

## Varactor Diode

Part Number	Peak Repetitive Reverse Voltage	Diode Capacitance		Diode Capacitance		Capacitance ratio		Max. Reverse Current		Feature
	V <sub>RRM</sub>	V <sub>r</sub> (low), f=1MHz		V <sub>r</sub> (high), f=1MHz		Min (pF)	Max (pF)	IR@VR		
	V	Min (pF)	Max (pF)	Min (pF)	Max (pF)			nA	V	
<b>SOD-723 (P.28)</b>										
1S513 (800M Hz VCO)	15	15 (V <sub>r</sub> =1)	17.5 (V <sub>r</sub> =1)	5.1 (V <sub>r</sub> =4)	6.1 (V <sub>r</sub> =4)	10	-	10	15	2004,Q2 OK
1S515 (1.9G Hz VCO)	15	6.4 (V <sub>r</sub> =1)	7.2 (V <sub>r</sub> =1)	2.55 (V <sub>r</sub> =4)	2.95 (V <sub>r</sub> =4)	2.2	-	10	15	2004,Q2 OK
1S526 (2.4G Hz VCO)	15	-	-	-	-	-	-	-	-	2004,Q2 OK
<b>SOD-523 (P.28)</b>										
1S402	30	13.94 (V <sub>r</sub> =2)	16.29 (V <sub>r</sub> =2)	2.06 (V <sub>r</sub> =25)	2.35 (V <sub>r</sub> =25)	6.5	6.5	10	28	UHF
1S403	30	34.61 (V <sub>r</sub> =1)	42.31 (V <sub>r</sub> =1)	2.321 (V <sub>r</sub> =28)	2.714 (V <sub>r</sub> =25)	13.5	-	10	28	VHF/CATV
1S404	34	29.5 (V <sub>r</sub> =1)	33.5 (V <sub>r</sub> =1)	2.6 (V <sub>r</sub> =25)	2.9 (V <sub>r</sub> =25)	11	-	10	28	VHF/CATV
1S405	34	32.96 (V <sub>r</sub> =2)	38.96 (V <sub>r</sub> =2)	2.53 (V <sub>r</sub> =25)	2.96 (V <sub>r</sub> =25)	12	-	10	28	VHF/CATV
1S407	34	42.86 (V <sub>r</sub> =2)	50.96 (V <sub>r</sub> =2)	2.56 (V <sub>r</sub> =25)	2.99 (V <sub>r</sub> =25)	14.5	-	10	28	VHF/CATV
1S409	15	14.26 (V <sub>r</sub> =2)	15.96 (V <sub>r</sub> =2)	5.46 (V <sub>r</sub> =25)	6.46 (V <sub>r</sub> =25)	2.2	-	3	15	800M Hz VCO
1S410	30	5.96 (V <sub>r</sub> =1)	7.16 (V <sub>r</sub> =1)	0.46 (V <sub>r</sub> =25)	0.6 (V <sub>r</sub> =25)	10	-	10	25	BS/CS
1S413	15	15 (V <sub>r</sub> =1)	17.5 (V <sub>r</sub> =1)	5.1 (V <sub>r</sub> =4)	6.1 (V <sub>r</sub> =4)	10	-	10	15	800M Hz VCO
1S415	15	6.4 (V <sub>r</sub> =1)	7.2 (V <sub>r</sub> =1)	2.55 (V <sub>r</sub> =4)	2.95 (V <sub>r</sub> =4)	2.2	-	10	15	1.9G Hz VCO
1S417	30	7.8 (V <sub>r</sub> =1)	9.4 (V <sub>r</sub> =1)	0.5 (V <sub>r</sub> =25)	0.6 (V <sub>r</sub> =25)	13	-	10	25	BS/CS Wide Band
1S426 (2.4G Hz VCO)	15	-	-	-	-	-	-	-	-	2004,Q2 OK
<b>SOD-323 (P.28)</b>										
1S314	10	9.4 (V <sub>r</sub> =0.1)	12 (V <sub>r</sub> =0.1)	2.4 (V <sub>r</sub> =2.6)	2.9 (V <sub>r</sub> =2.6)	3.2	-	10	10	Camera VCO
1S362	35	14 (V <sub>r</sub> =2)	16.3(V <sub>r</sub> =2)	2.1 (V <sub>r</sub> = 25)	2.39 (V <sub>r</sub> =25)	6.5	6.5	10	28	UHF
1S363	30	34 (V <sub>r</sub> =1)	42.5(V <sub>r</sub> =1)	2.3 (V <sub>r</sub> = 28)	2.7 (V <sub>r</sub> =28)	13.5	-	10	28	VHF/CATV
1S367	15	14 (V <sub>r</sub> =2)	16(V <sub>r</sub> =2)	5.5 (V <sub>r</sub> = 10)	6.5 (V <sub>r</sub> =10)	2.2	-	3	15	800M Hz VCO
1S368	34	29.54 (V <sub>r</sub> =2)	33.54(V <sub>r</sub> =2)	2.64 (V <sub>r</sub> = 25)	2.94 (V <sub>r</sub> =25)	1.03	-	10	28	VHF/CATV
1S378	34	33 (V <sub>r</sub> =2)	39(V <sub>r</sub> =2)	2.57 (V <sub>r</sub> = 25)	3 (V <sub>r</sub> =25)	12	-	10	28	VHF/CATV
1S379	30	6 (V <sub>r</sub> =1)	7.2(V <sub>r</sub> =1)	0.5 (V <sub>r</sub> = 25)	0.6(V <sub>r</sub> =25)	10	-	10	25	BS/CS
1S381	34	47 (V <sub>r</sub> =2)	53(V <sub>r</sub> =2)	2.65 (V <sub>r</sub> = 25)	3.01(V <sub>r</sub> =25)	17	-	10	28	VHF/CATV Wide Band
1S387	30	7.84 (V <sub>r</sub> =1)	9.44(V <sub>r</sub> =1)	0.54 (V <sub>r</sub> = 25)	0.64 (V <sub>r</sub> =25)	13	-	10	25	BS/CS Wide Band
1S397	34	42.9 (V <sub>r</sub> =2)	51(V <sub>r</sub> =2)	2.6 (V <sub>r</sub> = 25)	3.03(V <sub>r</sub> =25)	14.5	-	10	28	VHF/CATV

