AMERICAN MICROSEMICONDUCTOR
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UDZ SERIES AC POWER ZENER

1, 3, and 5 Watt Zener Diodes

ABSTRACT

Devices consist of two fused-in-glass zeners brazed cathode to cathode to provide zener action in both directions.

High Surge Ratings, Small Physical Size,

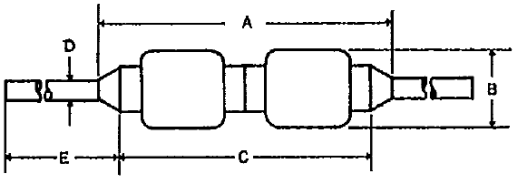
7.5 to 60 Volt

MAXIMUM RATINGS

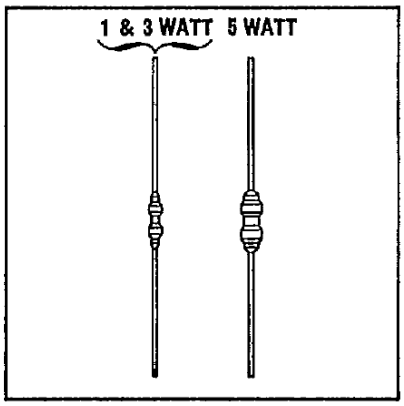
Zener Voltage	7.5 to 60V
Continuous Current	See Tables
Surge Current (8.3ms)	See Tables
Surge Power	See Graph
Power	See Data Sheets for Related Series (UZ8807, UZ807 and UZ5807)
Storage and Operating Temperature	—65°C to +175°C

MECHANICAL SPECIFICATIONS

UDZ807 SERIES UDZ5807 SERIES UDZ8807 SERIES
UDZ807HR2 SERIES UDZ5807HR2 SERIES



MARKING: "D," followed by last 3 to 4 digits and part number.
Example: 7.5 volt ±10%, 1 watt type would be marked: "D8807".



Dimensions

1 Watt UDZ8807 Series

	Ins.	mm
A	.450 MAX.	11.43 MAX.
B	.085 MAX.	2.16 MAX.
C	.275 TYP.	6.99 TYP.
D	.028 ± .001	.71 ± .03
E	.700 MIN.	17.78 MIN.

3 Watt UDZ807/UDZ807HR2 Series

	Ins.	mm
A	.450 MAX.	11.43 MAX.
B	.085 MAX.	2.16 MAX.
C	.275 TYP.	6.99 TYP.
D	.028 ± .001	.71 ± .03
E	.700 MIN.	17.78 MIN.

5 Watt UDZ5807/UDZ5807HR2

	Ins.	mm
A	.500 MAX.	12.70 MAX.
B	.145 MAX.	3.68 MAX.
C	.325 TYP.	8.26 TYP.
D	.040 ± .001	1.02 ± .03
E	.975 MIN.	24.77 MIN.

ELECTRICAL CHARACTERISTICS @ 25°C

Type	Nominal Zener Voltage† Vz @ Izt	Test Current Izt	Max. Zener Imped § Zz @ Izt	Maximum Leakage Current @ Reverse Voltage ±10%	Reverse Voltage ±5%		Maximum Cont. Current Izm	Maximum Surge Current‡ Is
±10% Tolerance*	Volts	mA	Ohms	μA	Volts	Volts	mA	Amps
1 WATT ZENERS — Specifications apply for both directions.								
UDZ8807	7.5	34	6	50	4.9	5.2	125	5
UDZ8808	8.2	31	7	30	5.4	5.7	115	4.5
UDZ8809	9.1	28	8	10	5.9	6.2	105	3.9
UDZ8810	10	25	8.5	3	6.6	6.9	95	3.37
UDZ8812	12	23	9	1	8.6	9.1	85	2.25
UDZ8815	15	17	14	0.5	10.8	11.4	63	1.65
UDZ8818	18	14	20	0.5	12.9	13.7	52	1.12
UDZ8820	20	12.5	23	0.5	14.4	15.2	47	1.12
UDZ8824	24	10.5	25	0.5	17.3	18.2	40	0.825
UDZ8827	27	9.5	35	0.5	19.4	20.6	35	0.825
UDZ8830	30	8.5	40	0.5	21.6	22.8	31	0.825
UDZ8833	33	7.5	45	0.5	23.7	25.1	28	0.675
UDZ8836	36	7.0	50	0.5	25.9	27.4	26	0.562
UDZ8840	40	6.5	62	0.5	28.8	30.4	24	0.562
UDZ8845	45	6	75	0.5	32.4	34.2	22	0.450
UDZ8860	60	4	125	0.5	43.2	45.6	15	0.337

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AS/EN/JISQ9100:2009 Rev. C
ISO9001:2008
Cert No. 45325

ELECTRICAL CHARACTERISTICS @ 25°C (CONT.)

