DIODES, MICROWAVE, SILICON, HYPER-ABRUPT JUNCTION TUNING VARACTOR

BASED ON TYPES DH76XXX AND EH76XXX

ESCC Detail Specification No. 5512/023

Issue 3	February 2016

Document Custodian: European Space Agency – see https://escies.org

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DCR No.	CHANGE DESCRIPTION
969	Specification upissued to incorporate changes per DCR.

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1 GENERAL

1.1 SCOPE

This specification details the ratings, physical and electrical characteristics and test and inspection data for the component type variants and/or the range of components specified below. It supplements the requirements of, and shall be read in conjunction with, the ESCC Generic Specification listed under Applicable Documents.

1.2 APPLICABLE DOCUMENTS

The following documents form part of this specification and shall be read in conjunction with it:

(a) ESCC Generic Specification No. 5010
(b) MIL-STD-750, Test Methods and Procedures for Semiconductor Devices

1.3 TERMS, DEFINITIONS, ABBREVIATIONS, SYMBOLS AND UNITS

For the purpose of this specification, the terms, definitions, abbreviations, symbols and units specified in ESCC Basic Specification No. 21300 shall apply.

1.4 THE ESCC COMPONENT NUMBER AND COMPONENT TYPE VARIANTS

1.4.1 The ESCC Component Number

The ESCC Component Number shall be constituted as follows:

Example: 551202301

- Detail Specification Reference: 5512023
- Component Type Variant Number: 01 (as required)

1.4.2 Component Type Variants

The component type variants applicable to this specification are as follows:

Packaged Components

Variant Number	Based On Type	Package Type / Description	Total Capacitance C_T (pF)		Tuning Ratio C_{T1}/C_{T12}		Lead/Terminal Material and Finish (Note 1)		Weight Max (g)
			Min	Max	Min	Max	Anode	Cathode	
01	DH76010	Ceramic Pill A (2 Leads)	0.9	1.34	3.8	5.1	E2	E2	0.02
02	DH76010	Ceramic Pill B	0.9	1.34	3.8	5.1	D7	D7	0.02
03	DH76010	Ceramic Pill C (Cathode Lead)	0.9	1.34	3.8	5.1	D7	E2	0.02
04	DH76010	Ceramic Pill D (Anode Lead)	0.9	1.34	3.8	5.1	E2	D7	0.02
05	DH76010	Ceramic Pill E (2 Leads)	0.9	1.34	3.8	5.1	E2	E2	0.02
06	DH76010	Ceramic Pill F (Anode Lead)	0.9	1.34	3.8	5.1	E2	D7	0.02
07	DH76010	Ceramic Pill G	0.94	1.42	3.5	4.7	D7	A7	0.15
08	DH76010	Ceramic Pill H	1	1.5	3.3	4.4	D7	D7	0.06
09	DH76010	Ceramic Pill I (2 Leads)	1	1.5	3.3	4.4	E2	E2	0.06
10	DH76015	Ceramic Pill A (2 Leads)	1.3	1.94	4.1	5.5	E2	E2	0.02

Variant Number	Based On Type	Package Type / Description	Total Capacitance C_T (pF)		Tuning Ratio C_{T1}/C_{T12}		Lead/Terminal Material and Finish (Note 1)		Weight Max (g)
			Min	Max	Min	Max	Anode	Cathode	
11	DH76015	Ceramic Pill B	1.3	1.94	4.1	5.5	D7	D7	0.02
12	DH76015	Ceramic Pill C (Cathode Lead)	1.3	1.94	4.1	5.5	D7	E2	0.02
13	DH76015	Ceramic Pill D (Anode Lead)	1.3	1.94	4.1	5.5	E2	D7	0.02
14	DH76015	Ceramic Pill E (2 Leads)	1.3	1.94	4.1	5.5	E2	E2	0.02
15	DH76015	Ceramic Pill F (Anode Lead)	1.3	1.94	4.1	5.5	E2	D7	0.02
16	DH76015	Ceramic Pill G	1.34	2.02	3.9	5.2	D7	A7	0.15
17	DH76015	Ceramic Pill H	1.4	2.1	3.7	4.9	D7	D7	0.06
18	DH76015	Ceramic Pill I (2 Leads)	1.4	2.1	3.7	4.9	E2	E2	0.06
19	DH76022	Ceramic Pill A (2 Leads)	1.86	2.78	4.3	5.7	E2	E2	0.02
20	DH76022	Ceramic Pill B	1.86	2.78	4.3	5.7	D7	D7	0.02
21	DH76022	Ceramic Pill C (Cathode Lead)	1.86	2.78	4.3	5.7	D7	E2	0.02
22	DH76022	Ceramic Pill D (Anode Lead)	1.86	2.78	4.3	5.7	E2	D7	0.02
23	DH76022	Ceramic Pill E (2 Leads)	1.86	2.78	4.3	5.7	E2	E2	0.02
24	DH76022	Ceramic Pill F (Anode Lead)	1.86	2.78	4.3	5.7	E2	D7	0.02
25	DH76022	Ceramic Pill G	1.9	2.86	4.1	5.5	D7	A7	0.15
26	DH76022	Ceramic Pill H	1.96	2.94	3.9	5.3	D7	D7	0.06
27	DH76022	Ceramic Pill I (2 Leads)	1.96	2.94	3.9	5.3	E2	E2	0.06
28	DH76033	Ceramic Pill A (2 Leads)	2.74	4.1	4.5	6	E2	E2	0.02
29	DH76033	Ceramic Pill B	2.74	4.1	4.5	6	D7	D7	0.02
30	DH76033	Ceramic Pill C (Cathode Lead)	2.74	4.1	4.5	6	D7	E2	0.02
31	DH76033	Ceramic Pill D (Anode Lead)	2.74	4.1	4.5	6	E2	D7	0.02
32	DH76033	Ceramic Pill E (2 Leads)	2.74	4.1	4.5	6	E2	E2	0.02
33	DH76033	Ceramic Pill F (Anode Lead)	2.74	4.1	4.5	6	E2	D7	0.02
34	DH76033	Ceramic Pill G	2.74	4.18	4.3	5.8	D7	A7	0.15
35	DH76033	Ceramic Pill H	2.84	4.26	4.2	5.6	D7	D7	0.06
36	DH76033	Ceramic Pill I (2 Leads)	2.84	4.26	4.2	5.6	E2	E2	0.06
37	DH76047	Ceramic Pill A (2 Leads)	3.86	5.78	4.6	6.1	E2	E2	0.02
38	DH76047	Ceramic Pill B	3.86	5.78	4.6	6.1	D7	D7	0.02
39	DH76047	Ceramic Pill C (Cathode Lead)	3.86	5.78	4.6	6.1	D7	E2	0.02
40	DH76047	Ceramic Pill D (Anode Lead)	3.86	5.78	4.6	6.1	E2	D7	0.02
41	DH76047	Ceramic Pill E (2 Leads)	3.86	5.78	4.6	6.1	E2	E2	0.02
42	DH76047	Ceramic Pill F (Anode Lead)	3.86	5.78	4.6	6.1	E2	D7	0.02
43	DH76047	Ceramic Pill G	3.9	5.86	4.5	6	D7	A7	0.15
44	DH76047	Ceramic Pill H	3.96	5.94	4.4	5.8	D7	D7	0.06
45	DH76047	Ceramic Pill I (2 Leads)	3.96	5.94	4.4	5.8	E2	E2	0.06