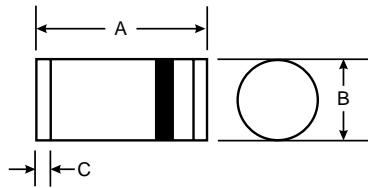
## RF schottky Diode

Part Number	Peak Repetitive Reverse Voltage	Forward current	Forward voltage		Diode capacitance		Max. Reverse Current		Package	
	V <sub>RRM</sub>		IF (mA)	(V)		(pF)		IR@VR		
	V	Type		IF (mA)	Max	V <sub>r</sub> (f=1MHz)	uA	V		
<b>SOD-523 (P.28)</b>										
BAT62WU	40	20	0.58	2	1	0	10	40	-	
<b>SOD-323 (P.28)</b>										
BAT62WS	40	20	0.58	2	1	0	10	40	-	
BD101WS	7	30	0.6	10	1	0	10	7	2004,Q4	
BD330WS	30	30	0.6	10	1	15	0.2	25	2004,Q4	
BD770WS	70	30	0.6	10	1	20	0.2	35	2004,Q4	
<b>SOT-363 (P.28)</b>										
BAT62WT6 (Triple)	40	20	0.58	2	1	0	10	40	-	
<b>SOT-323 (P.28)</b>										
BD101W	7	30	0.6	10	1	0	10	7	2004,Q4	
BD330W	30	30	0.6	10	1	15	0.2	25	2004,Q4	
BD770W	70	30	0.6	10	1	20	0.2	35	2004,Q4	
<b>SOT-23 (P.28)</b>										
BD101	7	30	0.6	10	1	0	10	7	2004,Q4	
BD330	30	30	0.6	10	1	15	0.2	25	2004,Q4	
BD770	70	30	0.6	10	1	20	0.2	35	2004,Q4	

# Other Package Outline Dimensions

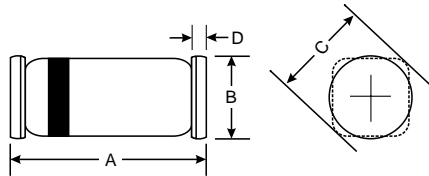
All Dimensions in mm

MiniMELF / MELF



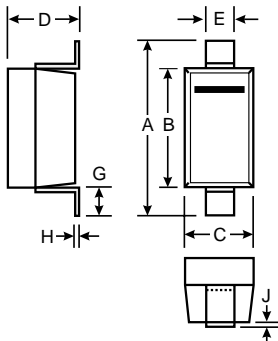
Dim	MiniMELF		MELF	
	Min	Max	Min	Max
A	3.30	3.70	4.80	5.20
B	1.30	1.60	2.40	2.60
C	0.28	0.50	0.55 Nominal	

QuadroMELF / MicroMELF



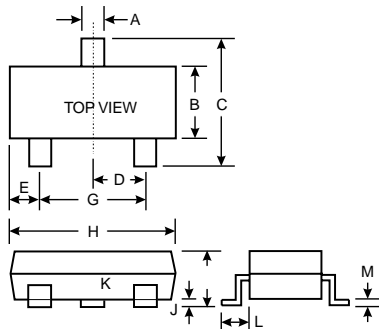
Dim	QuadroMELF		MicroMELF	
	Min	Max	Min	Max
A	3.3	3.7	1.8	2.0
B	1.4	1.6	1.20	1.25
C	1.7 $\varnothing$ Typical		1.35 $\varnothing$ Typical	
D	0.3 Typical		—	

SOD-123 / SOD-323 / SOD-523 / SOD-723



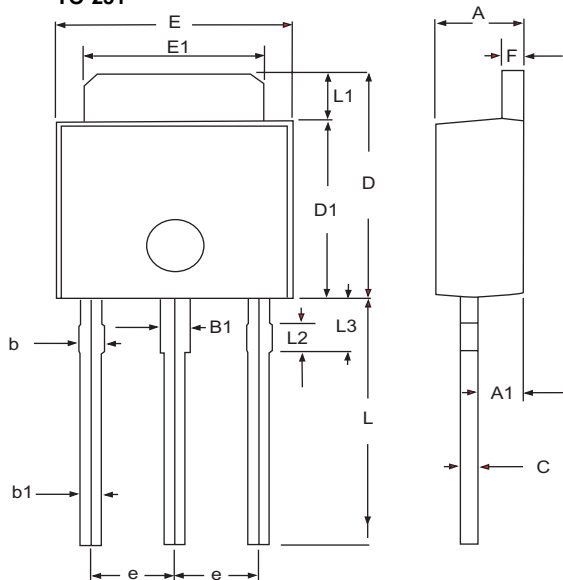
Dim	SOD-123		SOD-323		SOD-523	
	Min	Max	Min	Max	Min	Max
A	3.55	3.85	2.30	2.70	1.50	1.70
B	2.55	2.85	1.60	1.80	1.10	1.30
C	1.40	1.70	1.15	1.35	0.25	0.35
D	—	1.35	0.80	1.10	0.70	0.90
E	0.55 Typical		0.25	0.40	0.10	0.20
G	0.25	—	0.15	0.45	0.50	0.70
H	0.15 Typical		0.10	0.25	All Dimensions in mm	
J	—	0.10	—	0.10		

