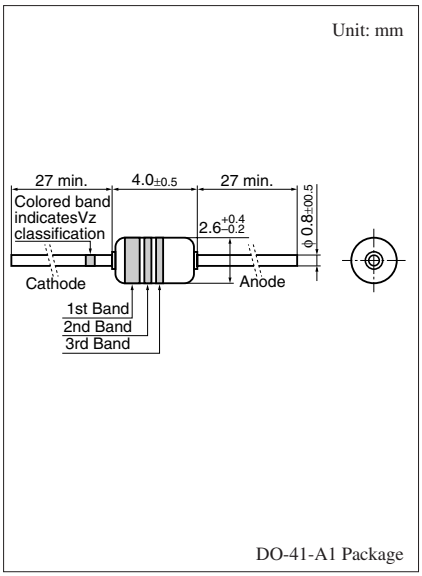
MAZ2xxx Series (MA2xxx Series)

Silicon planar type

For stabilization of power supply



■ Features

- High reliability, achieved by the combination the planar type and the glass seal
- Large power dissipation P_D
- Wide voltage range: Zener voltage V_Z = 5.1 V to 56.0 V

■ Absolute Maximum Ratings T_a = 25°C

Parameter	Symbol	Rating	Unit
Repetitive peak forward current	I_{FRM}	400	mA
Power dissipation *1	P_D	1.0	W
Non-repetitive reverse surge power dissipation *2	P_{ZSM}	75	W
Junction temperature	T_j	200	°C
Storage temperature	T_{stg}	−55 to +200	°C

Note) ∗1: P_D = 1.0 W achieved with a printed circuit board
∗2: t = 100 µs, T_j = 150°C

■ Common Electrical Characteristics T_a = 25°C ± 3°C *1

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	I_F = 200 mA			1.0	V
Zener voltage *2	V_Z	I_Z Specified value				V
Zener operating resistance	R_Z	I_Z Specified value	Refer to the list of the electrical characteristics within part numbers			Ω
Reverse current	I_R	V_R Specified value				µA
Temperature coefficient of zener voltage *3	S_Z	I_Z Specified value				mV/°C
Terminal capacitance	C_t	V_R = 0 V, f = 1 MHz Specified value				pF

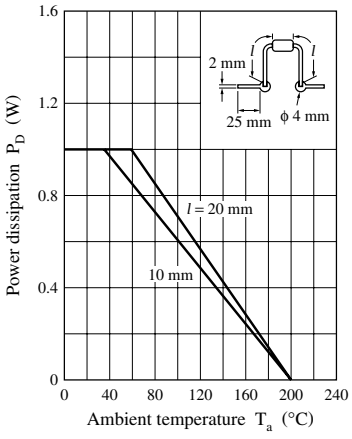
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7031 measuring methods for diodes.
2. Absolute frequency of input and output is 5 MHz.
3. ∗1: The temperature must be controlled 25°C for V_Z mesurement.
V_Z value measured at other temperature must be adjusted to V_Z (25°C)
∗2: V_Z guaranteed 20 ms after current flow.
∗3: T_j = 25°C to 150°C

Note) The part number in the parenthesis shows conventional part number.

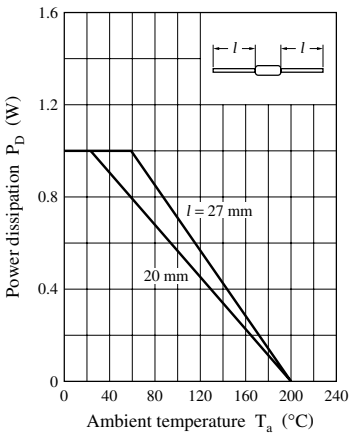
■ Electrical Characteristics within Part Numbers $T_a = 25°C \pm 3°C$