Variant Number	Based On Type	Package Type / Description	Total Capacitance C_T (pF)		Tuning Ratio C_{T1}/C_{T12}		Lead/Terminal Material and Finish (Note 1)		Weight Max (g)
			Min	Max	Min	Max	Anode	Cathode	
46	DH76068	Ceramic Pill A (2 Leads)	5.54	8.3	4.6	6.2	E2	E2	0.02
47	DH76068	Ceramic Pill B	5.54	8.3	4.6	6.2	D7	D7	0.02
48	DH76068	Ceramic Pill C (Cathode Lead)	5.54	8.3	4.6	6.2	D7	E2	0.02
49	DH76068	Ceramic Pill D (Anode Lead)	5.54	8.3	4.6	6.2	E2	D7	0.02
50	DH76068	Ceramic Pill E (2 Leads)	5.54	8.3	4.6	6.2	E2	E2	0.02
51	DH76068	Ceramic Pill F (Anode Lead)	5.54	8.3	4.6	6.2	E2	D7	0.02
52	DH76068	Ceramic Pill G	5.58	8.38	4.6	6.1	D7	A7	0.15
53	DH76068	Ceramic Pill H	5.64	8.46	4.5	6	D7	D7	0.06
54	DH76068	Ceramic Pill I (2 Leads)	5.64	8.46	4.5	6	E2	E2	0.06
55	DH76100	Ceramic Pill A (2 Leads)	8.1	12.14	4.7	6.3	E2	E2	0.02
56	DH76100	Ceramic Pill B	8.1	12.14	4.7	6.3	D7	D7	0.02
57	DH76100	Ceramic Pill C (Cathode Lead)	8.1	12.14	4.7	6.3	D7	E2	0.02
58	DH76100	Ceramic Pill D (Anode Lead)	8.1	12.14	4.7	6.3	E2	D7	0.02
59	DH76100	Ceramic Pill E (2 Leads)	8.1	12.14	4.7	6.3	E2	E2	0.02
60	DH76100	Ceramic Pill F (Anode Lead)	8.1	12.14	4.7	6.3	E2	D7	0.02
61	DH76100	Ceramic Pill G	8.14	12.22	4.2	6.2	D7	A7	0.15
62	DH76100	Ceramic Pill H	8.2	12.3	4.6	6.1	D7	D7	0.06
63	DH76100	Ceramic Pill I (2 Leads)	8.2	12.3	4.6	6.1	E2	E2	0.06
64	DH76150	Ceramic Pill A (2 Leads)	12.1	18.14	4.7	6.3	E2	E2	0.02
65	DH76150	Ceramic Pill B	12.1	18.14	4.7	6.3	D7	D7	0.02
66	DH76150	Ceramic Pill C (Cathode Lead)	12.1	18.14	4.7	6.3	D7	E2	0.02
67	DH76150	Ceramic Pill D (Anode Lead)	12.1	18.14	4.7	6.3	E2	D7	0.02
68	DH76150	Ceramic Pill E (2 Leads)	12.1	18.14	4.7	6.3	E2	E2	0.02
69	DH76150	Ceramic Pill F (Anode Lead)	12.1	18.14	4.7	6.3	E2	D7	0.02
70	DH76150	Ceramic Pill G	12.1	18.22	4.7	6.3	D7	A7	0.15
71	DH76150	Ceramic Pill H	12.2	18.3	4.7	6.2	D7	D7	0.06
72	DH76150	Ceramic Pill I (2 Leads)	12.2	18.3	4.7	6.2	E2	E2	0.06

