

# MAZS000 Series

## Silicon planar type

For constant voltage, constant current, waveform clipper and surge absorption circuit

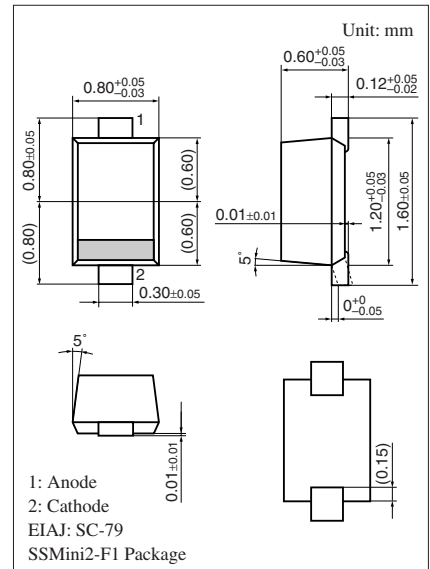
### ■ Features

- SS-Mini type 2-pin package (SSMini2-F1)
- Low noise type
- $V_Z$  rank classified ( $V_Z = 2.4\text{ V to }39\text{ V}$ )

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

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

Note) \*: With a printed circuit board



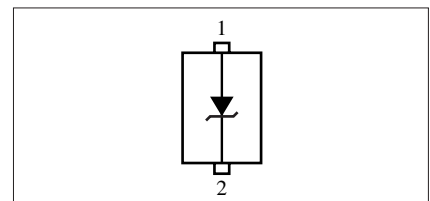
### Marking Symbol

Refer to the list of the electrical characteristics within part numbers

- (Example) MAZS082 : 8  
 MAZS0820L : 8\_  
 MAZS0820M : 8-  
 MAZS0820H : 8^

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

### Internal Connection



### ■ Common Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}^{*1}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	$V_F$	$I_F = 10\text{ mA}$		0.9	1.0	V
Zener voltage <sup>*2</sup>	$V_Z$	$I_Z$ Specified value				V
Reverse current	$I_R$	$V_R$ Specified value				$\mu\text{A}$
Zener rise operating resistance	$R_{ZK}$	$I_Z$ Specified value				$\Omega$
Zener operating resistance	$R_Z$	$I_Z$ Specified value				$\Omega$
Temperature coefficient of zener voltage <sup>*3</sup>	$S_Z$	$I_Z$ Specified value				mV/ $^\circ\text{C}$

Refer to the list of the electrical characteristics within part numbers

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7031 measuring methods for diodes.

2. Rated input/output frequency: 5 MHz

3. \*1: The  $V_Z$  value is for the temperature of  $25^\circ\text{C}$ . In other cases, carry out the temperature compensation.

\*2: Guaranteed at 20 ms after power application.

\*3:  $T_j = 25^\circ\text{C to }150^\circ\text{C}$

■ Electrical characteristics within part numbers  $T_a = 25^{\circ}\text{C} \pm 3^{\circ}\text{C}$

