

DEPENDABLE

QUALITY

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 ANS. _____

IN QUANTITY



transistors

POWER
 ALLOY AUDIO
 ALLOY SWITCH
 MESA

rectifiers

STUD MOUNTED
 TOP HAT
 FLANGELESS

zener diodes

REFERENCE
 1/4 WATT
 3/4 WATT
 1 WATT
 1.5 WATT
 10 WATT
 50 WATT

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M A R C H 1 9 6 0



"MEG-A-LIFE"

**M
E
G
*
A
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L
I
F
E**

Industrial Transistors with the certified reliability of Military Units

In many industrial semiconductor applications, assurance of competent reliability is as desirable as it is for military applications. For this reason Motorola has introduced the "Meg-A-Life" quality assurance program, which is patterned after the procedures used for standard military-approved components.

In the latter case, specifications and testing methods are determined by a branch of the military, and each lot is checked by a military inspector. Approved units are then stored in a "bonded warehouse" as assurance that they will be used only for military equipment.

Under the Motorola "Meg-A-Life" program, the specifications and sampling methods, as applicable to the particular units involved, are taken from broad military specifications. All testing is carried out by Motorola's Quality Assurance department under the cognizance of the Director of Quality Control. Approved units are stored in a bonded area.

"Meg-A-Life" tests are in accordance with MIL-S-19500 (general military specifications for transistors). Sampling is based upon MIL-STD-105. In addition to electrical, mechanical and environmental tests (including shock, centrifuge, vibration, humidity and temperature tests), 1000-hour storage tests at 100°C and 1000-hour operating life tests at maximum rated power are performed. Since all tests represent the most adverse conditions for which the devices are designed, they provide the industrial user assurance of excellent reliability.

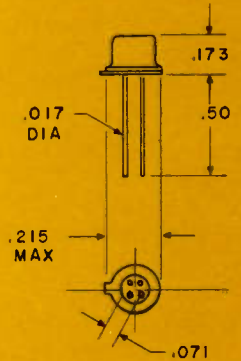
FOR COMPLETE INFORMATION ON THE NEW "MEG-A-LIFE" PROGRAM
contact your nearest Motorola Semiconductor district office.

MESA TRANSISTORS

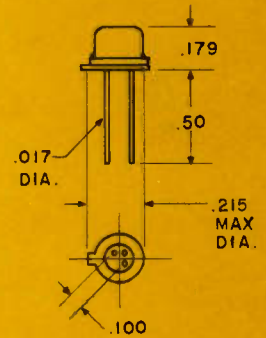


For Uniformity and Reliability
Specify
MOTOROLA MESA
Transistors

MAXIMUM RATINGS							Typical Electrical Characteristics	
Type Number	Case	BV _{CEO} volts	BV _{EBO} volts	I _C mA	T _J °C	P _C mw	h _{FE} @ I _C mA	
SWITCHES								
2N695	1	15	3.5	50	100	75	40	10
2N705	2	15	3.5	50	100	150	40	10
2N710	2	15	2.0	50	100	150	40	10
AMPLIFIERS								
2N700	1	25	0.2	50	100	75	7db @ 200mc	2
2N741	2	15	1.0	100	100	150	25	5
2N1561	3	25	3.0	500	100	3(w)	10db @ 160mc	20
2N1562	3	25	2.0	500	100	3(w)	10db @ 160mc	20



CASE 1
(Standard TO-17 Package)



CASE 2
(Standard TO-18 Package)

(Case 1)



2N695

2N700

(Case 2)



2N705

2N710

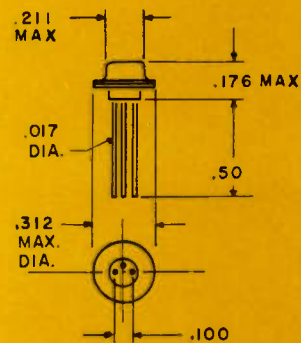
2N741

(Case 3)



2N1561

2N1562



CASE 3

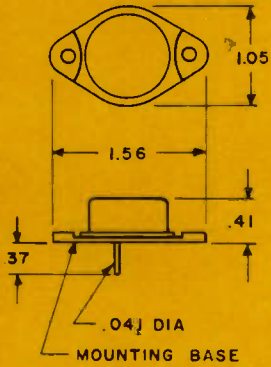


POWER TRANSISTORS

INDUSTRIAL TYPES FEATURE 90 WATTS AT 25°C, 100°C JUNCTION TEMPERATURE, 0.8°C/W MAXIMUM THERMAL RESISTANCE



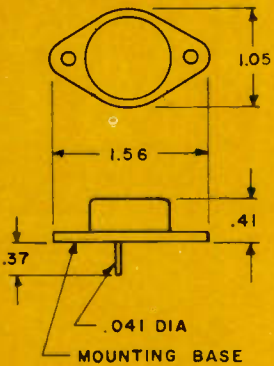
**3 AMP
INDUSTRIAL
POWER
TRANSISTORS**



CASE 1
(Standard TO-3 Package
with .041" Pins)