Naked Die Components (Note 2)

Variant Number	Based On Type	Junction Capacitance C_J (pF)		Tuning Ratio C_{J1}/C_{J12}	
		Min	Max	Min	Max
73	EH76010	0.8	1.2	4.6	6.1
74	EH76015	1.2	1.8	4.7	6.3
75	EH76022	1.76	2.64	4.7	6.3
76	EH76033	2.64	3.96	4.8	6.4
77	EH76047	3.76	5.64	4.8	6.4
78	EH76068	5.44	8.16	4.8	6.4
79	EH76100	8	12	4.8	6.4
80	EH76150	12	18	4.8	6.4

NOTES:
1. The lead/terminal material and finish shall be in accordance with the requirements of ESCC Basic Specification No. 23500.
2. For Total Capacitance and Tuning Ratio limits for Packaged Test Sublot Samples, see the corresponding Packaged Component limits.
   - Example: For Variant 73 assembled in Ceramic Pill G package, C_T Min. = 0.94pF, C_T Max. = 1.42pF, C_{T1}/C_{T12} Min. = 3.5, C_{T1}/C_{T12} Max. = 4.7.

1.5 MAXIMUM RATINGS

The maximum ratings shall not be exceeded at any time during use or storage.

Maximum ratings shall only be exceeded during testing to the extent specified in this specification and when stipulated in Test Methods and Procedures of the ESCC Generic Specification.

Characteristics	Symbols	Maximum Ratings	Unit	Remarks
Reverse Voltage	V_{Rmax}	-20	V	I_R = 10µA Note 1
Operating Temperature Range	T_{op}	-55 to +150	°C	T_{amb}
Storage Temperature Range	T_{stg}	-65 to +175	°C	
Soldering Temperature	T_{sol}	+230	°C	Note 2

NOTES:
1. At $T_{amb} \leq +25°C$. For $T_{amb} > +25°C$, derate linearly to -16V at $T_{amb} = +150°C$.
2. Duration 5 seconds maximum and the same terminal shall not be resoldered until 3 minutes have elapsed. Only applicable to Variants 01 to 72 (Packaged Components).

1.6 HANDLING PRECAUTIONS

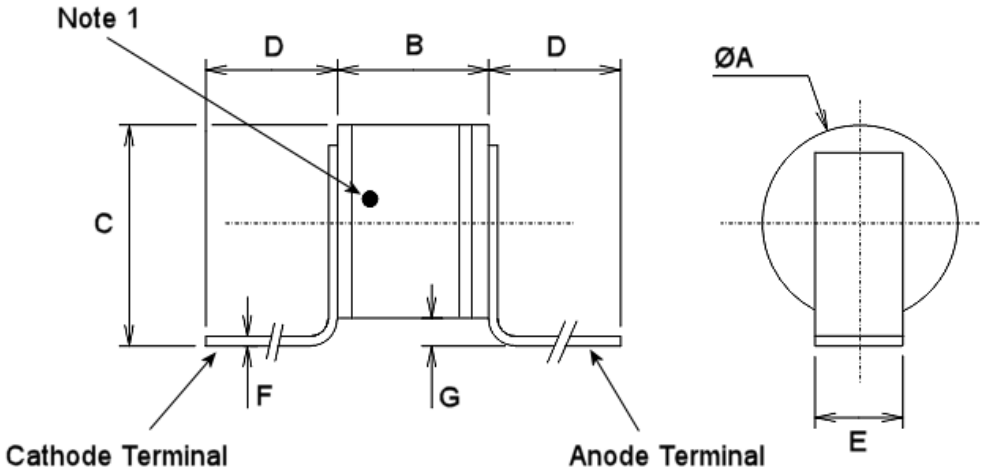
These devices are susceptible to damage by electrostatic discharge. Therefore, suitable precautions shall be employed for protection during all phases of manufacture, testing, packaging, shipment and any handling.

Variants 01 to 45, 55 to 77, 79 and 80 are categorised as Class 2 per ESCC Basic Specification No. 23800 with a Minimum Critical Path Failure Voltage of 2500V.

Variants 46 to 54 and 78 are categorised as Class 3 per ESCC Basic Specification No. 23800 with a Minimum Critical Path Failure Voltage of 5000V.

