

Transistors

silicon n-p-n power transistors

book 1 parts 1 and 2

Outline: TO-3

Type No.	Drawing reference	Maximum Ratings						hFE		at		V _{CE(sat)}		at		Special Features
		V _{CEO}	V _{CE0}	I _{CM}	I _{C(AV)}	T _j	P _{Tot}	min.	max.	I _c	f _t	min.	max.	I _c	I _B	
		(V)	(V)	(A)	(A)	(°C)	(W)			(A)	(MHz)	(V)	(A)	(mA)		
BDY38	AR3	50	40	6	6	200	115	30	—	2	1.0*	0.7	2	200		
BD181	AR2	55	45	15	10	200	78	20	70	3	—	—	—	—	For use in high quality audio amplifiers.	
BD182		70	60	15	117					4						
BD183		85	80	15	117					3						
BDY20	AR3	100	60	15	15	200	115	20	70	4	1.0*	1.1	4	400		
2N3055	AR3	100	60	—	15	200	115	20	70	4	0.8	1.1	4	400		
BUX80	AR1	800†	400	15	10	150	100	30*	—	1.2	6.0*	1.5	5	1A	For use in switched mode power supplies, inverters and converters.	
BUX81		1000†	450													
BDX91	AR3	60	60	12	8	200	90	20	—	3	4.0	1.0	5	1A	BDX92 } p-n-p BDX94 } complements BDX96 }	
BDX93		80	80													
BDX95		100	100													
§BUY86	AR3	200	120	15	7	150	62.5	50	—	1	45	1.0	7	700	For use in switched mode power supplies, inverters and converters.	
§BUY87		300	150					30	—	2		1.3				
BU326	AR1	800†	375	8	6	150	60	30*	—	0.6	6.0*	1.0	2.5	250	For use in switched mode power supplies of colour tv receivers	
BU326A		900†	400													
BUX82	AR1	800†	400	8	6	150	60	30*	—	0.6	6.0*	1.5	2.5	500	For use in switched mode power supplies, inverters and converters.	
BUX83		1000†	450													
BDY90	AR1	120	100	15	10	175	40	30	120	5	70*	0.5	5	500	For use in switched mode power supplies, inverters and converters	
BDY91		100	80													
BDY92		80	60													
BU126	AR1	750†	300	6	3	125	30	15	60	1	8.0*	10	2.5	250	For use in switched mode power supplies of colour tv receivers.	
BU133	AR1	750†	250	6	3	125	30	15	80	1	8.0*	10	2.5	250		
BDY93/01	AR1	800†	400	7	4	150	30	30*	—	1	10*	1.5	2.5	500		
BDY93		750†	350													
BDY94/01	AR1	800†	300	7	4	150	30	30*	—	1	10*	1.5	2.5	500	For use in converters, inverters, switching and motor control systems.	
BDY94		750†														
BDY96/01	AR1	800†	400	15	10	150	40	30*	—	2	10*	1.5	5	1A		
BDY96		750†	350													
BDY97/01	AR1	800†	300	15	10	150	40	30*	—	2	10*	1.5	5	1A		
BDY97		750†														
BU132	AR1	800†	600	2	1	135	15	25	80	0.25	8*	5.0	0.25	25	For use in vertical deflection output stages of tv receivers.	
BU207A	AR1	1500†	600	7.5	5	115	12.5	2.5	—	4.5	7*	5.0	4.5	2A	For use in horizontal deflection circuits of colour tv receivers.	
BU208A		1500†	700	7.5	5					4.5	1.0	4.5	2A			
BU209A		1700†	800	6	4					3	5.0	3	1.3A			
BU208	AR1	1500†	700	7.5	5	115	12.5	2.25	—	4.5	7*	5.0	4.5	2A	For use in horizontal deflection circuits of colour tv receivers.	
BU204	AR1	1300†	600	3	2.5	115	10	2	—	2	7.5*	5.0	2	1A	For use in horizontal deflection circuits of tv receivers.	
BU205		1500†	700					2	—				1A			
BU206		1700†	800					1.8	—				1.1A			

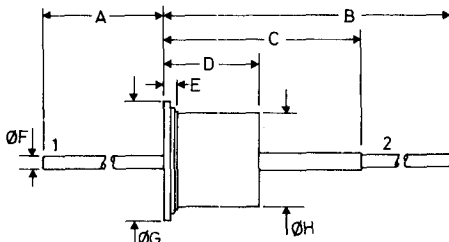
*Typical V_{CESM} max. §Also available to BS9000 (see page 7)

OUTLINES and DIMENSIONS (millimetres)

A

B.S.3934 SO-16

DO-1
DO-2
DO-3

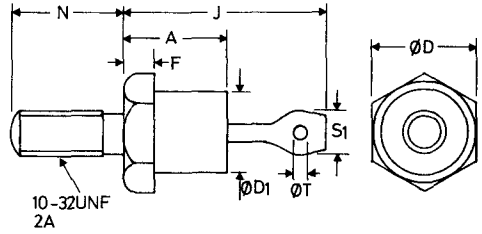


	1	2	A	B	C	D	E	ØF	ØG	ØH
	min.	max.	min.	max.	min.	max.	min.	max.	max.	max.
A1	a	k	35	51	17	7.7	1.6	1.1	9.6	7.1
A2	k	a	35	49	17	8.5	1.9	1.1	9.7	7.1
A3	k	a	35	51	17	7.7	1.6	1.1	9.6	7.1

B

B.S.3934 SO-10

DO-4



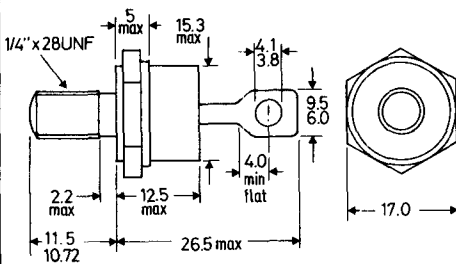
A	10.3 max.	J	20.3 max.
ØD	11.1 max.	N	11.5 max.
ØD1	9.3 max.	S1	4.8 max.
F	3.2	ØT	1.6 min.

