CAPACITORS, FIXED, CHIPS, RECONSTITUTED MICA, HIGH VOLTAGE

BASED ON TYPE HT86PS

ESCC Detail Specification No. 3006/022

Issue 2	January 2013

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No.	ESCC Generic Spec. No. 3006		Measurements and Inspections		Symbol	Limits		Unit
	Environmental and Endurance Tests (1)	Test Method and Conditions	Identification	Conditions		Min	Max	
09	Climatic Sequence	Para. 9.14, 4.2.4 and 4.2.5 of this spec.	**Initial Measurements**					
			Capacitance	Table 2 Item 1	C	Record values		
			Final Measurements	After Recovery of 24 hrs max.				
			Visual Examination	No evidence of corrosion	-	-	-	
			Voltage Proof (2)	ESCC No. 3006 Para. 9.6.1.1	VP_S	Not applicable		
			Insulation Resistance (2)	ESCC No. 3006 para. 9.6.1.4	Ri_S	Not applicable		
			Voltage Proof	Table 2 Item 5	VP	U_R (3)	-	
			Voltage Proof	Table 2 Item 6	VP_B	U_R (3)	-	
			Insulation Resistance	Table 2 Item 3	Ri	Note 4	-	
			Insulation Resistance	Table 2 Item 4	Ri_B	5	-	GΩ
			Capacitance Change	Table 2 Item 1	ΔC/C	-3	+3	%
			Tangent of Loss Angle Change	Table 2 Item 2	ΔTgδ	-	+10	10^{-4}
			Partial Discharge (AC)	Table 2 Item 7	QAC	-	2000	pC
10	Temperature Coefficient	Para. 9.15	Not applicable					
11	Operating Life	Paras. 9.16, 4.2.4 and 4.2.5 of this spec.	**Initial Measurements**					
			Capacitance	Table 2 Item 1	C	Record Values		
			During Tests	115% U_R (3)				
			Intermediate Measurements	After recovery of 24 ±2 hours				
			Capacitance Change	Table 2 Item 1	ΔC/C	-5	+5	%
			Final Measurements	After 24 hrs recovery				
			Capacitance Change	Table 2 Item 1	ΔC/C	-5	+5	%
			Tangent of Loss Angle Change	Table 2 Item 2	ΔTgδ	-	+10	10^{-4}
			Insulation Resistance	Table 2 Item 3	Ri	Note 4	-	
			Insulation Resistance	Table 2 Item 4	Ri_B	5	-	GΩ
			Partial Discharge (AC)	Table 2 Item 7	QAC	-	0	pC
						-	2000	pC
			Visual Examination	No evidence of damage or corrosion	-	-	-	
12	Permanence of Marking	Para. 9.17	**Final Measurements**					
			Visual Examination	No corrosion or obliteration of marking	-	-	-	

→ Notes missing see attached. *

TABLE 6 - MEASUREMENTS AND INSPECTIONS ON COMPLETION OF ENVIRONMENTAL TESTS AND AT INTERMEDIATE POINTS AND ON COMPLETION OF ENDURANCE TESTING (CONT'D)

NO.	ESA/SCC GENERIC SPEC. NO. 3006		MEASUREMENTS AND INSPECTIONS		SYMBOL	LIMITS		UNIT
	ENVIRONMENTAL AND ENDURANCE TESTS (1)	TEST METHOD AND CONDITIONS	IDENTIFICATION	CONDITIONS		MIN.	MAX.	
10	Temperature Coefficient	Para. 9.15	Not applicable					
11	Operating Life	Paras. 9.16, 4.2.4 and 4.2.5 of this spec.	**Initial Measurements** Capacitance **During Tests** **Intermediate Measurements** Capacitance Change **Final Measurements** Capacitance Change Tangent of Loss Angle Change Insulation Resistance Insulation Resistance Partial Discharge (A.C.) Visual Examination	 Table 2 Item 1 115% U_R (3) After recovery of 24 ± 2 hours Table 2 Item 1 After 24 hrs recovery Table 2 Item 1 Table 2 Item 2 Table 2 Item 3 Table 2 Item 4 Table 2 Item 7 No evidence of damage or corrosion	 C $\Delta C/C$ $\Delta C/C$ ΔTgd Ri Ri_B QAC -	 Record values -5.0 -5.0 - Note 4 5.0 - -	 +5.0 +5.0 +10 - - 0 2000 -	 % % 10^{-4} GΩ pC pC
12	Permanence of Marking	Para. 9.17	**Final Measurements** Visual Examination	 No corrosion or obliteration of marking	-	-	-	

NOTES

1. The tests in this Table refer to either Chart IV or V and shall be used as applicable.
2. If applicable.
3. For U_R, see Column 4 of Table 1(a).
4. Greater than 50% of the value given in Table 2.

TABLE 1(a) – TYPE VARIANTS

Variants	Rated Voltage U_R (V) (Note 2)	Insulation Resistance R_i (GΩ)		DC Resistance R_s (mΩ)	Voltage Drop V_{dr} (V)	Voltage Proof V_P (V)	Case Size (Note 1)	Weight (g)	Capacitance C (pF)
		-55 / +25°C	+125°C						
01, 11, 21, 31	200	10	1	15	0.15	500	1	2.7	2400
02, 12, 22, 32	200	10	1	5	0.05	500	2	2	2400
03, 13, 23, 33	250	10	1	4	0.04	625	2	2	750
04, 14, 24, 34	100	3	0.3	15	0.15	250	3	3.5	44800
05, 15, 25, 35	200	10	1	15	0.15	500	1	2.7	1600
06, 16, 26, 36	200	10	1	10	0.1	500	1	2	4320
07, 17, 27, 37	200	10	1	10	0.1	500	4	2	2400
08, 18, 28, 38	250	10	1	10	0.1	625	4	2	750
09, 19, 29, 39	200	10	1	15	0.15	500	1	2.7	750
10, 20, 30, 40	200	10	1	15	0.15	500	1	2.7	160

2.7

Variants	Insertion Loss I_L (dB) With No Load / Rated Current Applied				
	10MHz	50MHz	100MHz	500MHz	1.0GHz
01, 11, 21, 31	10 / 10	36 / 20	47 / 25	70 / 70	75 / 75
02, 12, 22, 32	5.0 / 5.0	30 / 25	40 / 30	54 / 54	60 / 60
03, 13, 23, 33	-		15 / 15	50 / 50	55 / 55
04, 14, 24, 34	39 / 30	54 / 50	75 / 75	75 / 75	75 / 75
05, 15, 25, 35	10 / 5.0	38 / 20	50 / 25	75 / 70	75 / 75
06, 16, 26, 36	13 / 10	45 / 22	60 / 30	75 / 70	75 / 75
07, 17, 27, 37	5.0 / 5.0	30 / 25	40 / 30	60 / 55	60 / 60
08, 18, 28, 38	-	-	15 / 15	50 / 45	55 / 55
09, 19, 29, 39	-	-	15 / 15	50 / 45	55 / 55
10, 20, 30, 40	-	-	4.0 / 4.0	40 / 35	54 / 54

Variants	Case Thread ØE	Input Terminal
01 to 10	M4 x 0.70	Straight
11 to 20	M4 x 0.70	Button
21 to 30	8.32 UNC	Straight
31 to 40	8.32 UNC	Button

NOTES

1. See Figure 2.
2. See Figure 1.

Symbol	Case Size (mm)							
	1		2		3		4	
	Min	Max	Min	Max	Min	Max	Min	Max
A	6.9	7.1	3.4	3.6	7.8	8.4	3.4	3.6
B	2.4	2.6	1.5	1.7	3.5	4.1	1.5	1.8
C	7	12	3.5	4.5	8	9	8	13
D	17	19	5.5	6.5	13	14	8	13
ØE	See Table 1(a)		See Table 1(a)		See Table 1(a)		See Table 1(a)	
ØF	0.72	0.88	0.72	0.88	0.72	0.88	0.72	0.88
ØG	1	1.2	1	1.2	1	1.2	1	1.2
J	-	5	-	5	-	5	-	5
K	-	6	-	6	-	6	-	6
L	-	2.5	-	1.6	-	2.5	-	1.6
ØM	-	6.4	-	6.4	-	6.4	-	6.4
N	-	0.4	-	0.4	-	0.4	-	0.4

1.7

NOTES

1. Lead finish shall commence not more than 1.5mm from encapsulant.

FIGURE 3 - FUNCTIONAL DIAGRAM

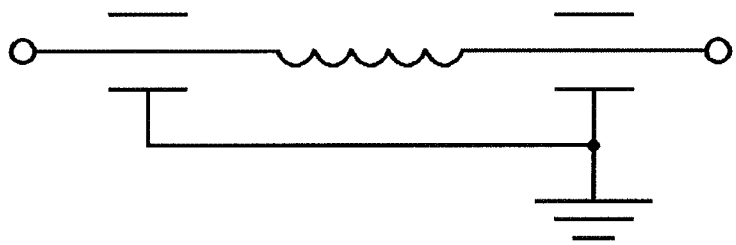


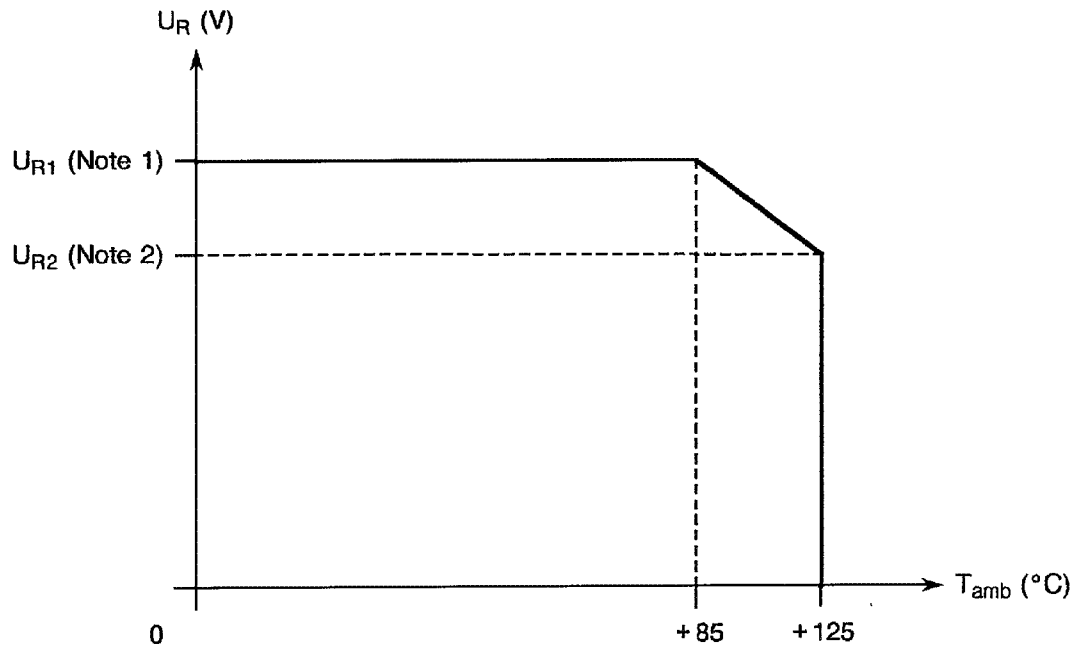
TABLE 1(b) MAXIMUM RATINGS

No.	Characteristic	Symbol	Maximum Ratings	Unit	Remarks
1	Rated DC Voltage	U_R	See Table 1(a) Column 2	V	Notes 1 and 2
2	Voltage Drop	V_{dr}	See Table 1(a) Column 5	mV	
3	DC Resistance	Rs	See Table 1(a) Column 6	mΩ	
4	Rated Current	I_R	See Table 1(a) Column 7	A	Note 3
5	Operating Temperature Range	T_{op}	-55 to +125	°C	T_{amb}
6	Storage Temperature Range	T_{stg}	-55 to +125	°C	
7	Soldering Temperature Leads Case	T_{sol}	 +240 +280	°C	 Note 4 Note 5

NOTES: At $T_{amb} \leq +85°C$.

1. For derating at T_{amb} > 85°C, see Figure 1.
2. The addition of DC applied voltage and ripple voltage shall never exceed the rated DC voltage.
3. DC and low frequency.
4. Duration 10 seconds maximum at a distance of not less than 2mm from the body and the same lead shall not be resoldered until 3 minutes have elapsed.
5. Duration 6 seconds maximum.

FIGURE 1 - PARAMETER DERATING INFORMATION



Rated Voltage versus Temperature

NOTES

1. See U_{R1} Voltage value for each variant on Table 1(a), Column 2(a).
2. See U_{R2} Voltage value for each variant on Table 1(a), Column 2(b).

TABLE 2 – ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE – DC PARAMETERS

No.	Characteristics	Symbol	ESCC 3008 Test Method	Test Conditions	Limits		Unit
					Min	Max	
1	Voltage Drop	V_{dr}	Para. 9.4.1.5	I_R = Note 1	-	Note 2	V
2	Voltage Proof	VP	Para. 9.4.1.2	$V = 2.5U_R$	Note 3	-	V
3	Insulation Resistance	Ri	Para. 9.4.1.3	Para. 9.4.1.3	10^4	-	MΩ

NOTES
1. See Column 7 of Table 1(a).
2. See Column 5 of Table 1(a).
3. See Column 4 of Table 1(a).

TABLE 2 – ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE – AC PARAMETERS

No.	Characteristics	Symbol	ESCC 3008 Test Method	Test Conditions	Limits		Unit
					Min	Max	
4	Insertion Loss	I_{L1}	Para. 9.4.1.4	f = 10MHz Note 1	Note 2	-	dB
5	Insertion Loss	I_{L2}	Para. 9.4.1.4	f = 50MHz Note 3	Note 2	-	dB
6	Insertion Loss	I_{L3}	Para. 9.4.1.4	f = 100MHz Note 1	Note 2	-	dB
7	Insertion Loss	I_{L4}	Para. 9.4.1.4	f = 500MHz Note 3	Note 2	-	dB
8	Insertion Loss	I_{L5}	Para. 9.4.1.4	f = 1.0GHz Note 1	Note 2	-	dB
9	Insertion Loss	I_{L6}	Para. 9.4.1.4	f = 5.0MHz Note 3	Note 2	-	dB
10	Insertion Loss	I_{L7}	Para. 9.4.1.4	f = 100GHz Note 3	Note 2	-	dB
11	Capacitance	C	Para. 9.4.1.1	Para. 9.4.1.1	Note 4	-	pF

NOTES
1. Measurements at rated current to be made only during Chart IV testing in Subgroups II or III. Measurements without load current to be made during Charts II, III and V.
2. See Column 9 of Table 1(a).
3. Measurements at this frequency to be made only during Chart IV testing.
4. See Column 3 of Table 1(a).

10GHz

TABLE 3 - ELECTRICAL MEASUREMENTS AT HIGH AND LOW TEMPERATURES

No.	Characteristics	Symbol	ESCC 3008 Test Method	Test Conditions (Note 1)	Limits		Unit
					Min	Max	
3	Insulation Resistance	Ri	Para. 9.4.1.3	Para. 9.4.1.3 Note 2	10^3	-	MΩ
11	Capacitance Change	ΔC/C	Para. 9.4.1.1	Para. 9.4.1.1	-20	+20	%

NOTES
1. If more than 20 units have to be measured, the measurement shall be performed on a sample basis in accordance with Inspection Level I, Table IIA, AQL = 1% of IEC Publication No. 410.
2. Insulation resistance is to be performed only at high temperature.

FIGURE 4 – CIRCUITS FOR ELECTRICAL MEASUREMENTS

Not applicable.

TABLE 4 – PARAMETER DRIFT VALUES

No.	Characteristics	Symbol	Spec. and/or Test Method	Test Conditions	Change Limits (Δ)	Unit
11	Capacitance Change	ΔC/C	As per Table 2	As per Table 2	±10	%

TABLE 5(a) – CONDITIONS FOR BURN-IN TESTS

No.	Characteristic	Symbol	Condition	Unit
1	Ambient Temperature	T_{amb}	+125 (+0 -3)	°C
2	Test Voltage	V_T	2 x U_R at +125°C Note 1	V

NOTES
1. Applied between one terminal and the case. See Column 2(b) of Table 1(a) for value of U_R.

TABLE 5(b) – CONDITIONS FOR OPERATING LIFE TESTS

No.	Characteristic	Symbol	Condition	Unit
1	Ambient Temperature	T_{amb}	+125 (+0 -3)	°C
2	Test Voltage	V_T	2 x U_R at +125°C Note 1	V
3	Rated Current	I_R	Note 2	A

NOTES
1. Applied between one terminal and the case. See Column 2(b) of Table 1(a) for value of U_R.
2. To flow between the terminals. See Column 7 of Table 1(a) for value of I_R.

FIGURE 5 – ELECTRICAL CIRCUIT FOR BURN-IN AND OPERATING LIFE TESTS

Not applicable.

TABLE 1(a) – TYPE VARIANTS AND RANGE OF COMPONENTS

(1) Variant (Note 1)	(2) Rated Voltage U_R (V)		(3) Insulation Resistance Ri (MΩ)		(4) Voltage Proof VP (V)	(5) Voltage Drop V_{dr} (V)	(6) DC Resistance Rs (mΩ)	(7) Rated Current I_R (A)	(8) Capacitance C (pF)
	(a) -55°C/+85°C	(b) +125°C	(a) -55°C/+85°C	(b) +125°C					
01, 04	100	50	1000	100	250	0.2	20	10	160
02, 05	300	150	100	10	600	0.03	3	10	352000
03, 06	100	50	100	10	200	0.03	3	10	1312000

(1) Variant (Note 1)	(9) Insertion Loss (I_L) (dB) With or Without Rated Current Applied					(10) Case Size (Note 1)
	100kHz	1.0MHz	10MHz	100MHz	1.0GHz	
01, 04	-	1	-	12	70	1
02, 05	8	2	70	70	70	2
03, 06	20	2	70	70	70	2

NOTES

1. See the table below and Figure 2 for physical characteristics:

Variant	Case Thread E	Lock-Washer
01 to 03	U: 1/4-28 UNF	Tooth
04 to 06	I: M6 x 0.75	Fan

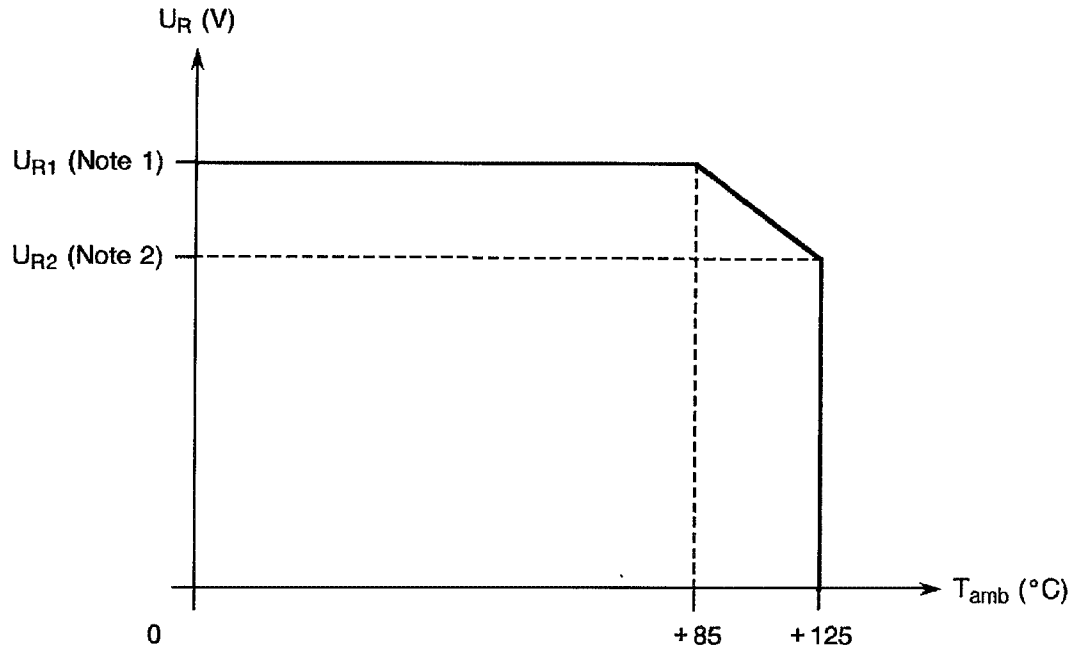
TABLE 1(b) MAXIMUM RATINGS

No.	Characteristic	Symbol	Maximum Ratings	Unit	Remarks
1	Rated DC Voltage	U_R	See Table 1(a) Column 2	V	Notes 1 and 2
2	Voltage Drop	V_{dr}	See Table 1(a) Column 5	mV	
3	DC Resistance	Rs	See Table 1(a) Column 6	mΩ	
4	Rated Current	I_R	10	A	Note 3
5	Torque	T_{qe}	0.8	Nm	
6	Operating Temperature Range	T_{op}	-55 to +125	°C	T_{amb}
7	Storage Temperature Range	T_{stg}	-55 to +125	°C	
8	Soldering Temperature	T_{sol}	+260	°C	Note 4

NOTES: At $T_{amb} \leq +85°C$.

1. For derating at $T_{amb} > 85°C$, see Figure 1.
2. The addition of DC applied voltage and ripple voltage shall never exceed the rated DC voltage.
3. DC and low frequency.
4. Duration 10 seconds maximum at a distance of not less than 2mm from the body and the same lead shall not be resoldered until 3 minutes have elapsed.

FIGURE 1 - PARAMETER DERATING INFORMATION

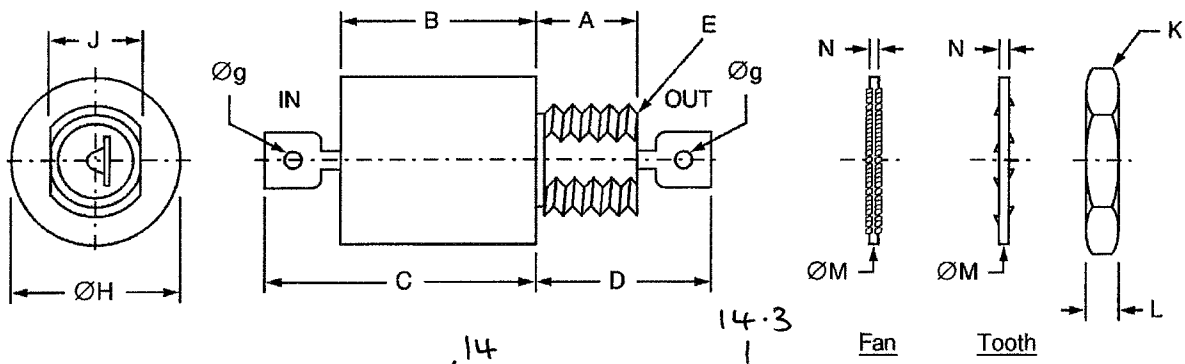


Rated Voltage versus Temperature

NOTES

1. See U_{R1} Voltage value for each variant on Table 1(a), Column 2(a).
2. See U_{R2} Voltage value for each variant on Table 1(a), Column 2(b).