SOT-23 / SC-59 / SOT-323 / SOT-523

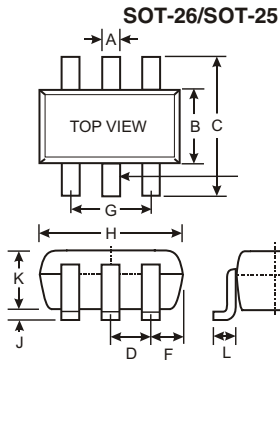


Dim	SOT-23		SC-59		SOT-323 / SOT-523	
	Min	Max	Min	Max	Min	Max
A	0.37	0.51	0.30	0.50	0.30 / 0.15	0.40 / 0.22
B	1.19	1.40	1.40	1.80	1.15 / 0.75	1.35 / 0.85
C	2.10	2.50	2.50	3.00	2.00 / 1.45	2.20 / 1.75
D	0.89	1.05	0.85	1.05	0.65 / 0.5	
E	0.45	0.61	0.30	0.70	0.30 / -	0.40 / -
G	1.78	2.05	1.70	2.10	1.20 / 0.9	1.40 / 1.1
H	2.65	3.05	2.70	3.10	1.80 / 1.5	2.20 / 1.7
J	0.013	0.15	—	0.10	-	0.10
K	0.89	1.10	1.00	1.40	0.90 / 0.6	1.00 / 0.8
L	0.45	0.61	0.55	0.70	0.25 / 0.1	0.40 / 0.3
M	0.076	0.178	0.10	0.35	0.10 / 0.1	0.25 / 0.2

TO-251



SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.20	2.40	0.087	0.095
A1	1.100	1.300	0.043	0.051
B1	0.650	1.050	0.026	0.041
b	0.500	0.900	0.020	0.035
b1	0.400	0.800	0.016	0.32
C	0.400	0.600	0.016	0.024
D	6.700	7.300	0.264	0.287
D1	5.400	5.650	0.213	0.222
E	6.40	6.650	0.252	0.262
e	2.100	2.500	0.083	0.098
F	0.400	0.600	0.016	0.024
L	7.000	8.000	0.276	0.315
L1	1.300	1.700	0.051	0.067
L2	0.700	0.900	0.028	0.035
L3	1.400	1.800	0.055	0.071

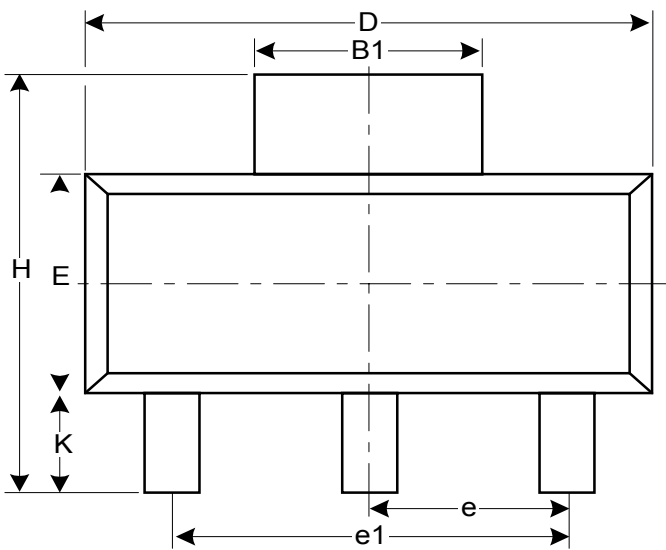


SOT-363/353		
Dim	Min	Max
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
F	0.30	0.40
H	1.80	2.20
J	—	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.25
$\alpha$	0°	8°

SOT-26/25			
Dim	Min	Max	Typ
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	—	—	0.95
F	—	—	0.55
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
$\alpha$	0°	8°	—

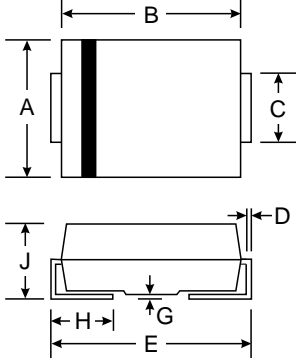
SOT-563			
Dim	Min	Max	Typ
A	0.15	0.30	0.25
B	1.10	1.25	1.20
C	1.55	1.70	1.60
D	0.50		
G	0.90	1.10	1.00
H	1.50	1.70	1.60
K	0.56	0.60	0.60
L	0.15	0.25	0.20
M	0.10	0.18	0.11
All Dimensions in mm			

**SOT-223**



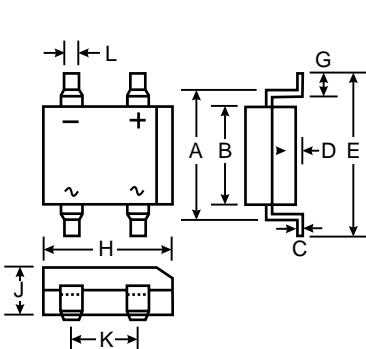
Symbol	Dimensions In Millimeters		
	Min.	Nom.	Max.
A(Thin)	1.50	1.65	1.80
A1	0.02	0.05	0.08
B	0.60	0.70	0.80
B1	2.90	-	3.15(Ref.)
c	0.28	0.30	0.32
D	6.30	6.50	6.70
E	3.30	3.50	3.70
e	2.3 Basic		
e1	4.6 Basic		
H	6.70	7.00	7.30
L	0.91	1.00	1.10
K	1.50	1.75	2.00
$\alpha$	0°	5°	10°
$\beta$	-	13°	-