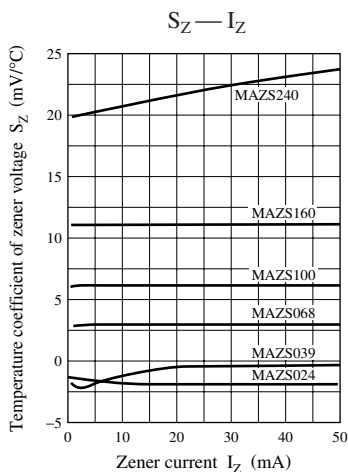
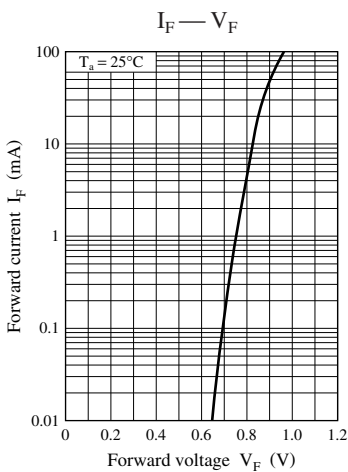
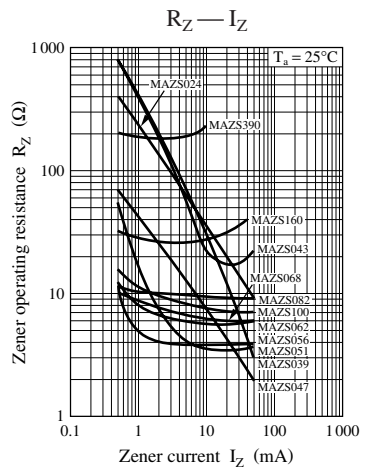
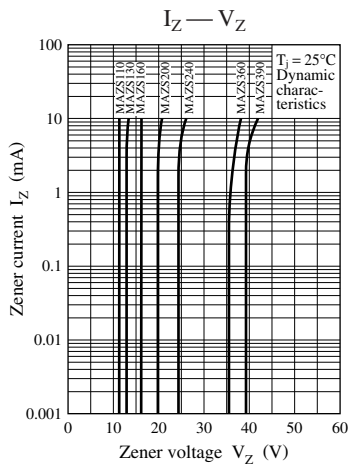
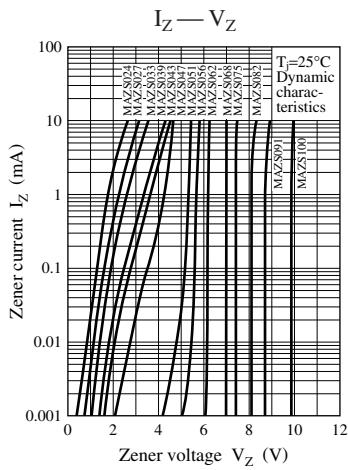
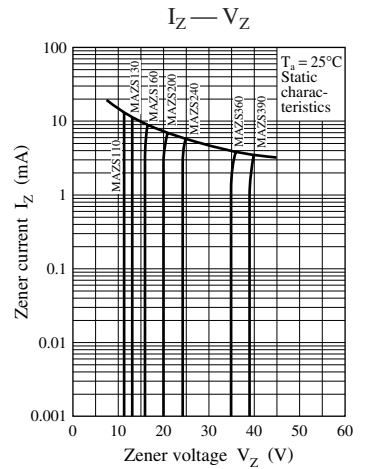
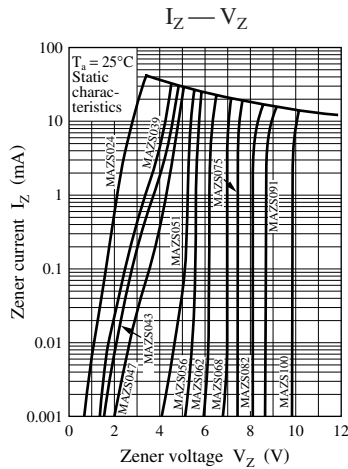
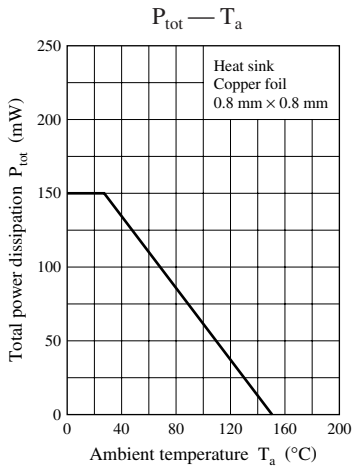
Part Number	Zener voltage $V_Z$ (V)				Reverse current $I_R$ ( $\mu\text{A}$ )		Zener operating resistance				Temperature coefficient of zener voltage $S_Z$ (mV/ $^{\circ}\text{C}$ )		Marking symbol
	Min	Nom	Max	$I_Z$ (mA)	Max	$V_R$ (V)	$R_Z$ ( $\Omega$ )		$R_{ZK}$ ( $\Omega$ )		Typ	$I_Z$ (mA)	
							Max	$I_Z$ (mA)	Max	$I_Z$ (mA)			
MAZS024	2.28	2.40	2.60	5	120	1.0	100	5	—	—	-1.6	5	T
MAZS027	2.50	2.70	2.90				2 or 2 <sub>-</sub> or 2 <sup>^</sup>						
MAZS0270L	2.50	2.60	2.75				2 <sub>-</sub>						
MAZS0270H	2.65	2.80	2.90	2 <sup>^</sup>									
MAZS030	2.80	3.00	3.20	5	50	1.0	120	5	—	—	-2.1	5	3 or 3 <sub>-</sub> or 3 <sup>^</sup>
MAZS0300L	2.80	2.90	3.05				3 <sub>-</sub>						
MAZS0300H	2.95	3.10	3.20				3 <sup>^</sup>						
MAZS033	3.10	3.30	3.50	5	20	1.0	130	5	—	—	-2.4	5	F or F <sub>-</sub> or F <sup>^</sup>
MAZS0330L	3.10	3.20	3.35				F <sub>-</sub>						
MAZS0330H	3.25	3.40	3.50				F <sup>^</sup>						
MAZS036	3.40	3.60	3.80	5	10	1.0	130	5	—	—	-2.4	5	H or H <sub>-</sub> or H <sup>^</sup>
MAZS0360L	3.40	3.50	3.65				H <sub>-</sub>						
MAZS0360H	3.55	3.70	3.80				H <sup>^</sup>						
MAZS039	3.70	3.90	4.10	5	10	1.0	130	5	—	—	-2.5	5	K or K <sub>-</sub> or K <sup>^</sup>
MAZS0390L	3.70	3.80	3.97				K <sub>-</sub>						
MAZS0390H	3.87	4.00	4.10				K <sup>^</sup>						
MAZS043	4.00	4.30	4.60	5	10	1.0	130	5	—	—	-2.5	5	L or L <sub>-</sub> or L <sub>-</sub> or L <sup>^</sup>
MAZS0430L	4.03	4.10	4.26										L <sub>-</sub>
MAZS0430M	4.17	4.30	4.40										L <sub>-</sub>
MAZS0430H	4.31	4.40	4.54										L <sup>^</sup>
MAZS047	4.40	4.70	5.00	5	2.0	1.0	80	5	800	1.0	-1.4	5	N or N <sub>-</sub> or N <sub>-</sub> or N <sup>^</sup>