FIGURE 2 – PHYSICAL DIMENSIONS



Symbol	Case Size 1		Case Size 2		Notes
	Millimetres		Millimetres		
	Min	Max	Min	Max	
A	5.1	5.2	5.1	5.2	
B	12	12.3	4.5	5.3	
C	-	16.3	-	9.3	1, 2
D	-	9	-	9	1, 2
E	See Table 1(a)		See Table 1(a)		Thread
Øg	1.50		1.50		

TABLE 1(b) MAXIMUM RATINGS

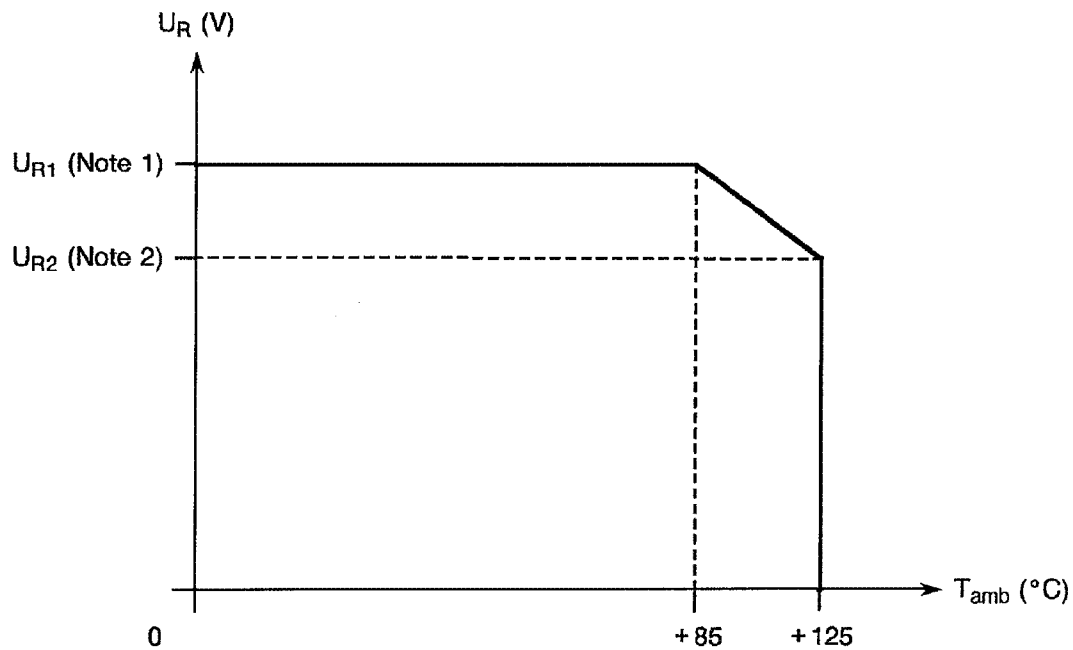
No.	Characteristic	Symbol	Maximum Ratings	Unit	Remarks
1	Rated DC Voltage	U_R	See Table 1(a) Column 2	V	Notes 1 and 2
2	Voltage Drop	V_{dr}	See Table 1(a) Column 5	mV	
3	DC Resistance	Rs	See Table 1(a) Column 6	mΩ	
4	Rated Current	I_R	See Table 1(a) Column 7	A	Note 3
5	Torque	T_{qe}	0.8	Nm	
6	Operating Temperature Range	T_{op}	-55 to +125	℃	T_{amb}
7	Storage Temperature Range	T_{stg}	-55 to +125	℃	
8	Soldering Temperature	T_{sol}	+260	℃	Note 4

At $T_{amb} \leq +85$℃

NOTES:

1. For derating at $T_{amb} > +85$℃, see Figure 1.
2. The addition of DC applied voltage and ripple voltage shall never exceed the rated DC voltage.
3. DC and low frequency.
4. Duration 10 seconds maximum at a distance of not less than 2mm from the body and the same lead shall not be resoldered until 3 minutes have elapsed.

FIGURE 1 - PARAMETER DERATING INFORMATION



Rated Voltage versus Temperature

NOTES

1. See UR1 Voltage value for each variant on Table 1(a), Column 2(a).
2. See UR2 Voltage value for each variant on Table 1(a), Column 2(b).

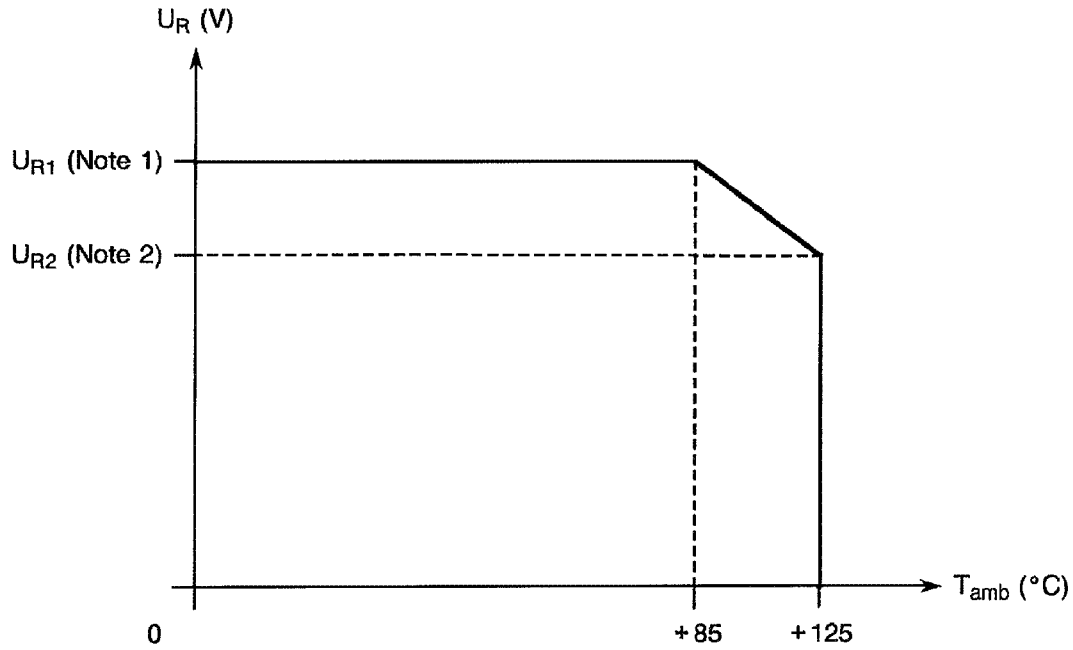
TABLE 1(b) MAXIMUM RATINGS

No.	Characteristic	Symbol	Maximum Ratings	Unit	Remarks
1	Rated DC Voltage	U_R	See Table 1(a) Column 2	V	Notes 1 and 2
2	Voltage Drop	V_{dr}	100	mV	
3	DC Resistance	Rs	10	mΩ	
4	Rated Current	I_R	10	A	Note 3
5	Torque	T_{ge}	0.8	Nm	
6	Operating Temperature Range	T_{op}	-55 to +125	℃	T_{amb}
7	Storage Temperature Range	T_{stg}	-55 to +125	℃	
8	Soldering Temperature	T_{sol}	+260	℃	Note 4

NOTES:

1. For derating at T_{amb} > 85℃, see Figure 1.
2. The addition of DC applied voltage and ripple voltage shall never exceed the rated DC voltage.
3. DC and low frequency.
4. Duration 10 seconds maximum at a distance of not less than 2mm from the body and the same lead shall not be resoldered until 3 minutes have elapsed.

FIGURE 1 - PARAMETER DERATING INFORMATION

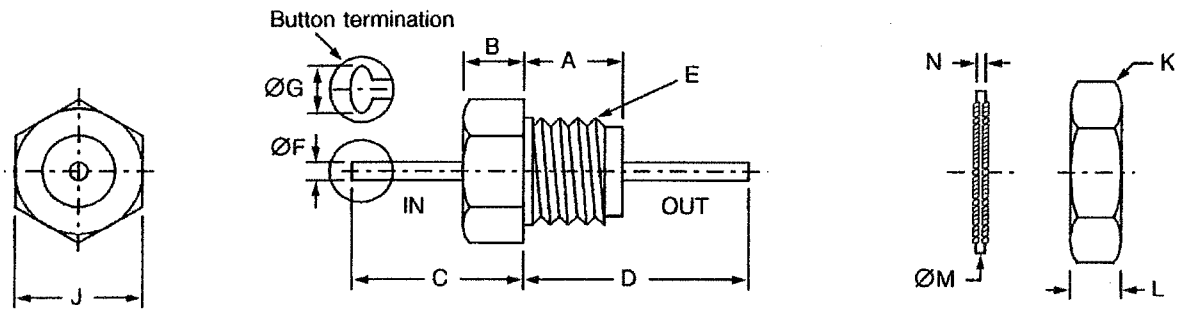


Rated Voltage versus Temperature

NOTES

5. See U_{R1} Voltage value for each variant on Table 1(a), Column 2(a).
6. See U_{R2} Voltage value for each variant on Table 1(a), Column 2(b).

FIGURE 2 – PHYSICAL DIMENSIONS



Symbol	Variants 01 to 06		Variants 07 to 12		Notes
	Millimetres		Millimetres		
	Min	Max	Min	Max	
A	6.9	7.1	6.9	7.1	
B	4.9	5.1	4.9	5.1	
C	10	12	10	12	
D	18	20	18	20	
E	See Table 1(a)		See Table 1(a)		Thread
ØF	0.72	0.88	0.72	0.88	1, 2
ØG	1	2	1	2	3
J	-	6	-	6	
K	-	7	-	8	Across flats
L	-	3	-	2.5	
ØM	-	10.2	-	9.4	4
N	-	0.6	-	0.4	4

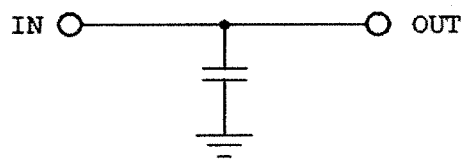
1·2

1·2

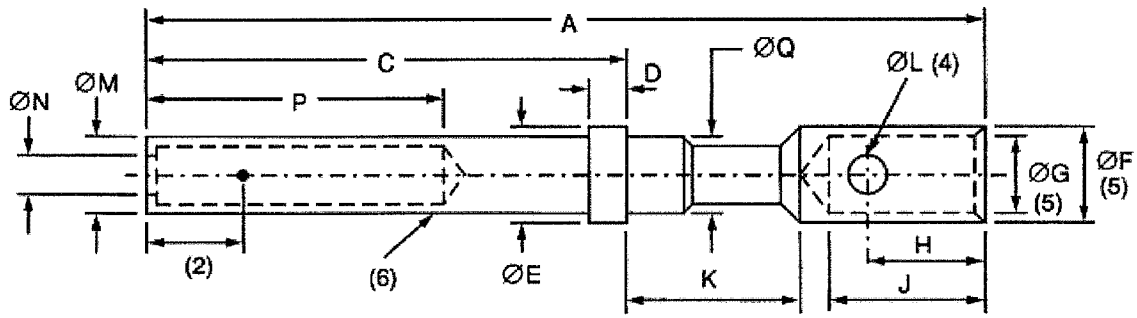
NOTES

1. Lead finish shall commence not more than 1.5mm from encapsulant.
2. The terminals are defined as rigid.
3. Applicable only to Variants 04 to 06 and 10 to 12.
4. Internal fan lock-washer.

FIGURE 3 - FUNCTIONAL DIAGRAM



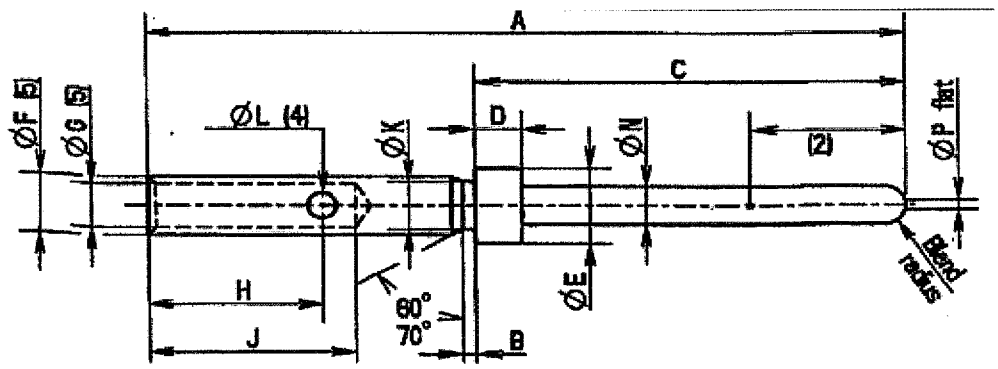
VARIANT 06 – FEMALE CONTACT



	A	C	D	ØE	ØF	ØG	H	J	K	ØL	ØM	ØN	P	ØQ
Min.	-	9.45	0.72	2.08	2.09	1.65	3.8	4.32	6.15	0.6	1.7	1.07	7	1.7
Max.	20.8	9.65	0.86	2.16	2.18	1.74	4	4.7	6.45	0.8	1.85	1.14	-	1.8

NOTES:
1. All dimensions are in millimetres.
2. Measurement point for plating thickness: 2±1.
3. Underlined dimensions, in table, are critical to ensure intermateability and interchangeability.
4. Inspection hole shall only penetrate one wall of the crimp barrel. May be square, i.e. L×L.
5. ØF and ØG to be concentric within 0.04.
6. The mechanical pressure member shall be shrouded. Sleeve, if used, shall conform to the applicable requirements.

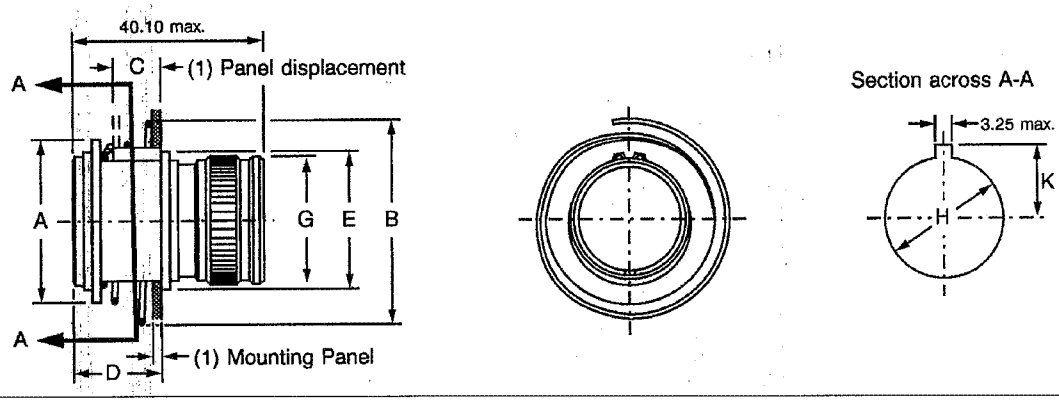
VARIANT 07 – MALE CONTACT



	A	B	C	D	ØE	ØF	ØG	H	J	ØK	ØL	ØN	ØP
Min.	-	0.2	7.49	0.74	1.52	1.17	0.85	3.09	3.58	0.91	0.46	0.75	-
Max.	13.64	0.25	7.62	0.84	1.57	1.22	0.9	3.27	3.99	1.01	0.56	0.77	0.2

NOTES:
1. All dimensions are in millimetres.
2. Measurement point for plating thickness: 4±1.
3. Underlined dimensions, in table, are critical to ensure intermateability and interchangeability.
4. Inspection hole shall only penetrate one wall of the crimp barrel. May be square, i.e. L×L.
5. ØF and ØG to be concentric within 0.04.

SHELL TYPE 79 – RACK AND PANEL PLUG



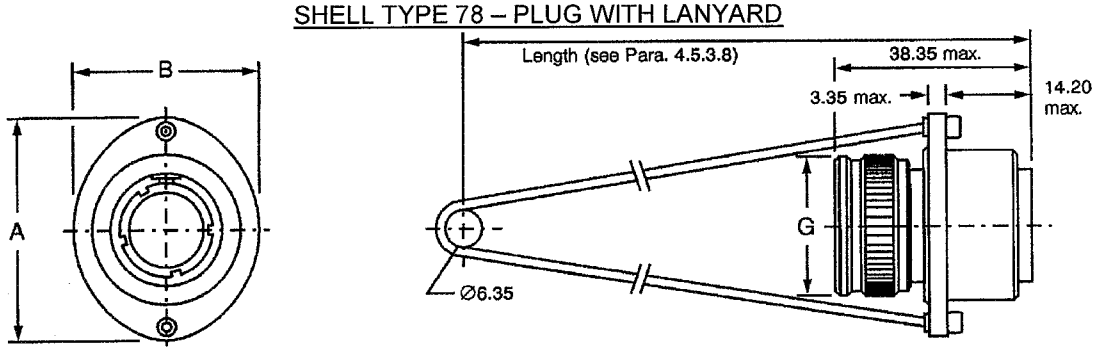
Shell Size	Dimensions (mm)									
	A Max	B Max	C (1) Max	Compression Force for C Max	Compression Force for C Nul	D Max	E Max	G Max	H Max	K Max
3	22.45	31	14.95 – e	1.6daN	0.3daN	21.05	19.3	17	15.55	11.05
7	29.6	34.3	14.55 – e	3.3daN	0.6daN	20.85	24.4	21.8	19.05	12.6
12	31.9	39.75	13.95 – e	5.0daN	1.2daN	20.85	27.25	25	22.20	14.2
19	35.15	43.4	13.95 – e	8.7daN	1.9daN	20.85	32	28.25	25.4	16.05
27	38.7	47.15	13.95 – e	11.8daN	2.7daN	20.6	35.75	30.95	29.15	17.8
37	45.95	53.5	12.65 – e	15.6daN	3.7daN	20.6	40.6	34.15	33.5	20
61	54.4	72	11.6 – e	26.2daN	6.1daN	20.3	50.4	42	41.5	23.95

13.25

NOTES

1. The displacement of dimension C depends on the panel thickness (e) used.

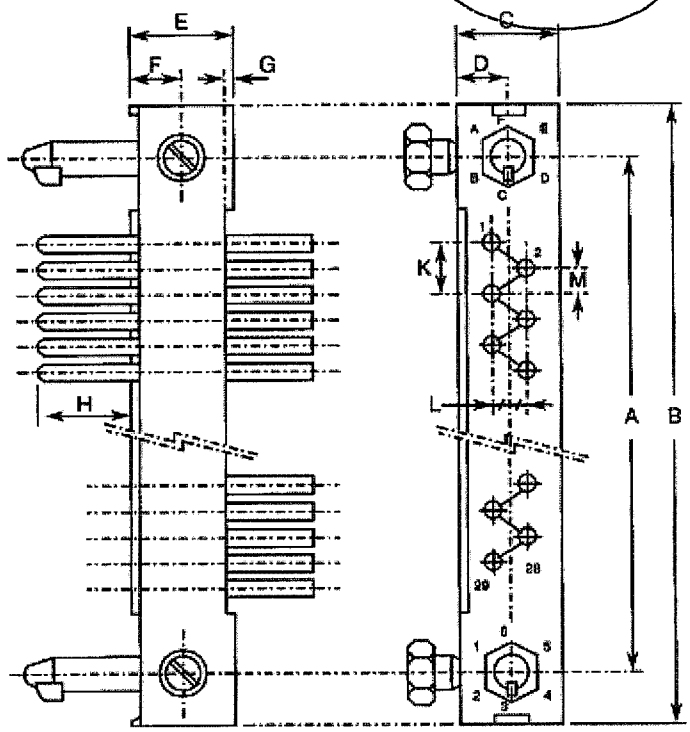
SHELL TYPE 78 – PLUG WITH LANYARD



Shell Size	Dimensions (mm)		
	A Max	B Max	G Max
3	31.85	23.3	17
7	35.65	26.8	21.8
12	38.7	29.6	25
19	42.5	33.55	28.25
27	46.2	37.2	30.95
37	48.45	40.7	34.15
61	56.6	47.85	42

CONTACTS

CODE 02 – PLUG, 2 ROWS, 29 ~~COUNTS~~



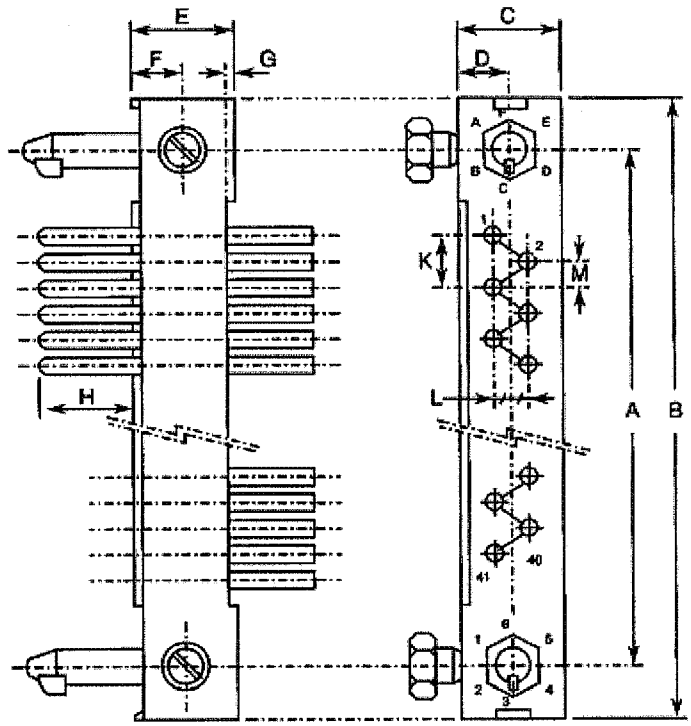
45.57

Symbol	Millimetres	
	Min	Max
A	~~45.47~~	45.87
B	53.2	53.7
C	6.3	6.4
D	3.1	3.3
E	7.75	8.05
F	3.8	4
G	0.25	0.6
H	3.6	4.8
K	2.39	2.69
L	2.39	2.69
M	1.12	1.42

NOTES

1. Weight: 3.1g.
2. Orientation of labelling of contacts and guiding devices is not a true representation.
3. The front of the insert shall be marked with the minimum marking shown.

