

HIGH VOLTAGE SILICON RECTIFIERS

100-250mA

Standard Recovery, Miniature

HS10-100

HVE10-30 (1N3643-47)

HVE40-100 (1N5181-84)

FEATURES

- PIV: From 1.0kV to 10kV
- JEDEC Types
- High Surge Current Ratings
- Low Reverse Leakage
- Corona Free

DESCRIPTION

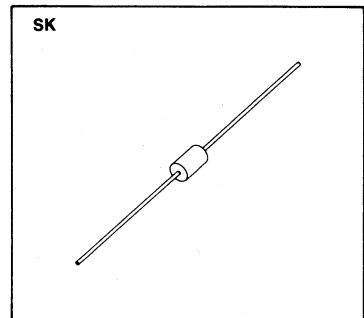
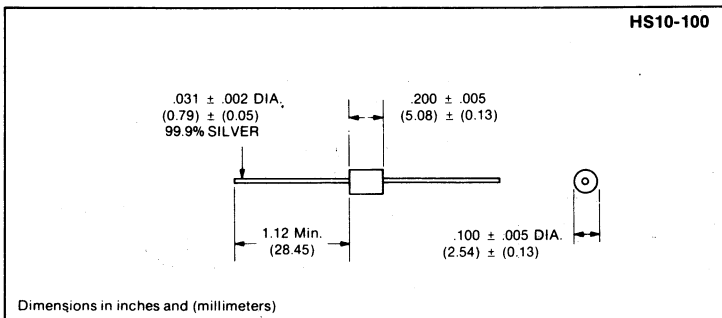
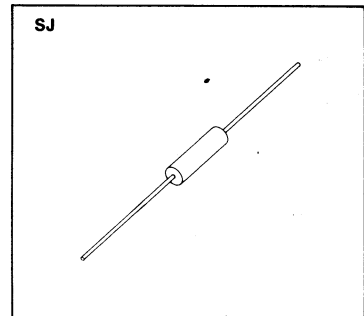
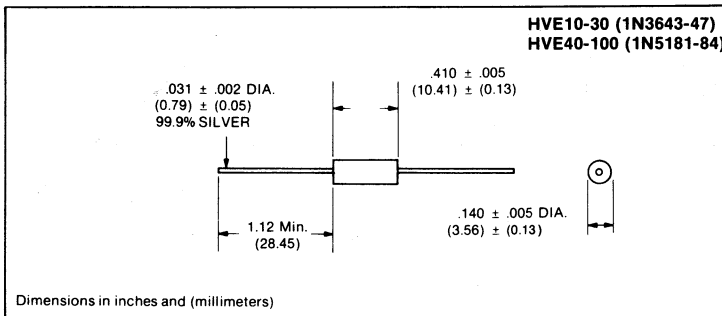
The HVE/HS silicon rectifier series combine a medium average rectified current capability and high reliability in a miniature package for commercial, industrial and military applications. The use of cylindrical die construction and metallurgical bonds minimize electrical and mechanical stress, contributing to long life. A 2 microsecond reverse recovery characteristic improves the circuit efficiency of power conversion and control systems.

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ABSOLUTE MAXIMUM RATINGS

	HS	HVE
Peak Inverse Voltage	1.0kV	10kV
Maximum Average Rectified Current	See Electrical Specifications.	
Maximum One Cycle Surge 8.3mS	See Electrical Specifications.	
Maximum Recurrent Peak Current Surge	See Electrical Specifications.	
Operating and Storage Temperature Range	-65°C to +175°C	

MECHANICAL SPECIFICATIONS

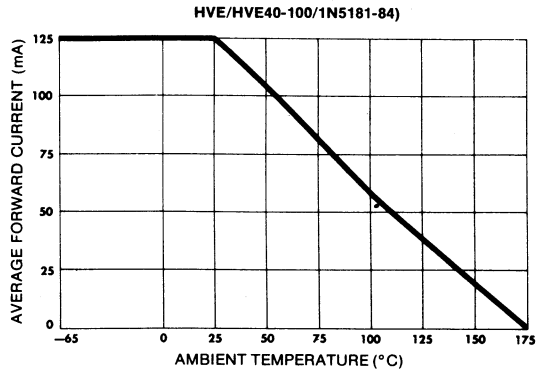
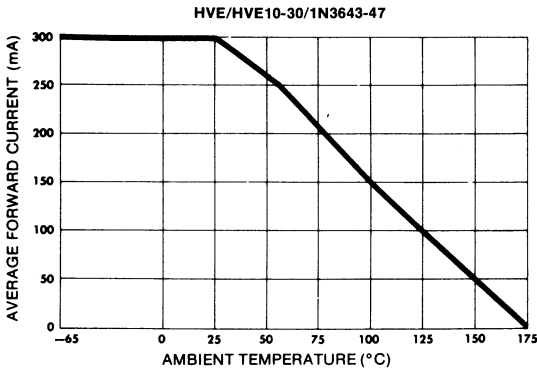