MAZS0470L	4.45	4.60	4.69										N <sub>-</sub>
MAZS0470M	4.59	4.70	4.83										N <sub>-</sub>
MAZS0470H	4.74	4.90	4.99										N <sup>^</sup>
MAZS051	4.80	5.10	5.40	5	1.0	2.0	60	5	500	1.0	-0.8	5	5 or 5 <sub>-</sub> or 5 <sub>-</sub> or 5 <sup>^</sup>
MAZS0510L	4.87	5.00	5.12										5 <sub>-</sub>
MAZS0510M	5.00	5.10	5.26										5 <sub>-</sub>
MAZS0510H	5.14	5.30	5.40										5 <sup>^</sup>
MAZS056	5.30	5.60	6.00	5	0.5	2.5	40	5	200	0.5	1.2	5	P or P <sub>-</sub> or P <sub>-</sub> or P <sup>^</sup>
MAZS0560L	5.30	5.40	5.58										P <sub>-</sub>
MAZS0560M	5.48	5.60	5.76										P <sub>-</sub>
MAZS0560H	5.66	5.80	5.95										P <sup>^</sup>
MAZS062	5.80	6.20	6.60	5	0.2	4.0	30	5	100	0.5	2.3	5	6 or 6 <sub>-</sub> or 6 <sub>-</sub> or 6 <sup>^</sup>
MAZS0620L	5.85	6.00	6.15										6 <sub>-</sub>
MAZS0620M	6.05	6.20	6.36										6 <sub>-</sub>
MAZS0620H	6.24	6.40	6.56										6 <sup>^</sup>
MAZS068	6.40	6.80	7.20	5	0.1	4.0	20	5	60	0.5	3.0	5	R or R <sub>-</sub> or R <sub>-</sub> or R <sup>^</sup>
MAZS0680L	6.44	6.60	6.77										R <sub>-</sub>
MAZS0680M	6.64	6.80	6.98										R <sub>-</sub>
MAZS0680H	6.85	7.00	7.20										R <sup>^</sup>
MAZS075	7.00	7.50	7.90	5	0.1	5.0	20	5	60	0.5	4.0	5	7 or 7 <sub>-</sub> or 7 <sub>-</sub> or 7 <sup>^</sup>
MAZS0750L	7.07	7.30	7.43										7 <sub>-</sub>
MAZS0750M	7.29	7.50	7.67										7 <sub>-</sub>
MAZS0750H	7.51	7.70	7.89										7 <sup>^</sup>
MAZS082	7.70	8.20	8.70	5	0.1	5.0	20	5	60	0.5	4.6	5	8 or 8 <sub>-</sub> or 8 <sub>-</sub> or 8 <sup>^</sup>
MAZS0820L	7.77	7.90	8.17										8 <sub>-</sub>
MAZS0820M	8.03	8.20	8.43										8 <sub>-</sub>
MAZS0820H	8.29	8.50	8.70										8 <sup>^</sup>
MAZS091	8.50	9.10	9.60	5	0.1	6.0	20	5	60	0.5	5.5	5	9 or 9 <sub>-</sub> or 9 <sub>-</sub> or 9 <sup>^</sup>
MAZS0910L	8.58	8.80	9.02										9 <sub>-</sub>
MAZS0910M	8.87	9.10	9.33										9 <sub>-</sub>
MAZS0910H	9.14	9.40	9.60										9 <sup>^</sup>

