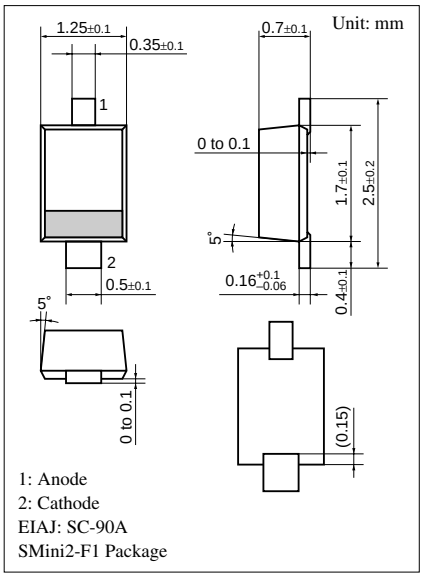
MAZ8000 Series (MA8000 Series)

Silicon planar type

For stabilization of power supply

■ Features

- Extremely low noise voltage caused from the diode (2.4 V to 39 V, 1/3 to 1/10 of our conventional MAZ3000 series)
- Extremely good rising performance (in the low-current range)
- Easy-to-select the optimum diode because of their finely divided zener-voltage ranks
- Guaranteed reliability, equivalent to that of conventional products (Mini type package)
- Allowing to reduce the mounting area, thickness and weight substantially, compared with those of the conventional products
- Allowing both reflow and flow mode of automatic soldering
- Allowing automatic mounting by an existing chip mounter



1: Anode
2: Cathode
EIAJ: SC-90A
SMini2-F1 Package

■ Absolute Maximum Ratings $T_a = 25°C$

Parameter	Symbol	Rating	Unit
Repetitive peak forward current	I_{FRM}	200	mA
Total power dissipation *	P_{tot}	150	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

Note) ∗: With a printed circuit board

Marking Symbol

Refer to the list of the electrical characteristics within part numbers

(Example) MAZ80820H : 8^2

Note) L/M/H marked products will be supplied unless other wise specified

■ Common Electrical Characteristics $T_a = 25°C$ *1

Parameter	Symbol	Conditions		Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 10$ mA			0.9	1.0	V
Zener voltage *2	V_Z	I_Z	Specified value	Refer to the list of the electrical characteristics within part numbers			V
Zener knee operating resistance	R_{ZK}	I_Z	Specified value				Ω
Zener operating resistance	R_Z	I_Z	Specified value				Ω
Reverse current	I_R	V_R	Specified value				μA
Temperature coefficient of zener voltage *3	S_Z	I_Z	Specified value				mV/°C

Note) 1. Rated input/output frequency: 5 MHz

2. ∗1 : The V_Z value is for the temperature of 25°C. In other cases, carry out the temperature compensation.

∗2: Guaranteed at 20 ms after power application.