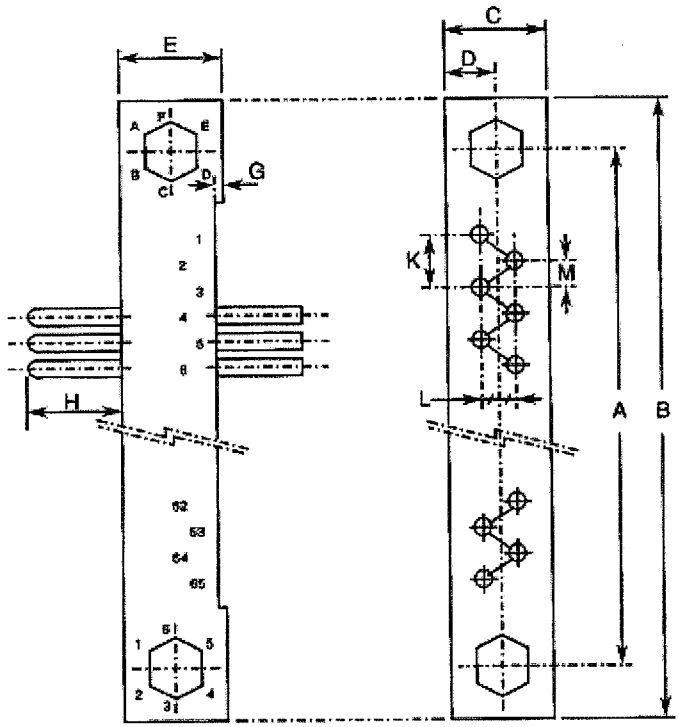
CODE 05 – PLUG, 2 ROWS, 65 CONTACTS



Symbol	Millimetres	
	Min	Max
A	91.29	~~91.99~~ 91.59
B	99	99.5
C	6.3	6.4
D	3.1	3.3
E	7.75	8.05
F	3.8	4
G	0.25	0.6
H	3.6	4.8
K	2.39	2.69
L	2.39	2.69
M	1.12	1.42

NOTES
1. Weight: 5.5g.
2. Orientation of labelling of contacts and guiding devices is not a true representation.
3. The front of the insert shall be marked with the minimum marking shown.

CODE 06 – PLUG, 2 ROWS, 65 CONTACTS



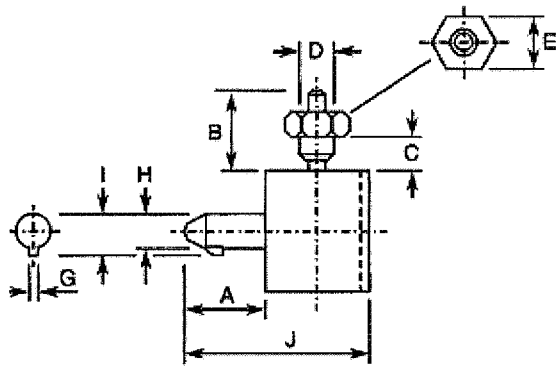
Symbol	Millimetres	
	Min	Max
A	91.29	~~91.95~~ 91.59
B	99	99.5
C	6.3	6.4
D	3.1	3.3
E	7.45	7.75
F	~~3.6~~	~~4.8~~
G	0.25	0.6
H	3.6	4.8
K	2.39	2.69
L	2.39	2.69
M	1.12	1.42

NOTES

1. Weight: 5.5g.
2. Orientation of labelling of contacts and guiding devices is not a true representation.
3. The front of the insert shall be marked with the minimum marking shown.

CODE 72

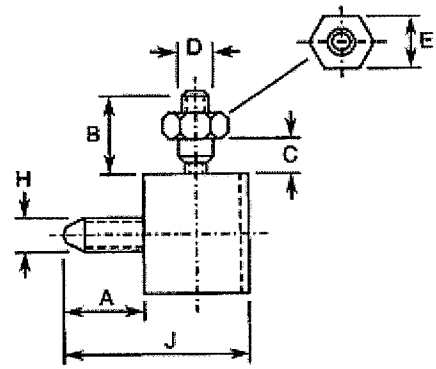
Symbol	Millimetres	
	Min	Max
A	5.6	6.1
B	4.2	5.3
C	1.4	-
D	2.45	2.55
E	3.9	4.1
G	0.7	1
H	2.45	2.5
I	3	3.2
J	13.35	14.15



NOTES
1. Weight: 1.2g.
2. Torque: 11Ncm.

CODE 73

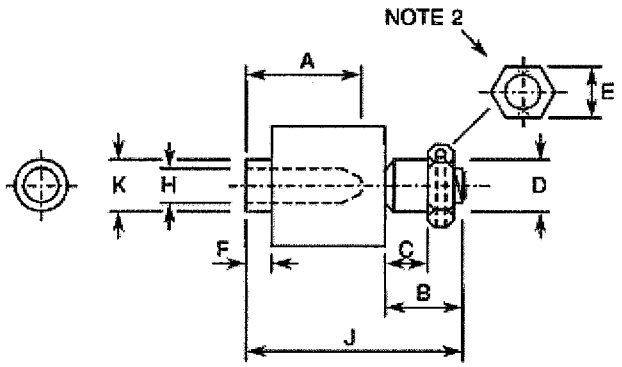
Symbol	Millimetres	
	Min	Max
A	5	5.65
B	4.2	5.3
C	1.4	-
D	2.45	2.55
E	3.9	4.1
H	M 2.5	
I	-	-
J	12.75	13.65



NOTES
1. Weight: 1.1g.
2. Torque: 11Ncm.

CODE 78

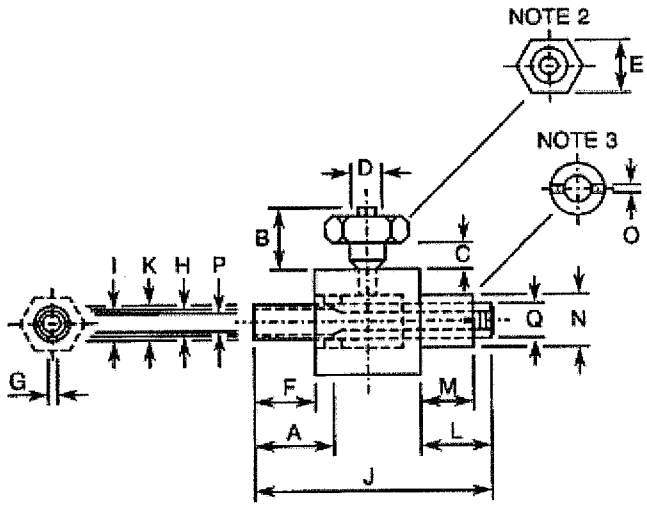
Symbol	Millimetres	
	Min	Max
A	6.5	7.5
B	4.5	7
C	3.5	-
D	3.8	4
E	4.9	5.1
F	1.15	2.9
H	M 2.5	
J	13.45	16.65
K	3.75	3.9



NOTES
1. Weight: 1.7g.
2. Torque: 14Ncm.

CODE 79

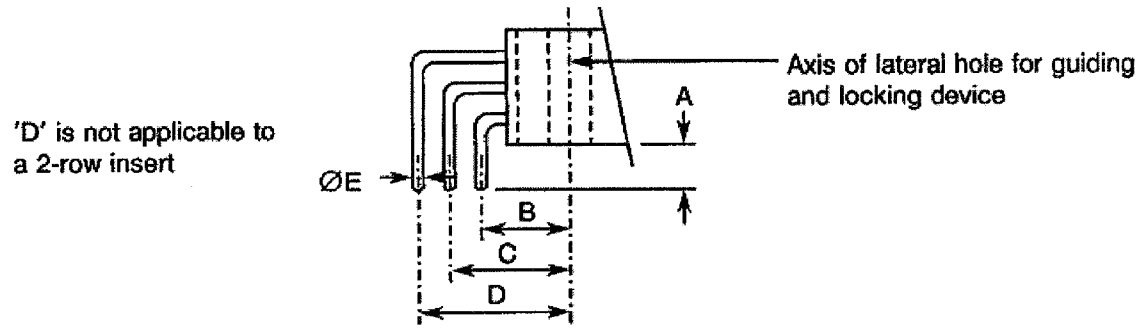
Symbol	Millimetres	
	Min	Max
A	6.8	7.2
B	4.8	5.4
C	1.4	-
D	2.42	2.58
E	3.9	4.1
F	4.8	5.4
G	1.1	1.3
H	2.77	2.85
I	3.05	3.3
J	16.55	16.85
K	3.5	3.9
L	3.2	4
M	2.9	3.1
N	4.85	5.15
O	0.85	1.2
P	M 1.6	
Q	M 3	



NOTES
1. Weight: 1.4g.
2. Torque: 8Ncm.
3. Torque: 14Ncm.

SOLDER CONTACTS

1. Insert with lateral hole for guiding and locking devices with solder right-angle contacts.

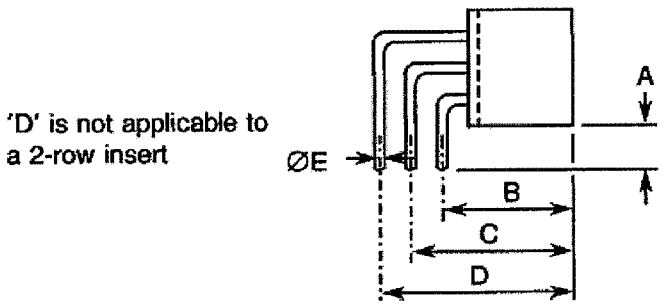


Inserts with contact code numbers 01, 02, 03, 12, 13 and 14:

Symbol	Millimetres	
	Min	Max
A	2.5	3.5
B	4.88	5.28
C	7.32	7.92
D	9.76	10.56
ØE	0.56	0.64

For inserts with contact code numbers 64, 65, 66, 68, 69 and 70, dimension 'A' shall be: 3.5 to 4.5mm.

2. Insert without lateral hole for guiding and locking devices with solder right-angle contacts.



Inserts with contact code numbers 01, 02, 03, 12, 13 and 14:

Symbol	Millimetres	
	Min	Max
A	2.5	3.57
B	8.78	9.18
C	11.22	11.82
D	13.66	14.46
ØE	0.56	0.64

dimension

For inserts with contact code numbers 64, 65, 66, 68, 69 and 70, dimension 'A' shall be: 3.5 to 4.7mm.

4 REQUIREMENTS

4.1 GENERAL

The complete requirements for procurement of the connectors specified herein are stated in this specification and ESCC Generic Specification No. 3401. Deviations from the Generic Specification, applicable to this specification only, are listed in Para. 4.2.

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

4.2 DEVIATIONS FROM GENERIC SPECIFICATION

4.2.1 Deviations from Special In-process Controls

None.

4.2.2 Deviations from Final Production Tests (Chart II)

(a) Para. 9.1.1.4, Mated Shell Conductivity: Not applicable.
(b) Para. 9.4, Contact Capability: Sampling in accordance with Para. 9.6 of ESCC No. 3401.
(c) Para. 9.5, Magnetism Level: Not applicable.
(d) Para. 9.9, Seal Test: Not applicable.
(e) Para. 9.3, Contact Retainer Test: Not applicable.
Instead, the compression (25N) test of the Contact Retention (In Insert) as specified in Para. 4.3.4 of this specification shall be performed on a sample of contacts in accordance with Para. 9.6 of ESCC 3401.

4.2.3 Deviations from Burn-in and Electrical Measurements (Chart III)

Not ~~acceptable~~ applicable.

4.2.4 Deviations from Qualification Tests (Chart IV)

(a) Para. 9.1.1.4, Mated Shell Conductivity: Not applicable.
(b) Para. 9.9, Seal Test: Not applicable.
(c) Para. 9.22, Corrosion: Not applicable.
(d) Para. 9.23, Insert Retention (in shell): Not applicable.
(e) Para. 9.24, Jackscrew Retention: Not applicable.

4.2.5 Deviations from Lot Acceptance Tests (Chart V)

(a) Para. 9.1.1.4, Mated Shell Conductivity: Not applicable.
(b) Para. 9.9, Seal Test: Not applicable.
(c) Para. 9.22 Corrosion: Not applicable.

NOTES

1. Marking of the Type Variant is mandatory. No further reference to type variants is made in this specification.

4.5.4 Characteristics

The characteristics to be marked in the following order of precedence are:

(a) Insert.
(b) Contact.
(c) Guiding and Locking Devices.

The information shall be constituted and marked as follows:

Example: 24MC352835

- Insert: 24
- Contact: MC
- Guiding and Locking Devices: 352835

1
4.5.4.2 *Insert*

Code numbers are specified in Figure 2(a) of this specification.

2
4.5.4.3 *Contacts*

Codes are specified in ESCC Detail Specification No. 3401/017.

3
4.5.4.4 *Guiding and Locking Devices*

Code numbers are specified in Figure 2(b) of this specification.

35	28	35
Guide or locking device to be placed on left side of insert (as seen from mating side)	Guide or locking device to be placed in centre of insert (if not applicable, use 00)	Guide or locking device to be placed on right side of insert (as seen from mating side)

If the Purchase Order does not specify any guiding or locking devices, the following shall be delivered:

2 row plugs: 332633 or 330033
3 row plugs: 342734 or 340034
Receptacle: 362936 or 360036

Connector savers shall be designated by the contact code FM and codes 000000 when delivered without guiding and locking devices. Codes 000000 are only applicable to savers.

4.5.5 Traceability Information

Traceability information shall be marked in accordance with the requirements of ESCC Basic Specification No. 21700.

4.6 ELECTRICAL MEASUREMENTS

4.6.1 Electrical Measurements at Room Temperature

The parameters to be measured in respect of electrical characteristics are scheduled in Table 2. Unless otherwise specified, these measurements shall be performed at T_{amb} = +22 ±3°C.

CONTACTS, ELECTRICAL, MALE/FEMALE TYPE, FOR 3401/020 CONNECTOR SAVERS

~~BASED ON TYPE DBAS~~

ESCC Detail Specification No. 3401/021

as applicable

Issue 3 4	February 2013

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

1 GENERAL

1.1 SCOPE

This specification details the ratings, physical and electrical characteristics, test and inspection data for Contacts, Electrical, Male/Female Type, Gauge 20 and 22, for 3401/020 Connector Savers.

These contacts shall be packed separately from the connector savers and may be procured either with the connector savers or separately.

It shall be read in conjunction with:

- ESCC Generic Specification No. 3401, Connectors, Electrical, Non-Filtered Circular and Rectangular
- ESCC Detail Specification No. 3401/020, Connector Savers, Electrical, Rectangular, Miniature, Removable Contacts, Based on Type D*BMA,

the requirements of which are supplemented herein.

1.2 COMPONENT TYPE VARIANTS

The different sizes of contacts specified herein, which are also covered by this specification are ~~given~~ scheduled in Table 1(a).

1.3 MAXIMUM RATINGS

The maximum ratings, which shall not be exceeded at any time during use or storage, applicable to the contacts specified herein, are as scheduled in Table 1(b).

1.4 PARAMETER DERATING INFORMATION (FIGURE 1)

Not applicable.

1.5 PHYSICAL DIMENSIONS

The physical dimensions of the contacts specified herein are shown in Figure 2.

2 APPLICABLE DOCUMENTS

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

(a) ESCC Generic Specification No. 3401, Connectors, Electrical, Non-Filtered, Circular and Rectangular.
(b) ESCC Detail Specification No. 3401/020, Connector Savers, Electrical, Rectangular, Miniature, Removable Contacts, Based on Type D*BMA.
(c) MIL-G-45204, Gold Plating, Electro-deposited.
(d) MIL-C-14550, Copper Plating, Electro-deposited.

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.

4.3.6 Insert Retention (In Shell)
As specified in ESCC Detail Specification No. 3401/020.

4.3.7 Jackscrew Retention
Not applicable.

4.3.8 Contact Insertion and Withdrawal Forces
The contact insertion and withdrawal forces shall be as specified in Table 1(a).

4.3.9 Engagement and Separation Forces
The diameter of the test pin and the engagement and separation forces of the female contacts shall be as specified in Table 1(a).

4.3.10 Oversize Pin Exclusion
The diameter of the test pin and the force applied to it shall be as specified in Table 1(a).

4.3.11 Probe Damage
The probe diameter and the moment at the end of the probe shall be as specified in Table 1(a).

4.3.12 Solderability
Not applicable.

4.4 MATERIALS AND FINISHES
The materials and finishes shall be as specified herein. Where a definite material is not specified, a material which will enable the contacts specified herein to meet the performance requirements of this specification shall be used. Acceptance or approval of any constituent material does not guarantee acceptance of the finished product.

4.4.1 Shells
As specified in ESCC Detail Specification No. 3401/020.

4.4.2 Inserts
As specified in ESCC Detail Specification No. 3401/020.

4.4.3 Contacts
The contact body shall be made of copper alloy with an underplate of 1µm minimum of non-magnetic nickel or copper to MIL-C-14415, gold plated with 1.27µm minimum of gold, Type 2 Grade C of MIL-G-45204.

The female contact spring element shall be made of copper alloy with an underplate of 1µm minimum of nickel or copper to MIL-C-14415, gold plated with 1.27µm minimum of gold, Type 2 Grade C of MIL-G-45204.

4.4.4 Contact Retaining Clip
As specified in ESCC Detail Specification No. 3401/020.

4.4.5 Guiding and Locking Devices
As specified in ESCC Detail Specification No. 3401/020.

4.4.6 Magnetism Level
As specified in ESCC Detail Specification No. 3401/020.

TABLE 1(a) – RANGE OF COMPONENTS

INSERT SIZES

Insert	No. of Contacts	Max. Weight (g)	Max. Engagement Force (N)	Separation Force (N)	
				Min.	Max.
Receptacle and Connector Saver	26	9.8	18.2	3.12	18.2
	44	12.6	30.8	5.28	30.8
	62	15.5	42.4	7.44	42.4
	80	18.4	56	9.6	56
	98	21	68.6	11.76	68.6
	144	30	100.8	17.28	100.8
Plug	26	8.2	18.2	3.12	18.2
	44	11.6	30.8	5.28	30.8
	62	14.9	43.4	7.44	43.4
	80	18.2	56	9.6	56
	98	21.4	68	11.76	68
	144	31.6	100.8	17.28	100.8

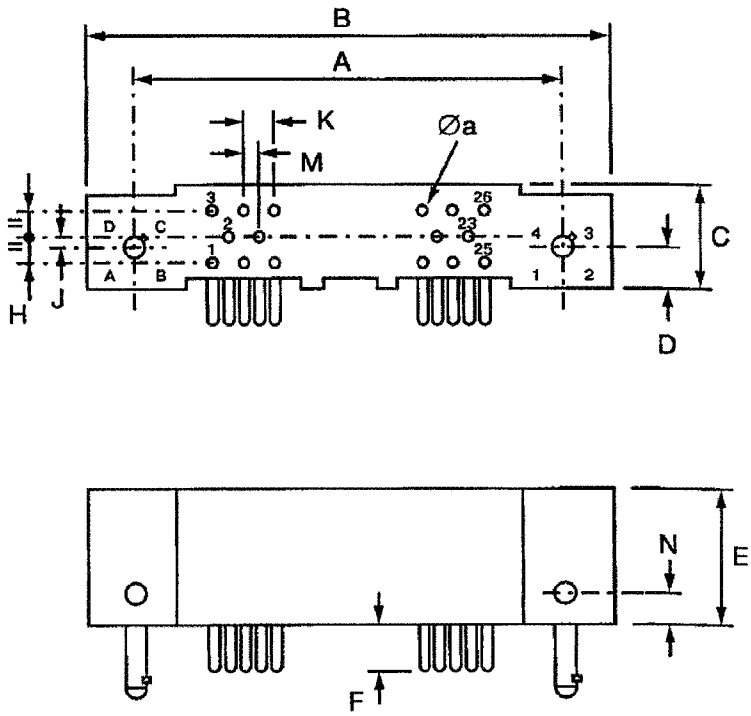
43.4

68.6

CONTACT TYPES

Contact Codes	Contact Types	Accepted Wire Size (AWG)
10	Solder, 90° for PCB	-
30	Solder, straight for PCB	-
31	Solder, straight long for PCB	-
40	Solder pot	28
50	Wire-wrap, 2 wrapping levels	28 - 30
51	Wire-wrap, 3 wrapping levels	28 - 30
91	Contact for connector saver	-

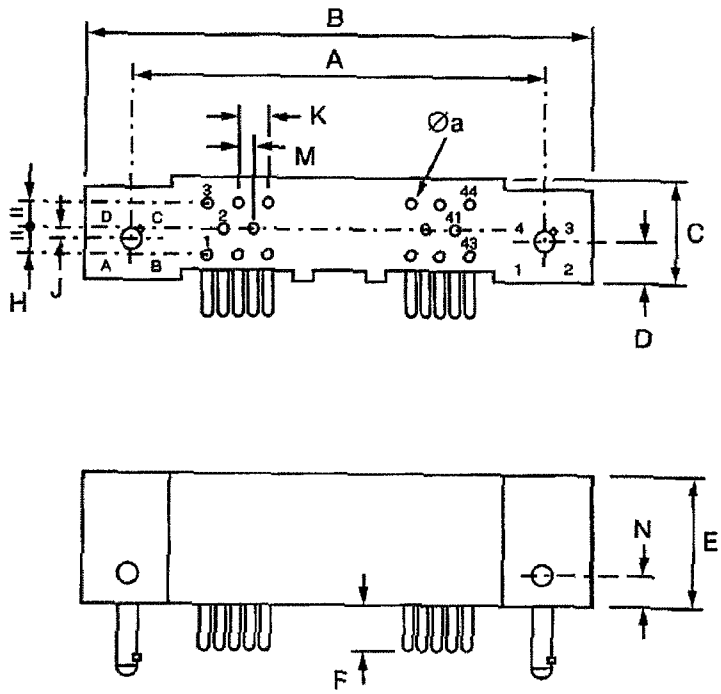
PLUG, 3 ROWS, 26 CONTACTS



Symbol	Millimetres	
	Min.	Max.
Øa	0.48	0.5
A	30.43	30.53
B	38.1	38.5
C	6.6	7
D	3.1	3.2
E	11.65	11.95
F	4.2	5.2
H	3.76	3.86
J	0.26	0.36
K	2.39	2.69
M	1.12	1.42
N	3.8	4

NOTES:
1. Orientation of labelling of contacts and guiding devices is not a true representation.
2. The front of the insert shall be marked with the minimum marking shown.