**3 AMP
AUTOMOTIVE
POWER
TRANSISTORS**



CASE 2

**5 AMP
INDUSTRIAL
POWER
TRANSISTORS**

MAXIMUM RATINGS						Electrical Characteristics		
Type Number	Case	BV _{CBO} volts	BV _{CES} volts	T _J °C	I _C amps	h _{FE} @ I _C		
						Min	Max	Amps
HIGH VOLTAGE						Min	Max	
2N1359	1	50	40	100	3.0	35	90	1
2N1360	1	50	40	100	3.0	60	140	1
2N375	1	80	60	100	3.0	35	90	1
2N618	1	80	60	100	3.0	60	140	1
2N1362	1	100	75	100	3.0	35	90	1
2N1363	1	100	75	100	3.0	60	140	1
2N1364	1	120	100	100	3.0	35	90	1
2N1365	1	120	100	100	3.0	60	140	1
2N297A	1	80	50	100	3.0	40	100	.5
2N1011	1	80	80	100	3.0	30	75	3
2 WATT POWER OUTPUT								
Type Number	Case	BV _{CBO} volts	BV _{CES} volts	T _J °C	I _C amps	Typical h _{FE}	Typical Power Gain db	
2N176	2	40	30	100	3.0	45	35	
2N669	2	40	30	100	3.0	100	40	
4 WATT POWER OUTPUT								
2N350A	2	50	40	100	3.0	30	31	
3N351A	2	50	40	100	4.0	45	33	
2N376A	2	50	40	100	5.0	60	35	

MAXIMUM RATINGS						Electrical Characteristics		
Type Number	Case	BV _{CBO} volts	BV _{CES} volts	T _J °C	I _C amps	h _{FE} @ I _C		
						Min	Max	Amps
2N1529	1	40	30	100	5	20	40	3
2N1530	1	60	45	100	5	20	40	3
2N1531	1	80	60	100	5	20	40	3
2N1532	1	100	75	100	5	20	40	3
2N1533	1	120	90	100	5	20	40	3
2N1534	1	40	30	100	5	35	70	3
2N1535	1	60	45	100	5	35	70	3
2N1536	1	80	60	100	5	35	70	3
2N1537	1	100	75	100	5	35	70	3
2N1538	1	120	90	100	5	35	70	3
2N1539	3	40	30	100	5	50	100	3
2N1540	3	60	45	100	5	50	100	3
2N1541	3	80	60	100	5	50	100	3
2N1542	3	100	75	100	5	50	100	3
2N1543	3	120	90	100	5	50	100	3
2N1544	3	40	30	100	5	75	150	3
2N1545	3	60	45	100	5	75	150	3
2N1546	3	80	60	100	5	75	150	3
2N1547	3	100	75	100	5	75	150	3
2N1548	3	120	90	100	5	75	150	3



POWER TRANSISTORS

INDUSTRIAL TYPES FEATURE 90 WATTS AT 25°C, 100°C JUNCTION TEMPERATURE, 0.8°C/W MAXIMUM THERMAL RESISTANCE

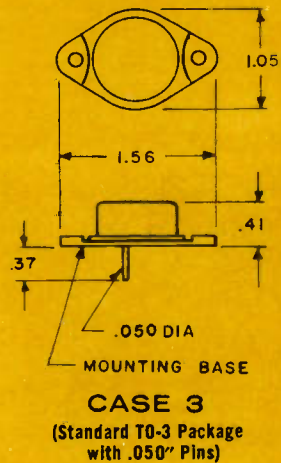
MAXIMUM RATINGS						Electrical Characteristics		
Type Number		BV _{CBO}	BV _{CES}	T _J	I _C	h _{FE} @ I _C		
Case 4	Case 3	volts	volts	°C	amps	Min	Max	Amps
2N627	MN61	40	30	100	10.0	10	30	10
2N628	MN62	60	45	100	10.0	10	30	10
2N629	MN63	80	60	100	10.0	10	30	10
2N630	MN64	100	75	100	10.0	10	30	10
2N1120	—	80	70	100	15.0	10	50	10

10 AMP
INDUSTRIAL
POWER
TRANSISTORS



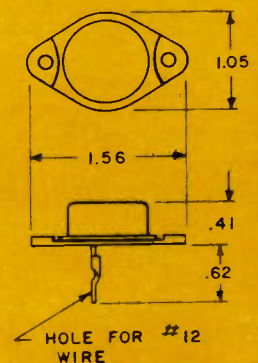
MAXIMUM RATINGS						Electrical Characteristics		
Type Number		BV _{CBO}	BV _{CES}	T _J	I _C	h _{FE} @ I _C		
Case 3	Case 4	volts	volts	°C	amps	Min	Max	Amps
2N1549	MP1549	40	30	100	15	10	30	10
2N1550	MP1550	60	45	100	15	10	30	10
2N1551	MP1551	80	60	100	15	10	30	10
2N1552	MP1552	100	75	100	15	10	30	10
2N1553	MP1553	40	30	100	15	30	60	10
2N1554	MP1554	60	45	100	15	30	60	10
2N1555	MP1555	80	60	100	15	30	60	10
2N1556	MP1556	100	75	100	15	30	60	10
2N1557	MP1557	40	30	100	15	50	100	10
2N1558	MP1558	60	45	100	15	50	100	10
2N1559	MP1559	80	60	100	15	50	100	10
2N1560	MP1560	100	75	100	15	50	100	10

15 AMP
INDUSTRIAL
POWER
TRANSISTORS



MAXIMUM RATINGS						Electrical Characteristics		
Type Number	Case	BV _{CBO}	BV _{CES}	T _J	I _C	h _{FE} @ I _C		
		volts	volts	°C	amps	Min	Max	Amps
2N1162	3	50	35	100	25	15	65	25
2N1163	4	50	35	100	25	15	65	25
2N1164	3	80	60	100	25	15	65	25
2N1165	4	80	60	100	25	15	65	25
2N1166	3	100	75	100	25	15	65	25
2N1167	4	100	75	100	25	15	65	25