1.7 PHYSICAL DIMENSIONS AND TERMINAL IDENTIFICATION

1.7.1 Ceramic Pill A (2 Leads) - Variants 01, 10, 19, 28, 37, 46, 55, 64

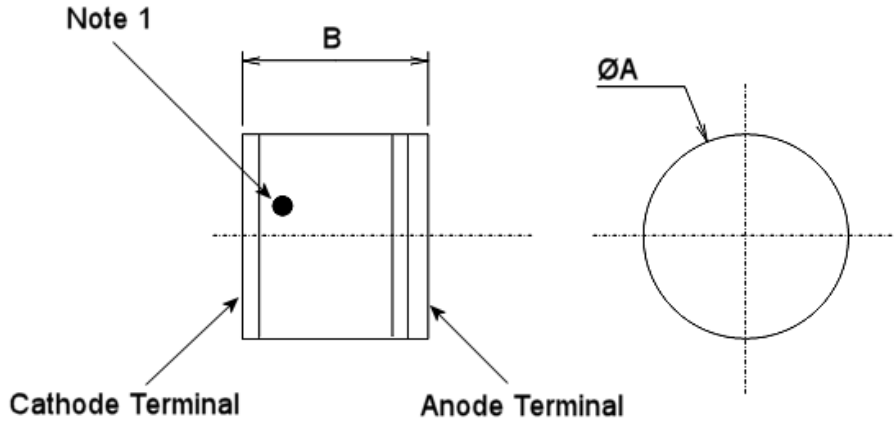


Symbols	Dimensions mm		Remarks
	Min	Max	
ØA	1.07	1.47	
B	0.95	1.35	
C	1.3	1.9	Both terminals
D	2.5	-	
E	0.55	0.65	Both terminals
F	0.06	0.1	Both terminals
G	0.1	0.5	Both terminals

NOTES:

1. Terminal identification: The body shall be marked at a suitable location near the cathode terminal with a black dot.

1.7.2 Ceramic Pill B - Variants 02, 11, 20, 29, 38, 47, 56, 65

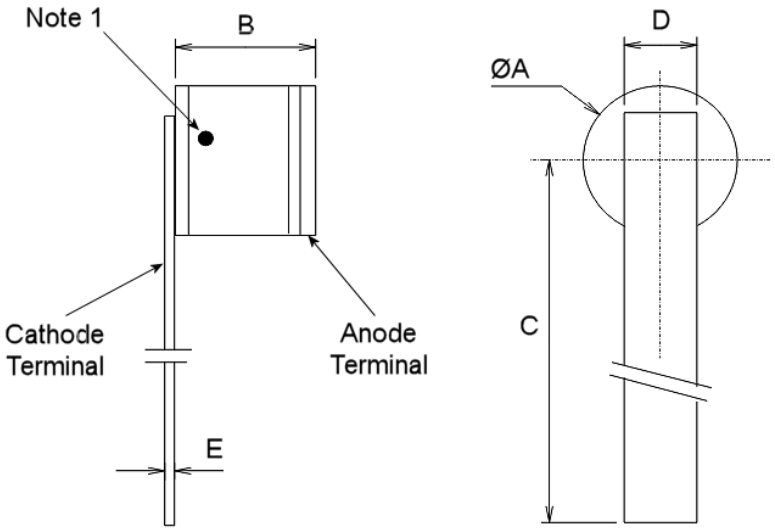


Symbols	Dimensions mm	
	Min	Max
ØA	1.07	1.47
B	0.95	1.35

NOTES:

1. Terminal identification: The body shall be marked at a suitable location near the cathode terminal with a black dot.

1.7.3 Ceramic Pill C (Cathode Lead) - Variants 03, 12, 21, 30, 39, 48, 57, 66

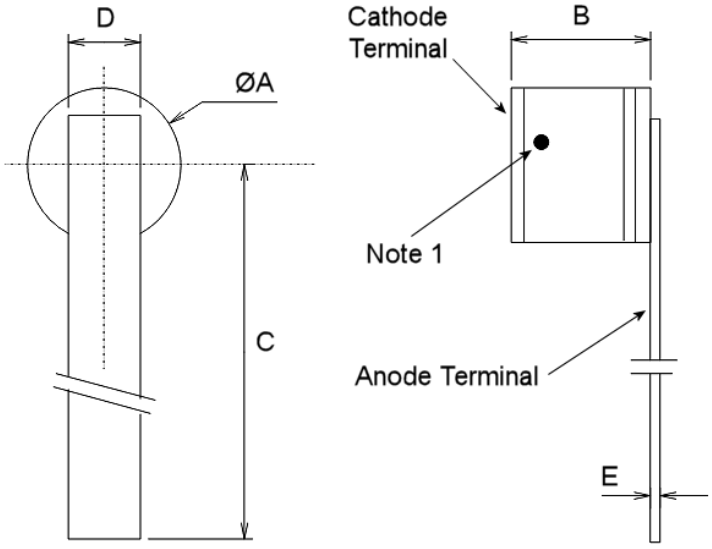


Symbols	Dimensions mm	
	Min	Max
ØA	1.07	1.47
B	0.95	1.35
C	5	-
D	0.55	0.65
E	0.06	0.1

NOTES:

1. Terminal identification: The body shall be marked at a suitable location near the cathode terminal with a black dot.

1.7.4 Ceramic Pill D (Anode Lead) - Variants 04, 13, 22, 31, 40, 49, 58, 67

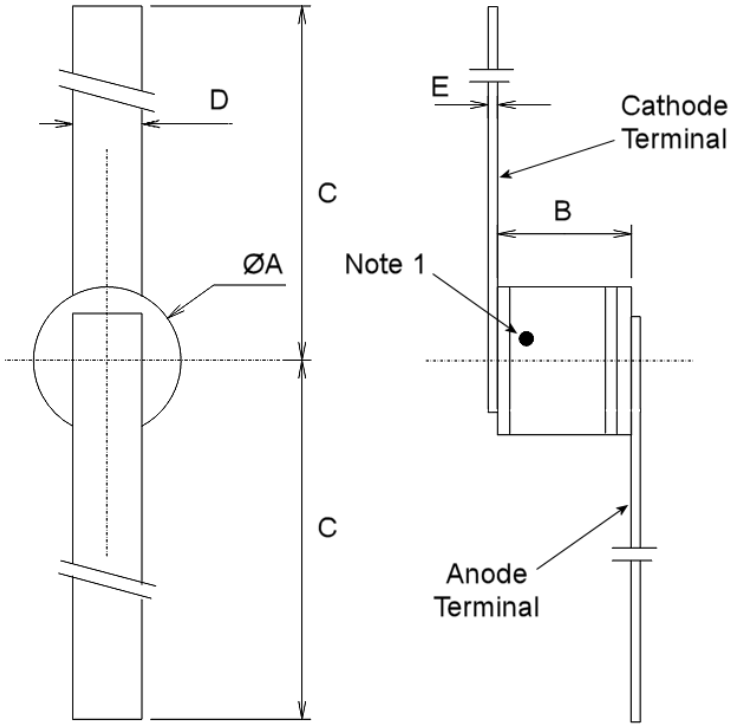


Symbols	Dimensions mm	
	Min	Max
ØA	1.07	1.47
B	0.95	1.35
C	5	-
D	0.55	0.65
E	0.06	0.1

NOTES:

1. Terminal identification: The body shall be marked at a suitable location near the cathode terminal with a black dot.

1.7.5 Ceramic Pill E (2 Leads) - Variants 05, 14, 23, 32, 41, 50, 59, 68

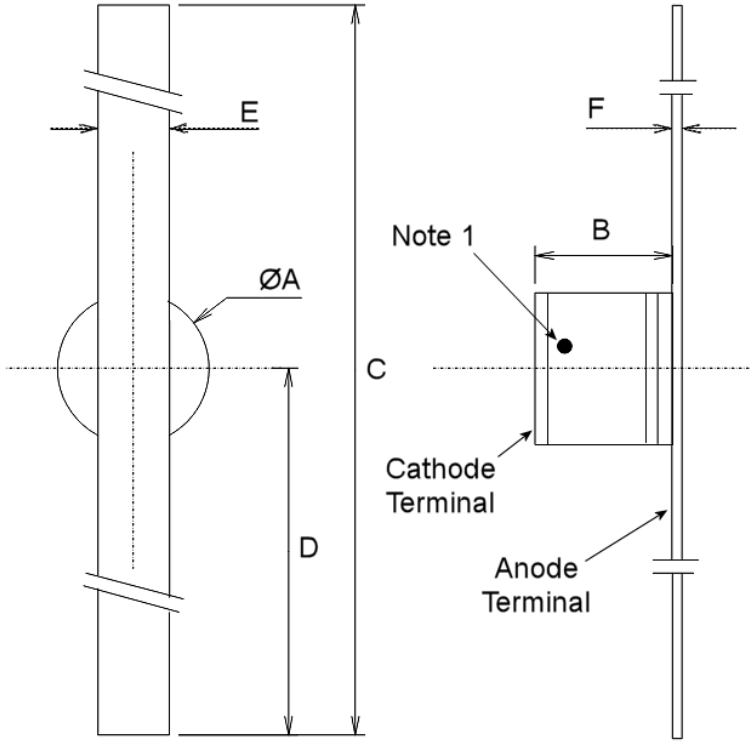


Symbols	Dimensions mm		Remarks
	Min	Max	
ØA	1.07	1.47	
B	0.95	1.35	
C	5	-	
D	0.55	0.65	Both terminals
E	0.06	0.1	Both terminals

NOTES:

1. Terminal identification: The body shall be marked at a suitable location near the cathode terminal with a black dot.

1.7.6 Ceramic Pill F (Anode Lead) - Variants 06, 15, 24, 33, 42, 51, 60, 69

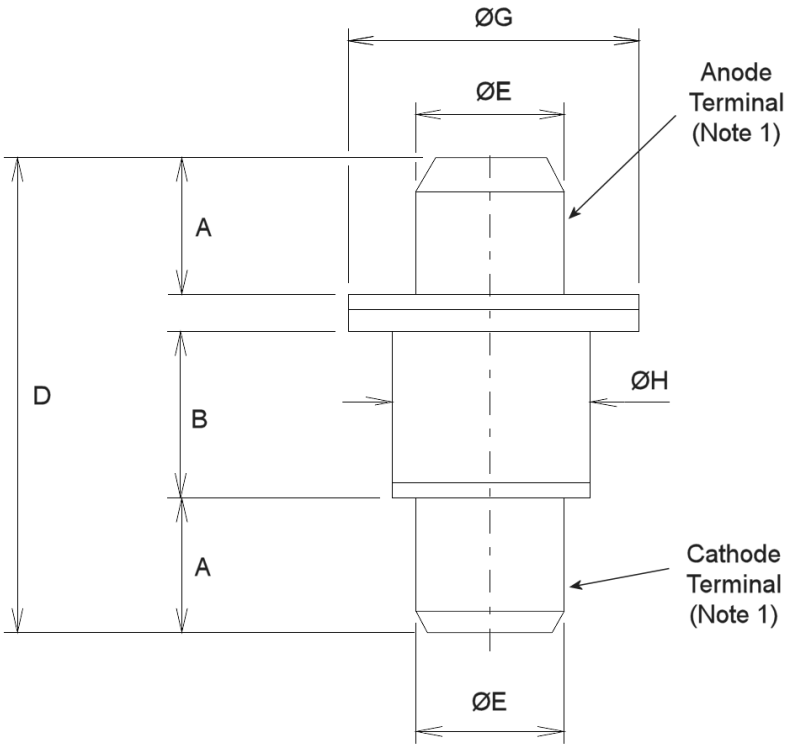


Symbols	Dimensions mm	
	Min	Max
ØA	1.07	1.47
B	0.95	1.35
C	10	10.4
D	5	-
E	0.55	0.65
F	0.06	0.1