**SMA, SMB, SMC**



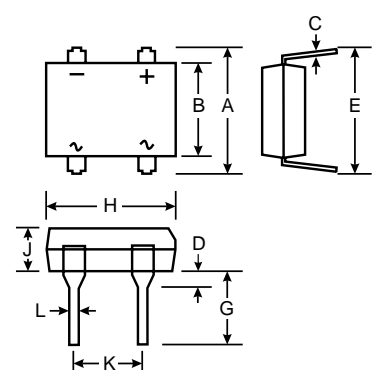
Dim	SMA		SMB		SMC	
	Min	Max	Min	Max	Min	Max
A	2.29	2.92	3.30	3.94	5.59	6.22
B	4.00	4.60	4.06	4.57	6.60	7.11
C	1.27	1.63	1.96	2.21	2.75	3.18
D	0.15	0.31	0.15	0.31	0.15	0.31
E	4.80	5.59	5.00	5.59	7.75	8.13
G	0.10	0.20	0.10	0.20	0.10	0.20
H	0.76	1.52	0.76	1.52	0.76	1.52
J	2.01	2.62	2.00	2.62	2.00	2.62

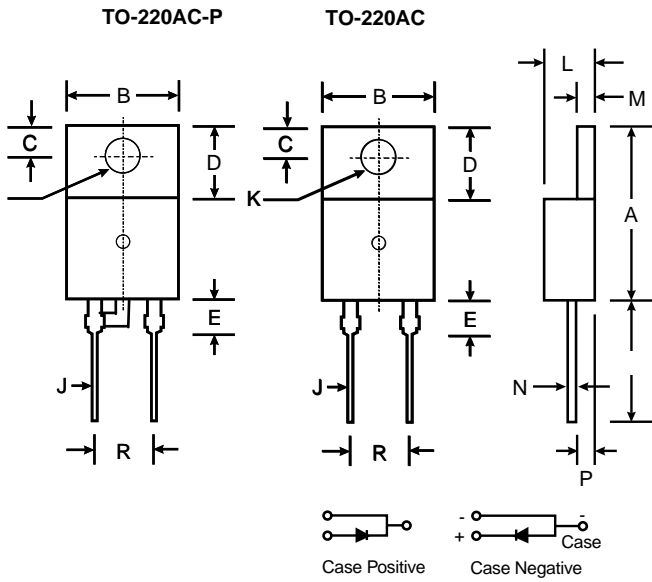
**DF-S / MBS(MDI)**



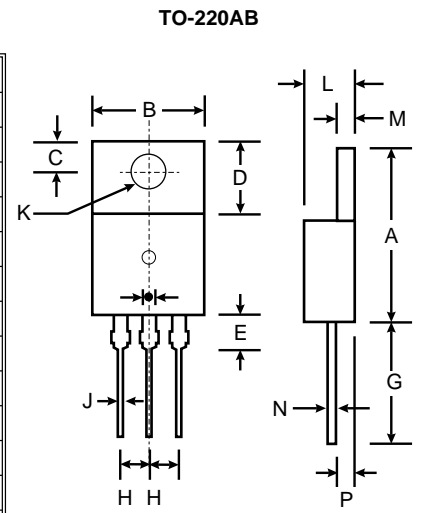
Dim	DF-S		MBS (MDI)		DF-M	
	Min	Max	Min	Max	Min	Max
A	7.40	7.90	5.43	5.75	7.40	7.90
B	6.20	6.50	3.6	4.0	6.20	6.50
C	0.22	0.30	0.15	0.35	0.22	0.30
D	0.076	0.33	0.05	0.20	1.27	2.03
E	—	10.40	—	7.0	7.60	8.90
G	1.02	1.53	0.70	1.10	3.81	4.69
H	8.13	8.51	4.5	4.9	8.13	8.51
J	2.40	3.40	2.8	2.9	2.40	3.40
K	5.00	5.20	2.5	2.7	5.00	5.20
L	1.00	1.20	0.50	0.80	0.46	0.58

**DF-M**

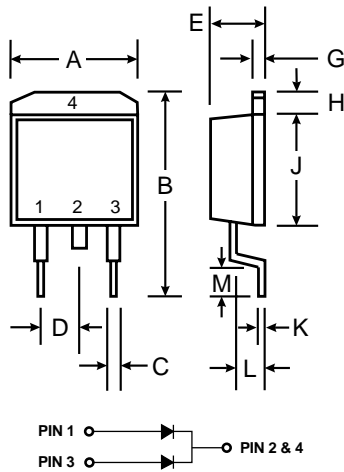




Dim	Min	Max
A	14.22	15.88
B	9.65	10.67
C	2.54	3.43
D	5.84	6.86
E	—	6.35
G	12.70	14.73
H	2.29	2.79
J	0.51	1.14
K	3.53 $\varnothing$	4.09 $\varnothing$
L	3.56	4.83
M	1.14	1.40
N	0.30	0.64
P	2.03	2.92
R	4.83	5.33

