

MAZ5000 Series

Silicon planar type

For stabilization of power supply

■ Features

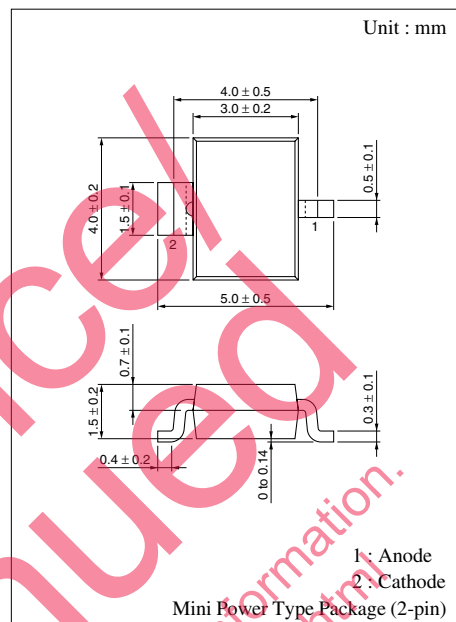
- Mini power type package (2-pin)
- Allowing automatic mounting with the emboss taping
- Sharp rising performance

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Average forward current	$I_{F(AV)}$	250	mA
Instantaneous forward current	I_{FRM}	250	mA
Total power dissipation* ¹	P_{tot}	500	mW
Non-repetitive reverse surge power dissipation* ²	P_{ZSM}	30	W
Junction temperature	T_j	125	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +200	$^\circ\text{C}$

Note) *1 : With a printed-circuit board

*2 : $t = 100 \mu\text{s}$, $T_j = 125^\circ\text{C}$



Marking Symbol

Refer to the list of the electrical characteristics within part numbers
(Example) MAZ5047 : 4.7

■ Common Electrical Characteristics $T_a = 25^\circ\text{C}$ *¹

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 10 \text{ mA}$		0.8	0.9	V
Zener voltage* ²	V_Z	I_Z Specified value				V
Operating resistance	R_{ZK}	I_Z Specified value				Ω
	R_Z Specified value				Ω
Reverse current	I_{R1}	V_R Specified value	Refer to the list of the electrical characteristics within part numbers			μA
	I_{R2}	V_R Specified value				μA
Temperature coefficient of zener voltage* ³	S_Z	I_Z Specified value				$\text{mV}/^\circ\text{C}$
Terminal capacitance	C_t	V_R Specified value				pF

Note) 1. Rated input/output frequency: 50 MHz

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

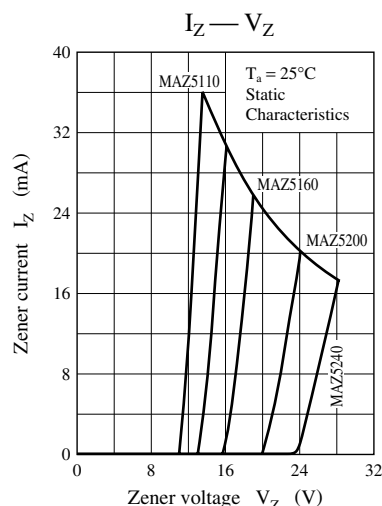
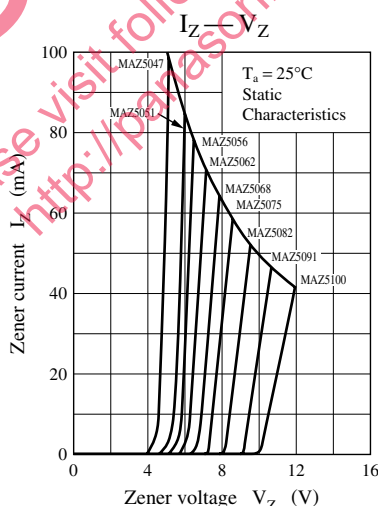
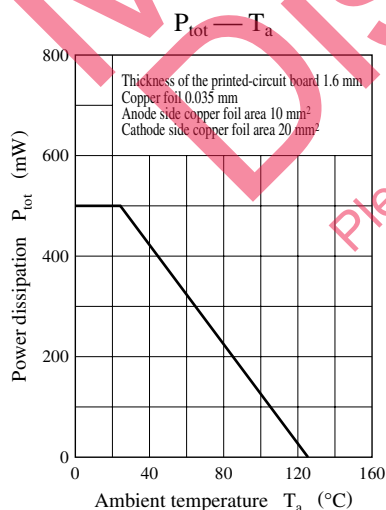
*2 : Guaranteed at 20 ms after power application.

