	0.20	1.56	3.13
Z865.F	1,2,3,4	14	100	-15.2	155	0.76	2.27	6.06	1.09	202	12.4
	1,4	-	-	16.2	309	0.62	1.87	4.98	0.20	1.56	3.13
Z872	1,2,3,4	22	150	-22.7	155	0.24	0.72	1.92	1.10	6.67	12.5
	1,4	-	-	24.7	309	-	0.58	1.55	-	1.56	3.14
Z878	1,2,3,4	28	620	-28.0	46.0	0.13	0.39	1.04	15.6	57.2	130
	1,4	-	-	30.0	93.0	0.11	0.34	0.91	3.0	12.4	24
Z879	1,2,3,4	28	307	-28.0	93.0	0.13	0.39	1.04	3.0	12.4	24
	1,4	-	-	30.0	186	-	0.34	0.91	-	4.39	8.08
Z879.F	1,2,3,4	28	307	-28.0	93.0	0.13	0.39	1.04	3.0	12.4	24
	1,4	-	-	30.0	186	-	0.34	0.91	-	4.39	8.08
Z879.H	1,2,3,4	28	240	-28.0	119.2	-	0.39	1.04	-	10.7	19.2
	1,4	-	-	30.0	235.5	-	0.34	0.91	-	2.67	4.97
Z879.H.F	1,2,3,4	28	240	-28.0	119.2	-	0.39	1.04	-	10.7	19.2
	1,4	-	-	30.0	235.5	-	0.34	0.91	-	2.67	4.97
Z886	1,2,3,4	28	Diode	-28.0	0.0	0.13	0.39	1.04	4.29	17.2	35.1
	1,4	-	-	30.0	0.0	0.11	0.34	0.91	4.29	17.2	35.1
Z887	1,2	28	307	-28.0	93.0	0.13	0.39	1.04	3.0	12.4	24
	3,4	28	Diode	-28.0	0.0	0.13	0.39	1.04	4.29	17.2	35.1
	1,4	-	-	30.0	93.0	0.11	0.34	0.91	3.0	12.4	24
Z887.F	1,2	28	307	-28.0	93.0	0.13	0.39	1.04	3.0	12.4	24
	3,4	28	Diode	-28.0	0.0	0.13	0.39	1.04	4.29	17.2	35.1
	1,4	-	-	30.0	93.0	0.11	0.34	0.91	3.0	12.4	24
Z887.H	1,2	28	240	-28.0	119.2	-	0.39	1.04	-	10.2	19.2
	3,4	28	Diode	-28.0	0.0	-	0.39	1.04	-	1000	1000
	1,4	-	-	30.0	119.2	-	0.34	0.91	-	10.2	19.2
Z887.H.F	1,2	28	240	-28.0	119.2	-	0.39	1.04	-	10.2	19.2
	3,4	28	Diode	-28.0	0.0	-	0.39	1.04	-	1000	1000
	1,4	-	-	30.0	119.2	-	0.34	0.91	-	10.2	19.2
Z888	1,2	28	307	-28.0	93.0	0.13	0.39	1.04	3.0	12.4	24
	3,4	9.1	50	-9.77	200	3.51	10.5	28.1	0.48	4.08	7.5
	1,4	-	-	29.0	293	0.12	0.37	0.98	0.21	1.74	3.43
Z888.H	1,2	28	240	-28.0	119.2	-	0.39	1.04	-	10.2	19.7
	3,4	9.1	50	-9.77	200	-	10.5	28.1	-	4.08	7.5
	1,4	-	-	30.0	319	-	0.34	0.91	-	1.40	2.89
Z888.R	1,2	28	307	-28.0	93.0	0.13	0.39	1.04	3.0	12.4	24
	3,4	9.1	50	-9.77	200	3.51	10.5	28.1	0.48	4.08	7.5
	1,4	-	-	29.0	293	0.12	0.37	0.98	0.21	1.74	3.43
Z888.R.H	1,2	28	240	-28.0	119.2	-	0.39	1.04	-	10.2	19.7
	3,4	9.1	50	-9.77	200	-	10.5	28.1	-	4.08	7.5
	1,4	-	-	30.0	319	-	0.34	0.91	-	1.40	2.89
Z896	1,2	26.6	320	-27.5	87.7	0.15	0.45	1.19	4.71	18.7	38.4
	3,4	20.5	415	-20.8	51.0	0.30	0.91	2.44	13.6	50.3	113
	1,4	-	-	29.5	139	0.12	0.37	0.98	1.60	8.13	15.4