25 AMP
INDUSTRIAL
POWER
TRANSISTORS



MAXIMUM RATINGS						Electrical Characteristics		
Type Number	Case	BV _{CBO}	BV _{CES}	T _J	I _C	h _{FE} @ I _C		
		volts	volts	°C	amps	Min	Max	Amps
2N297A (SIG. C)	1	80	50	100	3.0	40	100	.5
2N1011 (SIG. C)	1	80	80	100	3.0	30	75	3
2N1120 (SIG. C)	4	80	70	100	15.0	10	50	10

**MILITARY
TYPES**
MOTOROLA
3 AMP, 15 AMP

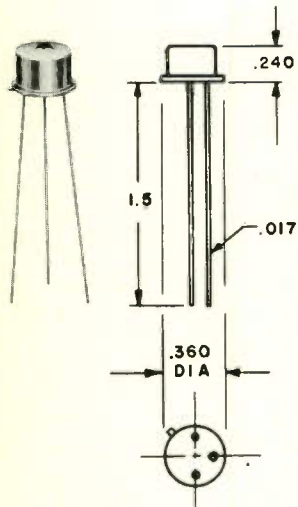
CASE 4
(Standard TO-3 Package with Solder Lugs)



ALLOY / SWITCHING

QUAD-MOUNT CONSTRUCTION FOR MECHANICAL STABILITY
125°C VACUUM BAKE ASSURES RELIABILITY

INDUSTRIAL ALLOY TRANSISTORS



CASE 1
(Standard TO-5 Package)

MILITARY TYPES

MAXIMUM RATINGS						Typical Electrical Characteristics		
Type Number	Case	BV _{CBO} volts	BV _{CER} (R = 10k) volts	T _J °C	P _c mw	h _{FE} (V _{CE} = 6V, I _C = 1ma)		
						min.	typ.	max.
2N331	1	30	BV _{EBO} 12	85	200	30	50	70
2N464	1	45	40	85	150	14	26	—
2N465	1	45	30	85	150	27	45	—
2N466	1	35	20	85	150	56	90	—
2N467	1	35	15	85	150	112	180	—
2N650	1	45	30	100	200	30	49	70
2N650A†	1	45	30	100	200	30	—	70
2N651	1	45	30	100	200	50	80	120
2N651A†	1	45	30	100	200	50	—	120
2N652	1	45	30	100	200	100	130	225
2N652A†	1	45	30	100	200	100	—	225
2N653	1	30	25	100	200	30	49	70
2N654	1	30	25	100	200	50	80	125
2N655	1	30	25	100	200	100	130	250
2N1191	1	40	25	85	175	30	40	70
2N1192	1	40	25	85	175	50	75	125
2N1193	1	40	25	85	175	100	160	250
JAN2N331	1	30	—	85	75	30	—	70
2N461(USAF)	1	45	35 @ R=1k	100	200	h _{fb} 0.968	—	0.985
2N465(Sig C)	1	40	BV _{CER} 40	85	150	27	—	66
2N466(Sig C)	1	35	BV _{CER} 35	85	150	54	—	130
2N467(Sig C)	1	35	BV _{CER} 35	85	150	110	—	260

† Meg-A-Life Units — These devices are supplied under Motorola's verification of reliability "Meg-A-Life" program. Each production lot undergoes complete electrical, mechanical, environmental and life tests identical to those required for military approved units. Motorola will certify that "Meg-A-Life" units are from lots that have passed these tests. A copy of actual test results will be made available to the purchaser upon written request with his order of 100 or more units.

ALLOY SWITCHING TRANSISTORS

MAXIMUM RATINGS						Typical Electrical Characteristics	
Type Number	Case	BV _{CEO} volts	BV _{CBO} volts	BV _{EBO} volts	P _c mw	h _{FE} @ I _b = 1ma	f _{ab} mc
2N404	1	V _{pt-24}	25	12	120	40	12
2N425	1	20	30	20	150	30	4
2N426	1	18	30	20	150	40	6
2N427	1	15	30	20	150	55	11
2N428	1	12	30	20	150	80	17

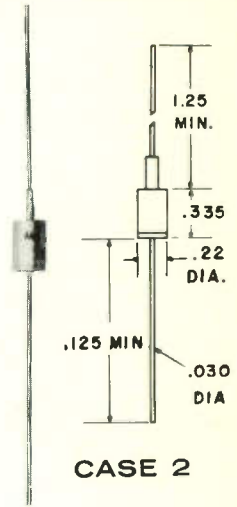
SILICON RECTIFIERS

50% GUARD BAND ON PIV, FLANGELESS TYPES ELIMINATE MOUNTING PROBLEMS



Type Number	Case	Peak Inverse Voltage (PIV) DC or Recurrent	Sine Wave Input Voltage (RMS)	Average Half-Wave Rectified Forward Current @ Ambient Temp.		Peak One Cycle Surge Current 60 cps (25°C)	Peak Recurrent Forward Current 60 cps (25°C)
		volts	volts	ma @ 50°C	ma @ 150°C	amps	amps
1N2610	2	100	70	750	250	30	6
1N2611	2	200	140	750	250	30	6
1N2612	2	300	210	750	250	30	6
1N2613	2	400	280	750	250	30	6
1N2614	2	500	350	750	250	30	6
1N2615	2	600	420	750	250	30	6