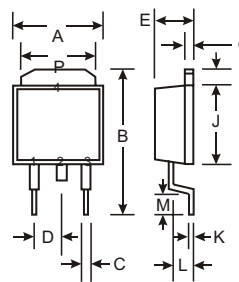


**TO-263 / D<sup>2</sup>PAK**



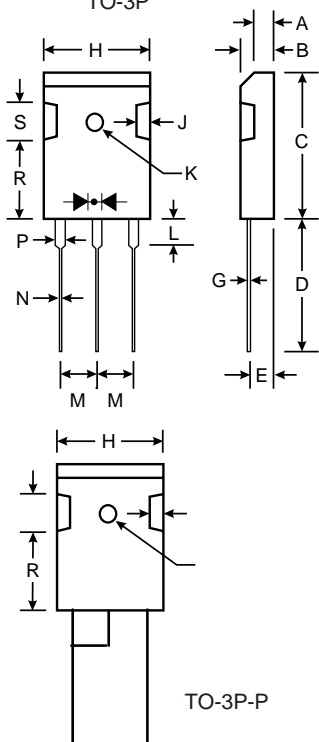
Dim	Min	Max
A	9.65	10.69
B	14.60	15.88
C	0.51	1.14
D	2.29	2.79
E	4.37	4.83
G	1.14	1.40
H	1.14	1.40
J	8.25	9.25
K	0.30	0.64
L	2.03	2.92
M	2.29	2.79

**TO-252 / DPAK**



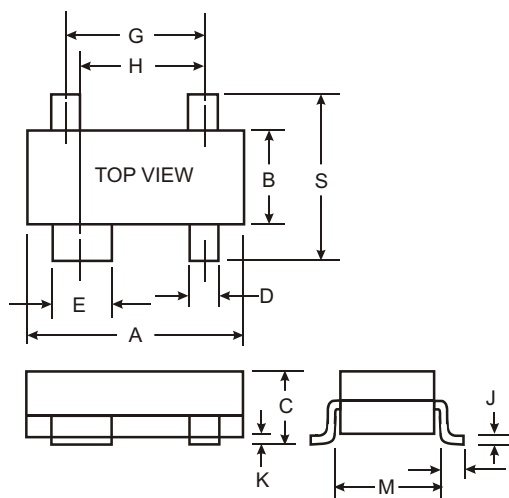
Dim	Min	Max
A	6.3	6.7
B	—	10
C	0.3	0.8
D	2.3 Nominal	
E	2.1	2.5
G	0.4	0.6
H	1.2	1.6
J	5.3	5.7
K	0.5 Nominal	
L	1.3	1.8
M	1.0	—
P	5.1	5.5

**TO-3P**



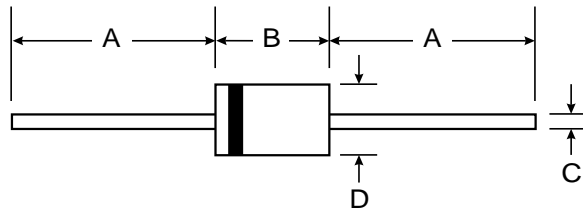
Dim	Min	Max
A	3.20	3.50
B	4.59	5.16
C	20.80	21.30
D	19.70	20.20
E	2.10	2.40
G	0.51	0.76
H	15.90	16.40
J	1.70	2.70
K	3.10 $\varnothing$	3.30 $\varnothing$
L	3.50	4.51
M	5.20	5.70
N	1.12	1.22
P	2.90	3.30
R	11.70	12.80
S	4.30 Typical	

**SOT-343 / SOT-143**



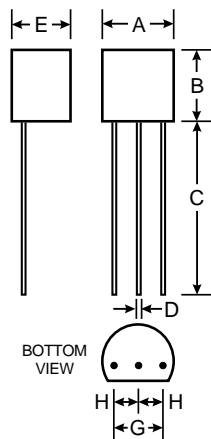
SOT-143		
Dim	Min	Max
A	2.80	3.04
B	1.20	1.40
C	0.80	1.20
D	0.37	0.46
E	0.76	0.89
G	1.92 BSC	
H	1.72 BSC	
J	0.085	0.130
K	0.051	0.127
L	0.25	0.55
M	1.00	1.69
S	2.10	2.64
All Dimensions in mm		

### Axial Devices (Through-Hole)



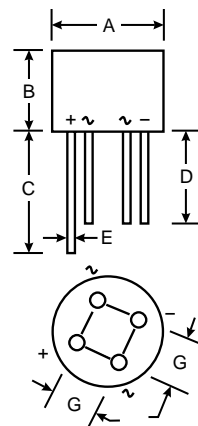
Dim	A		B		C		D	
	Min	Max	Min	Max	Min	Max	Min	Max
A-405	25.40	—	4.10	5.20	0.53	0.64	2.00	2.70
DO-35	25.40	—	—	4.00	—	0.60	—	2.00
DO-41 Plastic	25.40	—	4.06	5.21	0.71	0.864	2.00	2.72
DO-41 Glass	25.40	—	—	4.70	—	0.863	—	2.71
DO-15	25.40	—	5.50	7.62	0.686	0.889	2.60	3.60
DO-201	25.40	—	8.50	9.53	0.96	1.06	4.80	5.21
DO-201AD	25.40	—	7.20	9.50	1.20	1.30	4.80	5.30
R-6	25.40	—	8.60	9.10	1.20	1.30	8.60	9.10
T-1	25.40	—	2.60	3.20	0.53	0.64	2.20	2.60
5W	25.40	—	8.38	8.89	0.94	1.09	3.30	3.68
5KP	25.40	—	—	8.60	0.95	1.07	—	9.53
5KW	25.40	—	—	9.00	1.20	1.30	—	8.00

### TO-92



Dim	Min	Max
A	4.32	4.83
B	4.32	4.78
C	12.50	15.62
D	0.36	0.56
E	3.15	3.94
G	2.29	2.79
H	1.14	1.40