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TABLE 1 - ENTITY/SYSTEM PARAMETERS (Continued)

Model Number	Terminals			System			Entity					
	Vmax (V)	Res. (Ω)	Voc (V)	Voc (V)	Isc (mA)	Groups Ca (µF)	A,B,C,E,D,F,G (A)	A,B,C,E,D,F,G (B)	A,B,C,E,D,F,G (C)	A,B,C,E,D,F,G (D)	A,B,C,E,D,F,G (E)	A,B,C,E,D,F,G (F)
Z905	1.2	4.9	10	5.10	520	1000	3000	8000	0.09	0.13	1.11	0.15
Z910	1.2	9.7	50	10.3	210	2.99	8.97	23.9	0.01	0.05	6.8	6.8
Z915	1.2	15	100	15.5	158	0.71	2.14	5.70	1.02	6.41	12.0	12.0
Z915.1K	1.2	15	1000	15.5	15.8	0.71	2.14	5.70	1.32	462	1169	1169
Z922	1.2,3,4	11	51	11.4	225	2.0	6.0	16.0	0.35	3.21	5.91	5.91
Z928	1.2	28	307	28.0	93.0	0.13	0.39	1.04	3.0	12.4	24	24
Z954	1.2,3,2,4	4.9	12	5.10	433	1000	8000	0.13	0.51	1.6	0.09	0.09
Z955	1.2,3,4	4.9	10	5.10	520	1000	3000	8000	0.09	0.13	1.11	0.15
Z960	1.2,3,4	9.7	50	10.3	210	2.9	8.68	23.1	0.42	3.70	6.8	6.8
Z960F	1.2,3,4	9.7	50	10.3	210	2.9	8.68	23.1	0.42	3.70	6.8	6.8
Z961	1.2,3,4	8.5	100	9.0	91.8	5.0	15	40	4.3	17.2	35.1	35.1
Z961F	1.2,3,4	8.5	100	9.0	91.8	5.0	15	40	4.3	17.2	35.1	35.1
Z961H	1.2,3,4	8.5	360	9.63	26.3	4.41	13.25	35.3	49	174	423	423
Z964	1.2,3,4	12	1000	12.4	12.6	1.45	4.35	11.6	204	714	1826	1826
Z964	1.2,3,4	12	1000	12.4	12.6	1.45	4.35	11.6	204	714	1826	1826
Z965	1.2,3,4	15	100	15.5	158	0.68	2.05	5.48	1.02	6.41	12.0	12.0
Z966	1.2,3,4	12	150	12.4	84	1.45	4.35	11.6	5.14	20.2	41.9	41.9
Z966F	1.2,3,4	12	150	12.4	84	1.45	4.35	11.6	5.14	20.2	41.9	41.9
Z966H	1.2,3,4	12	75	12.31	167.6	1.46	4.39	11.71	0.84	5.72	10.61	10.61
Z967	1.2,3,4	16.8	120	17.3	147	0.49	1.47	3.92	1.31	7.33	13.8	13.8
Z972	1.2,3,4	22	307	22.7	75.5	0.23	0.69	1.84	6.36	24.6	51.9	51.9
Z978	1.2,3,4	28	620	28.0	46.0	0.13	0.39	1.04	15.6	57.2	130	130

n.	0	Date	3-4-94	Cons.	P.S.	Resp.	Appr.	Draw.	116-0119b	Page	5 of 5
a	12-09-99	W.B.	W.B.	W.B.	D.H.	W.B.		Title: CONTROL DRAWING FOR ZENER DIODE BARRIERS CSA			
b	01-07-00	W.B.	W.B.	W.B.	D.H.	W.B.					
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