	Stud	Eyelet
B1	k	a
B2	a	k

C

B.S.3934 SO-13

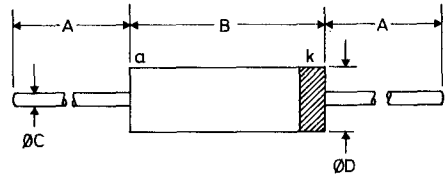
DO-5



	Stud	Eyelet
C1	k	a
C2	a	k

D

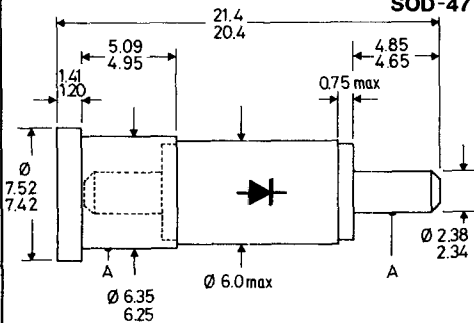
DO-7
DO-14
DO-15



		A	B	ØC	ØD
		min.	max.	nom.	max.
D1	DO-7	25.4	7.6	0.52	2.5
D2	DO-14	25.4	7.6	0.5	3.3
D3	DO-15	25.4	6.4	0.8	3.2

E

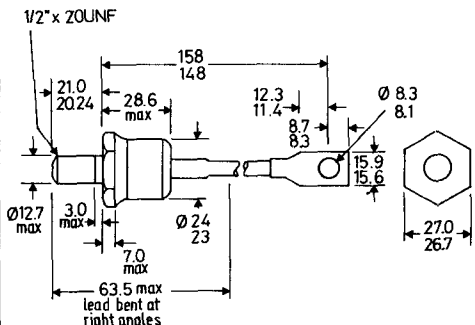
DO-22
SOD-47



A = concentricity tolerance = ± 0.20

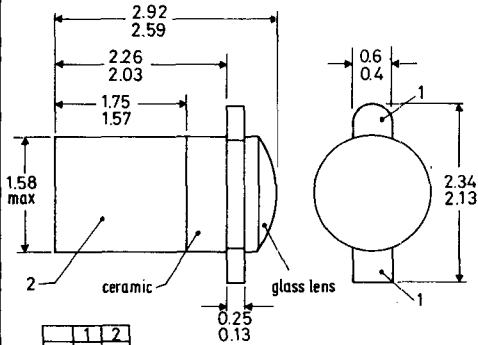
F

DO-30



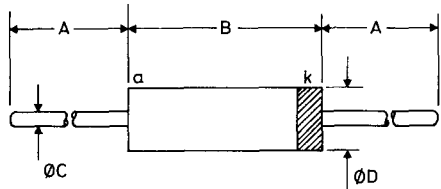
BZW86 Blue sleeve - anode to eyelet
BZW86R Red sleeve - anode to stud

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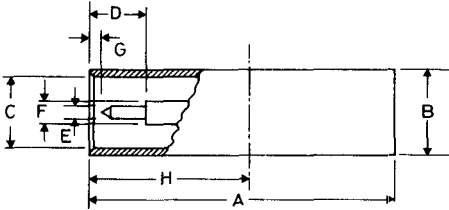
G**DO-31**

	1	2
G1	k	a
G2	e	c

For LED's the overall length = 3.60/2.97

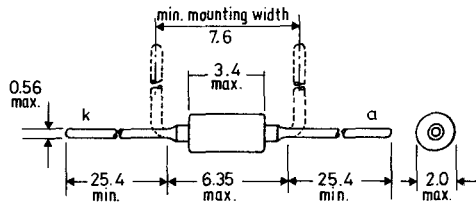
H**DO-35**

A	B	ØC	ØD
min.	max.	max.	max.
25.4	4.25	0.56	1.85

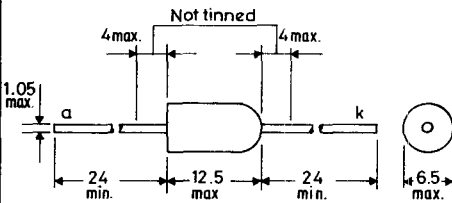
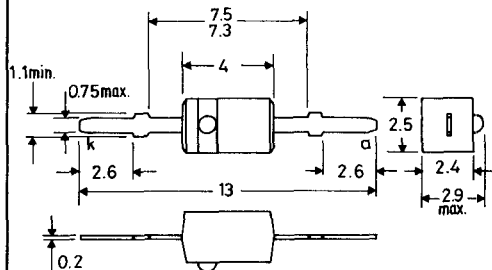
J**DO-37
SOD-49**

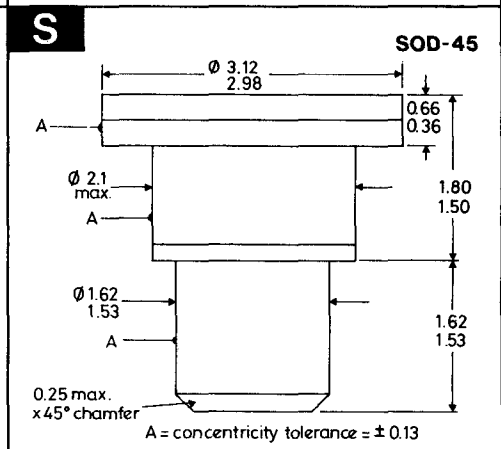
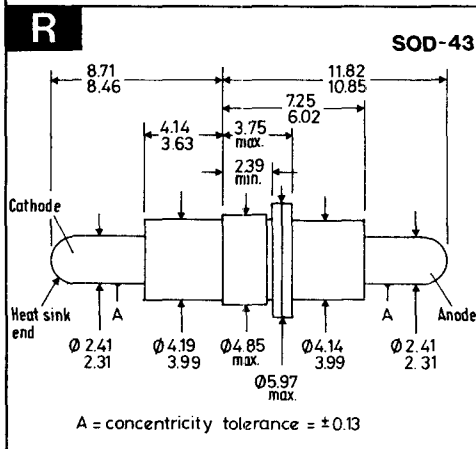
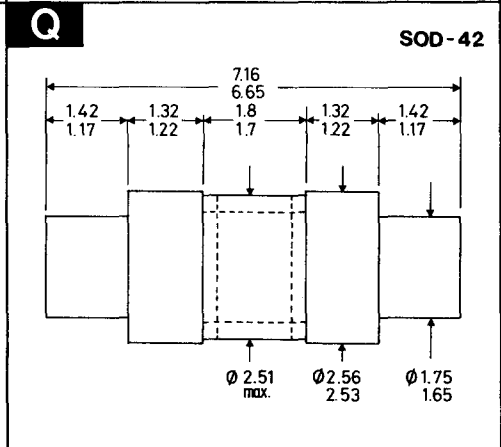
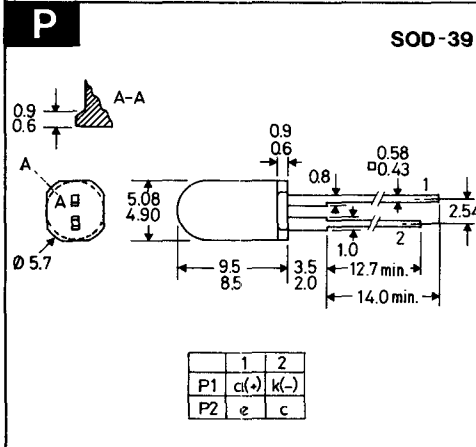
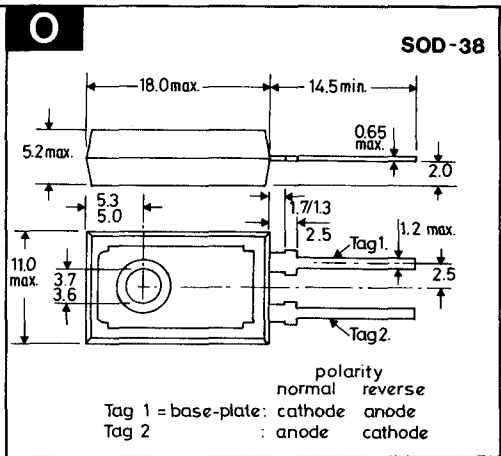
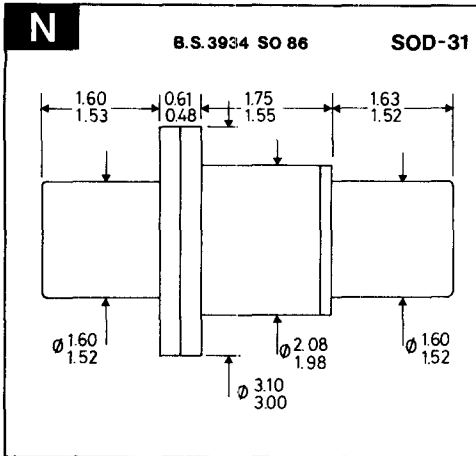
A	19.43/18.67	ØE	0.84/0.79
ØB*	5.59/5.49	ØF	1.57/1.52
ØC	4.80/4.72	G	0.71/0.15
D	3.73 min.	H	10.32 nom.