Type	Nominal Zener Voltage† V_Z @ I_{ZT}	Test Current I_{ZT}	Max. Zener Imped § Z_Z @ I_{ZT}	Maximum Leakage @ Reverse Voltage	±10%	±5%	Maximum Cont. Current I_{ZM}	Maximum Surge Current‡ I_S
±10% Tolerance*	Volts	mA	Ohms	μA	Volts	Volts	mA	Amps
3 WATT ZENERS — Specifications apply for both directions.								
UDZ807HR2	7.5	75	3	500	4.9	5.2	400	10
UDZ808HR2	8.2	75	4	300	5.4	5.7	360	8
UDZ809HR2	9.1	75	4	200	5.9	6.2	330	7
UDZ810HR2	10	75	5	100	6.6	6.9	300	5
UDZ812HR2	12	65	5	10	8.6	9.1	250	4
UDZ815HR2	15	50	6	10	10.8	11.4	200	3
UDZ818HR2	18	40	8	5	12.9	13.7	170	2
UDZ820HR2	20	40	9	5	14.4	15.2	150	2
UDZ824HR2	24	30	10	5	17.3	18.2	125	1.5
UDZ827HR2	27	25	12	1	19.4	20.6	110	1.5
UDZ830HR2	30	25	15	1	21.6	22.8	100	1.5
UDZ833HR2	33	20	21	1	23.7	25.1	90	1.2
UDZ836HR2	36	20	21	1	25.9	27.4	85	1
UDZ840HR2	40	20	27	1	28.8	30.4	75	1
UDZ845HR2	45	15	37	1	32.4	34.7	65	0.8
UDZ860HR2	60	10	70	1	43.2	45.6	50	0.6

*For ±5% voltage tolerance change the 3rd number from the right from 8 to 7 i.e. UDZ8807 to UDZ8707, etc.

†All zener voltages are measured with an automated test set using a 35ms 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 voltage created when AC current with RMS value of 10% of DC zener test current is superimposed on the test current.

**D.C. Ratings are based on the lead temperature conditions shown in the data sheets covering the UDZ8807, UDZ807, and UDZ5807 series devices. Other conditions will affect the power ratings of all the families except the 1 watt zener family. However, the surge values given apply for any mounting conditions including printed circuit board mounting.

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

Type	Nominal Zener Voltage† V_Z @ I_{ZT}	Test Current I_{ZT}	Max. Zener Imped § Z_Z @ I_{ZT}	Maximum Leakage @ Reverse Voltage	±10%	±5%	Maximum Cont. Current I_{ZM}	Maximum Surge Current‡ I_S
±10% Tolerance*	Volts	mA	Ohms	μA	Volts	Volts	mA	Amps
5 WATT ZENERS — Specifications apply for both directions.								
UDZ5807HR2	7.5	175	1.8	500	4.9	5.2	620	40
UDZ5808HR2	8.2	150	1.8	400	5.4	5.7	570	32
UDZ5809HR2	9.1	150	2.5	200	5.9	6.2	510	24
UDZ5810HR2	10	125	2.5	100	6.6	6.9	470	22
UDZ5812HR2	12	100	2.5	50	8.6	9.1	385	18
UDZ5815HR2	15	75	3.5	15	10.8	11.4	300	12
UDZ5818HR2	18	65	4	10	12.9	13.7	255	9
UDZ5820HR2	20	65	4.5	10	14.4	15.2	220	8
UDZ5824HR2	24	50	5	10	17.3	18.2	180	6.5
UDZ5827HR2	27	50	6	10	19.4	20.6	155	6
UDZ5830HR2	30	40	8	10	21.6	22.8	140	5.5
UDZ5833HR2	33	40	10	5	23.7	25.1	130	5
UDZ5836HR2	36	30	11	5	25.9	27.4	120	4.5
UDZ5840HR2	40	30	14	5	28.8	30.4	105	4
UDZ5845HR2	45	30	20	5	32.4	34.2	95	3.5
UDZ5860HR2	60	20	40	5	43.2	45.6	75	2.5

*For ±5% voltage tolerance change the 3rd number from the right from 8 to 7 i.e. UDZ8807 to UDZ8707, etc.

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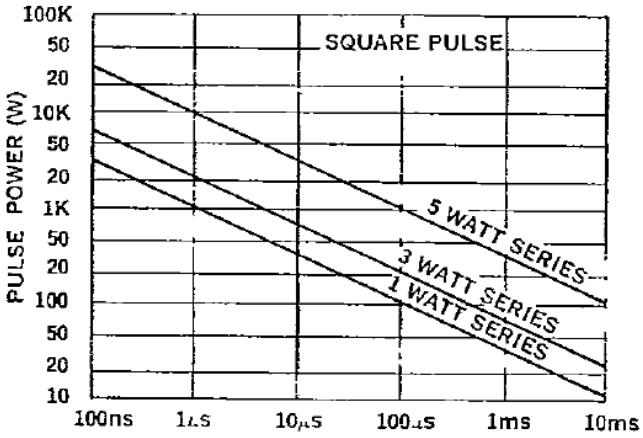
Typical Reverse Surge Power vs. Surge Duration



For Sinusoidal Pulse, Peak Value is 1.4 Times Value Shown

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