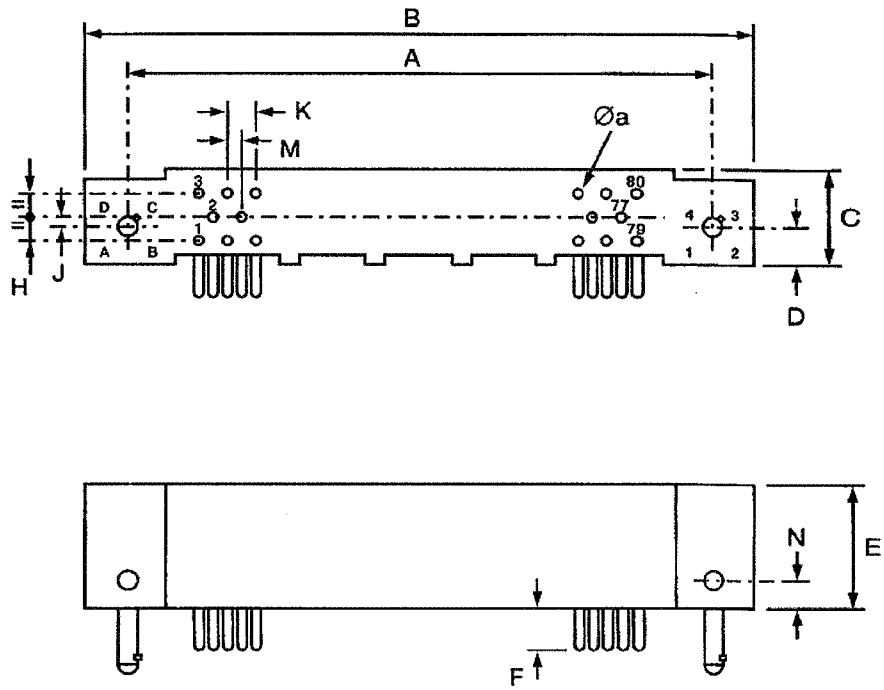
PLUG, 3 ROWS, 44 CONTACTS



Symbol	Millimetres	
	Min.	Max.
Øa	0.48	0.5
A	45.67	45.77
B	53.3	53.7
C	6.6	7
D	3.1	3.2
E	11.65	11.95
F	4.2	5.2
H	3.76	3.86
J	0.26	0.36
K	2.39	2.69
M	1.12	1.42
N	3.8	4

NOTES:
1. Orientation of labelling of contacts and guiding devices is not a true representation.
2. The front of the insert shall be marked with the minimum marking shown.

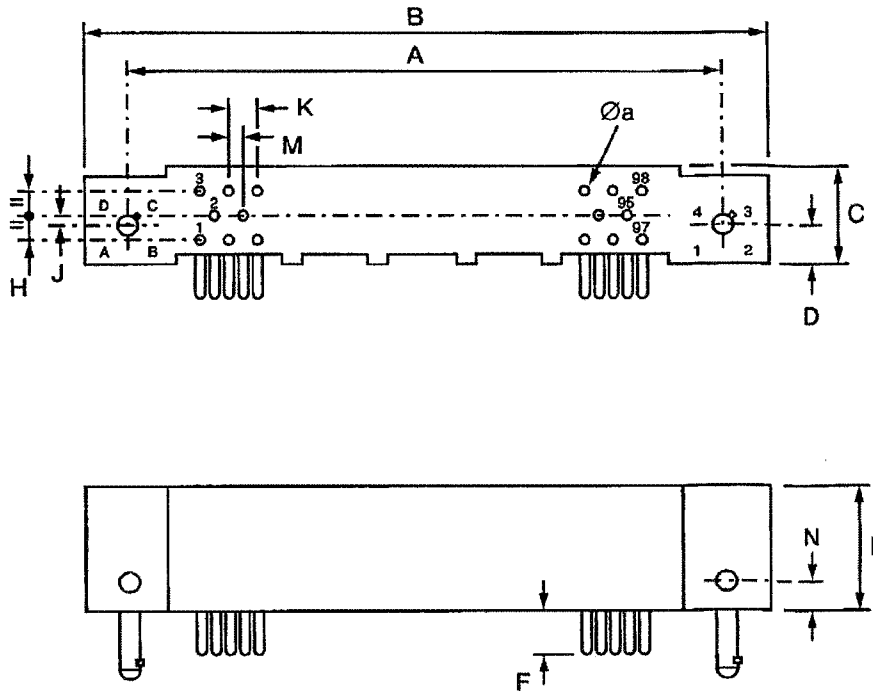
PLUG, 3 ROWS, 80 CONTACTS



Symbol	Millimetres	
	Min.	Max.
Øa	0.48	0.5
A	76.15	76.25
B	83.8	84.2
C	6.6	7
D	3.1	3.2
E	11.65	11.95
F	4.2	5.2
H	3.76	3.86
J	0.26	0.36
K	2.39	2.69
M	1.12	1.42
N	3.8	4

NOTES:
1. Orientation of labelling of contacts and guiding devices is not a true representation.
2. The front of the insert shall be marked with the minimum marking shown.

PLUG, 3 ROWS, 98 CONTACTS

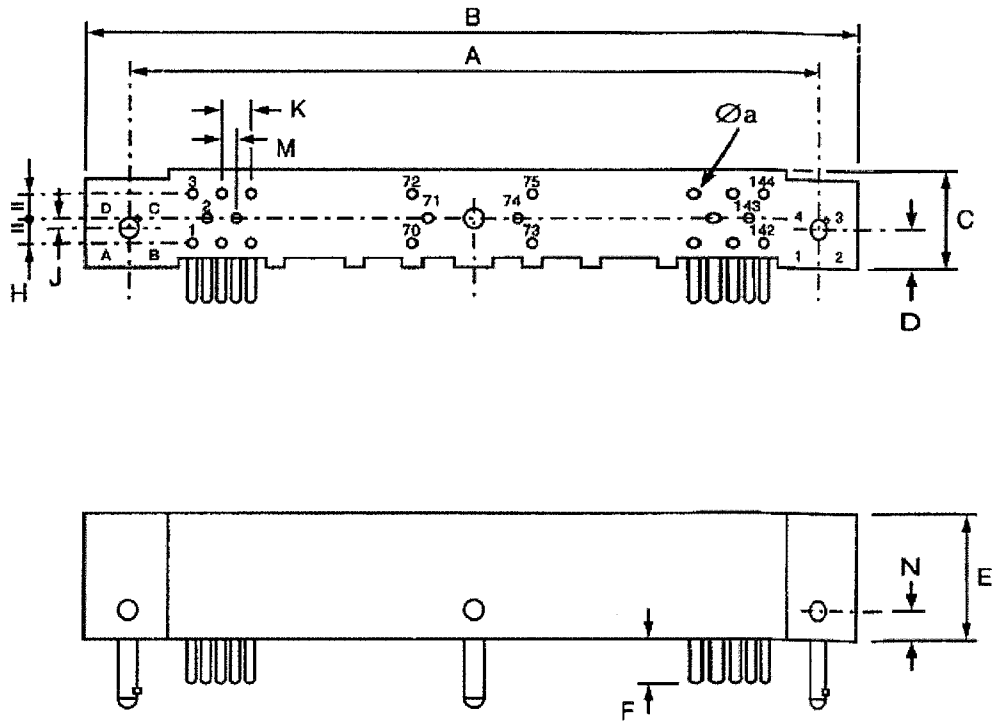


Symbol	Millimetres	
	Min.	Max.
Øa	0.48	0.5
A	91.39	91.49
B	99.1	99.5
C	6.6	7
D	3.1	3.2
E	11.65	11.95
F	4.2	5.2
H	3.76	3.86
J	0.26	0.36
K	2.39	2.69
M	1.12	1.42
N	3.8	4

NOTES:

1. Orientation of labelling of contacts and guiding devices is not a true representation.
2. The front of the insert shall be marked with the minimum marking shown.

PLUG, 3 ROWS, 144 CONTACTS



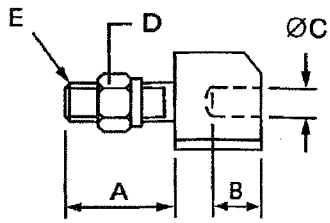
Symbol	Millimetres	
	Min.	Max.
Øa	0.48	0.5
A	137.11	137.21
B	144.8	145.2
C	6.6	7
D	3.1	3.2
E	11.65	11.95
F	4.2	5.2
H	3.76	3.86
J	0.26	0.36
K	2.39	2.69
M	1.12	1.42
N	3.8	4

NOTES:

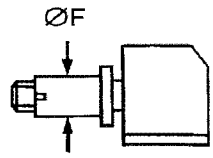
1. Orientation of labelling of contacts and guiding devices is not a true representation.
2. The front of the insert shall be marked with the minimum marking shown.

CODE 143

Symbol	Millimetres		Notes
	Min.	Max.	
A	4.5	5.5	
B	7	7.15	
ØC	1.98	2.03	
D	3.95	4.05	1
E	M 2.5		
ØF	3.95	4.05	2



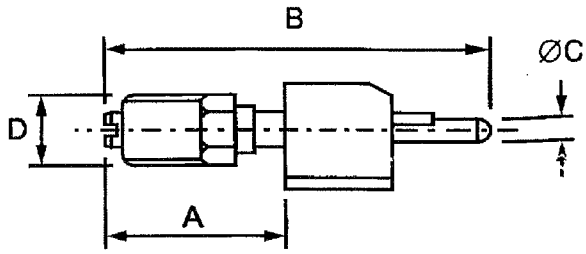
Centre guide for 144 contact connector



NOTES:
1. Across flats. Torque: 25N.cm.
2. Torque: 15N.cm.

CODE 201

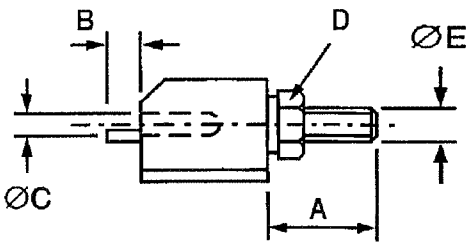
Symbol	Millimetres		Notes
	Min.	Max.	
A	10.8	14.8	1
B	24.3	24.7	
ØC	M 1.6		
D	5.4	5.6	2



NOTES:
1. Max. dimension when unlocked.
2. Across flats. Torque: 25N.cm.

CODE 202

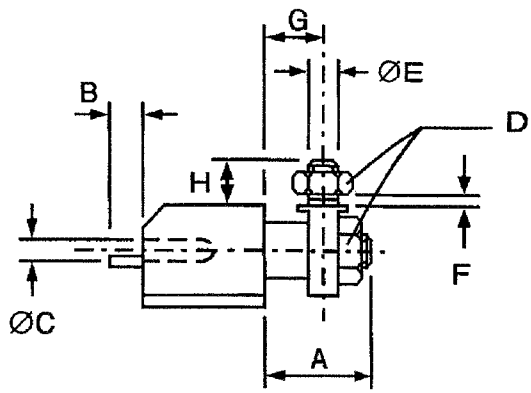
Symbol	Millimetres		Notes
	Min.	Max.	
A	6.5	7.5	
B	2.4	2.8	
ØC	M 1.6		
D	3.95	4.05	1
ØE	M 2.5		



NOTES:
3. Across flats. Torque: 25N.cm.
1.

CODE 204

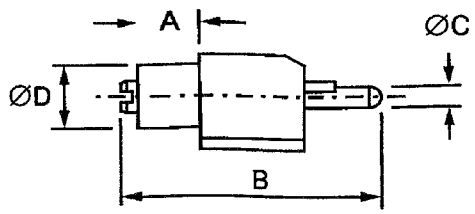
Symbol	Millimetres		Notes
	Min.	Max.	
A	6.5	7.5	
B	2.4	2.8	
ØC	M 1.6		
D	3.95	4.05	1
ØE	M 2.5		
F	-	1.6	2
G	3.5	3.65	
H	3.8	4.2	



NOTES:
1. Across flats. Torque: 25N.cm.
2. Allowable printed circuit board thickness.

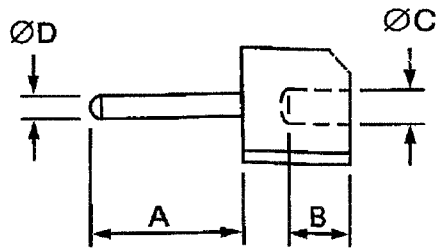
CODE 206

Symbol	Millimetres	
	Min.	Max.
A	4.5	5
B	18.05	18.35
ØC	M 1.6	
ØD	4.3	4.7

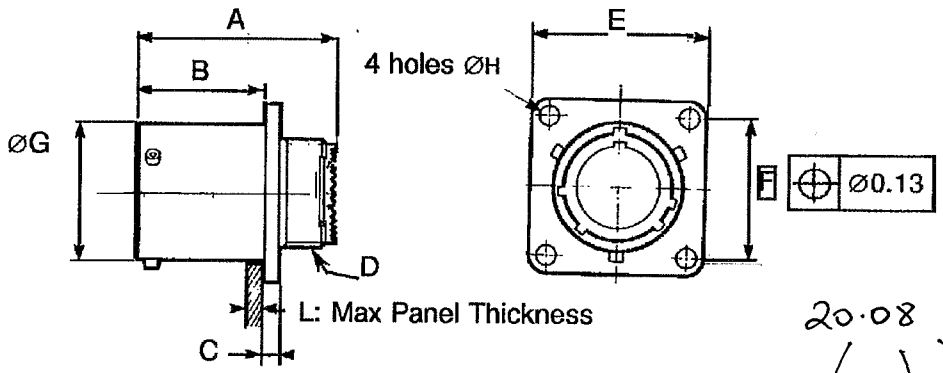


CODE 703

Symbol	Millimetres	
	Min.	Max.
A	6.4	7
B	7	7.15
ØC	2.57	2.63
ØD	1.75	1.8



SHELL TYPE 03: SQUARE FLANGE RECEPTACLE BACK MOUNTING



20.08

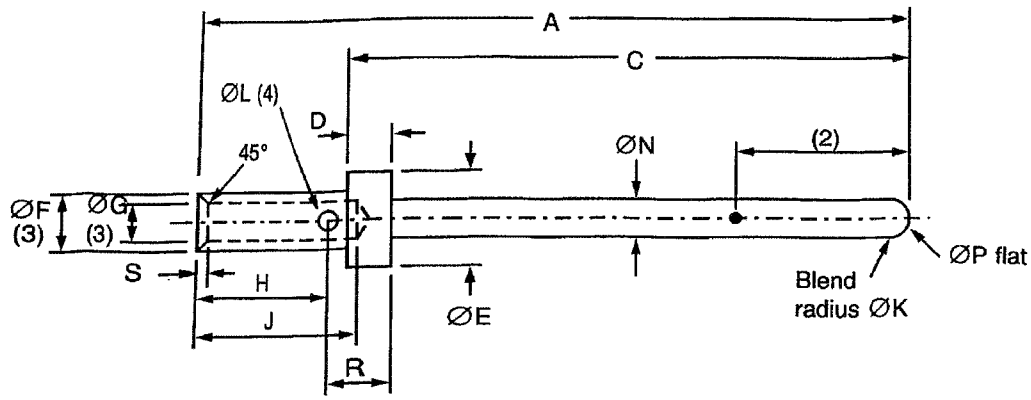
Shell Size	09		11		13		15		17		19		21		23		25	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
A	-	31.33	-	31.33	-	31.33	-	31.33	-	31.33	-	31.33	-	31.33	-	31.33	-	31.33
B	-	20.83	-	20.83	-	20.83	-	20.83	-	20.83	-	20.83	-	20.83	-	20.83	-	20.83
C	-	2.5	-	2.5	-	2.5	-	2.5	-	2.5	-	2.5	-	3.2	-	3.2	-	3.2
ØD UNEF-2A	.4375-28		.5625-24		.6875-24		.8125-20		.9375-20		1.0625-18		1.1875-18		1.3125-18		1.4375-18	
E	23.95	24.55	26.3	26.9	28.7	29.3	31.05	31.65	33.45	34.05	36.6	37.2	39.8	40.4	42.95	43.55	46.2	46.7
F typical	18.26		20.62		23.01		24.61		26.97		29.36		31.75		34.93		38.1	
ØG	14.41	14.53	17.66	17.78	21.47	21.59	24.65	24.77	27.82	27.94	30.54	30.66	33.71	33.83	36.88	37	40.06	40.18
ØH	3.15	3.45	3.15	3.45	3.15	3.45	3.15	3.45	3.15	3.45	3.15	3.45	3.15	3.45	3.63	3.93	3.63	3.93
L	-	2.5	-	2.5	-	2.5	-	2.5	-	2.5	-	2.5	-	2.5	-	2.5	-	2.5

NOTES:

1. All dimensions are in millimetres, except thread ØD in inches.

FIGURE 2 – PHYSICAL DIMENSIONS

VARIANTS WITH UNEVEN NUMBERS – MALE CONTACT



Type Variant		A	C	D	ØE	ØF	ØG	H	J	ØK	ØL	ØN	ØP	R	S
01	Min.	-	7.49	0.74	1.52	1.17	0.85	3.09	3.58	0.25	0.46	0.75	-	-	0.08
	Max.	13.64	7.62	0.84	1.57	1.22	0.9	3.27	3.99	0.51	0.56	0.77	0.2	-	0.13
03	Min.	-	7.49	0.74	2.31	1.73	1.17	-	5.31	0.38	0.66	0.99	-	1.82	0.13
	Max.	13.64	7.62	0.84	2.39	1.78	1.22	-	5.82	0.64	0.81	1.04	0.38	1.98	0.25
05	Min.	-	7.49	0.74	3.23	2.57	1.68	-	5.31	0.51	0.91	1.56	0.28	2.08	0.13
	Max.	13.64	7.62	0.84	3.3	2.62	1.73	-	5.82	0.61	1.02	1.61	0.76	2.24	0.25
07	Min.	-	7.49	0.74	4.55	3.76	2.49	-	5.31	0.51	0.91	2.36	1.09	2.08	0.13
	Max.	13.64	7.62	0.84	4.62	3.84	2.59	-	5.82	0.64	1.07	2.41	1.57	2.24	0.25

0.64

NOTES:

1. All dimensions are in millimetres.
2. Measurement point for plating thickness: 4±1.
3. ØF and ØG to be concentric within 0.05 TIR.
4. Inspection hole shall only penetrate one wall of the crimp barrel.

TABLE 1(a) – RANGE OF COMPONENTS

NUMBER OF CONTACTS

No. of Contacts (Note 1)	Max. Weight (2) (g)		Max. Engagement Force (N Max.)	Separation Force (N)	
	Plug	Receptacle		N Min.	N Max.
52	10.7	7.2	36.4	2.6	36.4
100	16.4	13.1	70	5	70
152	25.7	20.1	106.4	7.6	106.4
200	32.5	25.9	140	10	140
252	44.1	33	176.4	12.6	176.4
300	48.5	38.8	210	15	210
352	57.2	43.2	246.4	17.6	246.4
400	64.5	49.2	280	20	280

NOTES:
1. See Figure 2(a).
2. Weights with contacts and without accessories.

CONTACT TYPES

Contact Codes	Contact Types
10	Through board solder – 90° for PCB thickness: 1.44 - 1.76 mm
11	Through board solder – 90° for PCB thickness: 1.98 - 2.42 mm
12	Through board solder – 90° for PCB thickness: 2.88 - 3.52 mm
30	Through board solder – straight for PCB thickness: 2.16 - 2.64 mm
31	Through board solder – straight for PCB thickness: 2.88 - 3.52 mm
43	Surface mount for PCB thickness: 2.16 - 2.64 mm (Centred PCB)
45	Surface mount for PCB thickness: 1.44 - 2.4 mm (Off-centre PCB)
47	Surface mount for PCB thickness: 2.16 - 2.64 mm (Off-centre PCB)
91	Contact for connector saver male - female

NOTES:
1. See Figure 2(c).

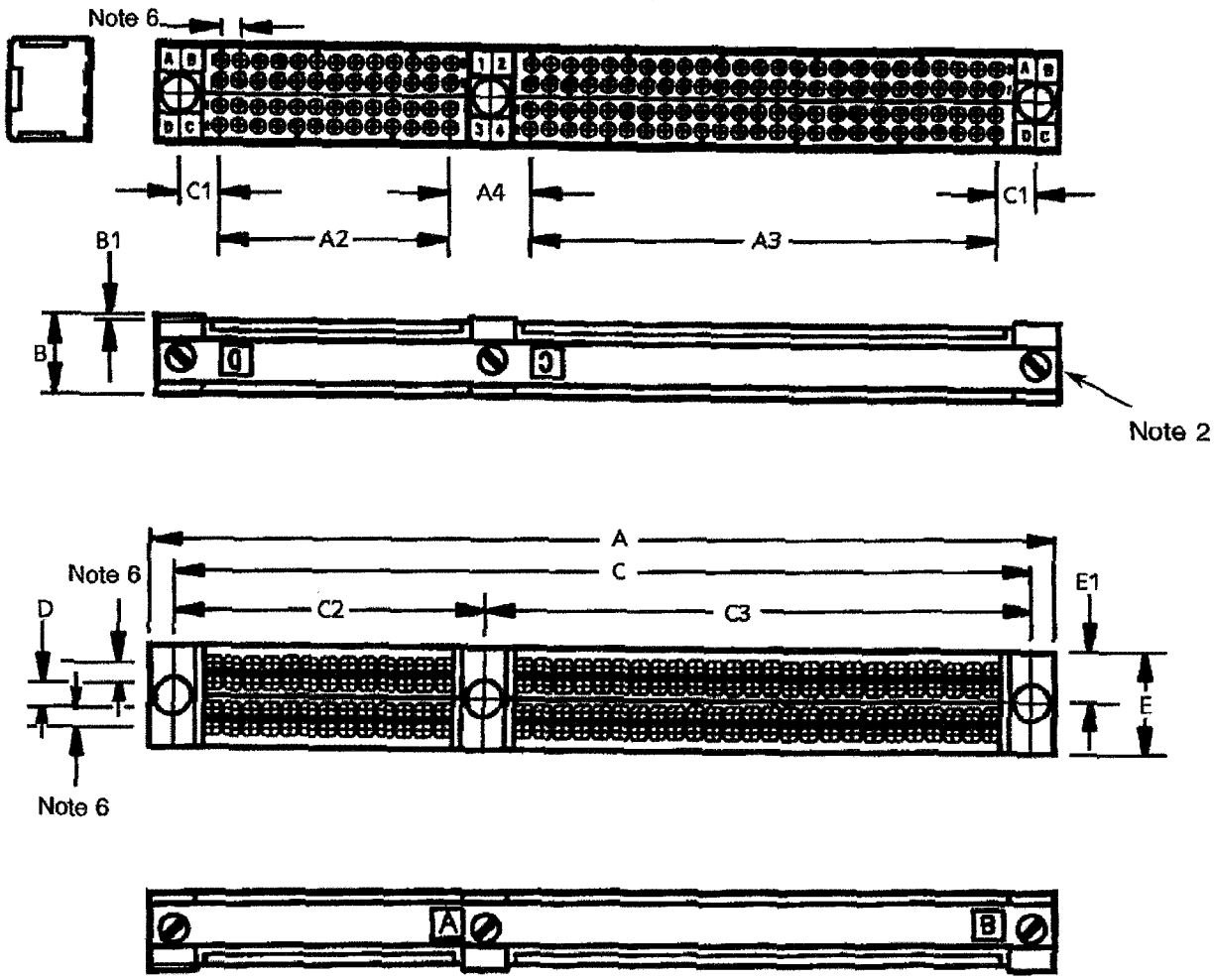
GUIDING AND LOCKING DEVICES

Guiding and Locking Devices Code	Mounting On	Max. Weight (g)
110	Plug	0.55
111	Plug	1.35
121	Receptacle	0.65
124	Receptacle	1.5
134	Receptacle	1.3
201	Saver Receptacle	-

NOTES:
1. See Figure 2(c).