### WOG / AM

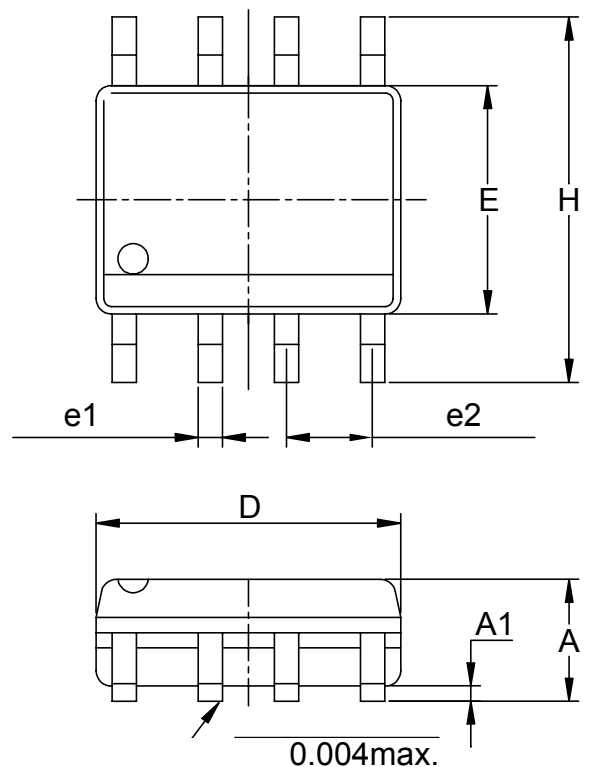


Dim	Min	Max
A	8.84	9.86
B	4.00	4.60
C	27.90	—
D	25.40	—
E	0.71	0.81
G	4.60	5.60

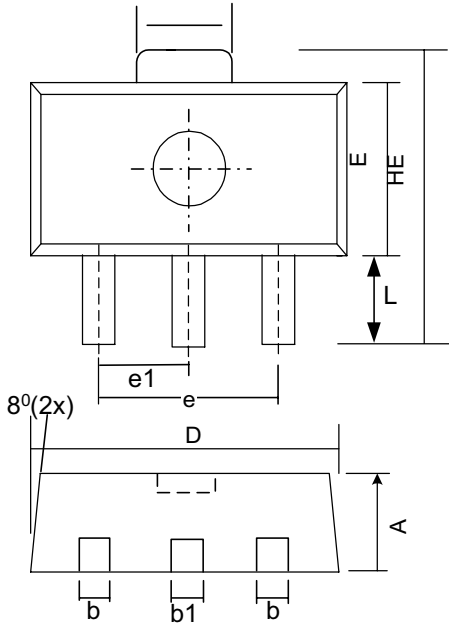
Lead configuration shown is for bulk product packaging only.  
See ANSI/EIA-486 for Radial Tape specifications.

### SOP-8 / TSSOP-8

Dim	Millimeters SOP-8 / TSSOP-8	
	Min.	Max.
A	1.35 / 1.0	1.75 / 1.2
A1	0.10 / 0.1	0.25 / 0.15
D	4.80 / 2.9	5.00 / 3.1
E	3.80 / 4.3	4.00 / 4.5
H	5.80 / 6.2	6.20 / 6.6
L	0.40 / -	1.27 / -
e1	0.33 / -	0.51 / -
e2	1.27BSC / 0.65BSC	

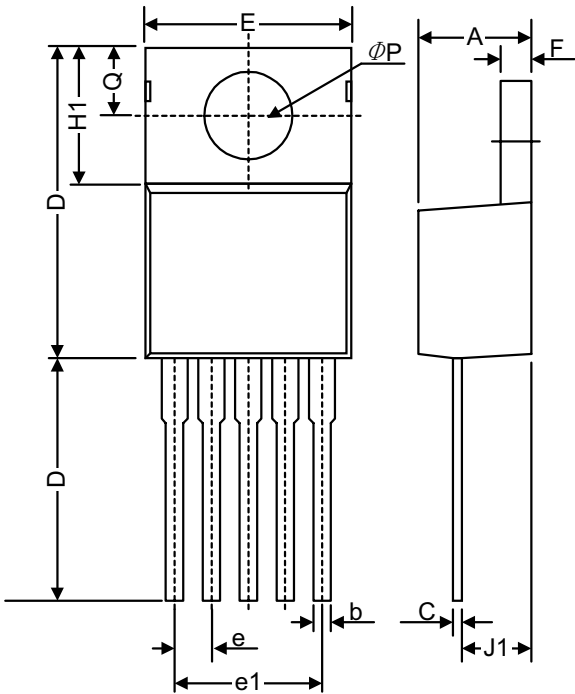


**SOT89**



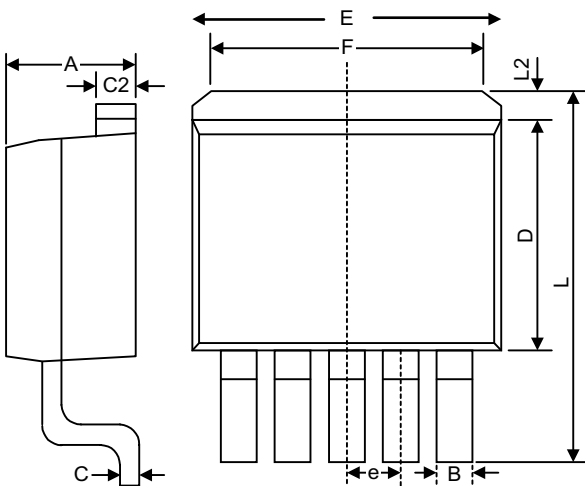
Symbol	Dimensions In Millimeters		
	Min.	Nom.	Max.
A	1.40	1.50	1.60
B	0.36	0.42	0.48
b1	0.41	0.47	0.53
C	0.38	0.40	0.43
D	4.40	4.50	4.60
D1	1.40	1.60	1.75
E	2.90	3.00	3.10
e1	1.45	1.50	1.55
E	2.40	2.50	2.60
HE	3.94	-	4.25
L	0.80	-	1.20