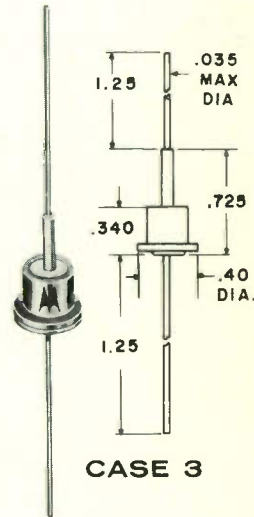
AXIAL LEAD FLANGELESS RECTIFIERS



CASE 2

MAXIMUM RATINGS							
Type Number	Case	PIV volts (dc)	I _o (rectified dc average half wave)		V _F @ I _F (dc) at 25°C		I _{surge} 1/2 cycle (60 cps) amps
			ma @ 50°C	ma @ 150°C	volts @ amps		
1N536	3	50	750	250	1.1	0.5	30
1N537	3	100	750	250	1.1	0.5	30
1N538	3	200	750	250	1.1	0.5	30
1N539	3	300	750	250	1.1	0.5	30
1N540	3	400	750	250	1.1	0.5	30
1N1095	3	500	750	250	1.1	0.5	30
1N1096	3	600	750	250	1.1	0.5	30
1N547	3	600	750	250	1.1	0.5	30
JAN1N538	3	200	750	250	1.1	0.5	15
JAN1N540	3	400	750	250	1.1	0.5	15
JAN1N547	3	600	750	250	1.1	0.5	15

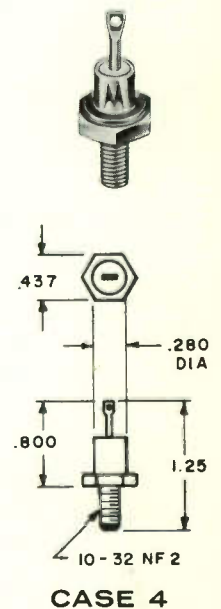
AXIAL LEAD TOPHAT RECTIFIERS



CASE 3

MAXIMUM RATINGS							
Type Number	Case	PIV volts (dc)	I _o (rectified dc average half wave)	V _F @ I _F (dc) @ 25°C		V _F @ I _F (dc) @ 150°C Average volts @ 0.6 amps I _o	I _{surge} 1/2 cycle (60 cps) amps
			Amps @ 150°C base temp	volts @ dc amps			
1N253	4	100	1.0*	1.5	1.0	—	30
1N254	4	200	0.4*	1.5	0.5	—	30
1N255	4	400	0.4*	1.5	0.5	—	30
1N256	4	600	0.2*	2.0	0.5	—	30
1N1115	4	100	0.6	—	—	0.65	30
1N1116	4	200	0.6	—	—	0.65	30
1N1117	4	300	0.6	—	—	0.65	30
1N1118	4	400	0.6	—	—	0.65	30
1N1119	4	500	0.6	—	—	0.65	30
1N1120	4	600	0.6	—	—	0.65	30
JAN1N253	4	100	1.0*	1.5	1.0	—	
JAN1N254	4	200	0.4*	1.5	0.5	—	
JAN1N255	4	400	0.4*	1.5	0.5	—	
JAN1N256	4	600	0.2*	2.0	0.5	—	

STUD MOUNTED RECTIFIERS



CASE 4

MILITARY TYPES

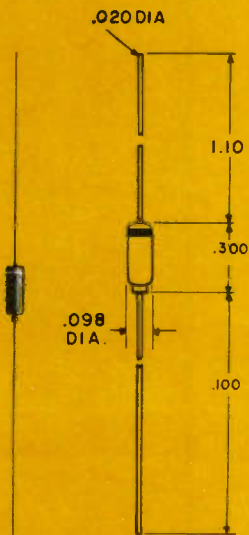
*135° base temperature



REFERENCE DIODES

TEMPERATURE COEFFICIENTS AS LOW AS .0005%/°C
STABILITY ASSURED BY DIFFUSION PROCESS

SUBMINIATURE -9.0 VOLT REFERENCE DIODES

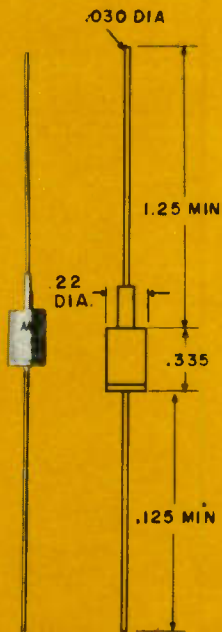


CASE 1

ELECTRICAL CHARACTERISTICS, at 7.5 ma					
Type Number	Case	Voltage Range @ 7.5 ma (25°C Ambient) Volts	Voltage-Temperature Coefficient %/°C	Temperature Range °C	Maximum Dynamic Impedance Ohms*
1N935	1	8.55 - 9.45	.01	0 to +75	20
1N935/A	1	8.55 - 9.45	.01	-55 to +100	20
1N935/B	1	8.55 - 9.45	.01	-55 to +150	20
1N936	1	8.55 - 9.45	.005	0 to +75	20
1N936/A	1	8.55 - 9.45	.005	-55 to +100	20
1N936/B	1	8.55 - 9.45	.005	-55 to +150	20
1N937	1	8.55 - 9.45	.002	0 to +75	20
1N937/A	1	8.55 - 9.45	.002	-55 to +100	20
1N937/B	1	8.55 - 9.45	.002	-55 to +150	20
1N938	1	8.55 - 9.45	.001	0 to +75	20
1N938/A	1	8.55 - 9.45	.001	-55 to +100	20
1N938/B	1	8.55 - 9.45	.001	-55 to +150	20
1N939	1	8.55 - 9.45	.0005	0 to +75	20
1N939/A	1	8.55 - 9.45	.0005	-55 to +100	20
1N939/B	1	8.55 - 9.45	.0005	-55 to +150	20

* Measured by superimposing .75 ma rms AC on 7.5 ma DC.