(6)

RECEPTACLE, 152 CONTACTS



Symbol / Dim. (1)	A	A2	A3	A4	B	B1	C	C1	C2	C3	D	E	E1
Min.	88.8	22.66	45.52	7.74	7.75	0.3	84.3	3.77	30.65	53.51	2.34	9.9	4.9
Max.	89.1	23.06	45.92	8.14	8.05	0.6	84.6	4.17	30.95	53.81	2.74	10.1	5.1

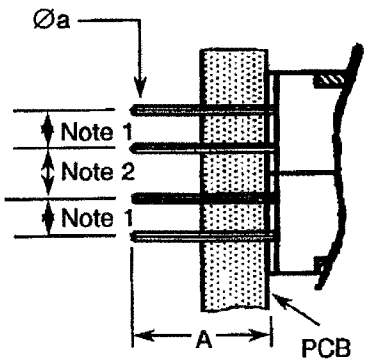
NOTES:

1. All dimensions are in millimetres.
2. Torque: 10N.cm.
3. Underlined dimensions, in table, are critical to ensure intermateability.
4. The front of the insert shall be marked with the minimum marking shown.
5. Orientation of labelling of contacts and guiding devices is not a true representation.
6. Pitch: 1.905mm.

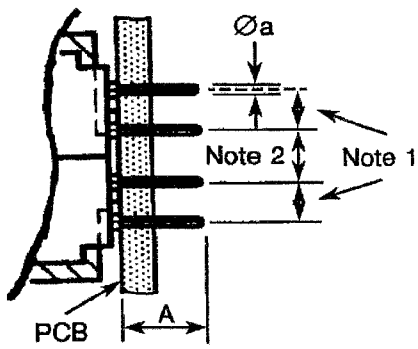
CODES 30 AND 31

STRAIGHT SOLDER CONTACTS

RECEPTACLE SIDE



PLUG SIDE



	Code 30		Code 31		Code 31	
	Plug and Receptacle		Receptacle		Plug	
	Millimetres					
Symbol	Min.	Max.	Min.	Max.	Min.	Max.
A	3.5	4	6.1	6.6	4.6	5.1

Symbol	Millimetres	
	Minimum	Maximum
Øa	0.36	0.44

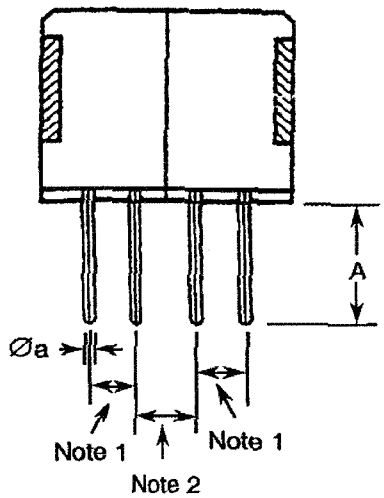
NOTES:
1. Pitch: 1.905mm.
2. Pitch: 2.54mm.

CODE 91 – SAVER

Symbol	Millimetres	
	Minimum	Maximum
A	4.5	5.5
Øa	0.42	1.44

0·44

NOTES:
1. Pitch: 1.905mm.
2. Pitch: 2.54mm.



58.7

TABLE 1(a) – TYPE VARIANTS

Variant No.	Shielded	Un-Shielded		No. of Cores	Wire Size AWG	Stranding No. of Strands × Diameter (mm)	Conductor Characteristics			Shield Strand Ø (mm)	Core Max Ø (mm)	Finished Wire Or Cable Characteristics	
		Jacketed	Un-Jacketed				Max Ø (mm)	Nom Section (mm^2)	Max Ohmic Resistance (Ω/km)			Max Ø (mm)	Max Weight (kg/km)
01			X	1	28	7×0.127 (1)	0.42	0.089	215	-	-	0.82	1.8
02			X	1	26	7×0.16 (1)	0.5	0.14	146	-	-	0.89	2.3
03			X	1	24	7×0.2	0.62	0.22	87.2	-	-	1.04	3.34
04			X	1	22	7×0.25	0.77	0.34	55.8	-	-	1.19	4.84
05			X	1	20	19×0.2	1.03	0.6	32.2	-	-	1.44	7.4
06			X	2	28	7×0.127 (1)	0.42	0.089	225	-	0.82	1.64	3.8
07			X	2	26	7×0.16 (1)	0.5	0.14	153	-	0.89	1.78	4.84
08			X	2	24	7×0.2	0.62	0.22	91.6	-	1.04	2.08	6.9
09			X	2	22	7×0.25	0.77	0.34	57.7	-	1.19	2.38	10
10			X	2	20	19×0.2	1.03	0.6	33.8	-	1.44	2.88	15.3
11			X	3	28	7×0.127 (1)	0.42	0.089	225	-	0.82	1.76	5.7
12			X	3	26	7×0.16 (1)	0.5	0.14	153	-	0.89	1.92	7.28
13			X	3	24	7×0.2	0.62	0.22	91.6	-	1.04	2.24	10.35
14			X	3	22	7×0.25	0.77	0.34	58.7	-	1.19	2.56	15
15			X	3	20	19×0.2	1.03	0.6	33.8	-	1.44	3.12	23
16			X	4	28	7×0.127 (1)	0.42	0.089	225	-	0.82	1.97	7.55
17			X	4	26	7×0.16 (1)	0.5	0.14	153	-	0.89	2.14	9.71
18			X	4	24	7×0.2	0.62	0.22	91.6	-	1.04	2.5	14
19			X	4	22	7×0.25	0.77	0.34	58.7	-	1.19	2.86	20.3
20			X	4	20	19×0.2	1.03	0.6	33.8	-	1.44	3.46	31.1
21		X		2	28	7×0.127 (1)	0.42	0.089	225	-	0.82	1.92	4.32
22		X		2	26	7×0.16 (1)	0.5	0.14	153	-	0.89	2.06	5.28
23		X		2	24	7×0.2	0.62	0.22	91.6	-	1.04	2.36	7.54

Variant No.	Shielded	Un-Shielded		No. of Cores	Wire Size AWG	Stranding No. of Strands × Diameter (mm)	Conductor Characteristics			Shield Strand Ø (mm)	Core Max Ø (mm)	Finished Wire Or Cable Characteristics	
		Jacketed	Un-Jacketed				Max Ø (mm)	Nom Section (mm^2)	Max Ohmic Resistance (Ω/km)			Max Ø (mm)	Max Weight (kg/km)
48	X			3	24	7×0.2	0.62	0.22	91.6	0.07	1.04	2.72	16
49	X			3	22	7×0.25	0.77	0.34	58.7	0.07	1.19	3.04	21.2
50	X			3	20	19×0.2	1.03	0.6	33.8	0.1	1.44	3.73	33.7
51	X			4	28	7×0.127 (1)	0.42	0.089	225	0.07	0.82	2.45	12.8
52	X			4	26	7×0.16 (1)	0.5	9.14	153	0.07	0.89	2.62	15.6
53	X			4	24	7×0.2	0.62	0.22	91.6	0.07	1.04	2.98	20.5
54	X			4	22	7×0.25	0.77	0.34	58.7	0.1	1.19	3.49	30.5
55	X			4	20	19×0.2	1.03	0.6	33.8	0.1	1.44	4.09	43.2
56			X	1	18	19×0.25	1.29	0.93	20.6	-	-	1.85	12
57			X	1	16	19×0.285	1.44	1.23	16.5	-	-	2.23	17
58			X	2	18	19×0.25	1.29	0.93	21.6	-	1.85	3.7	24.9
59			X	2	16	19×0.285	1.44	1.23	17.3	-	2.23	4.46	34.6
60			X	3	18	19×0.25	1.29	0.93	21.6	-	1.85	3.98	37.3
61			X	3	16	19×0.285	1.44	1.23	17.3	-	2.23	4.8	51.8
62			X	4	18	19×0.25	1.29	0.93	21.6	-	1.85	4.46	49.7
63			X	4	16	19×0.285	1.44	1.23	17.3	-	2.23	5.37	69.1
64		X		2	18	19×0.25	1.29	0.93	21.6	-	1.85	3.83	26
65		X		2	16	19×0.285	1.44	1.23	117.3	-	2.23	4.63	35.8
66		X		3	18	19×0.25	1.29	0.93	21.6	-	1.85	4.13	38.6
67		X		3	16	19×0.285	1.44	1.23	17.3	-	2.23	4.93	59.3
68		X		4	18	19×0.25	1.29	0.93	21.6	-	1.85	4.59	51.2
69		X		4	16	19×0.285	1.44	1.23	17.3	-	2.23	5.5	70.9
70	X			1	18	19×0.25	1.29	0.93	20.6	0.07	1.85	2.26	17
71	X			1	16	19×0.285	1.44	1.23	16.5	0.07	2.23	2.6	22.9

0.14

17.3

53.3

TABLE 1(a) – TYPE VARIANTS

Variant No.	Shielded	Unshielded	No. of Cores	Wire Size ISO/ (AWG)	Stranding No. of Strands × Diameter (mm)	Conductor Characteristics			Shield Strand Ø (mm)	Core Max Ø (mm)	Finished Wire Or Cable Characteristics	
						Max Ø (mm)	Nom Section (mm^2)	Max Ohmic Resistance (Ω/km)			Max Ø (mm)	Max Weight (kg/km)
01		X	1	- /(30)	7×0.1 (2)	0.31	0.06	410	-	-	0.56	0.82
02		X	1	- /(28)	7×0.12 (2)	0.38	0.08	248.9	-	-	0.63	1.15
03		X	1	001/(26)	19×0.1 (1) (2)	0.5	0.15	150	-	-	0.75	1.81
04		X	1	002/(24)	19×0.12 (1) (2)	0.62	0.21	106	-	-	0.87	2.5
05		X	1	004/(22)	19×0.15 (1)	0.76	0.34	58	-	-	0.87	2.5
06		X	1	006/(20)	19×0.2 (1)	1.01	0.6	32.3	-	-	1.26	6.31
07		X	1	010	19×0.25 (1)	1.26	0.93	20.3	-	-	1.56	9.72
08		X	1	012/(16)	19×0.3 (1)	1.55	1.2	14.8	-	-	1.9	14.05
09		X	1	020	37×0.25 (1)	1.82	2	10.2	-	-	2.29	19.44
10		X	1	030/(12)	37×0.32 (1)	2.28	3	6.51	-	-	2.74	29.92
11		X	2	- /(30)	7×0.1 (2)	0.31	0.06	423	-	0.56	1.23	1.65
12		X	2	- /(28)	7×0.12 (2)	0.38	0.08	256.4	-	0.63	1.26	2.35
13		X	2	001/(26)	19×0.1 (1) (2)	0.5	0.15	154.5	-	0.75	1.5	3.73
14		X	2	002/(24)	19×0.12 (1) (2)	0.62	0.21	109.2	-	0.87	1.74	5.15
15		X	2	004/(22)	19×0.15 (1)	0.76	0.34	59.8	-	0.87	2.02	7.79
16		X	2	006/(20)	19×0.2 (1)	1.01	0.6	33.3	-	1.26	2.52	13
17		X	2	010	19×0.25 (1)	1.26	0.93	20.9	-	1.56	3.12	20.02
18		X	2	012/(16)	19×0.3 (1)	1.55	1.2	15.2	-	1.9	3.79	28.31
19		X	2	020	37×0.25 (1)	1.82	2	10.5	-	2.29	4.58	39.16
20		X	2	030/(12)	37×0.32 (1)	2.28	3	6.7	-	2.74	5.48	60.58
21		X	3	- /(30)	7×0.1 (2)	0.31	0.06	423	-	0.56	1.21	2.47
22		X	3	- /(28)	7×0.12 (2)	0.38	0.08	256.4	-	0.63	1.36	3.52
23		X	3	001/(26)	19×0.1 (1) (2)	0.5	0.15	154.5	-	0.75	1.62	5.59

1.01
3.78
1.12

Variant No.	Shielded	Unshielded	No. of Cores	Wire Size ISO/ (AWG)	Stranding No. of Strands × Diameter (mm)	Conductor Characteristics			Shield Strand Ø (mm)	Core Max Ø (mm)	Finished Wire Or Cable Characteristics	
						Max Ø (mm)	Nom Section (mm^2)	Max Ohmic Resistance (Ω/km)			Max Ø (mm)	Max Weight (kg/km)
24		X	3	002/(24)	19×0.12 (1) (2)	0.62	0.21	109.2	-	0.87	1.88	7.73
25		X	3	004/(22)	19×0.15 (1)	0.76	0.34	59.8	-	1.01	2.18	11.68
26		X	3	006/(20)	19×0.2 (1)	1.01	0.6	33.3	-	1.26	2.72	19.5
27		X	3	010	19×0.25 (1)	1.26	0.93	20.9	-	1.56	3.37	30.03
28		X	3	012/(16)	19×0.3 (1)	1.55	1.2	15.2	-	1.90	4.1	42.51
29		X	3	020	37×0.25 (1)	1.82	2	10.5	-	2.29	4.95	58.8
30		X	3	030/(12)	37×0.32 (1)	2.28	3	6.7	-	2.74	5.92	90.88
31		X	4	- /(30)	7×0.1 (2)	0.31	0.06	423	-	0.56	1.35	3.3
32		X	4	- /(28)	7×0.12 (2)	0.38	0.08	256.4	-	0.63	1.52	4.7
33		X	4	001/(26)	19×0.1 (1) (2)	0.5	0.15	154.5	-	0.75	1.81	7.46
34		X	4	002/(24)	19×0.12 (1) (2)	0.62	0.21	109.2	-	0.87	2.1	10.3
35		X	4	004/(22)	19×0.15 (1)	0.76	0.34	59.8	-	1.01	2.43	15.57
36		X	4	006/(20)	19×0.2 (1)	1.01	0.6	33.3	-	1.26	3.04	26
37		X	4	010	19×0.25 (1)	1.26	0.93	20.9	-	1.56	3.76	40.05
38		X	4	012/(16)	19×0.3 (1)	1.55	1.2	15.2	-	1.9	4.57	56.77
39		X	4	020	37×0.25 (1)	1.82	2	10.5	-	2.29	5.52	78.53
40		X	4	030/(12)	37×0.32 (1)	2.28	3	6.7	-	2.74	6.6	121.17
41	X		1	- /(30)	7×0.1 (2)	0.31	0.06	410	0.1	0.56	1.39	4.18
42	X		1	- /(28)	7×0.12 (2)	0.38	0.08	248.9	0.1	0.63	1.45	4.78
43	X		1	001/(26)	19×0.1 (1) (2)	0.5	0.15	150	0.1	0.75	1.57	5.91
44	X		1	002/(24)	19×0.12 (1) (2)	0.62	0.21	106	0.1	0.87	1.69	7.06
45	X		1	004/(22)	19×0.15 (1)	0.76	0.34	58	0.1	1.01	1.87	9.09
46	X		1	006/(20)	19×0.2 (1)	1.01	0.6	32.3	0.1	1.26	2.12	12.57
47	X		1	010	19×0.25 (1)	1.26	0.93	20.3	0.1	1.56	2.41	17.1
48	X		1	012/(16)	19×0.3 (1)	1.55	1.2	14.8	0.1	1.90	2.78	23.25

15·2

10.5 6.7

Variant No.	Shielded	Unshielded	No. of Cores	Wire Size ISO/ (AWG)	Stranding No. of Strands × Diameter (mm)	Conductor Characteristics			Shield Strand Ø (mm)	Core Max Ø (mm)	Finished Wire Or Cable Characteristics	
						Max Ø (mm)	Nom Section (mm^2)	Max Ohmic Resistance (Ω/km)			Max Ø (mm)	Max Weight (kg/km)
49	X		1	020	37×0.25 (1)	1.82	2	10.2	0.1	2.29	3.17	30.22
50	X		1	030/(12)	37×0.32 (1)	2.28	3	6.51	0.1	2.74	3.65	42.52
51	X		2	- /(30)	7×0.1 (2)	0.31	0.06	423	0.1	0.56	1.92	6.61
52	X		2	- /(28)	7×0.12 (2)	0.38	0.08	256.4	0.1	0.63	2.06	7.71
53	X		2	001/(26)	19×0.1 (1) (2)	0.5	0.15	154.5	0.1	0.75	2.31	9.86
54	X		2	002/(24)	19×0.12 (1) (2)	0.62	0.21	109.2	0.1	0.87	2.55	11.97
55	X		2	004/(22)	19×0.15 (1)	0.76	0.34	59.8	0.1	1.01	2.85	15.64
56	X		2	006/(20)	19×0.2 (1)	1.01	0.6	33.3	0.1	1.26	3.35	22.39
57	X		2	010	19×0.25 (1)	1.26	0.93	20.9	0.1	1.56	3.92	31.19
58	X		2	012/(16)	19×0.3 (1)	1.55	1.2	15.2	0.1	1.9	4.61	42.39
59	X		2	020	37×0.25 (1)	1.82	2	10.5	0.1	2.29	5.46	56.25
60	X		2	030/(12)	37×0.32 (1)	2.28	3	6.7	0.1	2.74	6.43	81.04
61	X		3	- /(30)	7×0.1 (2)	0.31	0.06	423	0.1	0.56	2.01	8.35
62	X		3	- /(28)	7×0.12 (2)	0.38	0.08	256.4	0.1	0.63	2.16	10.1
63	X		3	001/(26)	19×0.1 (1) (2)	0.5	0.15	154.5	0.1	0.75	2.43	13.15
64	X		3	002/(24)	19×0.12 (1) (2)	0.62	0.21	109.2	0.1	0.87	2.69	16.25
65	X		3	004/(22)	19×0.15 (1)	0.76	0.34	59.8	0.1	1.01	3	21.22
66	X		3	006/(20)	19×0.2 (1)	1.01	0.6	33.3	0.1	1.26	3.55	31.11
67	X		3	010	19×0.25 (1)	1.26	0.93	20.9	0.1	1.56	4.16	43.86
68	X		3	012/(16)	19×0.3 (1)	1.55	1.2	15.2	0.1	1.9	4.91	59.14
69	X		3	020	37×0.25 (1)	1.82	2	10.5	0.1	2.29	5.83	78.34
70	X		3	030/(12)	37×0.32 (1)	2.28	3	6.7	0.1	2.74	6.87	114.39
71	X		4	- /(30)	7×0.1 (2)	0.31	0.06	423	0.1	0.56	2.14	10.03
72	X		4	- /(28)	7×0.12 (2)	0.38	0.08	256.4	0.1	0.63	2.32	12.26
73	X		4	001/(26)	19×0.1 (1) (2)	0.5	0.15	154.5	0.1	0.75	2.61	16.15

TABLE 1(b) – MAXIMUM RATINGS

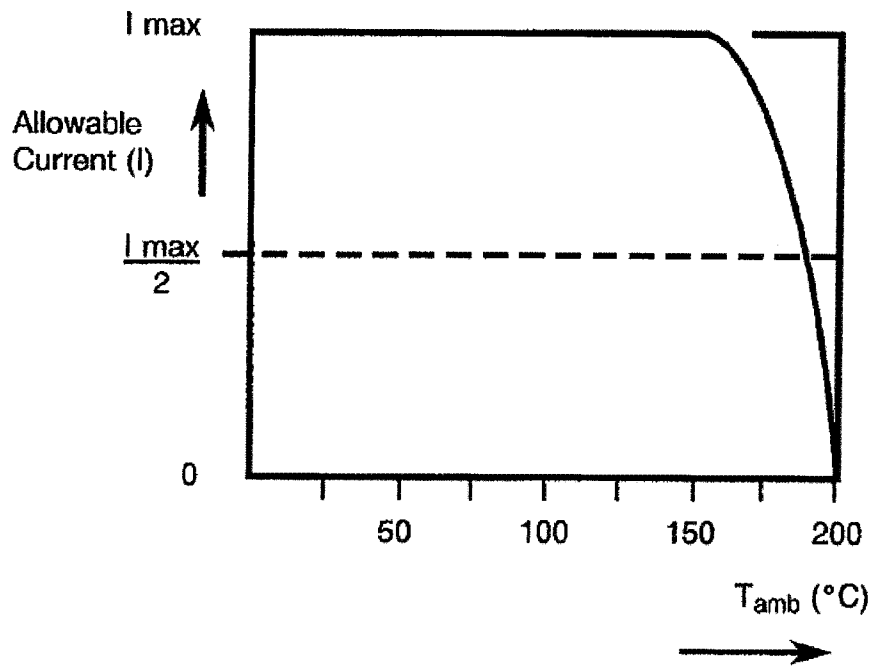
No.	Characteristics	Symbol	Maximum Rating	Unit	Remarks
1	Voltage	V_P	600	V_{rms}	
2	Maximum Current (Note 1)	I_{max}		A	For nom. sect. (mm^2) / AWG:
			1.5		0.06 / 30
			2		0.08 / 28
			2.5		0.15 / 26
			3.5		0.21 / 24
			5		0.34 / 22
			7.5		0.6 / 20
			10		0.93 / —
			13		1.2 / 16
			17		2 / —
			23		3 / 12
3	Operating Temperature Range	T_{amb}	-100 to +200	°C	
4	Storage Temperature Range	T_{stg}	-100 to +200	°C	

*

NOTES:

1. The above specified current will generate a temperature rise of approximately 50°C above ambient temperature in a vacuum environment. Precautions shall be taken to prevent the total temperature of the wire (ambient plus rise) exceeding the continuous operating temperature of the wire.

FIGURE 1 – PARAMETER DERATING INFORMATION



Allowable Current versus Temperature

4.4 MATERIALS AND FINISHES

The materials and finishes shall be as specified herein. Where a definite material is not specified, a material which will enable the wires and cables specified herein to meet the performance requirements of this specification shall be used. Acceptance or approval of any constituent material does not guarantee acceptance of the finished product.

4.4.1 Conductor

4.4.1.1 Material Characteristics

All strands used in the manufacture of the conductors shall be silver-plated, high strength copper alloy for sizes 0.06 to 0.21mm^2 inclusive and silver-plated, soft or annealed, high conductivity copper for sizes 0.34 to 3mm^2 inclusive. The silver-coating on all strands shall be 2µm minimum.

On all copper conductors, any strand shall show a 10% minimum elongation at break and a 220N/mm^2 minimum tensile strength. On all high-strength alloy conductors, any strand shall show a 6% minimum elongation at break and a 350N/mm^2 minimum tensile strength.

Missing sentence → see attached *

For determination of the conductor resistance at +20°C as mentioned in Para 9.5 of ESCC Generic Specification No. 3901, the α coefficient for copper alloy is 0.0035.

4.4.1.2 Stranding

The conductors shall be constructed of concentrically laid strands to produce a smooth and uniform conductor of circular cross-section and free from any high strands or other surface irregularities.

The length of the lay of the external layer shall not be less than 8, nor more than 16, times the maximum conductor diameter specified in Table 1(a).

4.4.1.3 Silver-coating Characteristics

(a) Continuity

The silver-coating of the conductor strands shall be continuous. It shall not exhibit visible black spots after testing in accordance with the methods outlined in ASTM-B298-74. The test shall be performed on 3 specimens taken before applying the insulation.