∗3: $T_j = 25°C$ to 150°C

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

■ Electrical characteristics within part numbers $T_a = 25°C$

Part number	Zener voltage				Reverse current		Zener operating resistance				Temperature coefficient of zener voltage		Marking symbol	Conventional products
	V_Z (V)			I_Z	I_R	V_R	R_Z	I_Z	R_{ZK}	I_Z	S_Z (mV/°C)	I_Z		
	Min	Nom	Max	(mA)	(μA) Max	(V)	(Ω) Max	(mA)	(Ω) Max	(mA)	Typ	(mA)		
MAZ8024	2.28	2.40	2.60	5	120	1.0	100	5	—	—	−1.6	5	2.4	MAZ3024
MAZ8027	2.50	2.70	2.90	5	120	1.0	110	5	—	—	−2.0	5	2_7or2^7	MAZ3027
MAZ80270L	2.50	2.60	2.75										2_7	MAZ30270L
MAZ80270H	2.65	2.80	2.90										2^7	MAZ30270H
MAZ8030	2.80	3.00	3.20	5	50	1.0	120	5	—	—	−2.1	5	3_0or3^0	MAZ3030
MAZ80300L	2.80	2.90	3.05										3_0	MAZ30300L
MAZ80300H	2.95	3.10	3.20										3^0	MAZ30300H
MAZ8033	3.10	3.30	3.50	5	20	1.0	130	5	—	—	−2.4	5	3_3or3^3	MAZ3033
MAZ80330L	3.10	3.20	3.35										3_3	MAZ30330L
MAZ80330H	3.25	3.40	3.50										3^3	MAZ30330H
MAZ8036	3.40	3.60	3.80	5	10	1.0	130	5	—	—	−2.4	5	3_6or3^6	MAZ3036
MAZ80360L	3.40	3.50	3.65										3_6	MAZ30360L
MAZ80360H	3.55	3.70	3.80										3^6	MAZ30360H
MAZ8039	3.70	3.90	4.10	5	10	1.0	130	5	—	—	−2.5	5	3_9or3^9	MAZ3039
MAZ80390L	3.70	3.80	3.97										3_9	MAZ30390L
MAZ80390H	3.87	4.00	4.10										3^9	MAZ30390H
MAZ8043	4.00	4.30	4.60	5	10	1.0	130	5	—	—	−2.5	5	4_3or4−3or4^3	MAZ3043
MAZ80430L	4.03	4.10	4.26										4_3	MAZ30430L
MAZ80430M	4.17	4.30	4.40										4−3	MAZ30430M
MAZ80430H	4.31	4.40	4.54										4^3	MAZ30430H
MAZ8047	4.40	4.70	5.00	5	2.0	1.0	80	5	800	1.0	−1.4	5	4_7or4−7or4^7	MAZ3047
MAZ80470L	4.45	4.60	4.69										4_7	MAZ30470L
MAZ80470M	4.59	4.70	4.83										4−7	MAZ30470M
MAZ80470H	4.74	4.90	4.99										4^7	MAZ30470H
MAZ8051	4.80	5.10	5.40	5	1.0	2.0	60	5	500	1.0	−0.8	5	5_1or5−1or5^1	MAZ3051
MAZ80510L	4.87	5.00	5.12										5_1	MAZ30510L
MAZ80510M	5.00	5.10	5.26										5-1	MAZ30510M
MAZ80510H	5.14	5.30	5.40										5^1	MAZ30510H
MAZ8056	5.30	5.60	6.00	5	0.5	2.5	40	5	200	0.5	1.2	5	5_6or5−6or5^6	MAZ3056
MAZ80560L	5.30	5.40	5.58										5_6	MAZ30560L
MAZ80560M	5.48	5.60	5.76										5−6	MAZ30560M
MAZ80560H	5.66	5.80	5.95										5^6	MAZ30560H
MAZ8062	5.80	6.20	6.60	5	0.2	4.0	30	5	100	0.5	2.3	5	6_2or6−2or6^2	MAZ3062
MAZ80620L	5.85	6.00	6.15										6_2	MAZ30620L
MAZ80620M	6.05	6.20	6.36										6−2	MAZ30620M
MAZ80620H	6.24	6.40	6.56										6^2	MAZ30620H
MAZ8068	6.40	6.80	7.20	5	0.1	4.0	20	5	60	0.5	3.0	5	6_8or6−8or6^8	MAZ3068
MAZ80680L	6.44	6.60	6.77										6_8	MAZ30680L
MAZ80680M	6.64	6.80	6.98										6−8	MAZ30680M
MAZ80680H	6.85	7.00	7.20										6^8	MAZ30680H
MAZ8075	7.00	7.50	7.90	5	0.1	5.0	20	5	60	0.5	4.0	5	7_5or7−5or7^5	MAZ3075
MAZ80750L	7.07	7.30	7.43										7_5	MAZ30750L
MAZ80750M	7.29	7.50	7.67										7−5	MAZ30750M
MAZ80750H	7.51	7.70	7.89										7^5	MAZ30750H
MAZ8082	7.70	8.20	8.70	5	0.1	5.0	20	5	60	0.5	4.6	5	8_2or8−2or8^2	MAZ3082
MAZ80820L	7.77	7.90	8.17										8_2	MAZ30820L
MAZ80820M	8.03	8.20	8.43										8−2	MAZ30820M
MAZ80820H	8.29	8.50	8.70										8^2	MAZ30820H