MINIATURE -9.3 VOLT REFERENCE DIODES



CASE 2

ELECTRICAL CHARACTERISTICS, at 10.0 ma					
Type Number	Case	Voltage Range @ 10.0 ma (25°C Ambient) Volts	Voltage-Temperature Coefficient %/°C	Temperature Range °C	Maximum Dynamic Impedance Ohms*
1N2620	2	8.9 - 9.7	.01	0 to +75	15
1N2620/A	2	8.9 - 9.7	.01	-55 to +100	15
1N2620/B	2	8.9 - 9.7	.01	-55 to +150	15
1N2621	2	8.9 - 9.7	.005	0 to +75	15
1N2621/A	2	8.9 - 9.7	.005	-55 to +100	15
1N2621/B	2	8.9 - 9.7	.005	-55 to +150	15
1N2622	2	8.9 - 9.7	.002	0 to +75	15
1N2622/A	2	8.9 - 9.7	.002	-55 to +100	15
1N2622/B	2	8.9 - 9.7	.002	-55 to +150	15
1N2623	2	8.9 - 9.7	.001	0 to +75	15
1N2623/A	2	8.9 - 9.7	.001	-55 to +100	15
1N2623/B	2	8.9 - 9.7	.001	-55 to +150	15
1N2624	2	8.9 - 9.7	.0005	0 to +75	15
1N2624/A	2	8.9 - 9.7	.0005	-55 to +100	15
1N2624/B	2	8.9 - 9.7	.0005	-55 to +150	15

* Measured by superimposing 1 mA rms ac on 10 mA DC.



ZENER DIODES

TESTED AT POINT OF USE
SHARP ZENER KNEES — 100% SCOPE TESTED

1/4 WATT SILICON ZENER DIODES

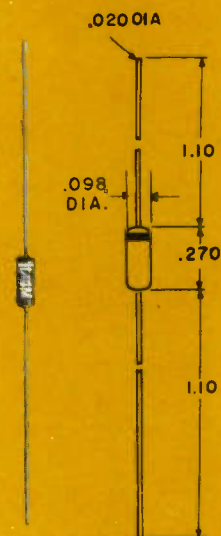
MOTOROLA TYPE NO.	Case	Nominal* Zener Voltage @ I_{ZT} (V_z) Volts	Test Current (I_{ZT}) ma	Max. Zener Impedance Z_{ZT} @ I_{ZT} ohms	MOTOROLA TYPE NO.	Case	Nominal* Zener Voltage @ I_{ZT} (V_z) Volts	Test Current (I_{ZT}) ma	Max. Zener Impedance Z_{ZT} @ I_{ZT} ohms
1/4 M6.8Z	3	6.8	9.2	7.0	1/4 M39Z	3	39	1.6	120
1/4 M7.5Z	3	7.5	8.3	8.0	1/4 M43Z	3	43	1.5	140
1/4 M8.2Z	3	8.2	7.6	9.0	1/4 M45Z	3	45	1.4	150
1/4 M9.1Z	3	9.1	6.9	10	1/4 M47Z	3	47	1.3	160
1/4 M10Z	3	10	6.3	11	1/4 M50Z	3	50	1.2	180
1/4 M11Z	3	11	5.7	13	1/4 M52Z	3	52	1.2	200
1/4 M12Z	3	12	5.2	15	1/4 M56Z	3	56	1.1	230
1/4 M13Z	3	13	4.8	18	1/4 M62Z	3	62	1.0	290
1/4 M14Z	3	14	4.5	20	1/4 M68Z	3	68	0.92	350
1/4 M15Z	3	15	4.2	22	1/4 M75Z	3	75	0.83	450
1/4 M16Z	3	16	3.9	24	1/4 M82Z	3	82	0.76	550
1/4 M17Z	3	17	3.7	26	1/4 M91Z	3	91	0.69	700
1/4 M18Z	3	18	3.5	28	1/4 M100Z	3	100	0.63	900
1/4 M19Z	3	19	3.3	30	1/4 M105Z	3	105	0.60	1,000
1/4 M20Z	3	20	3.1	33	1/4 M110Z	3	110	0.57	1,200
1/4 M22Z	3	22	2.8	40	1/4 M120Z	3	120	0.52	1,500
1/4 M24Z	3	24	2.6	46	1/4 M130Z	3	130	0.48	1,900
1/4 M25Z	3	25	2.5	50	1/4 M140Z	3	140	0.45	2,200
1/4 M27Z	3	27	2.3	58	1/4 M150Z	3	150	0.42	2,500
1/4 M30Z	3	30	2.1	70	1/4 M175Z	3	175	0.36	3,300
1/4 M33Z	3	33	1.9	85	1/4 M200Z	3	200	0.31	4,300
1/4 M36Z	3	36	1.7	100					