Part number	Zener voltage V_Z (V)			Reverse current I_R (μA)		Zener operating resistance R_Z (Ω)		Temperature coefficient of zener voltage S_Z (mV/°C)		Terminal capacitance C_t (pF) (V_R = 0 V) f = 1 MHz	Marking symbol (Color indication)		
	I_Z (mA)	Min	Max	V_R (V)	Max	I_Z (mA)	Max	I_Z (mA)	Typ	Typ	1st.	2nd.	3rd.
MAZ2051	40	4.80	5.40	1	20	40	10	40	0	200	Green	Brown	Brown
MAZ2056	40	5.20	6.00	2	20	40	8	40	1.5	180	Green	Blue	Blue
MAZ2062	40	5.80	6.60	3	20	40	6	40	2.4	330	Blue	Red	Red
MAZ2068	40	6.40	7.20	3	10	40	6	40	3.1	280	Blue	Gray	Gray
MAZ2075	40	7.00	7.90	3	10	40	5	40	3.8	250	Purple	Green	Green
MAZ2082	40	7.70	8.70	4	10	40	5	40	4.5	230	Gray	Red	Red
MAZ2091	40	8.50	9.60	5	10	40	6	40	5.4	220	White	Brown	Brown
MAZ2100	40	9.40	10.60	7	10	40	6	40	6.3	200	Brown	Black	—
MAZ2110	20	10.40	11.60	7	5	20	8	20	7.4	160	Brown	Brown	—
MAZ2120	20	11.40	12.70	8	5	20	8	20	8.4	160	Brown	Red	—
MAZ2130	20	12.40	14.10	9	5	20	10	20	9.4	155	Brown	Orange	—
MAZ2150	20	13.80	15.60	10	5	20	12	20	11.4	150	Brown	Green	—
MAZ2160	20	15.30	17.10	11	5	20	12	20	12.5	135	Brown	Blue	—
MAZ2180	20	16.80	19.10	12	5	20	15	20	14.5	110	Brown	Gray	—
MAZ2200	20	18.80	21.20	14	5	20	15	20	16.6	110	Red	Black	—
MAZ2220	10	20.80	23.30	15	5	10	20	10	18.6	95	Red	Red	—
MAZ2240	10	22.80	25.60	16	5	10	20	10	20.7	90	Red	Yellow	—
MAZ2270	10	25.10	28.90	18	2	10	25	10	23.8	85	Red	Purple	—
MAZ2300	10	28.00	32.00	20	2	10	25	10	26.9	80	Orange	Black	—
MAZ2330	10	31.00	35.00	22	2	10	30	10	30.0	75	Orange	Orange	—
MAZ2360	10	34.00	38.00	24	2	10	30	10	33.4	70	Orange	Blue	—
MAZ2390	10	37.00	41.00	26	5	10	50	10	36.3	65	Orange	White	—
MAZ2430	10	40.00	46.00	29	5	10	50	10	41.1	60	Yellow	Orange	—
MAZ2470	10	44.00	50.00	31	5	10	50	10	44.9	55	Yellow	Purple	—
MAZ2510	10	48.00	54.00	33	5	10	50	10	48.6	50	Green	Brown	—
MAZ2560	10	52.00	60.00	35	5	10	50	10	54.9	45	Green	Blue	—