ELECTRICAL SPECIFICATIONS (at 25°C unless noted)						MAXIMUM RATINGS				
Maximum Reverse Recovery Time		Peak Inverse Voltage*	Maximum Reverse Current @ PIV		Maximum Forward Voltage @ 100mA Max.	Maximum Average Rectified Current†			Maximum Recurrent Peak Current Surge	Maximum One Cycle Surge 8.3mS
2μS	2μS	PIV	I _R		V _F	I _o			I _F	I _F (surge)
Type	Type		25°C	100°C	25°C	50°C	100°C	150°C		
		V	μA	μA	V	mA	mA	mA	A	A
HS10	HVE10 (1N3643)	1000	1	20	3.5	250	150	50	2.5	14
HS15	HVE15 (1N3644)	1500	1	20	3.5	250	150	50	2.5	14
HS20	HVE20 (1N3645)	2000	1	20	3.5	250	150	50	2.5	14
HS25	HVE25 (1N3646)	2500	1	20	3.5	250	150	50	2.5	14
HS30	HVE30 (1N3647)	3000	1	20	3.5	250	150	50	2.5	14
HS40	HVE40 (1N5181)	4000	1	20	10.0	100	60	20	1.0	4
HS50	HVE50 (1N5182)	5000	1	20	10.0	100	60	20	1.0	4
HS75	HVE75 (1N5183)	7500	1	20	10.0	100	60	20	1.0	4
HS100	HVE100 (1N5184)	10000	1	20	10.0	100	60	20	1.0	4

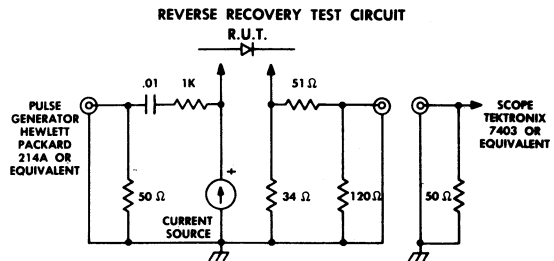
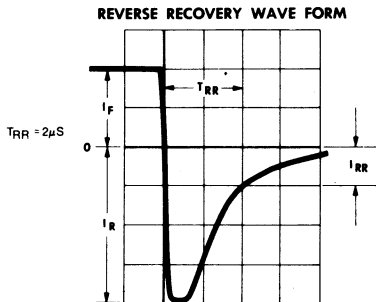
*Operation and testing of devices over 10,000 V/inch may require re-encapsulation or immersion in a suitable dielectric material.

†The stated, AVERAGE RECTIFIED CURRENT ratings require no heat sinking, special mounting or forced air across the body of the device.

NOTE: Maximum lead temperature for soldering is 250°C 3/8" (9.5mm) from case for 5 seconds maximum.



REVERSE RECOVERY TEST CONDITIONS: I_F = 50 mA, I_R = 100 mA, I_{RR} = 25 mA



POWER ZENERS

3 Watt

UZ706 SERIES
UZ806 SERIES

FEATURES

- 10 Times Greater Surge Rating than Conventional 1 Watt Types
- Small Physical Size