*These tolerances apply only over H

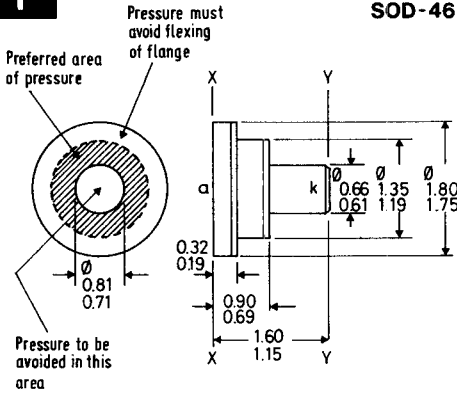
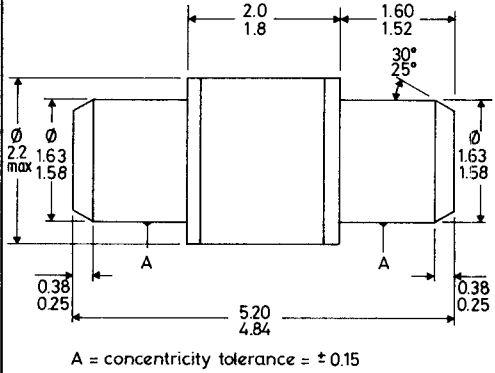
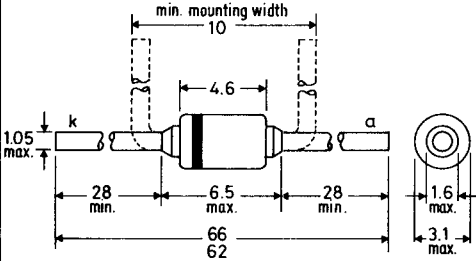
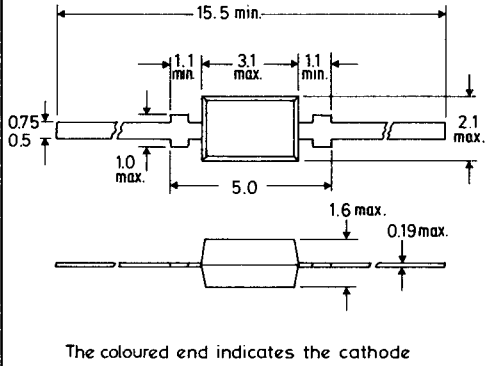
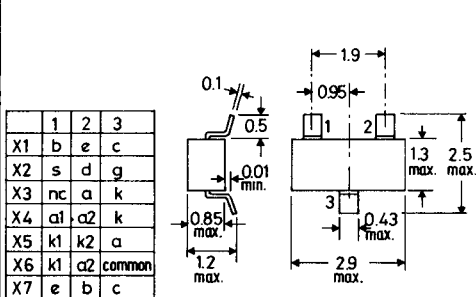
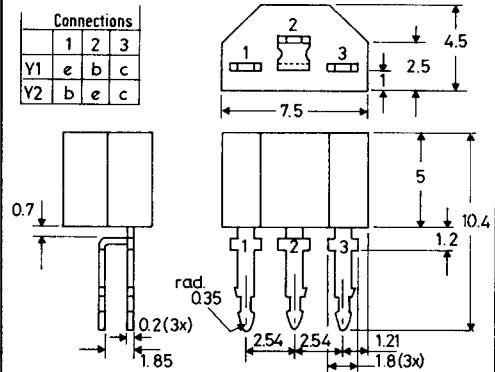
K**SOD-17**

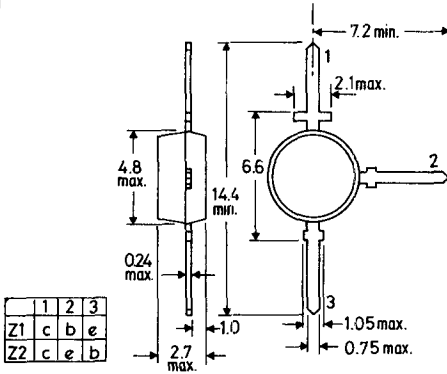
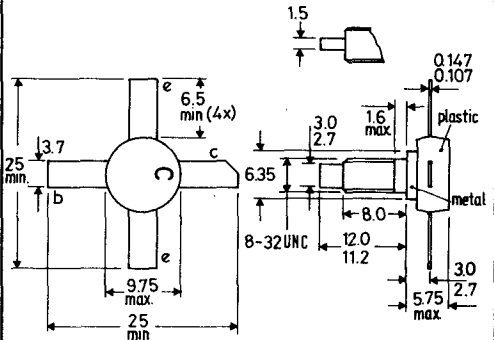
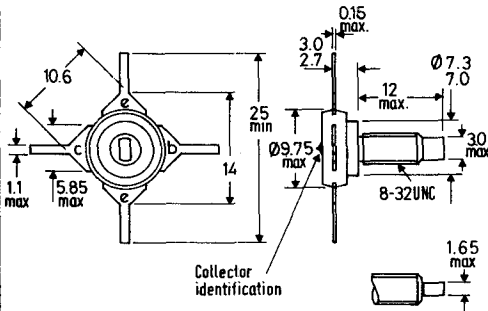
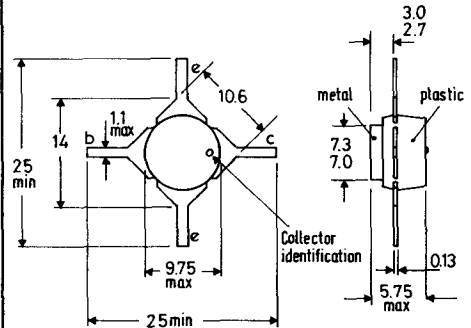
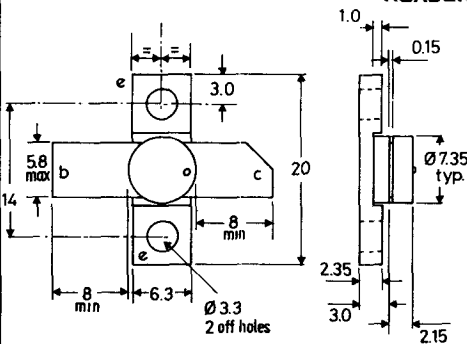
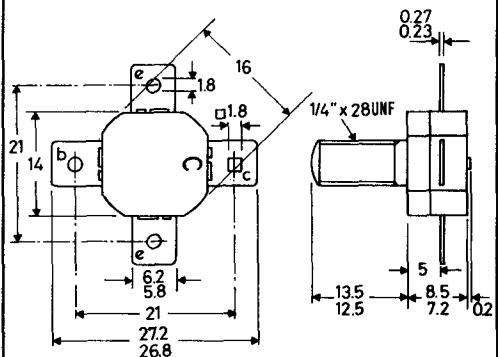
Cathode indicated by the broad band of colour code