*Standard Tolerances of $\pm 20\%$;
 $\pm 10\%$ and $\pm 5\%$ are available

3/4 WATT SILICON ZENER DIODES

MOTOROLA TYPE NO.	Case	Nominal* Zener Voltage @ I_{ZT} (V_z) Volts	Test Current (I_{ZT}) ma	Max. Zener Impedance Z_{ZT} @ I_{ZT} ohms	MOTOROLA TYPE NO.	Case	Nominal* Zener Voltage @ I_{ZT} (V_z) Volts	Test Current (I_{ZT}) ma	Max. Zener Impedance Z_{ZT} @ I_{ZT} ohms
3/4 M6.8Z	2	6.8	37	3.5	3/4 M39Z	2	39	6.5	60
3/4 M7.5Z	2	7.5	34	4.0	3/4 M43Z	2	43	6.0	70
3/4 M8.2Z	2	8.2	31	4.5	3/4 M45Z	2	45	5.5	75
3/4 M9.1Z	2	9.1	28	5.0	3/4 M47Z	2	47	5.5	80
3/4 M10Z	2	10	25	7	3/4 M50Z	2	50	5.0	90
3/4 M11Z	2	11	23	8	3/4 M52Z	2	52	5.0	100
3/4 M12Z	2	12	21	9	3/4 M56Z	2	56	4.5	110
3/4 M13Z	2	13	19	10	3/4 M62Z	2	62	4.0	125
3/4 M14Z	2	14	18	12	3/4 M68Z	2	68	3.7	150
3/4 M15Z	2	15	17	14	3/4 M75Z	2	75	3.3	175
3/4 M16Z	2	16	15.5	16	3/4 M82Z	2	82	3.0	200
3/4 M17Z	2	17	14.5	18	3/4 M91Z	2	91	2.8	250
3/4 M18Z	2	18	14	20	3/4 M100Z	2	100	2.5	350
3/4 M19Z	2	19	13	21	3/4 M105Z	2	105	2.5	400
3/4 M20Z	2	20	12.5	22	3/4 M110Z	2	110	2.3	450
3/4 M22Z	2	22	11.5	23	3/4 M120Z	2	120	2.0	550
3/4 M24Z	2	24	10.5	25	3/4 M130Z	2	130	1.9	700
3/4 M25Z	2	25	10	30	3/4 M140Z	2	140	1.8	900
3/4 M27Z	2	27	9.5	35	3/4 M150Z	2	150	1.7	1,000
3/4 M30Z	2	30	8.5	40	3/4 M175Z	2	175	1.4	1,200
3/4 M33Z	2	33	7.5	45	3/4 M200Z	2	200	1.2	1,500
3/4 M36Z	2	36	7.0	50					

*Standard Tolerances of $\pm 20\%$;
 $\pm 10\%$ and $\pm 5\%$ are available



CASE 3



ZENER DIODES

TESTED AT POINT OF USE

SHARP ZENER KNEES — 100% SCOPE TESTED

1 WATT SILICON ZENER DIODES

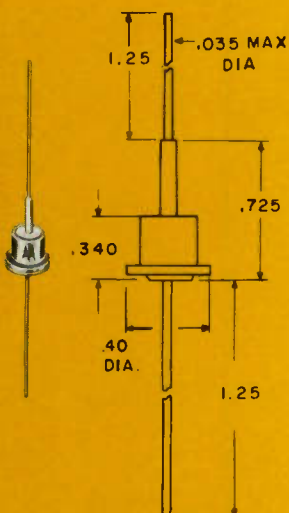
MOTOROLA TYPE NO.	Case	Nominal* Zener Voltage @ I_{ZT} (V_z) Volts	Test Current (I_{ZT}) ma	Max. Zener Impedance Z_{ZT} @ I_{ZT} ohms	MOTOROLA TYPE NO.	Case	Nominal* Zener Voltage @ I_{ZT} (V_z) Volts	Test Current (I_{ZT}) ma	Max. Zener Impedance Z_{ZT} @ I_{ZT} ohms
1M6.8Z	1	6.8	37	3.5	1M39Z	1	39	6.5	60
1M7.5Z	1	7.5	34	4.0	1M43Z	1	43	6.0	70
1M8.2Z	1	8.2	31	4.5	1M45Z	1	45	5.5	75
1M9.1Z	1	9.1	28	5.0	1M47Z	1	47	5.5	80
1M10Z	1	10	25	7	1M50Z	1	50	5.0	90
1M11Z	1	11	23	8	1M52Z	1	52	5.0	100
1M12Z	1	12	21	9	1M56Z	1	56	4.5	110
1M13Z	1	13	19	10	1M62Z	1	62	4.0	125
1M14Z	1	14	18	12	1M68Z	1	68	3.7	150
1M15Z	1	15	17	14	1M75Z	1	75	3.3	175
1M16Z	1	16	15.5	16	1M82Z	1	82	3.0	200
1M17Z	1	17	14.5	18	1M91Z	1	91	2.8	250
1M18Z	1	18	14	20	1M100Z	1	100	2.5	350
1M19Z	1	19	13	21	1M105Z	1	105	2.5	400
1M20Z	1	20	12.5	22	1M110Z	1	110	2.3	450
1M22Z	1	22	11.5	23	1M120Z	1	120	2.0	550
1M24Z	1	24	10.5	25	1M130Z	1	130	1.9	700
1M25Z	1	25	10	30	1M140Z	1	140	1.8	900
1M27Z	1	27	9.5	35	1M150Z	1	150	1.7	1,000
1M30Z	1	30	8.5	40	1M175Z	1	175	1.4	1,200
1M33Z	1	33	7.5	45	1M200Z	1	200	1.2	1,500
1M36Z	1	36	7.0	50					