**TO-220-5**

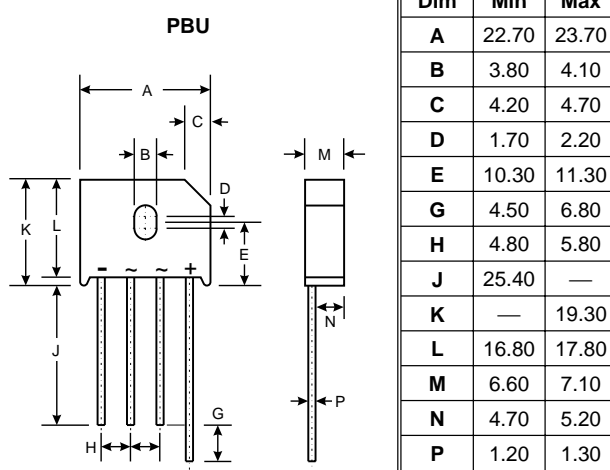
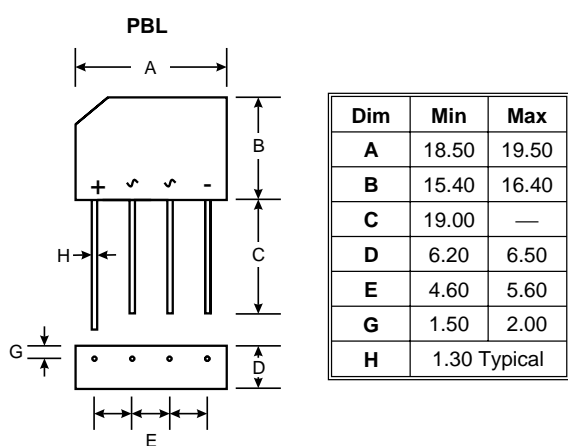
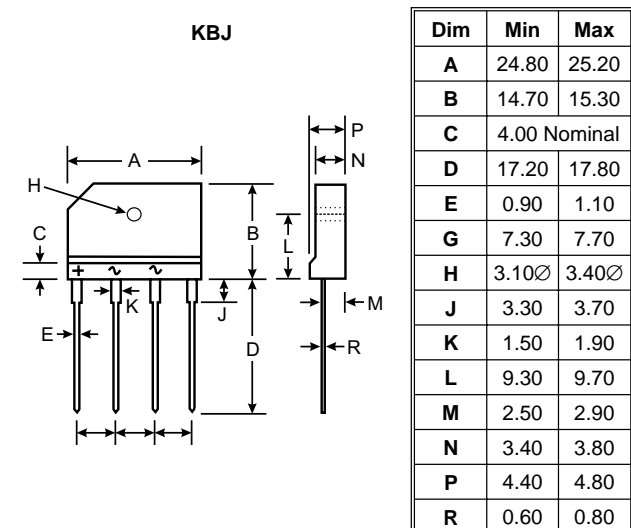
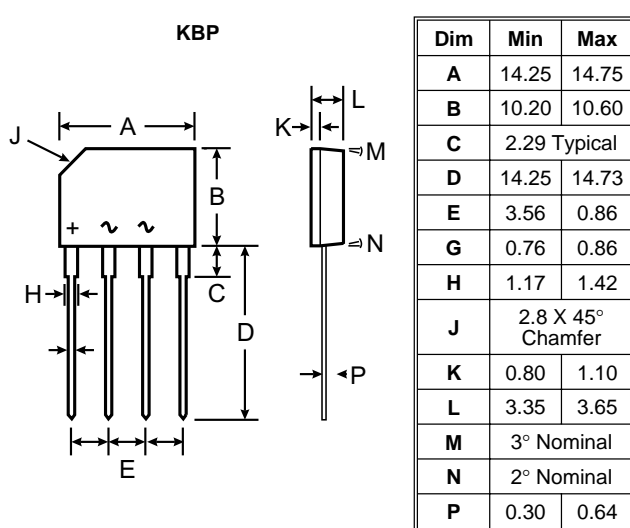
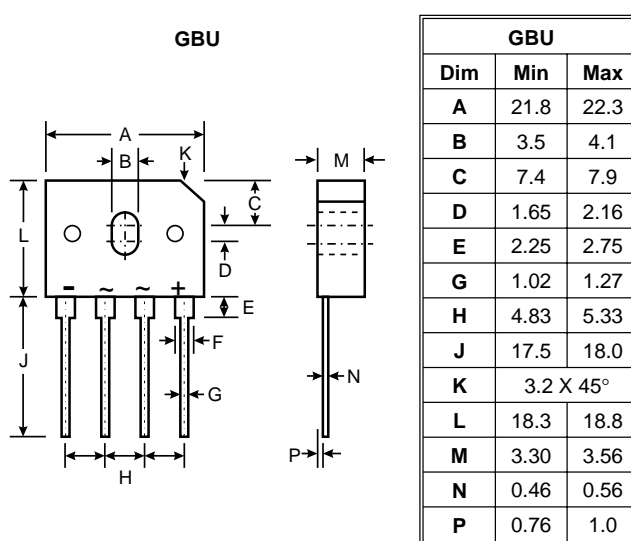
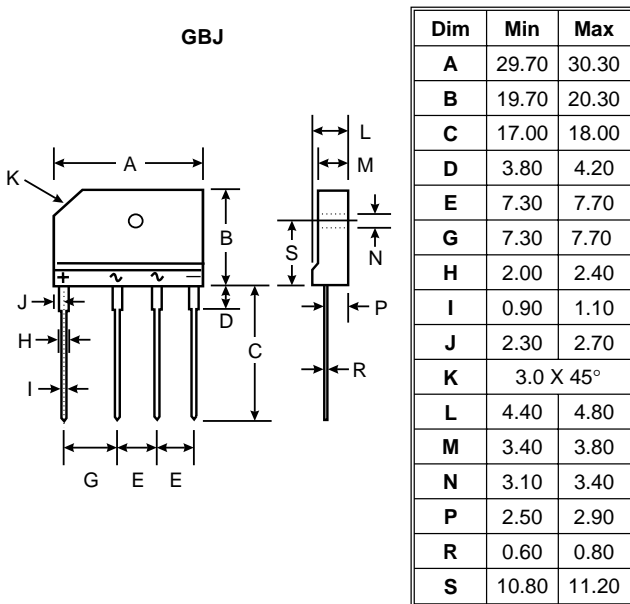