L**SOD-18****M****SOD-23**

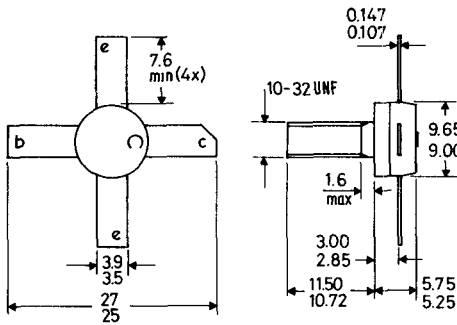
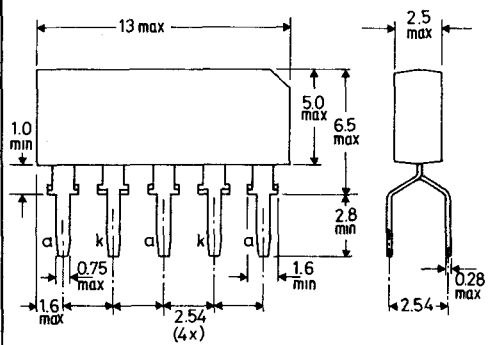
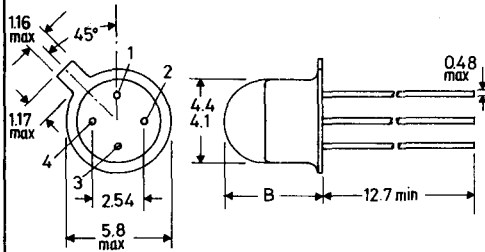


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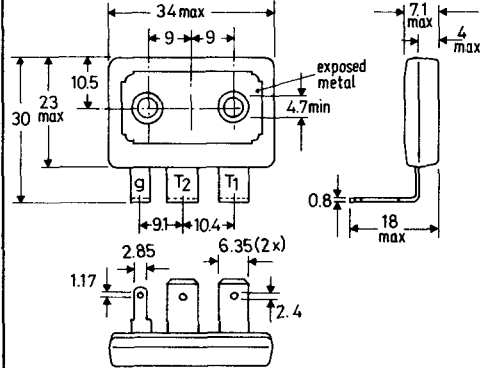
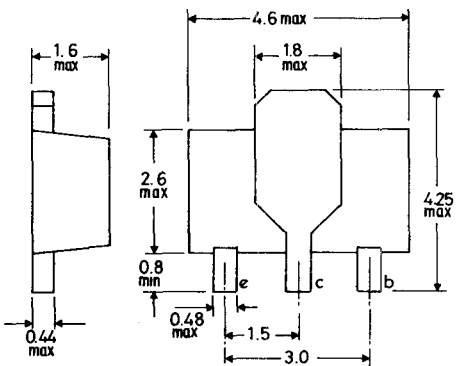
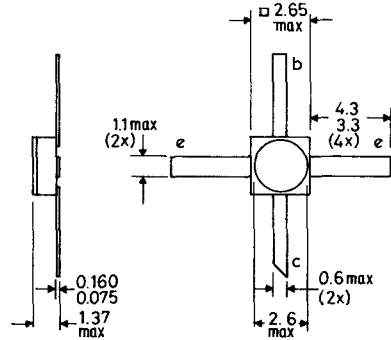
T**SOD-46****U****SOD-50****V****SOD-51****W****SOD-52****X****SOT-23****Y****SOT-25**

Z**SOT-37****AC****SOT-48/2****AD****SOT-48/3****AE****SOT-48/4****AF****SOT-48
HEADER****AG****SOT-55**

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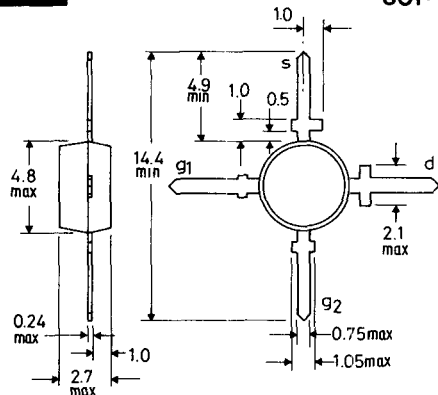
AH**SOT-56****AJ****SOT-60****AK****SOT-70**