*Standard Tolerances of $\pm 20\%$;
 $\pm 10\%$ and $\pm 5\%$ are available

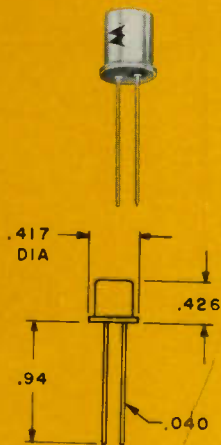
1.5 WATT SILICON ZENER DIODES

MOTOROLA TYPE NO.	Case	Nominal* Zener Voltage @ I_{ZT} (V_z) Volts	Test Current (I_{ZT}) ma	Max. Zener Impedance Z_{ZT} @ I_{ZT} ohms	MOTOROLA TYPE NO.	Case	Nominal* Zener Voltage @ I_{ZT} (V_z) Volts	Test Current (I_{ZT}) ma	Max. Zener Impedance Z_{ZT} @ I_{ZT} ohms
1.5M6.8Z	2	6.8	55	2.7	1.5M39Z	2	39	10	40
1.5M7.5Z	2	7.5	50	3.0	1.5M43Z	2	43	9.0	45
1.5M8.2Z	2	8.2	46	3.5	1.5M45Z	2	45	8.5	50
1.5M9.1Z	2	9.1	41	4.0	1.5M47Z	2	47	8.0	55
1.5M10Z	2	10	37	5	1.5M50Z	2	50	7.5	60
1.5M11Z	2	11	34	6	1.5M52Z	2	52	7.2	65
1.5M12Z	2	12	31	7	1.5M56Z	2	56	6.7	75
1.5M13Z	2	13	29	8	1.5M62Z	2	62	6.0	85
1.5M14Z	2	14	26	9	1.5M68Z	2	68	5.5	95
1.5M15Z	2	15	25	10	1.5M75Z	2	75	5.0	110
1.5M16Z	2	16	23	11	1.5M82Z	2	82	4.5	130
1.5M17Z	2	17	22	12	1.5M91Z	2	91	4.1	150
1.5M18Z	2	18	21	13	1.5M100Z	2	100	3.7	200
1.5M19Z	2	19	20	14	1.5M105Z	2	105	3.5	250
1.5M20Z	2	20	19	15	1.5M110Z	2	110	3.4	300
1.5M22Z	2	22	17	16	1.5M120Z	2	120	3.1	350
1.5M24Z	2	24	16	17	1.5M130Z	2	130	2.9	400
1.5M25Z	2	25	15	18	1.5M140Z	2	140	2.7	600
1.5M27Z	2	27	14	20	1.5M150Z	2	150	2.5	700
1.5M30Z	2	30	12	25	1.5M175Z	2	175	2.1	800
1.5M33Z	2	33	11	30	1.5M200Z	2	200	1.9	1,000
1.5M36Z	2	36	10	35					

*Standard Tolerances of $\pm 20\%$;
 $\pm 10\%$ and $\pm 5\%$ are available



CASE 1



CASE 2



ZENER DIODES

TESTED AT POINT OF USE
SHARP ZENER KNEES — 100% SCOPE TESTED

10 WATT SILICON ZENER DIODES

JEDEC TYPE NUMBER	Case	Nominal* Zener Voltage @ I _{ZT} (V _Z) Volts	Test Current (I _{ZT}) ma	Max. Zener Impedance Z _{ZT} @ I _{ZT} ohms	JEDEC TYPE NUMBER	Case	Nominal* Zener Voltage @ I _{ZT} (V _Z) Volts	Test Current (I _{ZT}) ma	Max. Zener Impedance Z _{ZT} @ I _{ZT} ohms
1N1806	3	7.5	1000	1	1N1366	3	43	150	6
1N1807	3	8.2	1000	1	1N1367	3	47	150	7
1N1808	3	9.1	500	1	1N1368	3	51	150	8
1N1351	3	10	500	2	1N1369	3	56	150	9
1N1352	3	11	500	2	1N1370	3	62	50	12
1N1353	3	12	500	2	1N1371	3	68	50	14
1N1354	3	13	500	2	1N1372	3	75	50	20
1N1355	3	15	500	2	1N1373	3	82	50	22
1N1356	3	16	500	3	1N1374	3	91	50	35
1N1357	3	18	150	3	1N1375	3	100	50	40
1N1358	3	20	150	3	1N1809	3	110	50	47
1N1359	3	22	150	3	1N1810	3	120	50	56
1N1360	3	24	150	3	1N1811	3	130	50	65
1N1361	3	27	150	3	1N1812	3	150	50	82
1N1362	3	30	150	4	1N1813	3	160	50	93
1N1363	3	33	150	4	1N1814	3	180	50	115
1N1364	3	36	150	5	1N1815	3	200	50	140
1N1365	3	39	150	5					

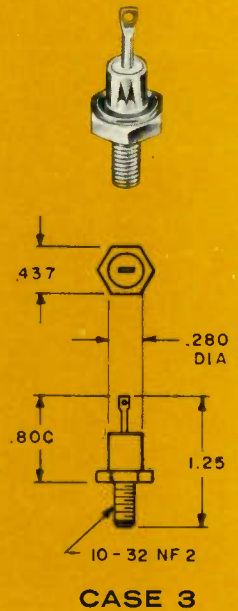
MILITARY TYPES									
1N1807 (Sig C)	3	8.2	1000	1	1N1358 (Sig C)	3	20	150	3
1N1353 (Sig C)	3	12	500	2	1N1361 (Sig C)	3	27	150	4

* Tolerance on nominal zener voltage is $\pm 10\%$. For a tolerance of $\pm 5\%$, add suffix letter "A" to part number.
Standard (anode to base) and Reverse (cathode to base) Polarity Available