NOTES:

1. Terminal identification: The body shall be marked at a suitable location near the cathode terminal with a black dot.

1.7.7 Ceramic Pill G - Variants 07, 16, 25, 34, 43, 52, 61, 70

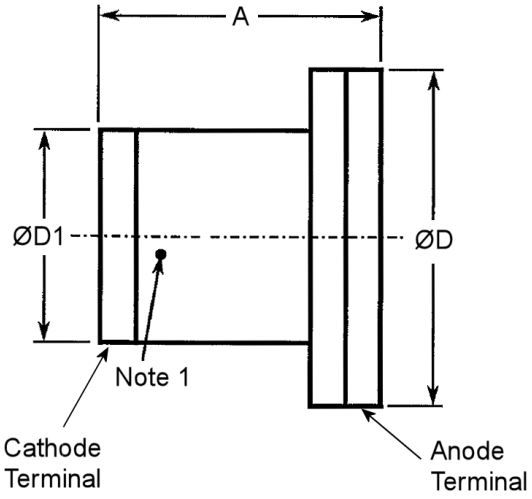


Symbols	Dimensions mm	
	Min	Max
A	1.52	1.63
B	1.75	1.85
D	5.2	5.72
ØE	1.52	1.63
ØG	3	3.23
ØH	1.95	2.11

NOTES:

1. Terminal identification shall be by means of the physical configuration of the package.

1.7.8 Ceramic Pill H - Variants 08, 17, 26, 35, 44, 53, 62, 71

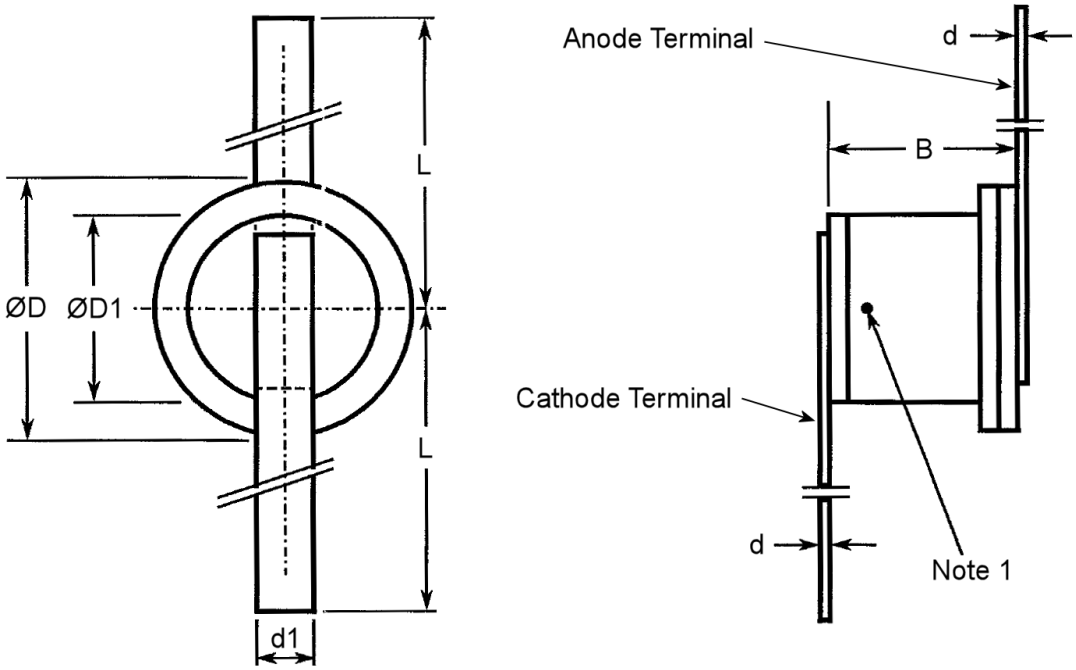


Symbols	Dimensions mm	
	Min	Max
A	1.4	1.6
ØD	2.94	3.14
ØD1	1.93	2.13

NOTES:

1. Terminal identification: The body shall be marked at a suitable location near the cathode terminal with a black dot.

1.7.9 Ceramic Pill I (2 Leads) - Variants 09, 18, 27, 36, 45, 54, 63, 72

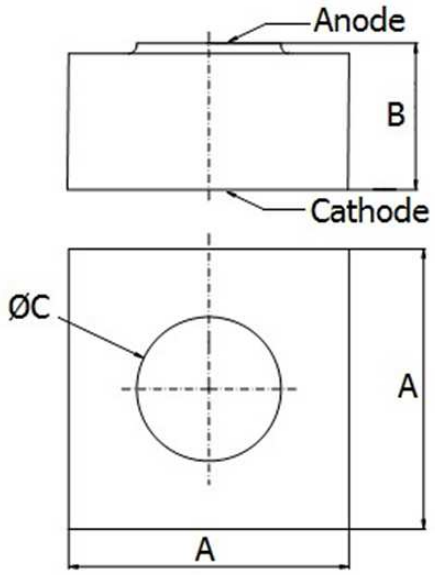


Symbols	Dimensions mm		Remarks
	Min	Max	
B	1.38	1.73	
d	0.07	0.08	
d1	0.95	1.05	Both terminals
ØD	2.95	3.15	
ØD1	1.93	2.13	
L	9	-	