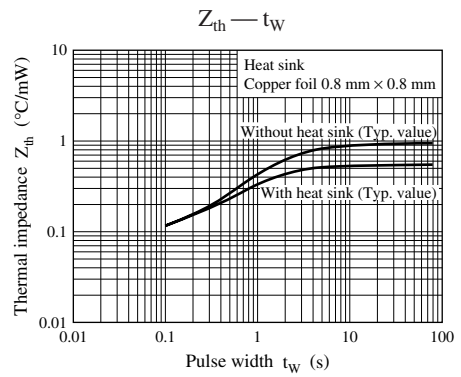
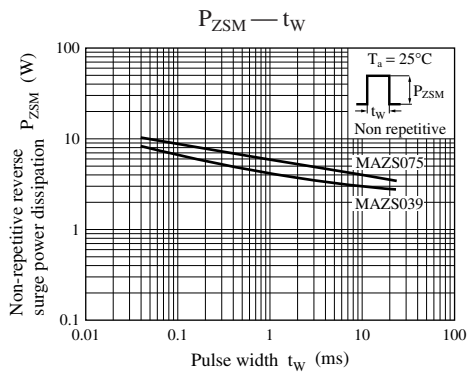
■ Electrical characteristics within part numbers (continued)  $T_a = 25^{\circ}\text{C} \pm 3^{\circ}\text{C}$