10 WATT SILICON ZENER DIODES

MOTOROLA TYPE NO.	Case	Nominal* Zener Voltage @ I _{ZT} (V _Z) Volts	Test Current (I _{ZT}) ma	Max. Zener Impedance Z _{ZT} @ I _{ZT} ohms	MOTOROLA TYPE NO.	Case	Nominal* Zener Voltage @ I _{ZT} (V _Z) Volts	Test Current (I _{ZT}) ma	Max. Zener Impedance Z _{ZT} @ I _{ZT} ohms
10M6.8Z	3	6.8	370	1.2	10M39Z	3	39	65	11
10M7.5Z	3	7.5	335	1.3	10M43Z	3	43	60	12
10M8.2Z	3	8.2	305	1.5	10M45Z	3	45	55	13
10M9.1Z	3	9.1	275	2.0	10M47Z	3	47	55	14
10M10Z	3	10	250	3	10M50Z	3	50	50	15
10M11Z	3	11	230	3	10M52Z	3	52	50	15
10M12Z	3	12	210	3	10M56Z	3	56	45	16
10M13Z	3	13	190	3	10M62Z	3	62	40	17
10M14Z	3	14	180	3	10M68Z	3	68	37	18
10M15Z	3	15	170	3	10M75Z	3	75	33	22
10M16Z	3	16	155	4	10M82Z	3	82	30	25
10M17Z	3	17	145	4	10M91Z	3	91	28	35
10M18Z	3	18	140	4	10M100Z	3	100	25	40
10M19Z	3	19	130	4	10M105Z	3	105	25	45
10M20Z	3	20	125	4	10M110Z	3	110	23	55
10M22Z	3	22	115	5	10M120Z	3	120	20	75
10M24Z	3	24	105	5	10M130Z	3	130	19	100
10M25Z	3	25	100	6	10M140Z	3	140	18	125
10M27Z	3	27	95	7	10M150Z	3	150	17	175
10M30Z	3	30	85	8	10M175Z	3	175	14	250
10M33Z	3	33	75	9	10M200Z	3	200	12	300
10M36Z	3	36	70	10					

* Standard Tolerances of $\pm 20\%$; $\pm 10\%$ and $\pm 5\%$ are available
Standard (anode to base) and Reverse (cathode to base)
Polarity Available



CASE 3



ZENER DIODES

TESTED AT POINT OF USE

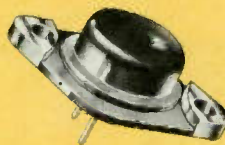
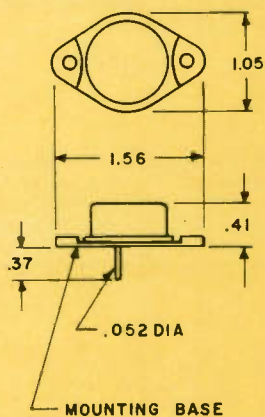
SHARP ZENER KNEES — 100% SCOPE TESTED

50 WATT SILICON ZENER DIODES

MOTOROLA TYPE NUMBER		Nominal* Zener Voltage @ I_{ZT} (V.) Volts	Test Current (I_{ZT}) ma	Max. Zener Impedance Z_{ZT} @ I_{ZT} ohms	MOTOROLA TYPE NUMBER		Nominal* Zener Voltage @ I_{ZT} (V.) Volts	Test Current (I_{ZT}) ma	Max. Zener Impedance Z_{ZT} @ I_{ZT} ohms
50M Number	1N Number				50M Number	1N Number			
50M6.8Z	1N2804	6.8	1850	0.2	50M43Z	1N2827	43	290	4.5
50M7.5Z	1N2805	7.5	1700	0.3	50M45Z	1N2828	45	280	4.5
50M8.2Z	1N2806	8.2	1500	0.4	50M47Z	1N2829	47	270	5.0
50M9.1Z	1N2807	9.1	1370	0.5	50M50Z	1N2830	50	250	5.0
50M10Z	1N2808	10	1200	0.6	50M51Z	1N2831	51	245	5.2
50M11Z	1N2809	11	1100	0.8	50M52Z	—	52	240	5.5
50M12Z	1N2810	12	1000	1.0	50M56Z	1N2832	56	220	6
50M13Z	1N2811	13	960	1.1	50M62Z	1N2833	62	200	7
50M14Z	1N2812	14	890	1.2	50M68Z	1N2834	68	180	8
50M15Z	1N2813	15	830	1.4	50M75Z	1N2835	75	170	9
50M16Z	1N2814	16	780	1.6	50M82Z	1N2836	82	150	11
50M17Z	1N2815	17	740	1.8	50M91Z	1N2837	91	140	15
50M18Z	1N2816	18	700	2.0	50M100Z	1N2838	100	120	20
50M19Z	1N2817	19	660	2.2	50M105Z	1N2839	105	120	25
50M20Z	1N2818	20	630	2.4	50M110Z	1N2840	110	110	30
50M22Z	1N2819	22	570	2.5	50M120Z	1N2841	120	100	40
50M24Z	1N2820	24	520	2.6	50M130Z	1N2842	130	95	50
50M25Z	1N2821	25	500	2.7	50M140Z	—	140	90	60
50M27Z	1N2822	27	460	2.8	50M150Z	1N2843	150	85	75
50M30Z	1N2823	30	420	3.0	50M160Z	1N2844	160	80	80
50M33Z	1N2824	33	380	3.2	50M175Z	—	175	70	85
50M36Z	1N2825	36	350	3.5	50M180Z	1N2845	180	68	90
50M39Z	1N2826	39	320	4.0	50M200Z	1N2846	200	65	100

*Tolerance on 1N units shown is $\pm 20\%$.
For a tolerance of $\pm 10\%$ add suffix letter (A) to part number,
and for a tolerance of $\pm 5\%$ add suffix letter (B).

Both standard (anode to base) and reverse (cathode to base)
polarities available.



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