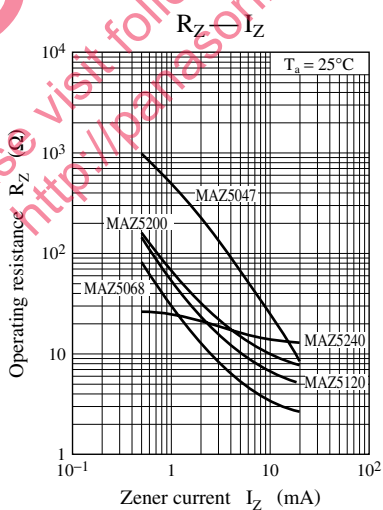
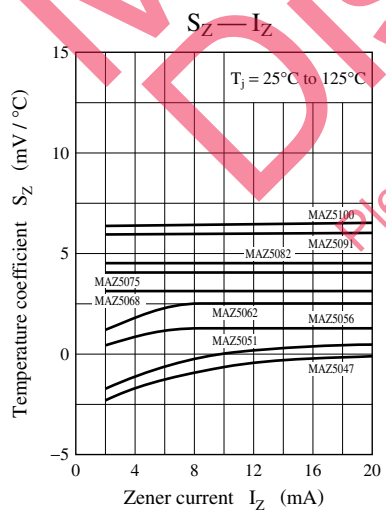
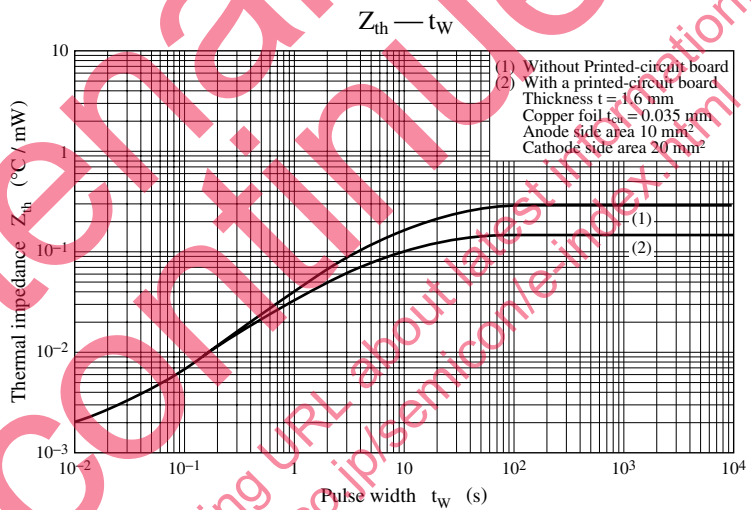
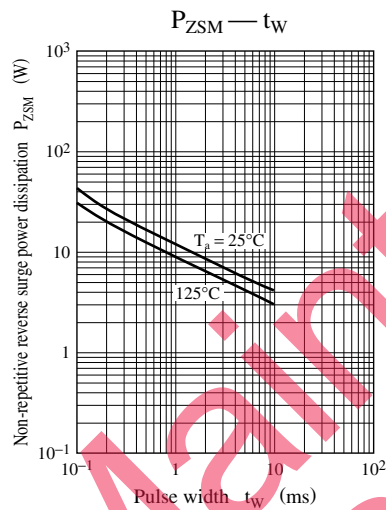
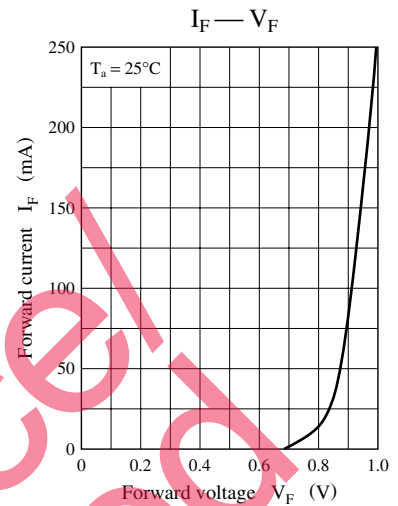
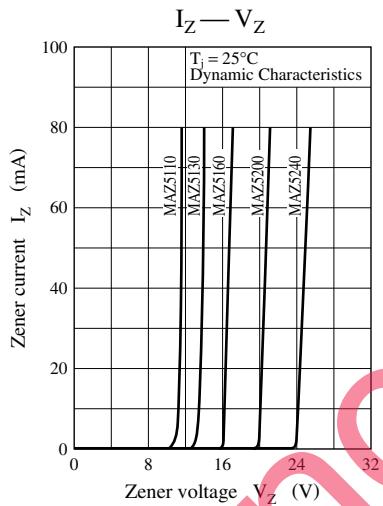
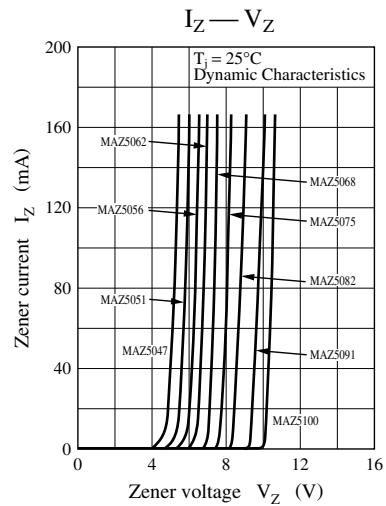
*3 : $T_j = 25^\circ\text{C}$ to 125°C