■ Electrical characteristics within part numbers (continued) $T_a = 25°C$

Part number	Zener voltage				Reverse current		Zener operating resistance				Temperature coefficient of zener voltage		Marking symbol	Conventional products
	V_Z (V)				I_R		R_Z		R_{ZK}		S_Z (mV/°C)			
	Min	Nom	Max	I_Z (mA)	(μA) Max	V_R (V)	(Ω) Max	I_Z (mA)	(Ω) Max	I_Z (mA)	Typ	I_Z (mA)		
MAZ8091	8.50	9.10	9.60	5	0.1	6.0	20	5	60	0.5	5.5	5	9_1or9–1or9^1	MAZ3091
MAZ80910L	8.58	8.80	9.02										9_1	MAZ30910L
MAZ80910M	8.87	9.10	9.33										9–1	MAZ30910M
MAZ80910H	9.14	9.40	9.60										9^1	MAZ30910H
MAZ8100	9.40	10.00	10.60	5	0.05	7.0	30	5	60	0.5	6.4	5	10_or10–or10^	MAZ3100
MAZ81000L	9.44	9.70	9.92										10_	MAZ31000L
MAZ81000M	9.75	10.00	10.25										10–	MAZ31000M
MAZ81000H	10.07	10.30	10.59										10^	MAZ31000H
MAZ8110	10.40	11.00	11.60	5	0.05	8.0	30	5	60	0.5	7.4	5	11_or11–or11^	MAZ3110
MAZ81100L	10.40	10.70	10.94										11_	MAZ31100L
MAZ81100M	10.73	11.00	11.28										11–	MAZ31100M
MAZ81100H	11.05	11.30	11.60										11^	MAZ31100H
MAZ8120	11.40	12.00	12.70	5	0.05	9.0	30	5	80	0.5	8.4	5	12_or12–or12^	MAZ3120
MAZ81200L	11.40	11.70	11.96										12_	MAZ31200L
MAZ81200M	11.73	12.00	12.33										12–	MAZ31200M
MAZ81200H	12.06	12.30	12.68										12^	MAZ31200H
MAZ8130	12.40	13.00	14.10	5	0.05	10.0	35	5	80	0.5	9.4	5	13_o13–or13^	MAZ3130
MAZ81300L	12.40	12.70	12.99										13_	MAZ31300L
MAZ81300M	12.73	13.00	13.40										13–	MAZ31300M
MAZ81300H	13.25	13.70	14.08										13^	MAZ31300H
MAZ81400M	13.65	14.00	14.35	5	0.05	10.0	40	5	80	0.5	10.0	5	14–	MAZ31400M
MAZ8150	13.90	15.00	15.60	5	0.05	11.0	40	5	80	0.5	11.4	5	15_or15–or15^	MAZ3150
MAZ81500L	13.90	14.30	14.76										15_	MAZ31500L
MAZ81500M	14.60	15.00	15.35										15–	MAZ31500M
MAZ81500H	14.95	15.30	15.60										15^	MAZ31500H
MAZ8160	15.30	16.00	17.10	5	0.05	12.0	50	5	80	0.5	12.4	5	16_or16–or16^	MAZ3160
MAZ81600L	15.30	15.70	16.09										16_	MAZ31600L
MAZ81600M	15.70	16.00	16.50										16–	MAZ31600M
MAZ81600H	16.26	16.70	17.10										16^	MAZ31600H
MAZ8180	16.90	18.00	19.10	5	0.05	13.0	60	5	80	0.5	14.4	5	18_or18–or18^	MAZ3180
MAZ81800L	16.90	17.30	17.76										18_	MAZ31800L
MAZ81800M	17.55	18.00	18.45										18–	MAZ31800M
MAZ81800H	18.20	18.70	19.10										18^	MAZ31800H
MAZ8200	18.80	20.00	21.20	5	0.05	15.0	80	5	100	0.5	16.4	5	20_or20–or20^	MAZ3200
MAZ82000L	18.85	19.30	19.81										20_	MAZ32000L
MAZ82000M	19.50	20.00	20.50										20–	MAZ32000M
MAZ82000H	20.15	20.70	21.19										20^	MAZ32000H
MAZ8220	20.80	22.00	23.30	5	0.05	17.0	80	5	100	0.5	18.4	5	22_or22–or22^	MAZ3220
MAZ82200L	20.80	21.30	21.86										22_	MAZ32200L
MAZ82200M	21.45	22.00	22.55										22–	MAZ32200M
MAZ82200H	22.10	22.70	23.24										22^	MAZ32200H
MAZ8240	22.80	24.00	25.60	5	0.05	19.0	100	5	120	0.5	20.4	5	24_or24–or24^	MAZ3240
MAZ82400L	22.80	23.30	23.97										24_	MAZ32400L
MAZ82400M	23.50	24.00	24.70										24–	MAZ32400M
MAZ82400H	24.35	25.00	25.60										24^	MAZ32400H
MAZ8270	25.10	27.00	28.90	2	0.05	21.0	120	2	120	0.5	23.4	2	27_or27–or27^	MAZ3270
MAZ82700L	25.30	26.00	26.70										27_	MAZ32700L
MAZ82700M	26.30	27.00	27.70										27–	MAZ32700M
MAZ82700H	27.30	28.00	28.70										27^	MAZ32700H