	1	2	3	4	B max
AK1	a	—	k	—	5.08
AK2	e	b	c	—	4.5
AK3	Vp	IP	GND	OP	5.08

AL**SOT-80****AM****SOT-89****AN****SOT-100**

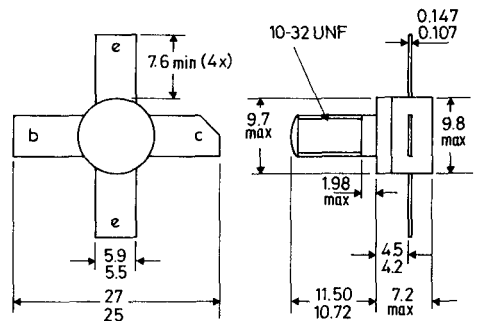
AO

SOT-103



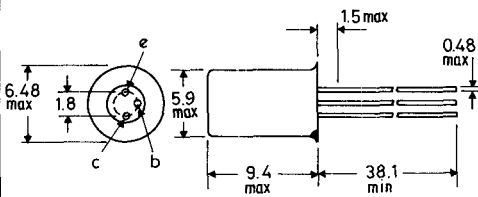
AP

SOT-105



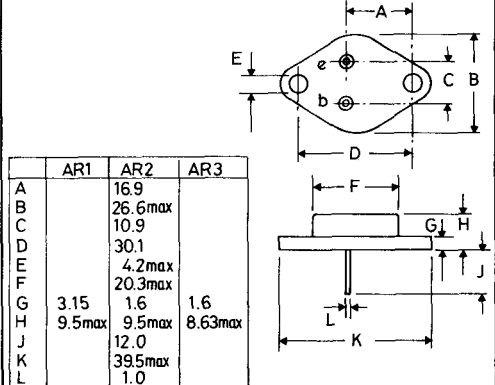
AQ

B.S.3934 SO-21/SB3-10 TO-1



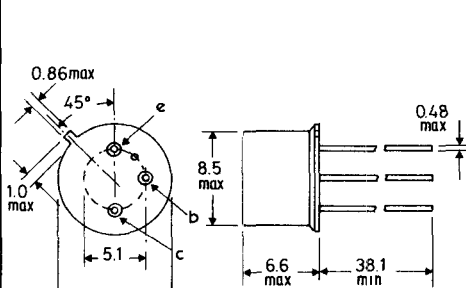
AR

B.S.3934 SO-5B/SB2-2 TO-3



AS

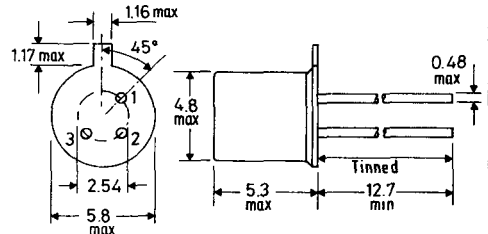
B.S.3934 SO-3/SB3-3B TO-5



AS1: collector connected to case
AS2: base connected to case

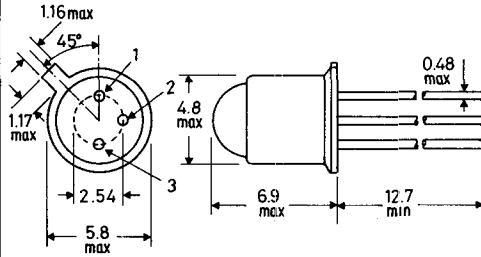
AT

B.S.3934 SO-12A/SB3-6A TO-18

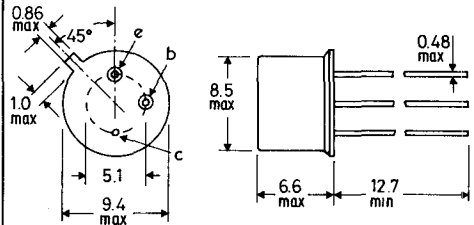


	1	2	3
AT1	e	b	c + env.
AT2	s	d	g + env.
AT3	d	g	s + env.
AT4	k	-	a
AT5	a	-	k
AT6	k	-	a

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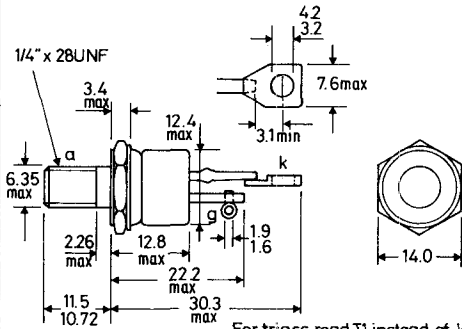
AU**TO-18**
(with lens)

	1	2	3
AU1	a	a	k
AU2	e	b	c+case
AU3	k	-	a

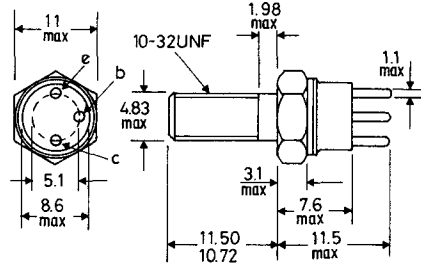
AV**B.S.3934 SO-3/SB3-3A TO-39**

AV1: b+case
 AV2: case isolated
 AV3: c+case
 AV4: e.cathode
 b.gate
 c.anode+case

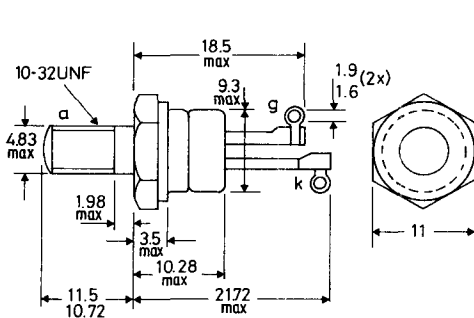
AV5: e.b. cell connections
 c. metal case
 AV6: red spot indicates
 +ve connection

AW**B.S.3932 SO-36 TO-48**

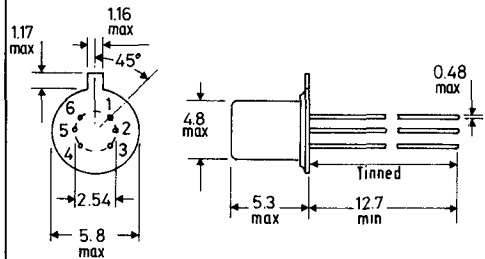
For triacs read T1 instead of k
 T2 instead of a

AX**TO-60**

Emitter connected to envelope

AY**B.S.3934 SO-35A TO-64**

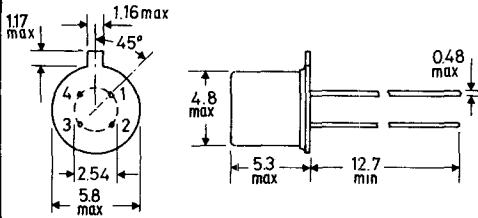
For triacs read T1 instead of k
 T2 instead of a

AZ**TO-71**

Pin	1	2	3	4	5	6
AZ1	e1	e2	c2	b2	b1	c1
AZ2	s1	d1	g1	s2	d2	g2

BA

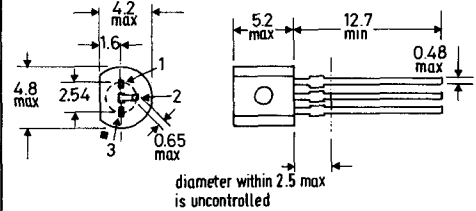
B.S.3934 SO-12A/SB4-3 TO-72



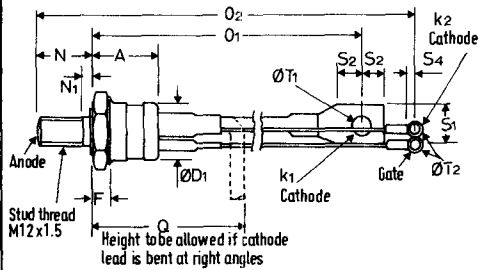
	1	2	3	4
BA1	b	e	c	s+envelope
BA2	e	b	c	s+envelope
BA3	s	d	g	screen+envelope
BA4	d	g	g	s+b+envelope
BA5	d	s	g	b+envelope
BA6	k	gk	ga	a