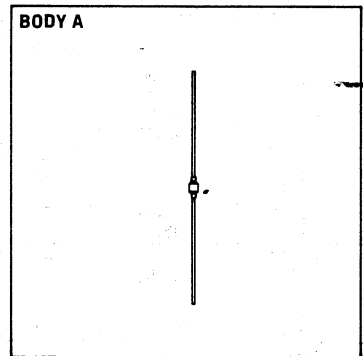
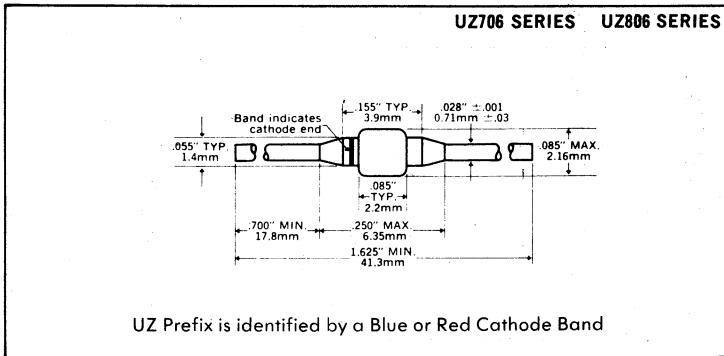
DESCRIPTION

Fused-in-glass metallurgically bonded 3 watt zener diodes.

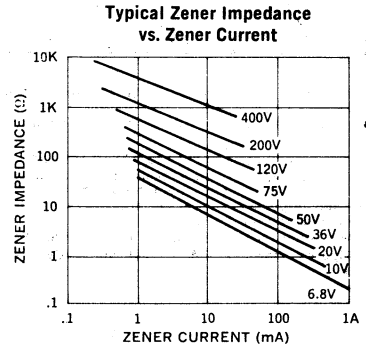
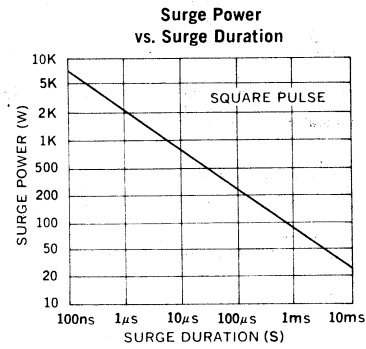
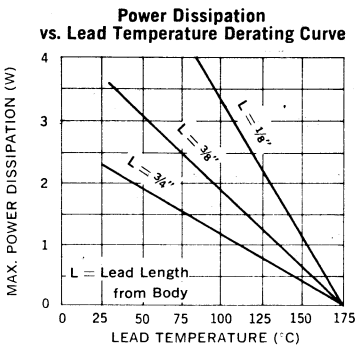
ABSOLUTE MAXIMUM RATINGS

Zener Voltage, V_z	6.8 to 400V
Continuous Current	See Table
Surge Current (8.3ms)	See Table
Surge Power	See Graph
Power	See Lead Temperature Derating Curve
Storage and Operating Temperature	-65°C to +175°C