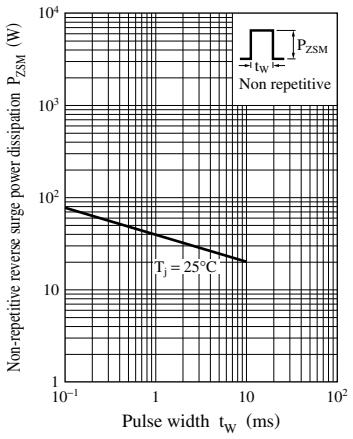
P_D — T_a



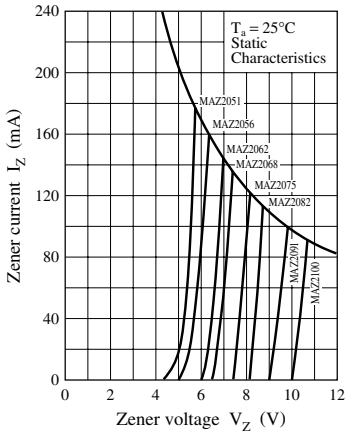
P_D — T_a



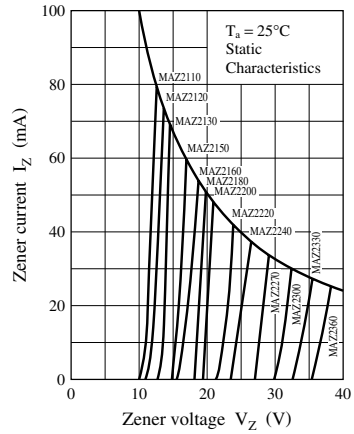
P_{ZSM} — t_W



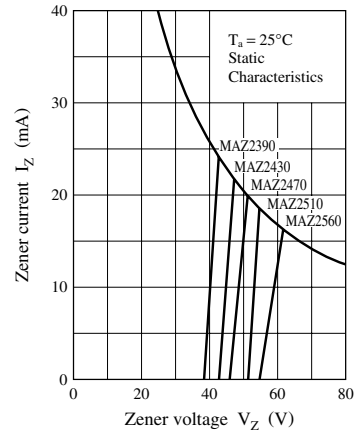
I_Z — V_Z



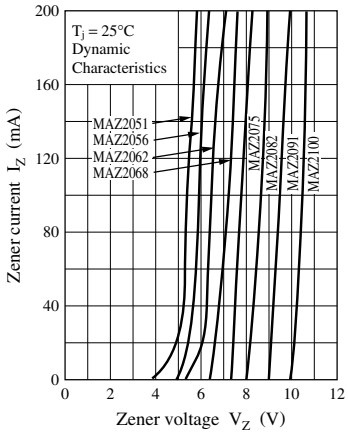
I_Z — V_Z



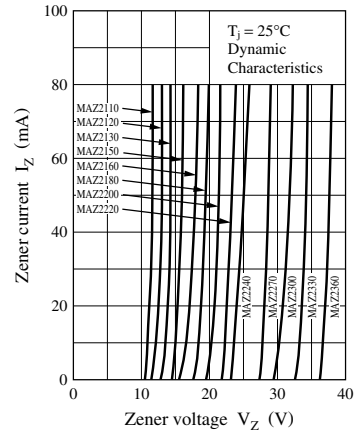
I_Z — V_Z



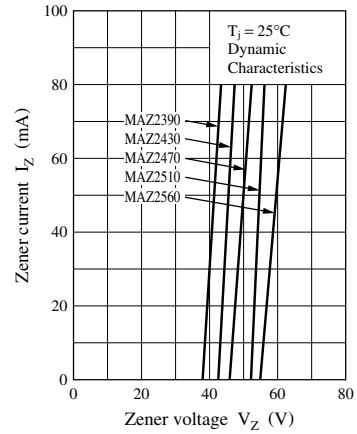
I_Z — V_Z



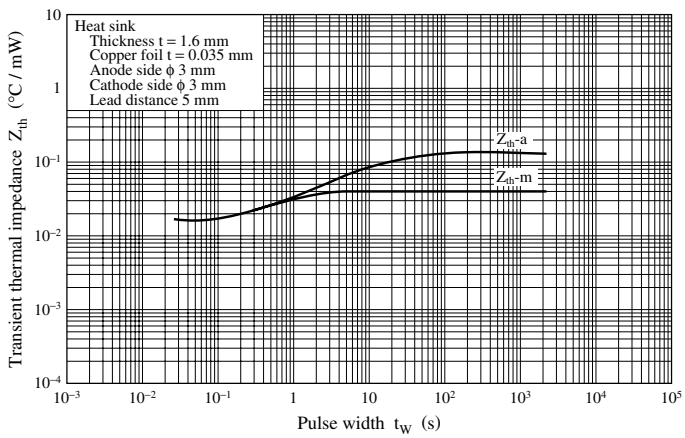
I_Z — V_Z



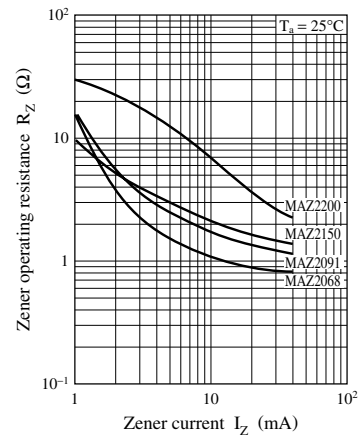
I_Z — V_Z

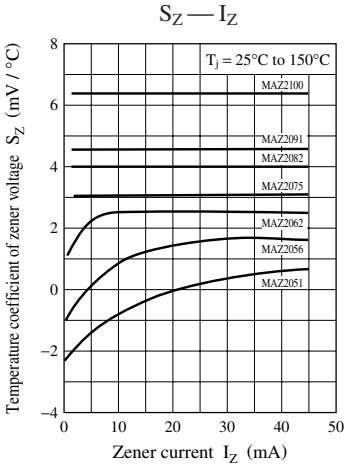


Z_{th} — t_W



R_Z — I_Z




S_Z — I_Z
T_j = 25°C to 150°C
MAZ2100
MAZ2091
MAZ2082
MAZ2075
MAZ2062
MAZ2056
MAZ2051
Temperature coefficient of zener voltage S_Z (mV / °C)
8
6
4
2
0
−2
−4
0
10
20
30
40
50
Zener current I_Z (mA)

This product complies with the RoHS Directive (EU 2002/95/EC).

Request for your special attention and precautions in using the technical information and semiconductors described in this material

(1) An export permit needs to be obtained from the competent authorities of the Japanese Government if any of the products or technical information described in this material and controlled under the "Foreign Exchange and Foreign Trade Law" is to be exported or taken out of Japan.

(2) The technical information described in this material is limited to showing representative characteristics and applied circuits examples of the products. It neither warrants non-infringement of intellectual property right or any other rights owned by our company or a third party, nor grants any license.

(3) We are not liable for the infringement of rights owned by a third party arising out of the use of the technical information as described in this material.

(4) The products described in this material are intended to be used for standard applications or general electronic equipment (such as office equipment, communications equipment, measuring instruments and household appliances).