BBTO-92
variant

Pin	1	2	3
BB1	e	b	c
BB2	b	e	c
BB3	d	s	g
BB4	g	a	k
BB5	b	c	e

**BC**

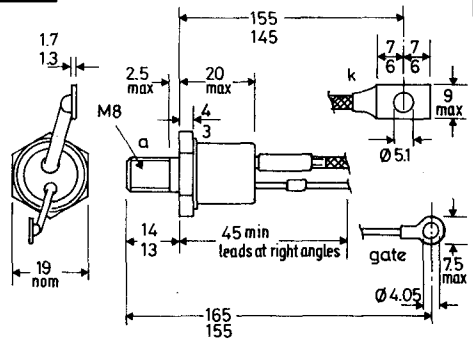
B.S.3934 SO-30C TO-94



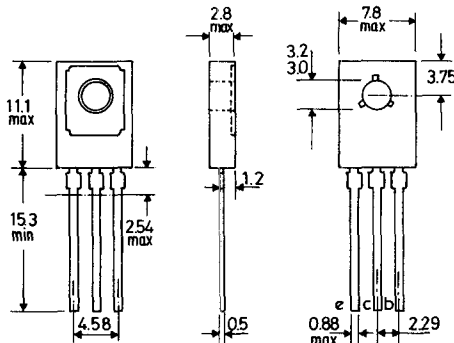
A	28.5max	O1	158 max	S4	3.8 min
ØD1	24.1max	O2	190max	ØT1	8.3max
F	8.9max	Q	63.5max	ØT2	4.2max
N	21.0max	S1	16.5max		
N1	3.0max	S2	9.6min		

BD

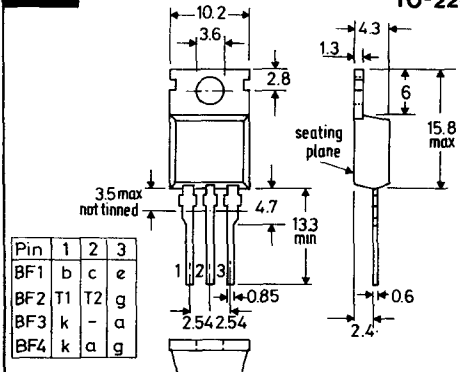
TO-103

For triacs read T1 instead of k
T2 instead of a**BE**

TO-126

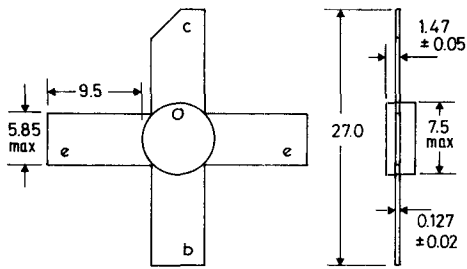
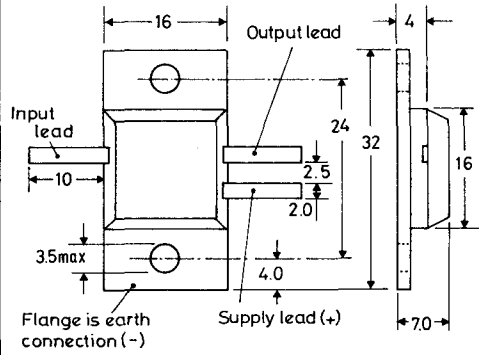
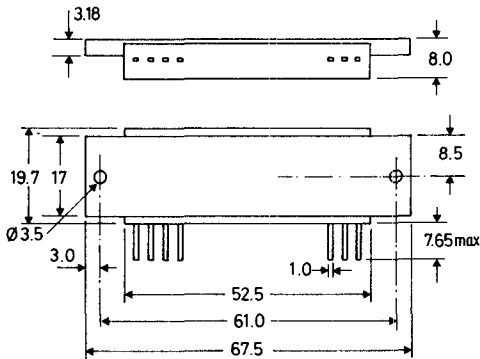
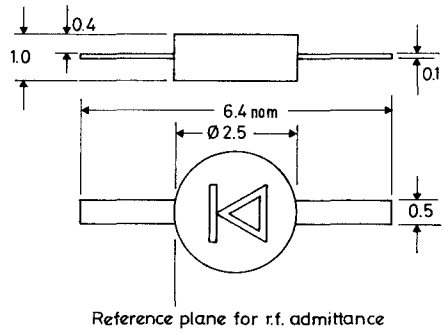
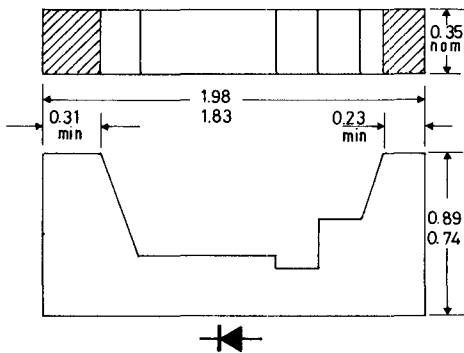
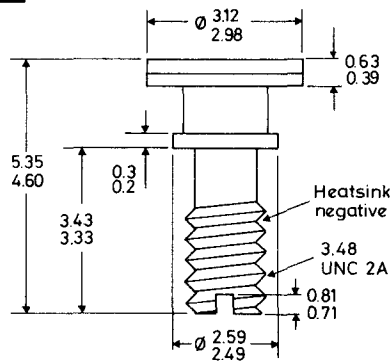
**BF**

TO-220



Pin	1	2	3
BF1	b	c	e
BF2	T1	T2	g
BF3	k	-	a
BF4	k	a	g

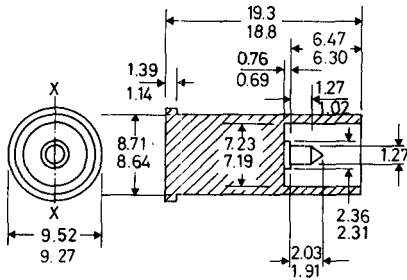
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BG**BH****BJ****BK****BL****BM**

BN

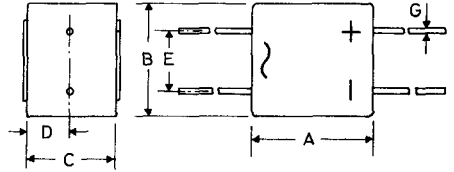
B.S.3934

SO-26

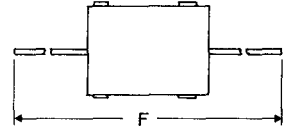


(All dimensions max.)

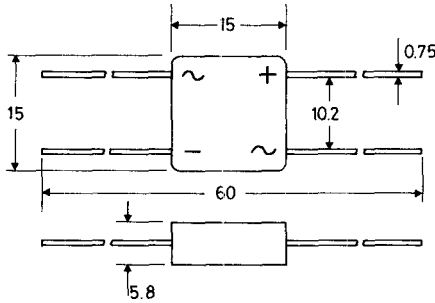
BO



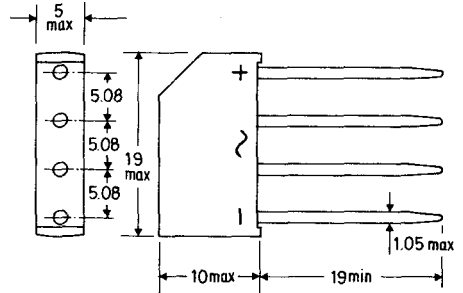
	BO1	BO2	BO3
A	12	20	12
B	10	19	10
C	8	15	8
D	4	7.5	4
E	5	10	5
F	58	60	48
G	0.75	1.0	1.1