MECHANICAL SPECIFICATIONS



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Type *		Electrical Specifications at 25°C							Maximum Ratings		
		Nominal Zener Voltage † V _Z @ I _{ZT}	Test Current I _{ZT}	Max. Zener Impedance § Z _Z @ I _{ZT}	Maximum Reverse Leakage Current			Typ. Temp. Coefficient T _C @ I _{ZT}	Maximum Continuous Current* I _{ZM}	Maximum Surge Current ‡ I _S	
					I _R @ V _R μA	± 5% V _R Volts	± 10% V _R Volts				
±5% Tolerance	Jedec** Registration	Volts	mA	Ohms	μA	Volts	Volts	%/°C	mA	Amps	
±10% UZ 8xx	UZ706	1N5063	6.8	75	2	500	5.2	4.9	.04	440	10.0
	UZ707	1N5064	7.5	75	2	300	5.7	5.4	.04	400	8.0
	UZ708	1N5065	8.2	75	3	200	6.2	5.9	.05	360	7.0
	UZ709	1N5066	9.1	75	3	100	6.9	6.6	.05	330	6.0
	UZ710	1N5067	10.0	75	4	40	7.6	7.2	.06	300	5.0
UZ 9xx	UZ712	1N4883	12	65	5	10	9.1	8.6	.07	250	4.0
	UZ713	1N5069	13	50	6	10	9.9	9.3	.07	230	4.0
	UZ714	1N5070	14	50	6	10	10.6	10.1	.07	210	4.0
	UZ715	1N5071	15	50	6	10	11.4	10.8	.07	200	3.0
	UZ716	1N5072	16	50	7	5	12.2	11.5	.07	185	3.0
	UZ718	1N5073	18	40	8	5	13.7	12.9	.08	170	2.0
UZ 9xx	UZ720	1N4884	20	40	9	5	15.2	14.4	.08	150	2.0
	UZ722	1N5074	22	30	10	5	16.7	15.8	.08	135	2.0
	UZ724	1N5075	24	30	10	5	18.2	17.3	.08	125	1.5
	UZ727	1N5076	27	25	12	1	20.6	19.4	.09	110	1.5
	UZ730	1N5077	30	25	15	1	22.8	21.6	.090	100	1.5
	UZ733	1N5078	33	20	21	1	25.1	23.7	.090	90	1.2
UZ 9xx	UZ736	1N5079	36	20	21	1	27.4	25.9	.090	85	1.0
	UZ740	1N5081	40	20	27	1	30.4	28.8	.095	75	1.0
	UZ745	1N5083	45	15	37	1	34.2	32.4	.095	65	0.8
	UZ750	1N5085	50	15	50	1	38.0	36.0	.095	60	0.8
	UZ756	1N5087	56	10	70	1	42.6	40.3	.095	55	0.7
	UZ760	1N5088	60	10	70	1	45.7	43.2	.095	50	0.6
UZ 9xx	UZ770	1N5091	70	10	90	1	53.3	50.5	.095	45	0.6
	UZ775	1N5092	75	10	100	1	56.0	54.0	.095	40	0.5
	UZ780	1N5093	80	10	115	1	60.8	57.7	.095	35	0.4
	UZ790	1N4096	90	8.0	150	1	68.5	64.8	.095	30	0.4
	UZ110	1N4097	100	5.0	175	1	76.0	72.0	.100	30	0.4
	UZ111	1N5096	110	5.0	250	1	83.6	79.2	.100	25	0.3
UZ 9xx	UZ112	1N5097	120	5.0	325	1	91.2	86.4	.100	25	0.2
	UZ113	1N5098	130	5.0	375	1	98.8	93.6	.100	20	0.20
	UZ114	1N5099	140	5.0	550	1	106	101	.100	20	0.20
	UZ115	1N4098	150	5.0	650	1	114	108	.100	20	0.20
	UZ116	1N5100	160	4.0	700	1	122	115	.100	20	0.15
	UZ117	1N5101	170	4.0	750	1	129	122	.100	18	0.15
	UZ118	1N5102	180	4.0	850	1	137	129	.100	18	0.10
UZ 9xx	UZ119	1N5103	190	4.0	900	1	144	137	.100	15	0.10
	UZ120	1N5104	200	4.0	950	1	152	144	.100	15	0.10
	UZ122	1N5105	220	3.0	1100	1	167	158	.100	15	0.09
	UZ124	1N5106	240	3.0	1300	1	182	173	.105	12	0.09
	UZ126	1N5107	260	3.0	1500	1	198	187	.105	12	0.08
	UZ128	1N5109	280	3.0	1700	1	213	202	.105	10	0.08
UZ 9xx	UZ130	1N5110	300	3.0	1900	1	228	216	.105	10	0.07
	UZ132	1N5111	320	2.0	2100	1	243	230	.105	9	0.07
	UZ134	1N5113	340	2.0	2400	1	258	245	.110	9	0.06
	UZ136	1N5114	360	2.0	2700	1	274	259	.110	8	0.06
	UZ138	1N5115	380	2.0	3000	1	289	274	.110	8	0.06
	UZ140	1N5117	400	2.0	3500	1	304	288	.110	7	0.06

* Specify 20% voltage tolerance by changing first numeral of type number from 7 to 9. (UZ709 becomes UZ909) or from 1 to 3 (UZ111 becomes UZ311).
 Specify 10% voltage tolerance by changing first numeral of type number from 7 to 8. (UZ709 becomes UZ809) or from 1 to 2 (UZ111 becomes UZ211).

** Jedec registration applies to ±5% tolerance zeners only.

† All zener voltages are measured with an automated test set using a 35 ms test time. Longer or shorter test times will have a corresponding effect on the measured value due to heating effects.

§ Zener impedance is derived from the 60-cycle AC voltage created when AC current with RMS value of 10% of DC zener test current is superimposed on the test current.

* Maximum current based on 3 watt rating. See lead temperature derating curves for proper mounting methods.

‡ Figures shown are for a peak sinusoidal surge current of 8.3ms duration using 60 cycle AC. The 8.3ms square pulse rating is 71% of the value shown.