NOTES:

1. Terminal identification: The body shall be marked at a suitable location near the cathode terminal with a black dot.

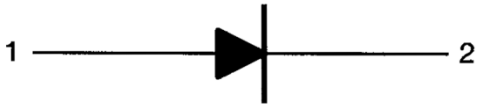
1.7.10 Naked Die - Variants 73 to 80



Symbols	Dimensions mm		Remarks
	Min	Max	
A	0.34	0.4	
B	0.16	0.26	
ØC	0.03	0.06	Variant 73
	0.05	0.08	Variant 74
	0.07	0.1	Variant 75
	0.09	0.12	Variant 76
	0.11	0.14	Variant 77
	0.13	0.16	Variant 78
	0.15	0.19	Variant 79
	0.18	0.23	Variant 80

NOTES:
1. Terminal identification shall be by means of the physical configuration.

1.8 FUNCTIONAL DIAGRAM



1. Anode
2. Cathode

1.9 MATERIALS AND FINISHES

1.9.1 Materials and Finishes of Packaged Components
For Variants 01 to 72, the materials and finishes shall be as follows:

(a) Case
The case shall be hermetically sealed and have a ceramic body with a metal base and lid.

(b) Leads/Terminals
As specified in Component Type Variants.

1.9.2 Materials and Finishes of Naked Die Components

For Variants 73 to 80, the materials and finishes shall be as follows:

(a) Bond pad
The bond pad metallisation shall be TiPtAu with a layer of vacuum-deposited gold of thickness 0.7µm minimum.

(b) Die backface
The die backface metallisation shall be TiPtAu with a layer of gold of thickness 0.7µm minimum.

2 REQUIREMENTS

2.1 GENERAL

The complete requirements for procurement of the components specified herein are as stated in this specification and the ESCC Generic Specification. Permitted deviations from the Generic Specification, applicable to this specification only, are listed below.

Permitted deviations from the Generic Specification and this Detail Specification, formally agreed with specific Manufacturers on the basis that the alternative requirements are equivalent to the ESCC requirement and do not affect the component's reliability, are listed in the appendices attached to this specification.

2.1.1 Deviations from the Generic Specification

2.1.1.1 Deviations from Qualification and Periodic Tests (Chart F4)

(a) Mechanical Shock: Shall not be performed.
(b) Vibration: Shall not be performed.
(c) Constant Acceleration: Shall not be performed.

2.2 MARKING

The marking shall be in accordance with the requirements of ESCC Basic Specification No. 21700 and as follows.

The information to be marked on the component shall be:

(a) Terminal identification, as specified in Physical Dimensions and Terminal Identification.
(b) The ESCC qualified components symbol (for ESCC qualified components only).
(c) The ESCC Component Number.
(d) Traceability information.

2.3 DIE SHEAR

In those cases where package clearances are such that a die shear test is not practicable, the die shall be pushed away with a suitable tool. The force required to remove the die need not be recorded. The die attachment area shall be inspected and the component shall be considered acceptable if more than 50% of the semiconductor material remains.

2.4 TERMINAL STRENGTH

The test conditions for terminal strength, tested as specified in the ESCC Generic Specification, shall be as follows:

- For Variants 01, 03 to 06, 09, 10, 12 to 15, 18, 19, 21 to 24, 27, 28, 30 to 33, 36, 37, 39 to 42, 45, 46, 48 to 51, 54, 55, 57 to 60, 63, 64, 66 to 69, 72: Test Condition A, tension, with a force of 1.25N for duration 10s.
- For Variants 02, 07, 08, 11, 16, 17, 20, 25, 26, 29, 34, 35, 38, 43, 44, 47, 52, 53, 56, 61, 62, 65, 70, 71, 73 to 80: shall not be performed.

2.5 ELECTRICAL MEASUREMENTS AT ROOM, HIGH AND LOW TEMPERATURES

2.5.1 Room Temperature Electrical Measurements

The measurements shall be performed at T_{amb} = +22 ±3°C.

Characteristics	Symbols	MIL-STD-750 Test Method	Test Conditions	Limits		Units
				Min	Max	
Reverse Current 1	I_{R1}	4016	V_R = -20V	-	10	µA
Reverse Current 2	I_{R2}	4016	V_R = -16V	-	50	nA
Forward Voltage	V_F	4011	I_F = 10mA	-	1	V
Total Capacitance (Note 1)	C_T	4001	V_R = -4V, f = 1MHz	Note 3	Note 3	pF
Junction Capacitance (Note 2)	C_J	4001	V_R = -4V, f = 1MHz	Note 3	Note 3	pF
Tuning Ratio (Notes 1, 4)	C_{T1}/C_{T12}	4001	V_R = -1V and -12V f = 1MHz	Note 3	Note 3	-
Tuning Ratio (Notes 2, 5)	C_{J1}/C_{J12}	4001	V_R = -1V and -12V f = 1MHz	Note 3	Note 3	-
Quality Factor (Note 6)	Q	-	V_R = -4V, f = 1GHz			-
Variants 01 to 09, 73:				100	-	
Variants 10 to 18, 74:				90	-	
Variants 19 to 27, 75:				75	-	
Variants 28 to 36, 76:				58	-	
Variants 37 to 45, 77:				40	-	
Variants 46 to 54, 78:				25	-	
Variants 55 to 63, 79:				12	-	
Variants 64 to 72, 80:				4	-	