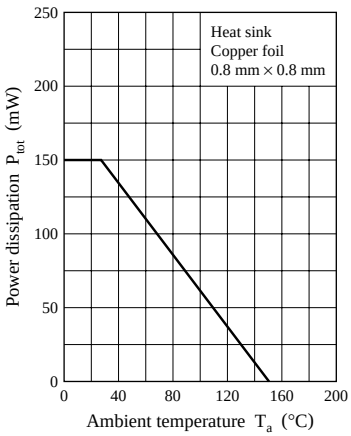
■ Electrical characteristics within part numbers (continued) $T_a = 25°C$

Part number	Zener voltage				Reverse current		Operating resistance				Temperature coefficient of zener voltage		Marking symbol	Conventional products
	V_Z (V)			I_Z	I_R		R_Z		R_{ZK}		S_Z (mV/°C)			
	Min	Nom	Max	(mA)	(μA) Max	V_R (V)	(Ω) Max	I_Z (mA)	(Ω) Max	I_Z (mA)	Typ	I_Z (mA)		
MAZ8300	28.00	30.00	32.00	2	0.05	23.0	160	2	160	0.5	26.6	2	30_or30–or30^	MAZ3300
MAZ83000L	28.30	29.00	29.70										30_	MAZ33000L
MAZ83000M	29.30	30.00	30.80										30–	MAZ33000M
MAZ83000H	30.20	31.00	31.80										30^	MAZ33000H
MAZ8330	31.00	33.00	35.00	2	0.05	25.0	200	2	200	0.5	29.7	2	33_or33–or33^	MAZ3330
MAZ83300L	31.20	32.00	32.80										33_	MAZ33300L
MAZ83300M	32.20	33.00	33.80										33–	MAZ33300M
MAZ83300H	33.20	34.00	34.90										33^	MAZ33300H
MAZ8360	34.00	36.00	38.00	2	0.05	27.0	250	2	250	0.5	33.0	2	36_or36–or36^	MAZ3360
MAZ83600L	34.10	35.00	35.90										36_	MAZ33600L
MAZ83600M	35.10	36.00	36.90										36–	MAZ33600M
MAZ83600H	36.10	37.00	37.90										36^	MAZ33600H
MAZ8390	37.00	39.00	41.00	2	0.05	30.0	300	2	300	0.5	35.6	2	39_or39–or39^	—
MAZ83900L	37.10	38.00	39.00										39_	—
MAZ83900M	38.00	39.00	40.00										39–	—
MAZ83900H	39.00	40.00	41.00										39^	—

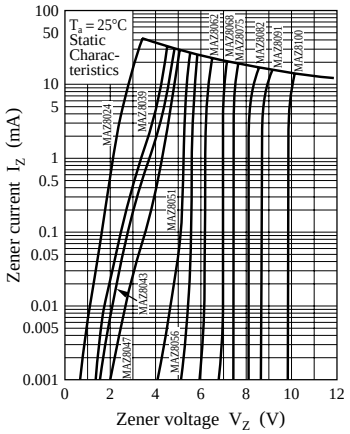
Note) 1. The V_Z value is the one after power application for 20 ms at $T_a = 25°C$.