(b) Adhesion

The silver-coating shall adhere firmly to the surface of the copper and not exhibit visible detachment when tested in accordance with ASTM-B298-74. This test shall be performed on 3 specimens taken before application of the insulation.

4.4.2 Insulation

4.4.2.1 Material

The insulating material shall be a flame-retarded radiation cross-linked ethylenetetrafluoroethylene copolymer with additives necessary for processing, performance and colour identification.

4.4.2.2 Construction

The wire insulation shall consist of a single wall extrusion of polymer directly onto the conductor and of a 0.08 to 0.165mm wall thickness depending upon the conductor size detailed in Table 1(a). The insulation shall have an even wall thickness and shall be concentric with the conductor, having a concentricity value (% ratio of minimum to maximum wall thickness) of 70% minimum.

4.4.2.3 Insulation Colour

The insulation shall be extruded in a range of 11 colours as identified in Para. 4.5.3.

4.4 MATERIALS AND FINISHES

The materials and finishes shall be as specified herein. Where a definite material is not specified, a material which will enable the wires and cables specified herein to meet the performance requirements of this specification shall be used. Acceptance or approval of any constituent material does not guarantee acceptance of the finished product.

4.4.1 Conductor

4.4.1.1 Material Characterisitics

All strands used in the manufacture of the conductors shall be silver-plated, high strength copper alloy for sizes 0.06 to 0.21mm^2 inclusive and silver-plated, soft or annealed, high conductivity copper for sizes 0.34 to 3.00mm^2 inclusive. The silver-coating on all strands shall be 2.0µm minimum.

On all copper conductors, any strand shall show a 10% minimum elongation at break and a 220N/mm^2 minimum tensile strength. On all high-strength alloy conductors, any strand shall show a 6% minimum elongation at break and a 350N/mm^2 minimum tensile strength.

missing sentence

* The test shall be performed on single strands from the complete conductor, except for copper alloy, where the inner 7 strands shall be tested together to eliminate variance.

For determination of the conductor resistance at +20°C as mentioned in Para. 9.5 of ESCC Generic Specification No. 3901, the 'α' coefficient for copper alloy is 0.0035.

4.4.1.2 Stranding

The conductors shall be constructed of concentrically laid strands to produce a smooth and uniform conductor of circular cross-section and free from any high strands or other surface irregularities.

The length of the lay of the external layer shall not be less than 8, nor more than 16, times the maximum conductor diameter specified in Table 1(a).

4.4.1.3 Silver-Coating Characteristics

(a) Continuity

The silver-coating of the conductor strands shall be continuous. It shall not exhibit visible black spots after testing in accordance with the methods outlined in ASTM-B298-74. The test shall be performed on 3 specimens taken before applying the insulation.

(b) Adhesion

The silver-coating shall adhere firmly to the surface of the copper and not exhibit visible detachment when tested in accordance with ASTM-B298-74. This test shall be performed on 3 specimens taken before application of the insulation.

4.4.2 Insulation

4.4.2.1 Material

The insulating material shall be a flame-retarded radiation cross-linked ethylene-tetrafluoroethylene copolymer with additives necessary for processing, performance and colour identification.

1 GENERAL

1.1 SCOPE

This specification details the ratings, physical and electrical characteristics, test and inspection data for a Diode, Microwave, Silicon, Tuning Varactor, based on Types ML4310 thru ML4319. It shall be read in conjunction with ESCC Generic Specification No. 5010, the requirements of which are supplemented herein.

1.2 TYPE VARIANTS

Variants of the basic diodes specified herein, which are also covered by this specification are given in Table 1(a).

1.3 MAXIMUM RATINGS

The maximum ratings, which shall not be exceeded at any time during use or storage, applicable to the diodes specified herein, are as scheduled in Table 1(b).

1.4 PARAMETER DERATING INFORMATION

The derating information applicable to the diodes specified herein is shown in Figure 1.

1.5 PHYSICAL DIMENSIONS

The physical dimensions of the diodes specified herein are shown in Figure 2.

delete → 1.6 PHYSICAL DIMENSIONS
The physical dimensions of the diodes specified herein are shown in Figure 2.

1.86 FUNCTIONAL DIAGRAM

The functional diagram, showing lead identification, of the diodes specified herein, is shown in Figure 3.

1.87 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.

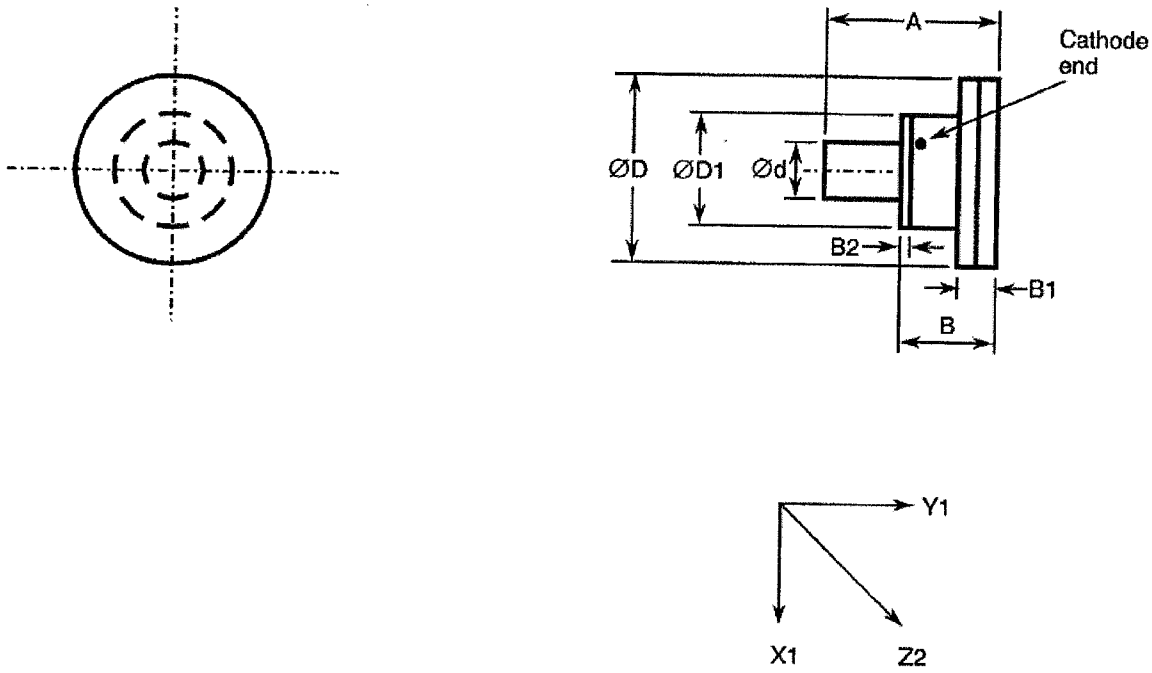
These components are Categorised as Class 2 with a Minimum Critical Path Failure Voltage of 3400V.

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 for Discrete Microwave Semiconductor Components.

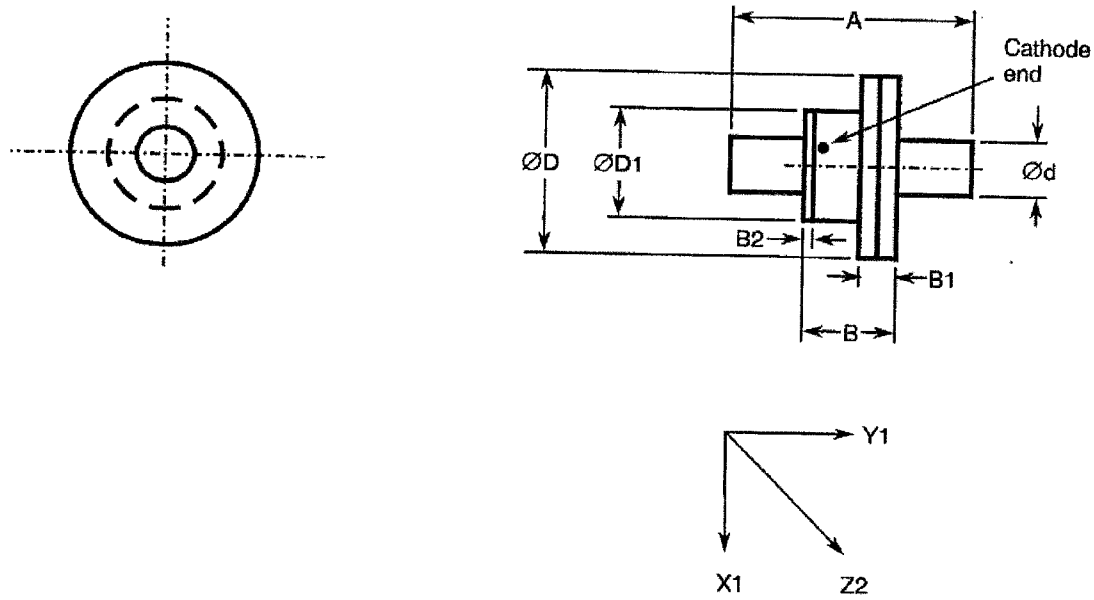
FIGURE 2(e) – VARIANTS 05, 16, 27, 38, 49, 60, 71



Symbol	Millimetres	
	Min	Max
A	1.78	2.03
B	1.02	1.27
B1	-	0.38
B2	1.1	0.25
Ød	0.61	0.66
ØD	1.98	2.18
ØD1	1.19	1.35

0.1

FIGURE 2(f) – VARIANTS 06, 17, 28, 39, 50, 61, 72



Symbol	Millimetres	
	Min	Max
A	2.54	2.79
B	1.02	1.27
B1	-	0.38 → 0.1
B2	1.1	0.25
Ød	0.61	0.66
ØD	1.98	2.18
ØD1	1.19	1.35

4.3 MECHANICAL AND ENVIRONMENTAL REQUIREMENTS

4.3.1 Dimension Check

The dimensions of the diodes specified herein shall be checked. They shall conform to those shown in Figure 2.

4.3.2 Weight

The maximum weight of the diodes specified herein shall be:

Variant No.	Weight (g)
01, 12, 23, 34, 45	0.12
02, 13, 24, 35, 46	0.06
03, 14, 25, 36, 47	0.01
04, 15, 26, 37,48	0.1
05, 16, 27, 38, 49	0.015
06, 17, 28, 39, 50	0.022
07, 08, 18, 19, 29, 30, 40, 41, 51, 52	0.14
09, 20, 31, 42, 53	0.014
10, 21, 32, 43, 54	0.06
11, 22, 33, 44, 55	0.025

4.3.3 Terminal Strength

The requirements for terminal strength testing are specified in Section 9 of ESCC Generic Specification No. 5010. The test conditions shall be as follows:

(a) Condition: 'A' (Tension)
Variants 10, 21, 32, 43 and 54:
- Force: 5.1N.
- Duration: 5 seconds.

Variants 11, 22, 33, 44 and 55: D2
- Force: 1.22N.
- Duration: 5 seconds.

(b) Condition: '02' (Stud Torque)
Variants 07, 18, 29, 40 and 51:
- Torque: 56mNm.
- Duration: 5 seconds.

Variants 08, 19, 30, 41 and 52:
- Torque: 42mNm.
- Duration: 5 seconds.

(c) Condition: Compression
Variants 01, 02, 04, 07, 12, 13, 15, 18, 23, 24, 26, 29, 34, 35, 37, 40, 45, 46, 48 and 51:
- Force: 50N.
- Duration: 5 seconds.

Variants 03, 05, 06, 08, 09, 14, 16, 17, 19, 20, 25, 27, 28, 30, 31, 36, 38, 39, 41, 42, 47, 49, 50, 52 and 53:
- Force: 10N.
- Duration: 5 seconds.

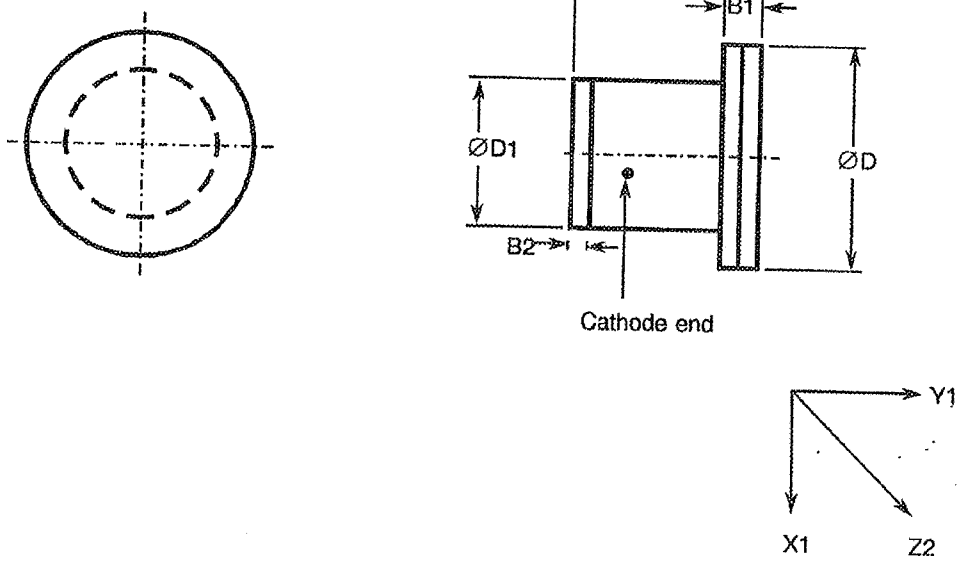
TABLE 1(b) - MAXIMUM RATINGS

No.	Characteristic	Symbol	Maximum Ratings	Unit	Remarks
1	DC Reverse Voltage Variants 10 to 16 Variants 20 to 26 Variants 30 to 36 Variants 40 to 46 Variants 50 to 56	V_R	 -15 -20 -30 -40 -45	V	-
2	DC Forward Current (Continuous) Variants 10 to 15, 20 to 25 and 30 to 35 Variants 40 to 45 and 50 to 55 Variants 16 and 26 Variants 36, 46 and ~~53~~ 56	I_F	 250 500 600 1000	mA	Note 1
3	RF Power Dissipation Variants 10 to 15, 20 to 25, 30 to 35 and 40 to 45 Variants 50 to 55 Variants 16 and 26 Variants 36, 46 and 56	P_{tot}	 0.5 0.6 0.75 1.25	W	Note 1
4	Operating Temperature Range	T_{op}	-55 to +150	°C	T_{case} (Infinite Heat Sink)
5	Storage Temperature Range	T_{stg}	-65 to +175	°C	-
6	Soldering Temperature	T_{sol}	+230	°C	Note 2

NOTES

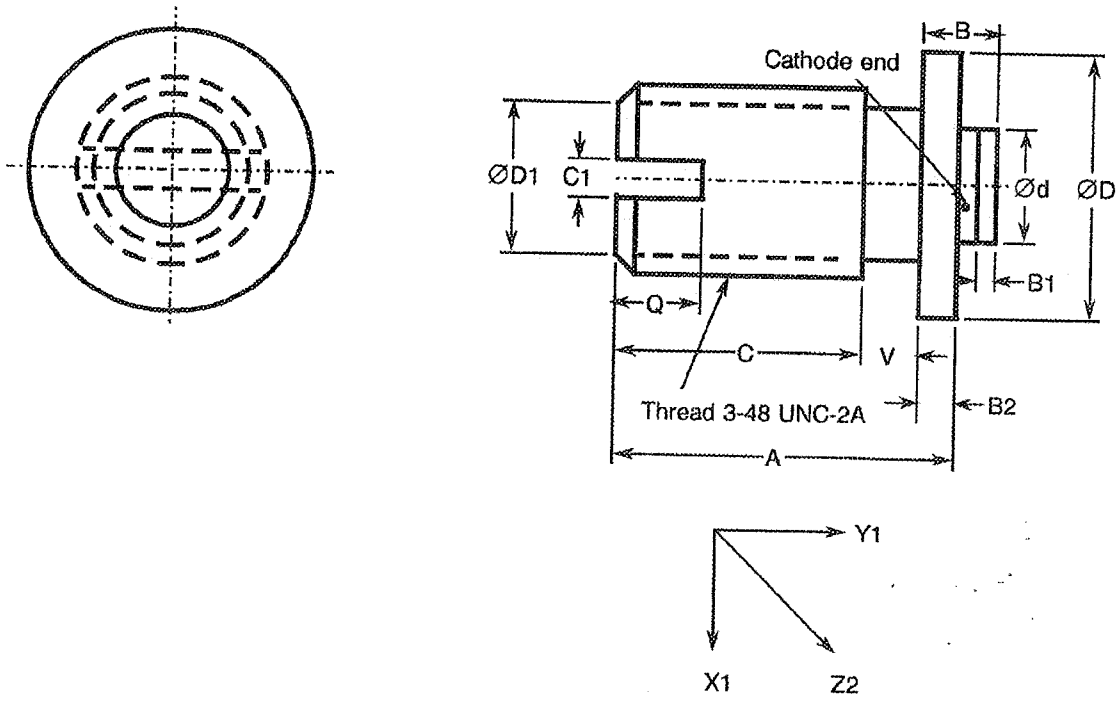
1. At T_{amb} = +75°C. For derating at T_{amb} > +75°C, see Figure 1.
2. Duration 5 seconds maximum and the same termination shall not be resoldered until 3 minutes have elapsed.

FIGURE 2(b) VARIANTS 02, 11, 26, 50



Symbol	Millimetres	
	min	max
A	2.16	2.46
B1	0.41	0.61
B2	0.15	0.25
ØD	3	3.23
ØD1	1.95	2.11

FIGURE 2(v) VARIANTS 22, 46, 70



Symbol	Millimetres	
	min	max
A	4.04	4.55
B	0.84	1.12
B1	0.2	0.3
B2	0.46	0.56
C	2.54	3.45
C1	0.38	0.64
Ød	1.22	1.32
ØD	2.87	3
ØD1	1.6	2
Q	0.89	1.14
V	0.64	0.89

0.94

4.6.3 Circuits for Electrical Measurements

Circuits for use in performing electrical measurements listed in Table 2 of this specification are shown in Figure 4.

4.7 BURN-IN TESTS

Burn-in shall be Category 2 of Chart III(a).

4.7.1 Parameter Drift Values

The parameter drift values applicable to burn-in are specified in Table 4 of this specification. Unless otherwise stated, the measurements shall be performed at T_{amb} = +22 ±3°C. The parameter drift values (Δ) applicable to the scheduled parameters shall not be exceeded. In addition to these drift value requirements for a given parameter, the appropriate limit value specified in Table 2 shall not be exceeded.

4.7.2 Conditions for High Temperature Reverse Bias Burn-in

The requirements for the high temperature reverse bias burn-in are specified in Section 7 of ESCC Generic Specification No. 5010. The conditions for high temperature reverse bias burn-in shall be as specified in Table 5(a) of this specification.

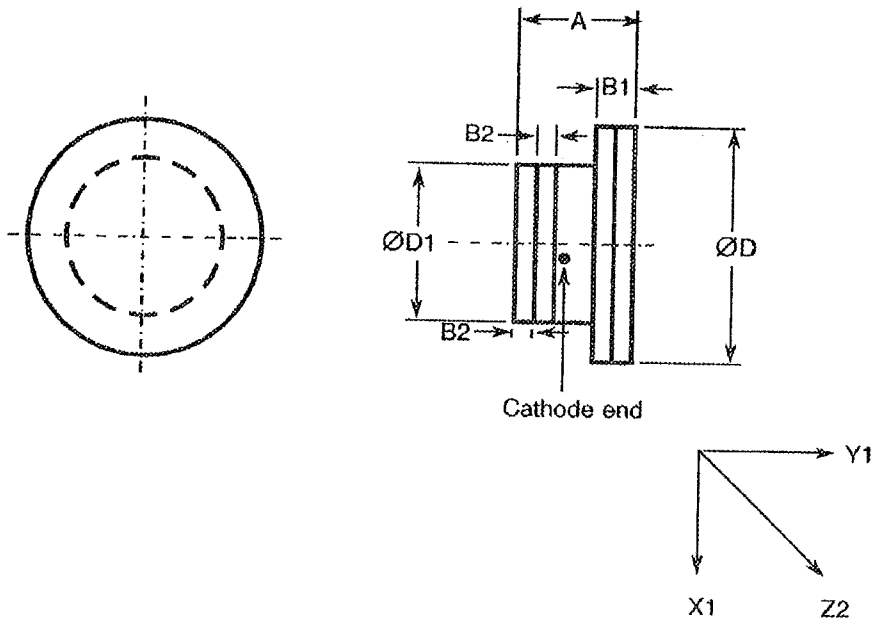
4.7.3 Conditions for Power Burn-in

The requirements for power burn-in are specified in Section 7 of ESCC Generic Specification No. 5010. The conditions for power burn-in shall be as specified in Table 5(a) of this specification.

4.7.4 Electrical Circuits for High Temperature Reverse Bias and Power Burn-in

Circuits for use in performing the H.T.R.B and power burn-in tests are shown in Figures 5(a) and 5(b) of this specification.