NOTES:

1. This characteristic applies to Variants 01 to 72 (Packaged Components) and Variants 73 to 80 (Packaged Test Sublot samples for Naked Die Components) tested during Chart F3.
2. This characteristic applies only to Variants 73 to 80 (Naked Die Components) tested during Chart F2.
3. See Component Type Variants for the applicable limits.
4. For Variants 01 to 72 (Packaged Components) and Variants 73 to 80 (Packaged Test Sublot samples for Naked Die Components) tested during Chart F3, the Tuning Ratio is determined by dividing the Total Capacitance at V_R = -1V by the Total Capacitance at V_R = -12V.
5. For Variants 73 to 80 (Naked Die Components) tested during Chart F2, the Tuning Ratio is determined by dividing the Junction Capacitance at V_R = -1V by the Junction Capacitance at V_R = -12V.
6. Guaranteed but not tested.

2.5.2 High and Low Temperatures Electrical Measurements

The measurements shall be performed only at T_{amb} = +150 (+0 -3)°C.

Characteristics	Symbols	MIL-STD-750 Test Method	Test Conditions Note 1	Limits		Units
				Min	Max	
Reverse Current 2	I_{R2}	4016	V_R = -16V	-	10	µA

NOTES:

1. Measurements shall be performed on a sample basis as specified in the Generic Specification.

2.6 PARAMETER DRIFT VALUES

Unless otherwise specified, the measurements shall be performed at T_{amb} = +22 ±3°C.

The test methods and test conditions shall be as per the corresponding test defined in Room Temperature Electrical Measurements.

The drift values (Δ) shall not be exceeded for each characteristic specified. The corresponding absolute limit values for each characteristic shall not be exceeded.

Characteristics	Symbols	Limits			Units
		Drift Value (1) Δ	Absolute		
			Min	Max	
Reverse Current 2	I_{R2}	±10 or (2) ±100%	-	50	nA
Forward Voltage	V_F	±5%	-	1	V
Total Capacitance (Note 3)	C_T	±5%	Note 4	Note 4	pF

NOTES:

1. Δ1 = Δ2.
2. Whichever is the greater referred to the initial value.
3. This characteristic applies to Variants 01 to 72 (Packaged Components) and Variants 73 to 80 (Packaged Test Sublot samples for Naked Die Components).
4. See Component Type Variants for the applicable limits.

2.7 INTERMEDIATE AND END-POINT ELECTRICAL MEASUREMENTS

Unless otherwise specified, the measurements shall be performed at T_{amb} = +22 ±3°C.

The test methods and test conditions shall be as per the corresponding test defined in Room Temperature Electrical Measurements.

The limit values for each characteristic shall not be exceeded.

Characteristics	Symbols	Limits		Units
		Min	Max	
Reverse Current 2	I_{R2}	-	20	µA
Forward Voltage	V_F	-	1	V
Total Capacitance (Note 1)	C_T	Note 2	Note 2	pF

NOTES:

1. This characteristic applies to Variants 01 to 72 (Packaged Components) and Variants 73 to 80 (Packaged Test Sublot samples for Naked Die Components).
2. See Component Type Variants for the applicable limits.

2.8 BURN-IN 1 CONDITIONS

Characteristics	Symbols	Test Conditions	Units
Ambient Temperature	T_{amb}	+150 (+0 -3)	°C
Reverse Voltage	V_R	-16	V

2.9 BURN-IN 2 CONDITIONS

Characteristics	Symbols	Test Conditions	Units
Ambient Temperature	T_{amb}	+125 (+0 -3)	°C
Forward Current	I_F	50	mA

2.10 OPERATING LIFE CONDITIONS

The conditions shall be as specified for Burn-in 1.

APPENDIX 'A'

AGREED DEVIATIONS FOR COBHAM MICROWAVE (F)

Items Affected	Description of Deviations
Deviations from Generic Specification: Special In-Process Controls (Chart F2)	SEM Inspection: SEM inspection shall be performed on three dice from one wafer per metallisation run, selected after die separation.
	Bond Strength: The following pre-seal bond strength shall apply: • 0.03N minimum
Deviations from Generic Specification: Screening Tests (Chart F3)	Radiographic Inspection: • Shall not be performed on Packaged Test Sublot samples for Naked Die Components. • May be performed without serialisation and at any point during Chart F3. Any components found to fail Radiographic Inspection shall be removed from the lot. • May be performed in the X and Z axes only.
Deviations from Generic Specification: Qualification and Periodic Tests for Packaged Components and Naked Die Components (Charts F4A and F4B)	For the De-encapsulation Subgroup, the Internal Visual Inspection, Bond Strength and Die Shear tests may be replaced by measurements verifying the die solder integrity and wire integrity, as follows: • Thermal Impedance test in accordance with MIL-STD-750, Test Method 3101. • P_D = 0.25W. The Thermal Impedance shall be measured and shall not exceed 150°C/W. • Forward Voltage test in accordance with MIL-STD-750, Test Method 4011. • I_F =100mA. The Forward Voltage shall be measured and shall not exceed 1.2V.