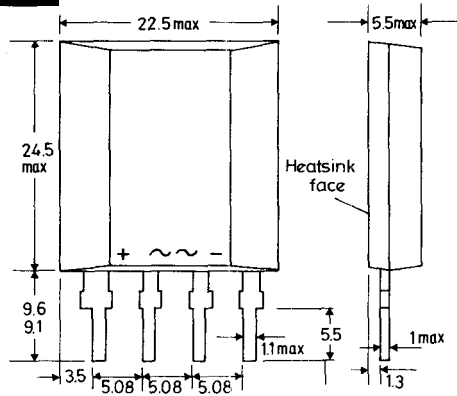
BP



BQ

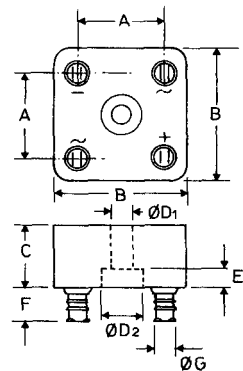


BR



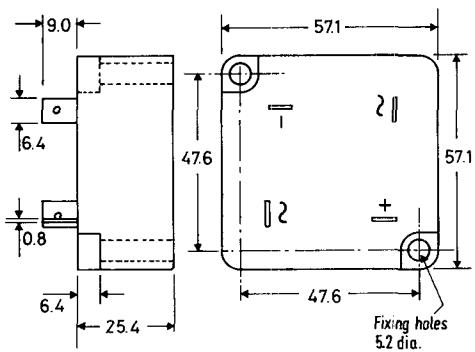
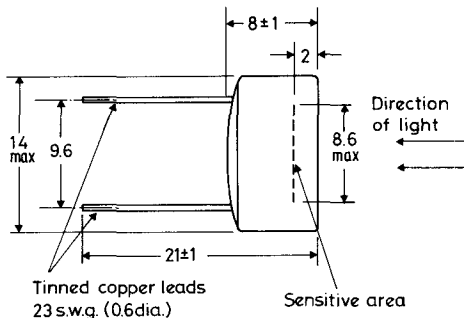
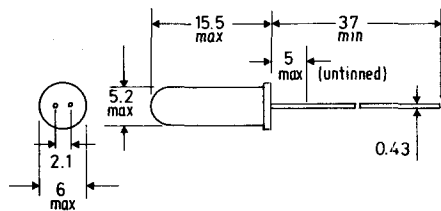
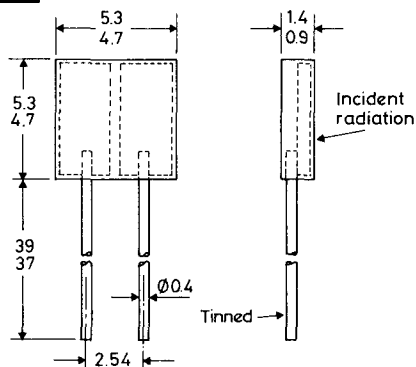
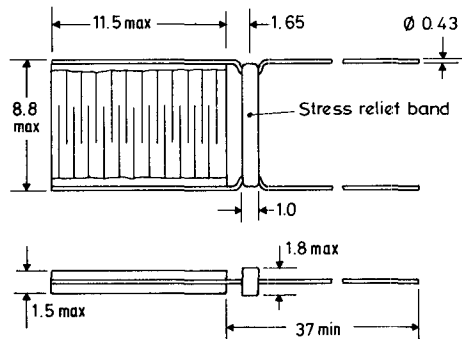
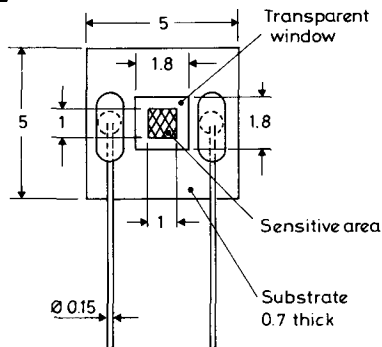
BS

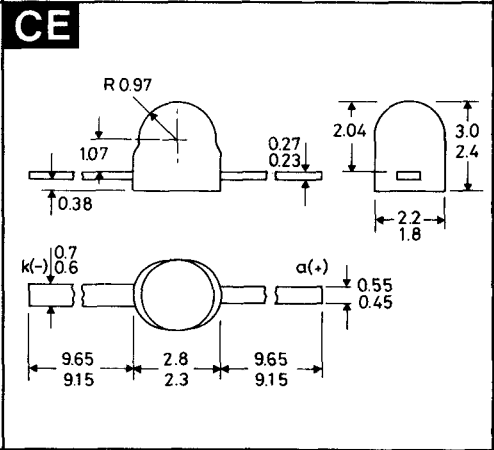
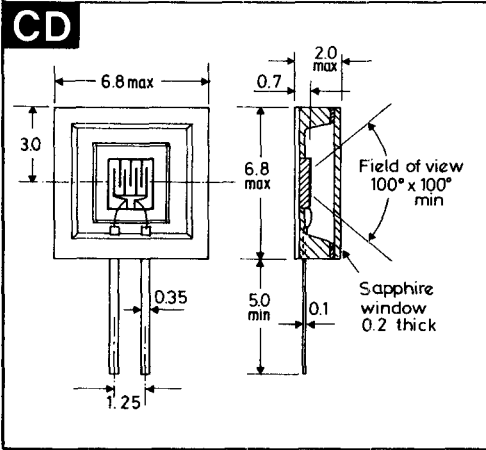
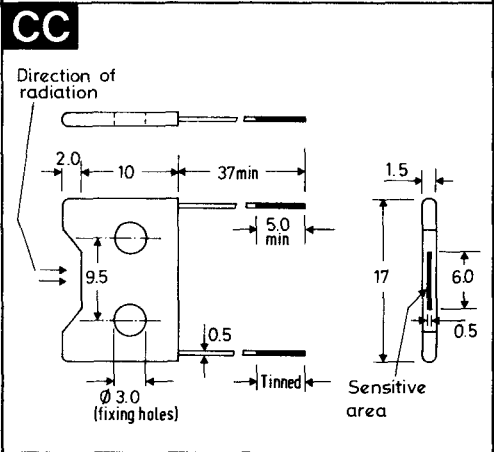
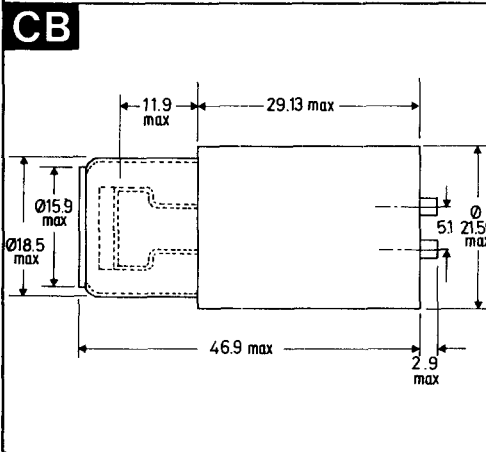
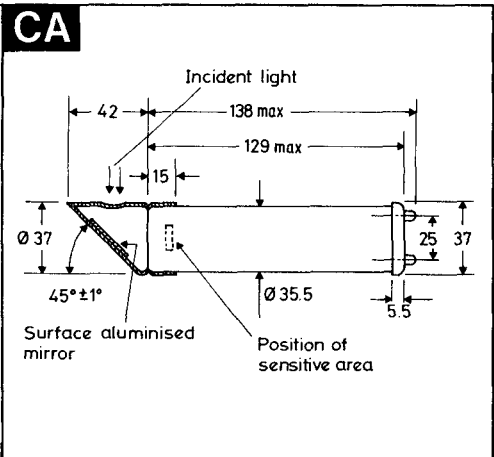
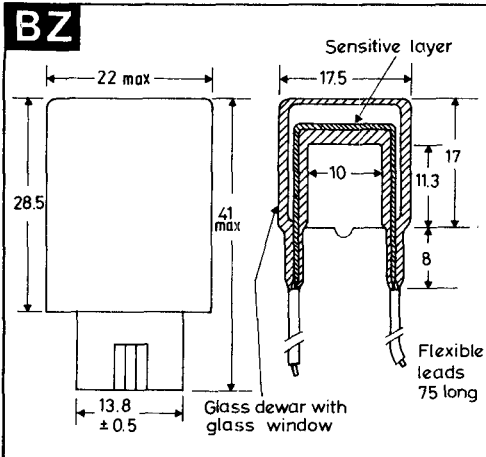
B.S.3934 SO-67