2. The zener voltage temperature coefficient is the one for $T_j = 25°C$ to 150°C.

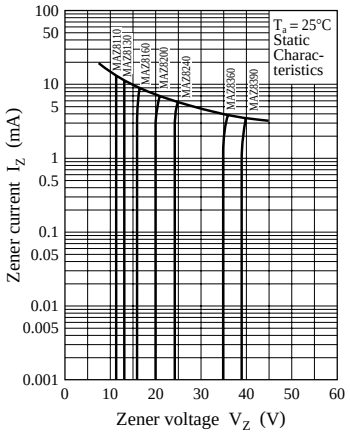
P_{tot} — T_a



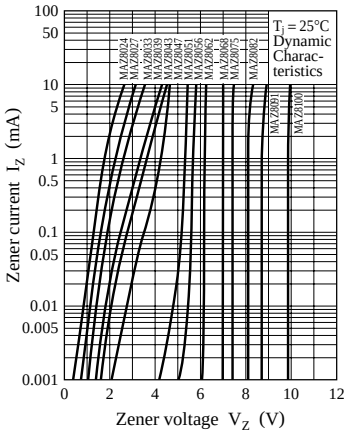
I_Z — V_Z



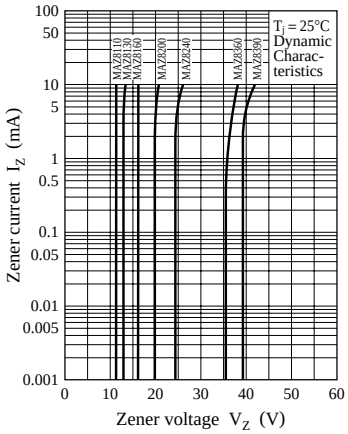
I_Z — V_Z



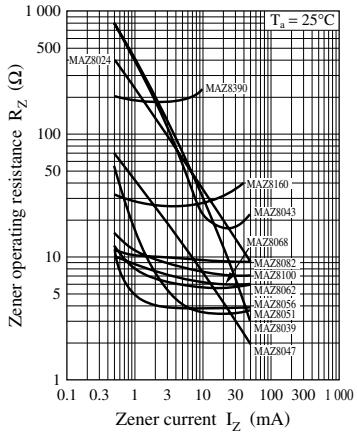
I_Z — V_Z



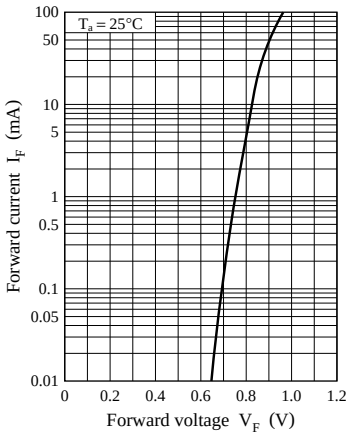
I_Z — V_Z



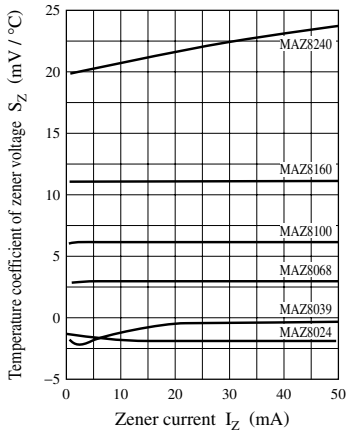
R_Z — I_Z



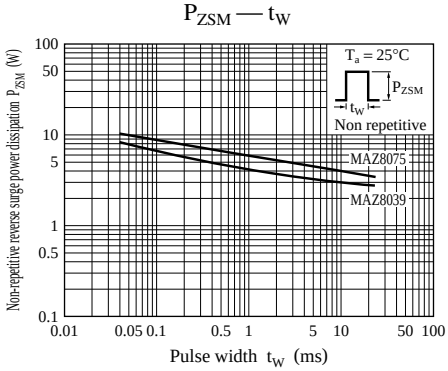
I_F — V_F



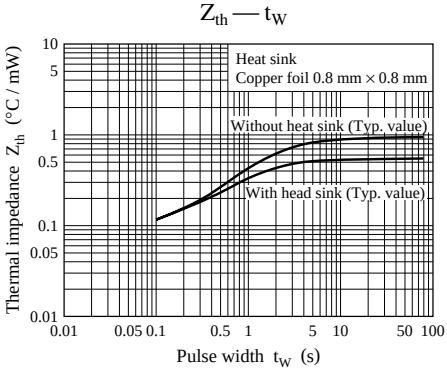
S_Z — I_Z



P_{ZSM} — t_W



Z_{th} — t_W



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 technologies 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 circuit examples of the products. It does not constitute the warranting of industrial property, the granting of relative rights, or the granting of any license.

(3) 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.

(4) The products and product specifications described in this material are subject to change without notice for reasons of 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.

(5) 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, redundant design is recommended, so that such equipment may not violate relevant laws or regulations because of the function of our products.

(6) When using products for which dry packing is required, observe the conditions (including shelf life and after-unpacking standby time) agreed upon when specification sheets are individually exchanged.

(7) No part of this material may be reprinted or reproduced by any means without written permission from our company.

Please read the following notes before using the datasheets

A. These materials are intended as a reference to assist customers with the selection of Panasonic semiconductor products best suited to their applications.
Due to modification or other reasons, any information contained in this material, such as available product types, technical data, and so on, is subject to change without notice.
Customers are advised to contact our semiconductor sales office and obtain the latest information before starting precise technical research and/or purchasing activities.

B. Panasonic is endeavoring to continually improve the quality and reliability of these materials but there is always the possibility that further rectifications will be required in the future. Therefore, Panasonic will not assume any liability for any damages arising from any errors etc. that may appear in this material.

C. These materials are solely intended for a customer's individual use.
Therefore, without the prior written approval of Panasonic, any other use such as reproducing, selling, or distributing this material to a third party, via the Internet or in any other way, is prohibited.

2001 MAR

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- View MA8100-(TX) on WIN SOURCE
- Panasonic Information

Optimize Your Supply Chain with WIN SOURCE Solutions

- Global Sourcing Solution
- Obsolete Management
- Cost Control Management
- Shortage Management
- Alternative Solution
- Excess Inventory Management