■ Electrical characteristics within part numbers $V_Z \pm 5\%$ $T_a = 25^\circ\text{C}$

Part Number	Zener voltage			Reverse current			Operating resistance				Temperature coefficient of zener voltage			Terminal capacitance		Marking Symbol	
	V_Z (V) $I_Z = 5\text{ mA}$			I_{R1} (nA) V_R		I_{R2} (μA) V_R		R_Z (Ω) $I_Z = 5\text{ mA}$		R_{ZK} (Ω) I_Z		S_Z (mV/ $^\circ\text{C}$) $I_Z = 5\text{ mA}$			C_t (pF) ($V_R = 0\text{ V}$) $f = 1\text{ MHz}$		
	Min	Nom	Max	(V)	Max	(V)	Max	Typ	Max	(mA)	Max	Min	Typ	Max	Typ		Max
MAZ5047	4.4	4.7	5.0	1	3000	—	—	50	80	1	900	-3.5	-1.4	0.2	130	180	4.7
MAZ5051	4.8	5.1	5.4	2	2000	—	—	40	60	1	800	-2.7	-0.8	1.2	110	160	5.1
MAZ5056	5.3	5.6	6.0	2	1000	—	—	15	40	1	500	-2.0	1.2	2.5	95	140	5.6
MAZ5062	5.8	6.2	6.6	4	3000	5.3	60	6	20	0.5	300	0.4	2.3	3.7	90	130	6.2
MAZ5068	6.4	6.8	7.2	4	2000	5.9	60	6	15	0.5	140	1.2	3.0	4.5	85	110	6.8
MAZ5075	7.0	7.5	7.9	5	1000	6.5	60	6	15	0.5	120	2.5	4.0	5.3	80	100	7.5
MAZ5082	7.7	8.2	8.7	5	500	7.2	60	6	15	0.5	120	3.2	4.6	6.2	75	95	8.2
MAZ5091	8.5	9.1	9.6	6	200	8.0	60	6	15	0.5	130	3.8	5.5	7.0	70	90	9.1
MAZ5100	9.4	10.0	10.6	7	200	8.9	60	8	20	0.5	130	4.5	6.4	8.0	70	90	10
MAZ5110	10.4	11.0	11.6	7	100	9.9	60	10	20	0.5	170	5.4	7.4	9.0	65	85	11
MAZ5120	11.4	12.0	12.7	8	100	10.9	60	10	25	0.5	170	6.0	8.4	10.0	65	85	12
MAZ5130	12.4	13.0	14.1	9	100	11.9	60	10	30	0.5	170	7.0	9.4	11.0	60	80	13
MAZ5150	13.9	15.0	15.6	10	50	13.4	60	10	30	0.5	170	9.2	11.4	13.0	55	75	15
MAZ5160	15.3	16.0	17.1	11	50	14.8	60	10	40	0.5	170	10.4	12.4	14.0	52	75	16
MAZ5180	16.9	18.0	19.1	13	50	16.4	60	10	45	0.5	170	12.4	14.4	16.0	47	70	18
MAZ5200	18.8	20.0	21.2	14	50	18.3	60	15	55	0.5	180	14.4	16.4	18.0	36	60	20
MAZ5220	20.8	22.0	23.3	15	50	20.3	60	20	55	0.5	180	16.4	18.4	20.0	34	60	22
MAZ5240	22.8	24.0	25.6	17	50	22.3	60	25	70	0.5	180	18.4	20.4	22.0	33	55	24

- Note) 1. The V_Z value is the one after power application for 20 ms at $T_a = 25^\circ\text{C}$.
 2. The zener voltage temperature coefficient is the one for $T_j = 25^\circ\text{C}$ to 150°C .





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

- (1) If any of the products or technical information described in this book is to be exported or provided to non-residents, the laws and regulations of the exporting country, especially, those with regard to security export control, must be observed.
- (2) The technical information described in this book is intended only to show the main characteristics and application circuit examples of the products, and no license is granted under any intellectual property right or other right owned by our company or any other company. Therefore, no responsibility is assumed by our company as to the infringement upon any such right owned by any other company which may arise as a result of the use of technical information described in this book.
- (3) The products described in this book 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 book 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.
- (5) When designing your equipment, comply with the range of absolute maximum rating and the guaranteed operating conditions (operating power supply voltage and operating environment etc.). Especially, please be careful not to exceed the range of absolute maximum rating on the transient state, such as power-on, power-off and mode-switching. 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.
- (6) Comply with the instructions for use in order to prevent breakdown and characteristics change due to external factors (ESD, EOS, thermal stress and mechanical stress) at the time of handling, mounting or at customer's process. When using products for which damp-proof packing is required, satisfy the conditions, such as shelf life and the elapsed time since first opening the packages.
- (7) This book may be not reprinted or reproduced whether wholly or partially, without the prior written permission of Matsushita Electric Industrial Co., Ltd.