Consult our sales staff in advance for information on the following applications:
- Special applications (such as for airplanes, aerospace, automobiles, traffic control equipment, combustion equipment, life support systems and safety devices) in which exceptional quality and reliability are required, or if the failure or malfunction of the products may directly jeopardize life or harm the human body.
- Any applications other than the standard applications intended.

(5) The products and product specifications described in this material are subject to change without notice for modification and/or improvement. At the final stage of your design, purchasing, or use of the products, therefore, ask for the most up-to-date Product Standards in advance to make sure that the latest specifications satisfy your requirements.

(6) When designing your equipment, comply with the guaranteed values, in particular those of maximum rating, the range of operating power supply voltage, and heat radiation characteristics. Otherwise, we will not be liable for any defect which may arise later in your equipment.
Even when the products are used within the guaranteed values, take into the consideration of incidence of break down and failure mode, possible to occur to semiconductor products. Measures on the systems such as redundant design, arresting the spread of fire or preventing glitch are recommended in order to prevent physical injury, fire, social damages, for example, by using the products.

(7) When using products for which damp-proof packing is required, observe the conditions (including shelf life and amount of time let standing of unsealed items) agreed upon when specification sheets are individually exchanged.

(8) This material may be not reprinted or reproduced whether wholly or partially, without the prior written permission of Matsushita Electric Industrial Co., Ltd.