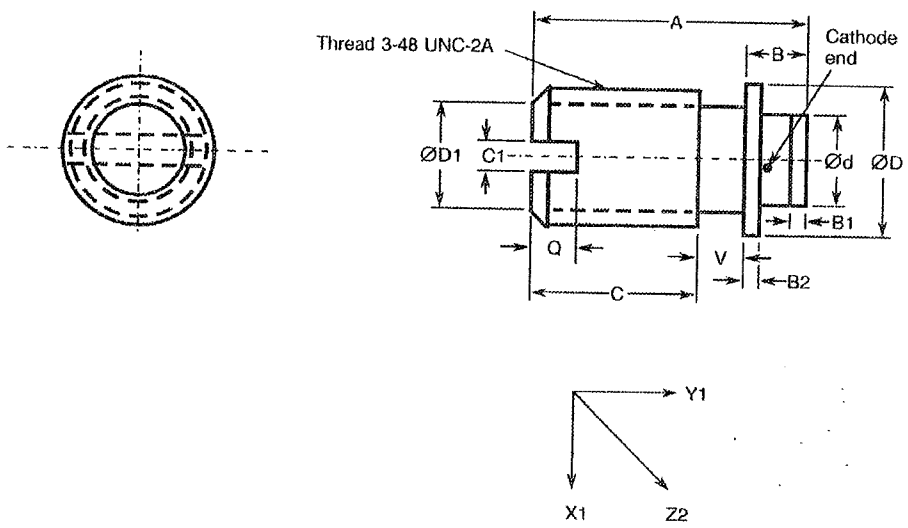
FIGURE 2(c) - VARIANTS 03, 28, 53, 78



Symbol	Millimetres	
	Min	Max
A	1.37	1.68
B1	0.41	0.61
B2	0.15	0.25
ØD	3	3.23
ØD1	1.95	2.11

0.2

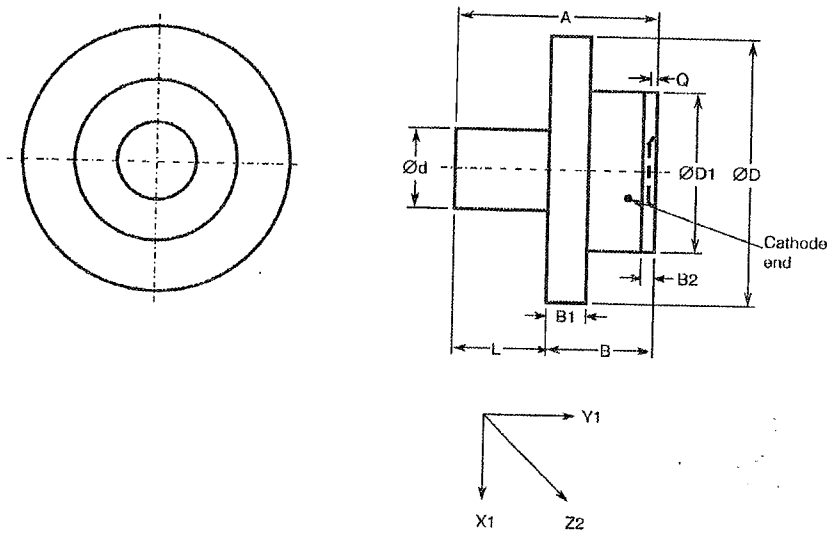
FIGURE 2(p) - VARIANTS 16, 41, 66, 91



Symbol	Millimetres	
	Min	Max
A	4.19	4.7
B	0.77	1.04
B1	0.2	0.3
B2	0.22	0.28
C	2.21	3.29
Ød	1.22	1.32
ØD	2.49	2.59
ØD1	1.6	2
Q	0.64	1.14
V	0.64	0.94
C1	0.38	0.64

C1 →

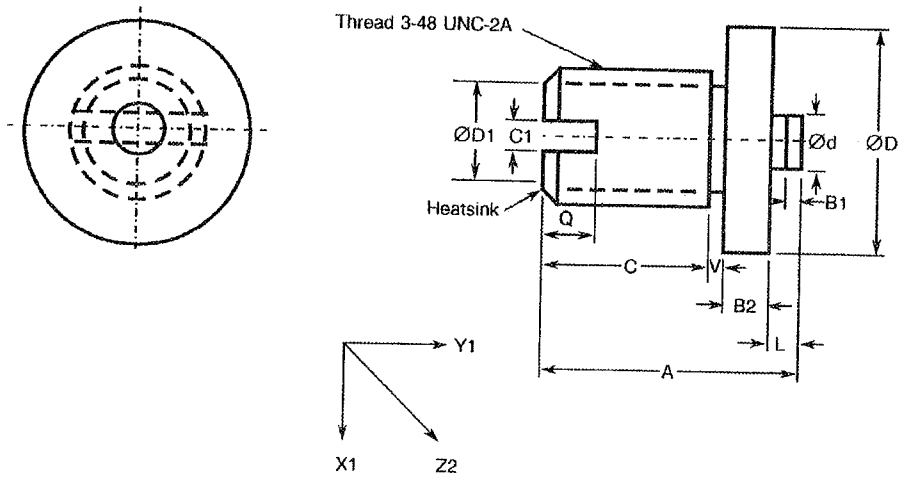
FIGURE 2(r) - VARIANTS 18, 43, 68, 93



Symbol	Millimetres	
	Min	Max
A	1.384	1.715
B	0.749	0.826
B1	0.025	0.038
B2	0.05	0.18
Ød	0.56	0.71
ØD	1.96	2.11
ØD1	1.19	1.35
Q	0.038	0.076
(V)	0.558	0.996

L

FIGURE 2(s) - VARIANTS 19, 44, 69, 94



Symbol	Millimetres	
	Min	Max
A	3.56	3.68
B	0.2	0.3
B1	0.46	0.56
C	2.36	3.02
C1	0.38	0.64
Ød	0.69	0.86
ØD	2.87	3
ØD1	1.6	2
L	0.41	0.48
Q	0.64	1.14
V	0.2	0.64

NOTES

1. Due to its very small size, not even the cathode identification will be marked on this package (see Para. 4.5.1).

TABLE 3 - ELECTRICAL MEASUREMENTS AT HIGH AND LOW TEMPERATURES

No.	CHARACTERISTICS	SYMBOL	SPEC AND/OR TEST METHOD	TEST CONDITIONS	LIMITS		UNIT
					MIN.	MAX.	
2	Reverse Current 2	I_{R2}	As per Table 2	As per Table 2	-	10	µA

TABLE 4 - PARAMETER DRIFT VALUES

No.	Characteristics	Symbol	Spec. And/Or Test Method	Test Conditions	Change Limits (Δ)	Unit
2	Reverse Current 2	I_{R2}	As per Table 2	As per Table 2	±10 (1) or (2) ~~±100 (1)~~	nA %
3	Forward Voltage	V_F	As per Table 2	As per Table 2	±100(1)	mV

NOTES

1. Δ1 = Δ2.
2. Whichever is the greater, referred to the initial measurement.

4.8 ENVIRONMENTAL AND ENDURANCE TESTS (CHARTS IV AND V OF ESCC GENERIC SPECIFICATION No. 5010)

4.8.1 Electrical Measurements on Completion of Environmental Tests

The parameters to be measured on completion of environmental tests are scheduled in Table 2. Unless otherwise stated, the measurements shall be performed at T_{amb} = +22 ±3°C.

4.8.2 Electrical Measurements at Intermediate Points and on Completion of Endurance Tests

The parameters to be measured at intermediate points and on completion of endurance tests are scheduled in Table 6. Unless otherwise stated, the measurements shall be performed at T_{amb} = +22 ±3°C.

4.8.3 Conditions for Operating Life Tests (Part of Endurance Testing)

The requirements for operating life testing are specified in Section 9 of ESCC Generic Specification No. 5010. The conditions for operating life testing are specified in Table 5(b) of this specification.

4.8.4 Electrical Circuits for Operating Life Tests

The circuit to be used for performance of the operating life test shall be the same as shown in Figure 5(b) for ~~High Temperature Reverse Bias Burn-in~~ Power Burn-in.

4.9 TOTAL DOSE IRRADIATION TESTING

4.9.1 Application

If specified in Para. 4.2.1 of this specification, total dose irradiation testing shall be performed in accordance with the requirements of ESCC Basic Specification No. 22900.

4.9.2 Bias Conditions

Continuous bias shall be applied during irradiation testing as shown in Figure 6 of this specification.

4.9.3 Electrical Measurements

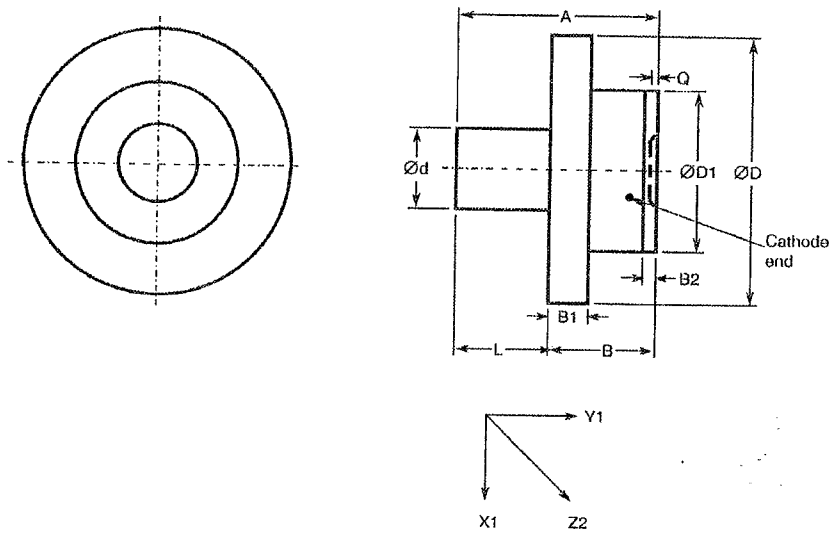
The parameters to be measured prior to irradiation exposure are scheduled in Table 2 of this specification. Only devices which meet the requirements of Table 2 shall be included in the test sample.

The parameters to be measured during and on completion of irradiation testing are scheduled in Table 7 of this specification.

4.10 SPECIAL TESTING

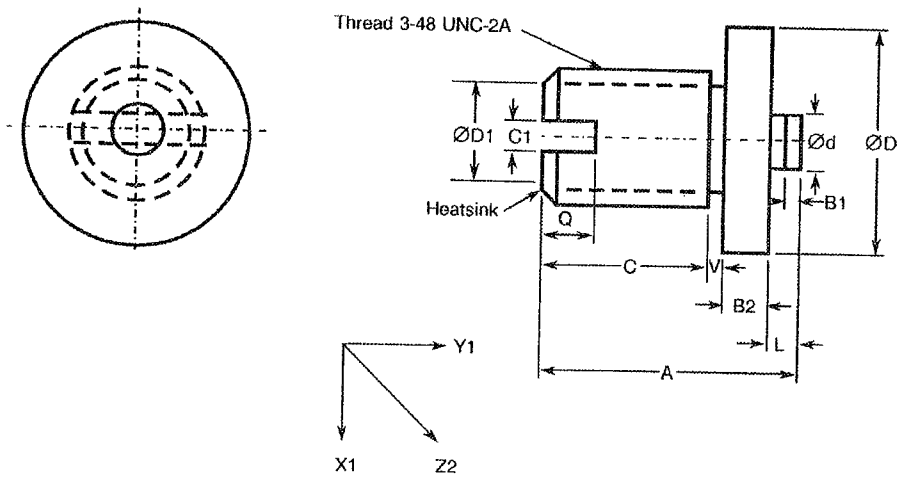
Not applicable.

FIGURE 2(r) - VARIANTS 18, 43, 68, 93



Symbol	Millimetres	
	Min	Max
A	1.384	1.715
B	0.749	0.826
B1	0.025	0.038
B2	0.05	0.18
Ød	0.56	0.71
ØD	1.96	2.11
ØD1	1.19	1.35
Q	0.038	0.076
(V)	0.558	0.996

FIGURE 2(s) - VARIANTS 19, 44, 69, 94

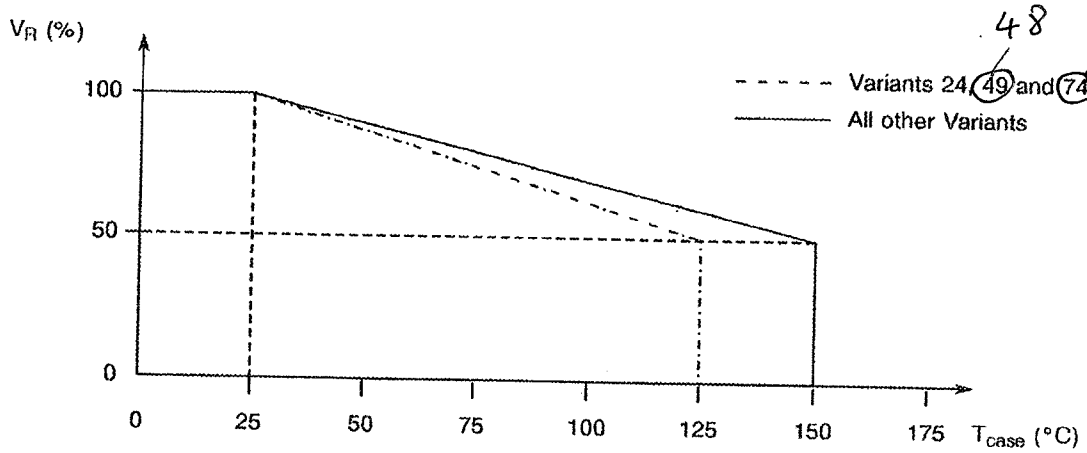


Symbol	Millimetres	
	Min	Max
A	3.56	3.68
B	0.2	0.3
B1	0.46	0.56
C	2.36	3.02
C1	0.38	0.64
Ød	0.69	0.86
ØD	2.87	3
ØD1	1.6	2
L	0.41	0.48
Q	0.64	1.14
V	0.2	0.64

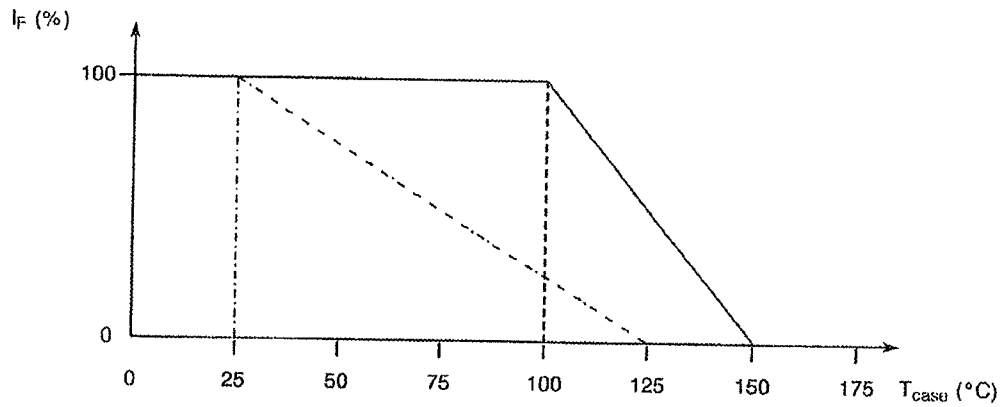
NOTES

1. Due to its very small size, not even the cathode identification will be marked on this package (see Para. 4.5.1).

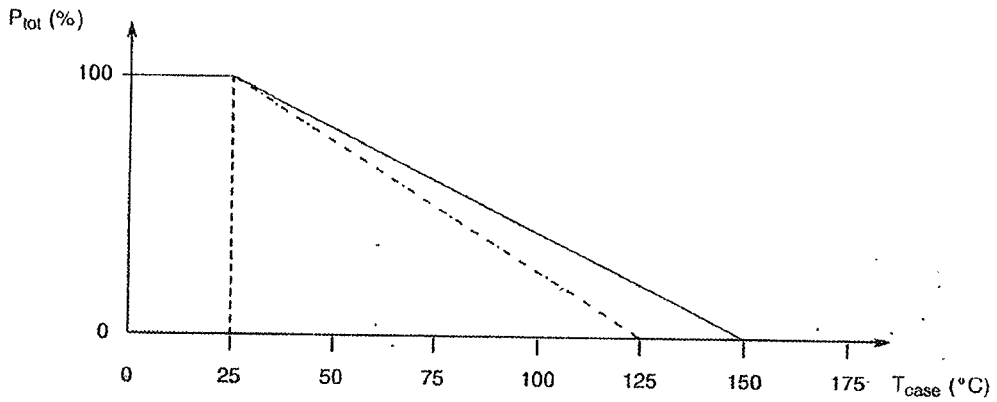
FIGURE 1 - PARAMETER DERATING INFORMATION



Reverse Voltage versus Temperature

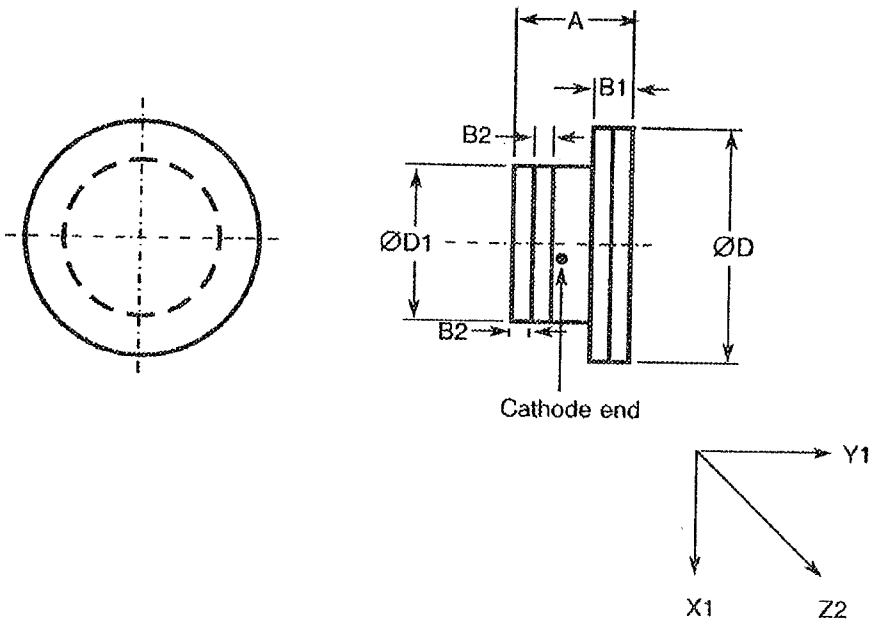


Forward Current versus Temperature



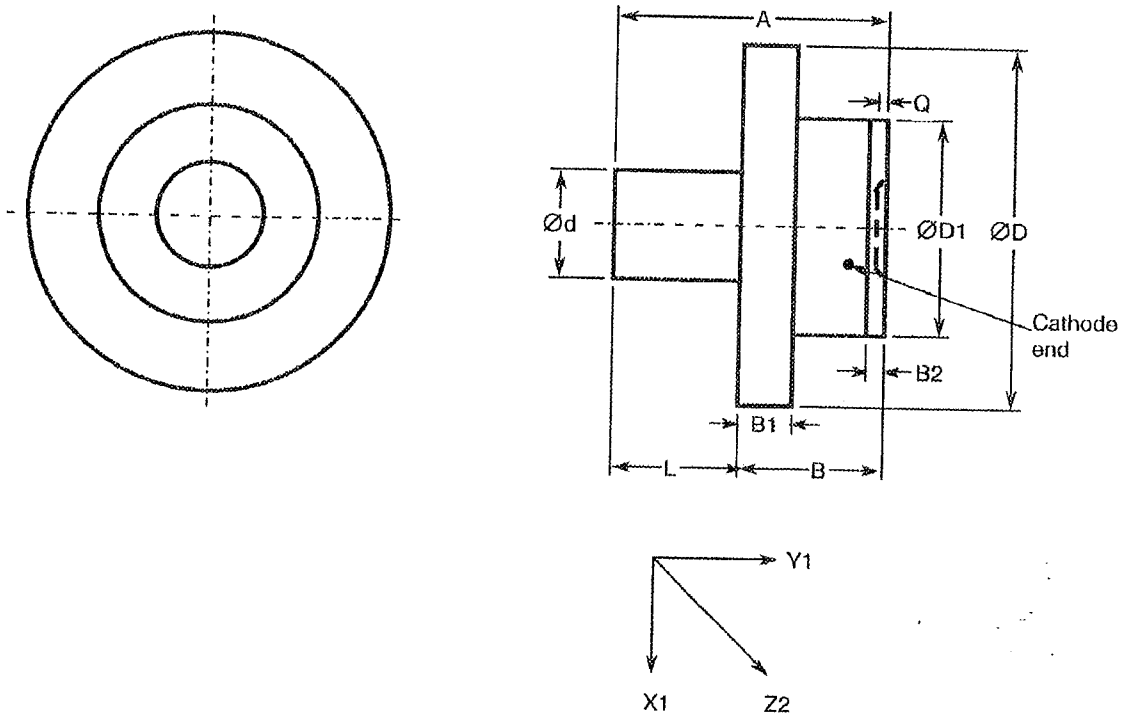
Power Dissipation versus Temperature

FIGURE 2(c) - VARIANTS 03, 28, 53 52



Symbol	Millimetres	
	Min	Max
A	1.37	1.68
B1	0.41	0.61
B2	0.15	0.25
ØD	3	3.23
ØD1	1.95	2.11

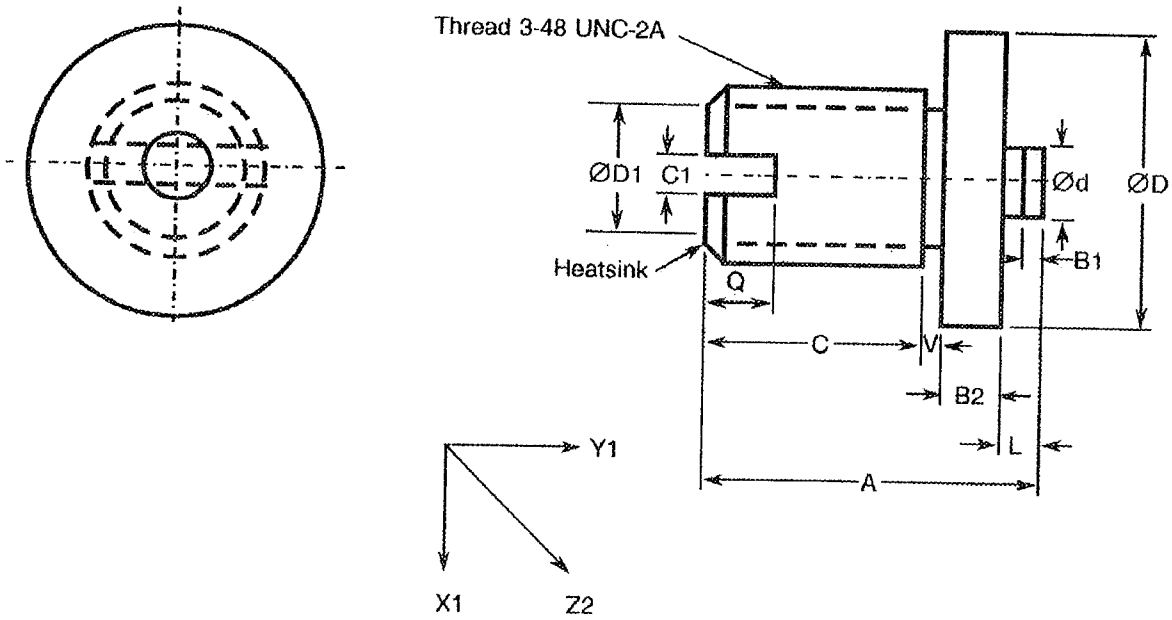
FIGURE 2(r) - VARIANTS 18, 43



Symbol	Millimetres	
	Min	Max
A	1.384	1.715
B	0.749	0.826
B1	0.025	0.038
B2	0.05	0.18
Ød	0.56	0.71
ØD	1.96	2.11
ØD1	1.19	1.35
Q	0.038	0.076
V	0.558	0.996