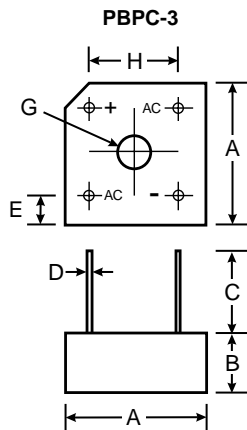
Symbol	Dimensions In Millimeters	
	Min.	Max.
A	4.06	4.8
b	0.76	1.02
C	0.36	0.64
D	14.22	15.49
E	9.78	10.54
e	1.57	1.85
e(1)	6.68	6.93
F	1.14	1.40
H(1)	5.46	6.86
J(1)	2.29	3.18
L	13.21	14.73
$\Phi P$	3.68	3.94
Q	2.54	2.92

**TO-263-5**

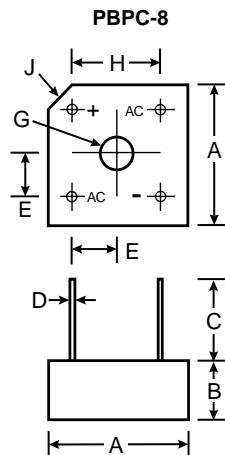


Symbol	Dimensions In Millimeters	
	Min.	Max.
A	4.06	4.83
B	0.76	1.02
C	0.36	0.64
C2	1.14	1.40
D	8.64	9.65
E	9.78	10.54
e	1.57	1.85
F	6.60	7.11
L	15.11	15.37
L2	-	1.40

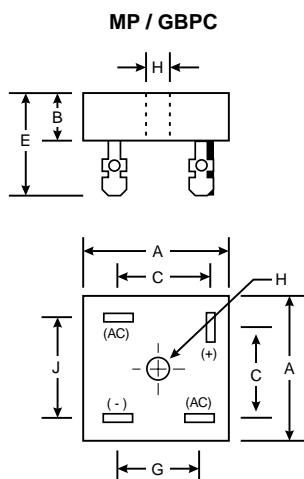




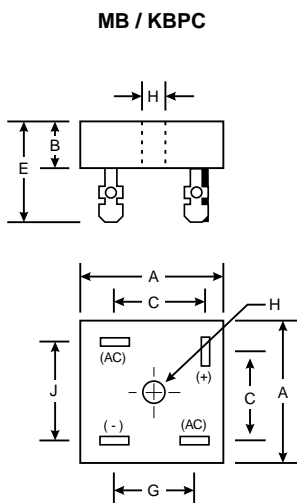
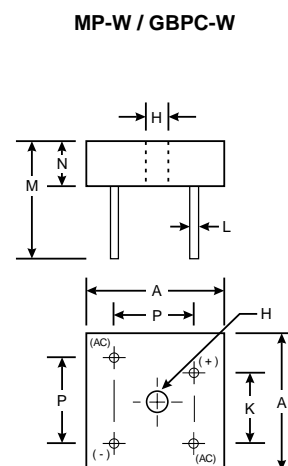
Dim	Min	Max
A	14.73	15.75
B	5.84	6.86
C	19.00	—
D	0.76Ø Typical	
E	1.70	2.70
G	Hole for #6 screw	
	3.60	4.00
H	10.30	11.30



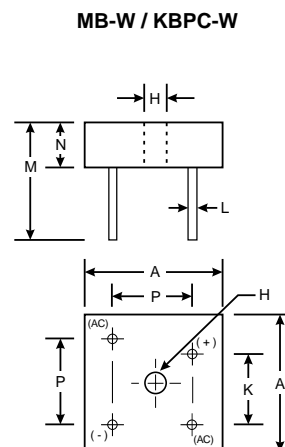
Dim	Min	Max
A	18.54	19.56
B	6.35	7.60
C	22.20	—
D	1.27Ø Typical	
E	5.33	7.37
G	3.60Ø	4.00Ø
H	12.70 Typical	
J	2.38 X 45° Typical	



Dim	Min	Max
A	28.30	28.80
B	7.40	8.00
C	16.10	17.10
E	18.80	21.30
G	13.80	14.80
H	Hole for #10 screw	
	4.85Ø	5.59Ø
J	17.60	18.60
K	10.90	11.90
L	0.97Ø	1.07Ø
M	26.4	—
N	7.40	8.00
P	17.60	18.60



Dim	Min	Max
A	28.40	28.70
B	10.97	11.23
C	15.50	17.60
E	22.86	25.40
G	13.30	15.30
H	Hole for #10 screw	
	4.85Ø	5.59Ø
J	17.10	19.10
K	10.40	12.40
L	0.97Ø Nominal	1.07Ø
M	30.50	—
N	10.97	11.23
P	17.10	19.10



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