	BS1	BS2
	typ.	max.
A	23	21
B	35	34.6
C	17	15.2
ØD1	5	5.05
ØD2	11	11
E	5	3.7
F	9	9
ØG	4.8	4.8

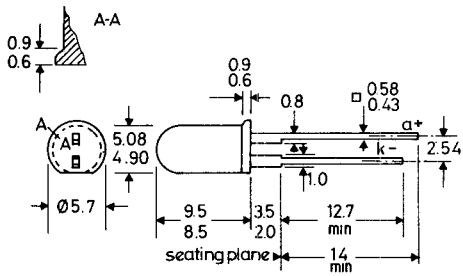
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BT**BU****BV****BW****BX****BY**

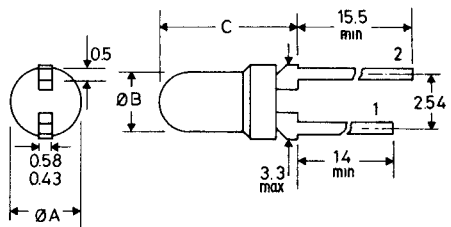


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CF

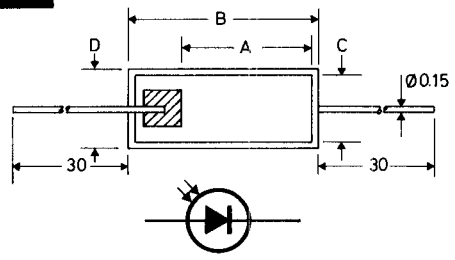


CG



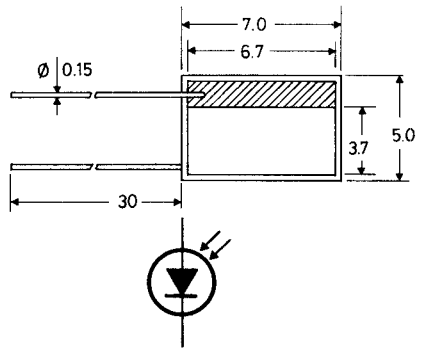
	1	2	$\varnothing A$	$\varnothing B$	C
CG1	k^-	a^+	3.0-3.17	2.4-2.6	5.8-6.3
CG2	a^+	k^-	3.0-3.17	2.4-2.6	5.8-6.3
CG3	k^-	a^+	3.3 max	2.65-3.17	4.8-6.3

CH

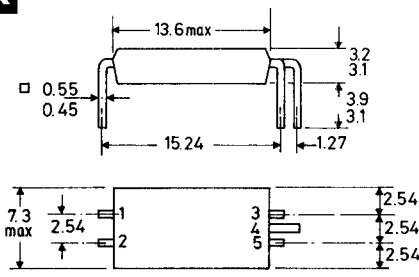


	CH1	CH2
A	2.2	3.5
B	3.35	4.55
C	0.95	1.85
D	1.25	2.15

CJ

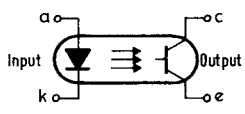
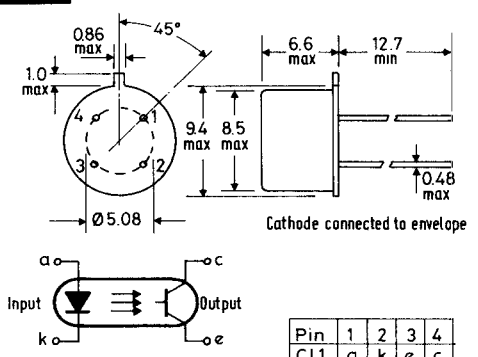


CK



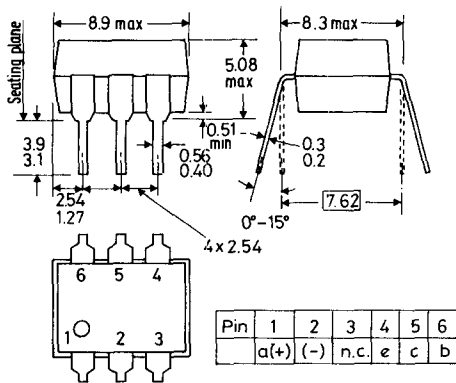
Pin	1	2	3	4	5
CK1	a	k	b	c	e
CK2	k	a	e	omitted	c

CL

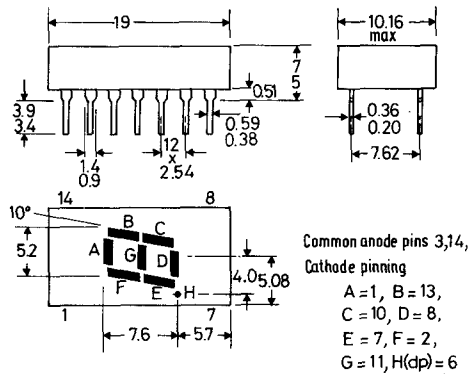


Pin	1	2	3	4
CL1	a	k	e	c
CL2	e	c	a	k

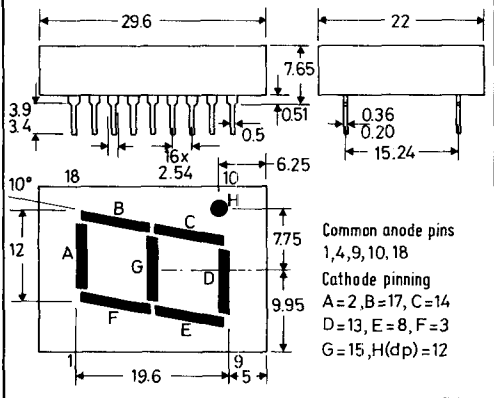
CM



CN



CO



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