L

FIGURE 2(s) - VARIANT 19

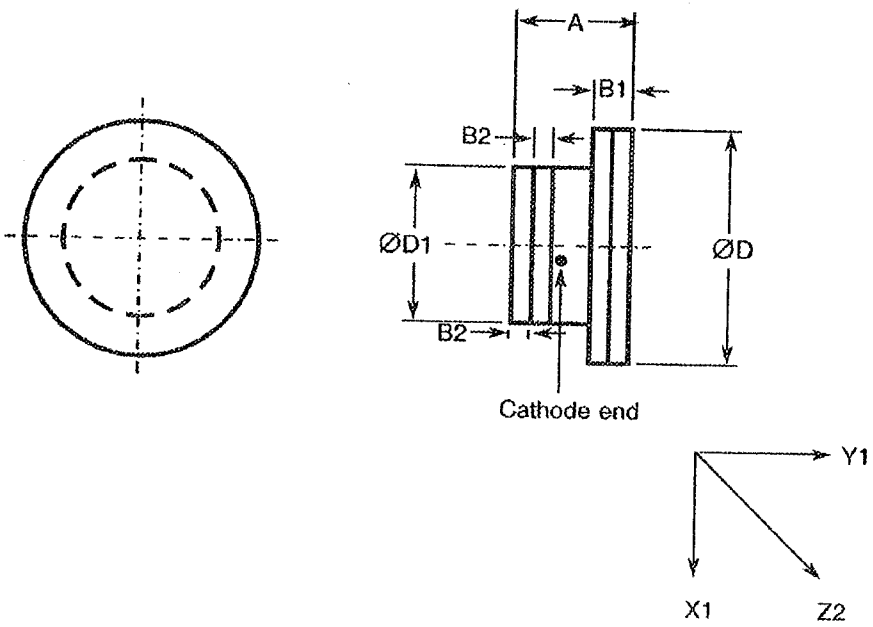


Symbol	Millimetres	
	Min	Max
A	3.56	3.68
B	0.2	0.3
B1	0.46	0.56
C	2.36	3.02
C1	0.38	0.64
Ød	0.69	0.86
ØD	2.87	3
ØD1	1.6	2
L	0.41	0.48
Q	0.64	1.14
V	0.2	0.64

NOTES

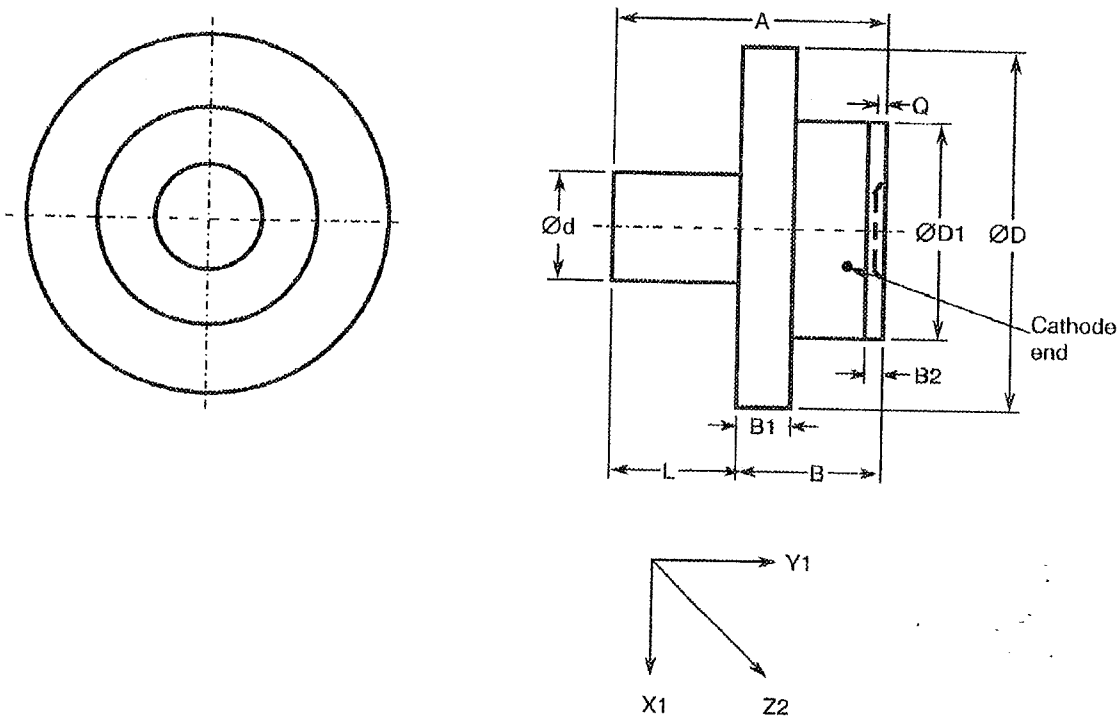
1. Due to its very small size, not even the cathode identification will be marked on this package (see Para. 4.5.1).

FIGURE 2(c) - VARIANTS 03, 28, 53 52



Symbol	Millimetres	
	Min	Max
A	1.37	1.68
B1	0.41	0.61
B2	0.15	0.2
ØD	3	3.23
ØD1	1.95	2.11

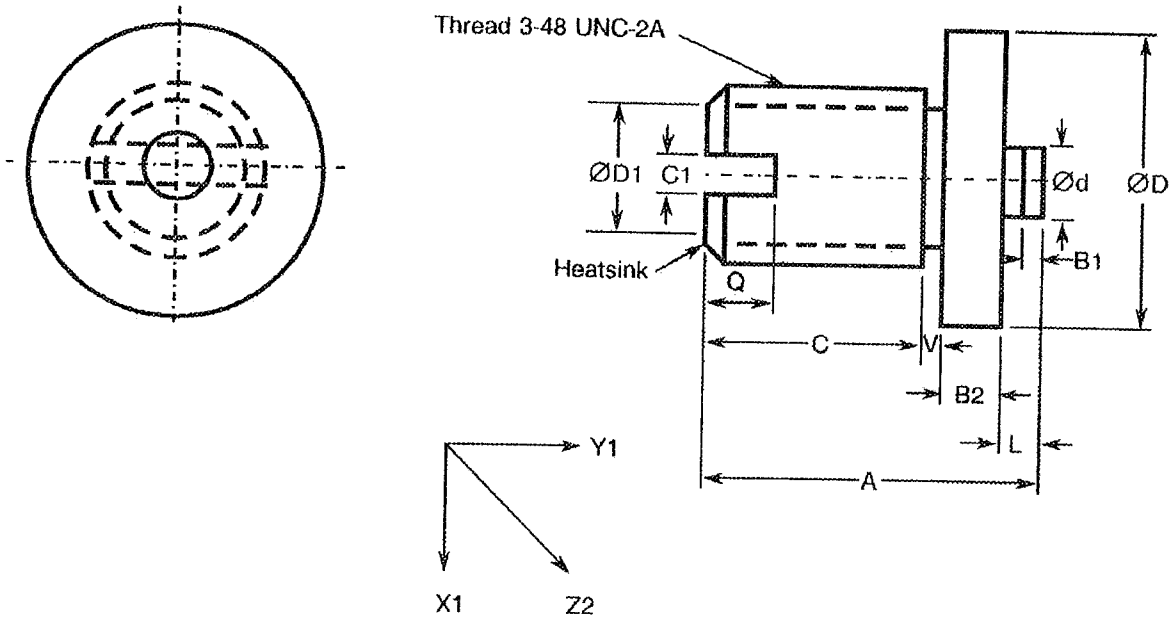
FIGURE 2(r) - VARIANTS 18, 43



Symbol	Millimetres	
	Min	Max
A	1.384	1.715
B	0.749	0.826
B1	0.025	0.038
B2	0.05	0.18
Ød	0.56	0.71
ØD	1.96	2.11
ØD1	1.19	1.35
Q	0.038	0.076
V	0.558	0.996

L

FIGURE 2(s) - VARIANT 19



Symbol	Millimetres	
	Min	Max
A	3.56	3.68
B	0.2	0.3
B1	0.46	0.56
C	2.36	3.02
C1	0.38	0.64
Ød	0.69	0.86
ØD	2.87	3
ØD1	1.6	2
L	0.41	0.48
Q	0.64	1.14
V	0.2	0.64

NOTES

1. Due to its very small size, not even the cathode identification will be marked on this package (see Para. 4.5.1).

4.7.2 Conditions for High Temperature Reverse Bias Burn-in

The requirements for the high temperature reverse bias burn-in are specified in Section 7 of ESCC Generic Specification No. 5010. The conditions for high temperature reverse bias burn-in shall be as specified in Table 5(a) of this specification.

4.7.3 Conditions for Power Burn-in

The requirements for power burn-in are specified in Section 7 of ESCC Generic Specification No. 5010. The conditions for power burn-in shall be as specified in Table 5(b) of this specification.

4.7.4 Electrical Circuits for High Temperature Reverse Bias and Power Burn-in

Circuits for use in performing the H.T.R.B and power burn-in tests are shown in Figures 5(a) and 5(b) of this specification.

TABLE 2- ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE- DC PARAMETERS

No.	Characteristics	Symbol	MIL-STD-750 Test Method	Test Conditions	Limits		Unit
					Min.	Max.	
1	Reverse Current 1	I_{R1}	4016	V_R = -200V	-	10	µA
2	Reverse Current 2	I_{R2}	4016	V_R = -100V	-	50	nA
3	Forward Voltage	V_F	4011	I_F = 100mA	-	1.3	V
4	Thermal Resistance	$R_{TH(J-C)}$	3101	I_F = 1.0A Note 1			°C/W
				Variants 01 to 23	-	40	
				Variant 24	-	500	
				Variant 25	-	200	
				Variants 26 to 47	-	35	
				Variant 48	-	500	
				Variant 49	-	195	
				Variants 50 to 61	-	30	
				Variant 62	-	500	
				Variant 63	-	190	

NOTES

1. Pulsed measurement, pulse width = 4.0µs, p.r.f. = 1.0kHz.

TABLE 2 - ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE - AC PARAMETERS

No.	Characteristics	Symbol	MIL-STD-750 Test Method	Test Fig.	Test Conditions (Note 1)	Limits		Unit
						Min.	Max.	
5	Total Capacitance	C_T	4001	-	V_R = -10V f = 1.0MHz	Note 1		pF
6	Minority Carrier Lifetime	τ_L	-	4(a)	I_F = 4.5mA	-	700	ns
7	Forward Slope Resistance	R_{FS}	-	4(b)	I_F = 40mA f_o = 500MHz			Ω
					Variants 01 to 25	-	1.3	
					Variants 26 to 49	-	1	
					Variants 50 to 63	-	0.8	

1200

4.2 Deviations from generic specification

4.2.1 Deviations from Special In-process Controls

(a) Para. 5.2.2, Total Dose Irradiation Testing: Shall be performed during qualification and extension of qualification.
(b) Para. 5.2.2, Total Dose Irradiation Testing: Shall be performed during procurement on a lot acceptance basis at the total dose irradiation level specified in the purchase order.
(c) Para. 5.3, Wafer Lot Acceptance: Shall be performed as an SEM Inspection only.

4.2.2 Deviations from Final Production Tests (Chart II)

(a) Para. 9.2.2, Die Shear: Forces need not be recorded and the residual die area shall be $\geq$ 50% of the original die size.
(b) Para. 9.6, Constant Acceleration: Shall not be performed.
(c) Para. 9.14, Vibration, Variable Frequency: Shall not be performed.
(d) Para. 9.7, PIND test shall be performed in accordance with condition 'A'; it may be performed at any point after indicated position in Chart II.

4.2.3 Deviations from Burn-in and Electrical Measurements (Chart III)

(a) Para. 9.9.1, Initial Parameter Drift Value Measurements: Parameters measured in Chart II shall not be repeated during electrical measurements at room temperature.
(b) Para. 9.12, Radiographic Inspection: Shall be performed in X and Z axes only, exposure 100kV, duration 5 minutes.
(c) Para. 9.12, Radiographic Inspection may be performed at any point after completed Power Burn-in (Chart III).

4.2.4 Deviations from Qualification Tests (Chart IV)

(a) Para. 9.2.2, Die Shear: Forces need not be recorded and the residual die area shall be $\geq$ 50% of the original die size.
(b) Para. 9.15, Constant Acceleration: Shall not be performed.
(c) Para. 9.20, Operating Life: Only one Operating Life Test shall be performed on 30 pieces.
(d) Para. 9.23, Special Testing: Shall not be performed.

4.2.5 Deviations from Lot Acceptance Tests (Chart V)

(a) Para. 9.14, Vibration: Shall not be performed.
(b) Para. 9.5, Thermal shock and Para. 9.16, Moisture Resistance, shall be done in sequence on all 6 components of the Environmental/Mechanical Subgroups.
(c) Para. 9.15, Constant Acceleration: Shall not be performed.
(d) Para. 9.20, Operating Life: Only one Operating Life Test shall be performed on 16 components.
(e) Para. 9.23, Special Testing: Shall not be performed.

4.3 MECHANICAL AND ENVIRONMENTAL REQUIREMENTS

4.3.1 Dimension Check

The dimensions of the diodes specified herein shall be checked.They shall conform to those shown in Figure 2.

4.3.2 Weight

The maximum weight of the diodes specified herein shall be 0.02 grammes.

4.5.3 The ESCC Component Number

Each component shall bear the ESCC Component Number which shall be constituted and marked as follows:

Example: 551301701BF

- Detail Specification Number: 5513017
- Type Variant (see Table 1(a)): 01
- Testing Level (B or C, as applicable): B
- Total Dose Irradiation Level (if applicable): F

The Total Dose Irradiation Level designation shall be added for those devices for which a sample has been successfully tested to the level in question. For these devices, a code letter shall be added in accordance with the requirements of ESCC Basic Specification No. 22900.

4.5.4 Traceability Information

Each component shall be marked in respect of traceability information as defined in ESCC Basic Specification No. 21700.

4.6 ELECTRICAL MEASUREMENTS

4.6.1 Electrical Measurements at Room Temperature

The parameters to be measured at room temperature are scheduled in Table 2. Unless otherwise specified, the measurements shall be performed at T_{amb} = +22 ±3°C.

4.6.2 Electrical Measurements at High and Low Temperatures

The parameters to be measured at high and low temperatures are scheduled in Table 3. Unless otherwise specified, the measurements shall be performed at T_{amb} = +125°C.

4.6.3 Circuits for Electrical Measurements

Circuits for use in performing electrical measurements listed in Table 2 of this specification are shown in Figure 4.

4.7 BURN-IN TESTS

Burn-in shall be Category 3 of Chart III(a).

4.7.1 Parameter Drift Values

The parameter drift values applicable to burn-in are specified in Table 4 of this specification. Unless otherwise stated, measurements shall be performed at T_{amb} +22 ±3°C. The parameter drift values (Δ) applicable to the scheduled parameters shall not be exceeded. In addition to these drift value requirements for a given parameter, the appropriate limit value specified in Table 2 shall not be exceeded.

4.7.2 Conditions for High Temperature Reverse Bias Burn-in

The requirements for high temperature reverse bias burn-in are specified in Section 7 of ESCC Generic Specification No. 5010. The conditions for high temperature reverse bias burn-in shall be as specified in Table 5(a) of this specification.

4.8 ENVIRONMENTAL AND ENDURANCE TESTS (CHARTS IV AND V OF ESCC GENERIC SPECIFICATION No. 5010)

4.8.1 Electrical Measurements on Completion of Environmental Tests

The parameters to be measured on completion of environmental tests are scheduled in Table 2. Unless otherwise stated, the measurements shall be performed at T_{amb} = +22 ±3°C.

4.8.2 Electrical Measurements at Intermediate Points and on Completion of Endurance Tests

The parameters to be measured at intermediate points and on completion of endurance tests are scheduled in Table 6. Unless otherwise stated, the measurements shall be performed at T_{amb} = +22 ±3°C.

4.8.3 Conditions for Operating Life Tests (Part of Endurance Testing)

The requirements for operating life testing are specified in Section 9 of ESCC Generic Specification No. 5010. The conditions for operating life testing are specified in Table 5(b) of this specification.

4.8.4 Electrical Circuits for Operating Life Tests

The circuit to be used for performance of the operating life test shall be the same as shown in Figure 5(b) for ~~High Temperature Reverse Bias Burn~~-in.

Power Burn-in.

4.9 TOTAL DOSE IRRADIATION TESTING

4.9.1 Application

If specified in Para. 4.2.1 of this specification, total dose irradiation testing shall be performed in accordance with the requirements of ESCC Basic Specification No. 22900.

4.9.2 Bias Conditions

Continuous bias shall be applied during irradiation testing as shown in Figure 6 of this specification.

4.9.3 Electrical Measurements

The parameters to be measured prior to irradiation exposure are scheduled in Table 2 of this specification. Only devices which meet the requirements of Table 2 shall be included in the test sample.

The parameters to be measured during and on completion of irradiation testing are scheduled in Table 7 of this specification.

4.10 SPECIAL TESTING

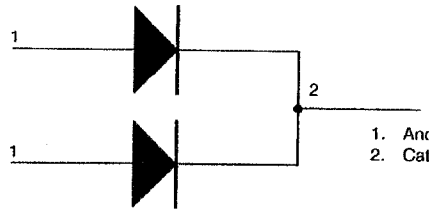
Not applicable.

FIGURE 3 - FUNCTIONAL DIAGRAM

VARIANTS 01 TO 03 AND 05 TO 07

1. Anode
2. Cathode

VARIANTS 04 AND 08



1. Anode.
2. Cathode.

NOTES

1. For Variants 01, 02, 05 and 06, the cathode end shall be marked with a black dot or band. The marking will not be on the cathode connection but adjacent to it.

4 REQUIREMENTS

4.1 GENERAL

The complete requirements for procurement of the diodes specified herein shall be as stated in this specification and ESCC Generic Specification No. 5010 for Discrete Microwave Semiconductor Components. Deviations from the Generic Specification applicable to this specification only, are listed in Para. 4.2.

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

4.2 Deviations from generic specification

4.2.1 Deviations from Special In-process Controls

(a) Para. 5.3, Wafer Lot Acceptance: Shall be performed as an SEM Inspection only.

4.2.2 Deviations from Final Production Tests (Chart II)

(a) Para. 6.2, Pre-burn-in: Shall be performed for 168 hours with Conditions as per Table 5(b) of this specification.
(b) Para. 9.2.2, Die Shear: Forces need not be recorded and the residual die area shall be ≥ 50% of the original die size.
(c) Para. 9.6, Constant Acceleration: Shall not be performed.
(d) Para. 9.7, Particle Impact Noise Detection (PIND) test: May be performed at any point after its position in Chart II.
(e) Para. 9.14, Vibration, Variable Frequency: Shall not be performed.

4.2.3 Deviations from Burn-in and Electrical Measurements (Chart III)

(a) Para. 9.1.1, Initial Parameter Drift Value Measurements: Parameters measured in Chart II shall not be repeated during Electrical Measurements at Room Temperature.
(b) Para. 9.12, Radiographic Inspection: Shall be performed in X and Z axes only, exposure 100kV, duration 5 minutes.

4.2.4 Deviations from Qualification Tests (Chart IV)

(a) Para. 9.2.2, Die Shear: Forces need not be recorded and the residual die area shall be ≥ 50% of the original die size.
(b) Para. 9.13, Shock Test: Shall not be performed.
(c) Para. 9.14, Vibration Test: Shall not be performed.
(d) Para. 9. 15, Constant Acceleration: Shall not be performed.
(e) Para. 9.20, Operating Life: Only one Operating Life Test shall be performed on 30 components.
(f) Para. 9.23, Special Testing: Shall not be performed.

4.2.5 Deviations from Lot Acceptance Tests (Chart V)

(a) Para. 9.13, Shock Test: Shall not be performed.
(b) Para. 9.14, Vibration Test: Shall not be performed.
(c) Para. 9.15, Constant Acceleration: Shall not be performed.
(d) Para. 9.20, Operating Life: Only one Operating Life Test shall be performed on 16 components.
(e) Para. 9.23, Special Testing: Shall not be performed.

4.3 Mechanical and Environmental Requirements

4.3.1 Dimension Check

The dimensions of the diodes specified herein shall be checked. They shall conform to those shown in Figure 2.

4.3.2 Weight

The maximum weight of the diodes specified herein shall be 0.02 grammes for Variants 01, 02 and 05 to 07 and 0.1 grammes for Variants 03, 04 and 08.

4.3.3 Terminal Strength

The requirements for terminal strength testing are specified in Section 9 of ESCC Generic Specification No. 5010. The test conditions shall be as follows:

		Variants 02, 06	Variants 04, 08	Variants 04, 08
Test Condition	:	'A' (Tension)	'A' (Tension)	'F' (Bending Stress)
Force	:	1.22 Newtons	5.0 Newtons	2.0 Newtons
Duration	:	5.0 seconds	5.0 seconds	5.0 seconds
Distance to case	:	-	-	> 1mm
Angle	:	-	-	90°

4 REQUIREMENTS

4.1 GENERAL

The complete requirements for procurement of the transistors specified herein shall be as stated in this specification and ESCC Generic Specification No. 5010 for Discrete Microwave Semiconductor Components. Deviations from the Generic Specification applicable to this specification only, are listed in Para. 4.2.

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

4.2 DEVIATIONS FROM GENERIC SPECIFICATION

4.2.1 Deviations from Special In-process Controls

(a) Para. 5.3, Wafer Lot Acceptance: Shall be performed as a SEM Inspection only.

4.2.2 Deviations from Final Production Tests (Chart II)

(a) Para. 6.2, Pre-burn-in: To be left to Manufacturer's discretion.
(b) Para. 9.6, Constant Acceleration: Shall not be performed.
(c) Para. 9.7, Particle Impact Noise Detection (PIND) test: May be performed at any point after the position indicated in Chart II.
(d) Para. 9.14, Vibration, Variable Frequency: Shall not be performed.

4.2.3 Deviations from Burn-in and Electrical Measurements (Chart III)

Δ3

(a) Para. 7.1.1(b), Power Burn-in 2 and 3 measurements:Shall be performed if drift after power burn-in 1 exceeds half of the allowed limit in Table 4 (applicable PDA: 5%).
For Level C, power burn-in 2 shall be performed for 168 hours if pre-burn-in is performed during Chart II.
(b) Para. 9.9.2, may be performed at any stage after power burn-in 2.
(c) Para. 9.9.3, may be performed at any stage after power burn-in 2.

4.2.4 Deviations from Qualification Tests (Chart IV)

(a) Para. 9.13, Shock Test: Shall not be performed.
(b) Para. 9.14, Vibration Test: Shall not be performed.
(c) Para. 9.15, Constant Acceleration: Shall not be performed.
(d) Para. 9.20, Operating Life: Shall be performed at 1 temperature only on 30 pieces.
(e) Para. 9.23, Special Testing: Shall not be performed.

4.2.5 Deviations from Lot Acceptance Tests (Chart V)

(a) Para. 9.13, Shock Test: Shall not be performed.
(b) Para. 9.14, Vibration Test: Shall not be performed.
(c) Para. 9.15, Constant Acceleration: Shall not be performed.
(d) Para. 9.20, Operating Life: Shall be performed at 1 temperature only on 16 pieces.
(e) Para. 9.23, Special Testing: Shall not be performed.

4.3 MECHANICAL REQUIREMENTS

4.3.1 Dimension Check

The dimensions of the transistors specified herein shall be checked. They shall conform to those shown in Figure 2.