Part Number	Zener voltage			Reverse current		Zener operating resistance				Temperature coefficient of zener voltage		Marking symbol	
	$V_Z$ (V)			$I_R$ ( $\mu\text{A}$ )		$R_Z$ ( $\Omega$ )		$R_{ZK}$ ( $\Omega$ )		$S_Z$ (mV/ $^{\circ}\text{C}$ )			
	Min	Nom	Max	$I_Z$ (mA)	Max	$V_R$ (V)	Max	$I_Z$ (mA)	Max	$I_Z$ (mA)	Typ		$I_Z$ (mA)
MAZS100	9.40	10.00	10.60	5	0.05	7.0	30	5	60	0.5	6.4	5	10 or 10_ or 10- or 10^
MAZS1000L	9.44	9.70	9.92										10_
MAZS1000M	9.75	10.00	10.25										10-
MAZS1000H	10.07	10.30	10.59										10^
MAZS110	10.40	11.00	11.60	5	0.05	8.0	30	5	60	0.5	7.4	5	11 or 11_ or 11- or 11^
MAZS1100L	10.40	10.70	10.94										11_
MAZS1100M	10.73	11.00	11.28										11-
MAZS1100H	11.05	11.30	11.60										11^
MAZS120	11.40	12.00	12.70	5	0.05	9.0	30	5	80	0.5	8.4	5	12 or 12_ or 12- or 12^
MAZS1200L	11.40	11.70	11.96										12_
MAZS1200M	11.73	12.00	12.33										12-
MAZS1200H	12.06	12.30	12.68										12^
MAZS130	12.40	13.00	14.10	5	0.05	10.0	35	5	80	0.5	9.4	5	13 or 13_ or 13- or 13^
MAZS1300L	12.40	12.70	12.99										13_
MAZS1300M	12.73	13.00	13.40										13-
MAZS1300H	13.25	13.70	14.08										13^
MAZS150	13.90	15.00	15.60	5	0.05	11.0	40	5	80	0.5	11.4	5	15 or 15_ or 15- or 15^
MAZS1500L	13.90	14.30	14.76										15_
MAZS1500M	14.60	15.00	15.35										15-
MAZS1500H	14.95	15.30	15.60										15^
MAZS160	15.30	16.00	17.10	5	0.05	12.0	50	5	80	0.5	12.4	5	16 or 16_ or 16- or 16^
MAZS1600L	15.30	15.70	16.09										16_
MAZS1600M	15.70	16.00	16.50										16-
MAZS1600H	16.26	16.70	17.10										16^
MAZS180	16.90	18.00	19.10	5	0.05	13.0	60	5	80	0.5	14.4	5	18 or 18_ or 18- or 18^
MAZS1800L	16.90	17.30	17.76										18_
MAZS1800M	17.55	18.00	18.45										18-
MAZS1800H	18.20	18.70	19.10										18^
MAZS200	18.80	20.00	21.20	5	0.05	15.0	80	5	100	0.5	16.4	5	20 or 20_ or 20- or 20^
MAZS2000L	18.85	19.30	19.81										20_
MAZS2000M	19.50	20.00	20.50										20-
MAZS2000H	20.15	20.70	21.19										20^
MAZS220	20.80	22.00	23.30	5	0.05	17.0	80	5	100	0.5	18.4	5	22 or 22_ or 22- or 22^
MAZS2200L	20.80	21.30	21.86										22_
MAZS2200M	21.45	22.00	22.55										22-
MAZS2200H	22.10	22.70	23.24										22^
MAZS240	22.80	24.00	25.60	5	0.05	19.0	100	5	120	0.5	20.4	5	24 or 24_ or 24- or 24^
MAZS2400L	22.80	23.30	23.97										24_
MAZS2400M	23.50	24.00	24.70										24-
MAZS2400H	24.35	25.00	25.60										24^
MAZS270	25.10	27.00	28.90	2	0.05	21.0	120	2	120	0.5	23.4	2	27 or 27_ or 27- or 27^
MAZS2700L	25.30	26.00	26.70										27_
MAZS2700M	26.30	27.00	27.70										27-
MAZS2700H	27.30	28.00	28.70										27^
MAZS300	28.00	30.00	32.00	2	0.05	23.0	160	2	160	0.5	26.6	2	30 or 30_ or 30- or 30^
MAZS3000L	28.30	29.00	29.70										30_
MAZS3000M	29.30	30.00	30.80										30-
MAZS3000H	30.20	31.00	31.80										30^
MAZS330	31.00	33.00	35.00	2	0.05	25.0	200	2	200	0.5	29.7	2	33 or 33_ or 33- or 33^
MAZS3300L	31.20	32.00	32.80										33_
MAZS3300M	32.20	33.00	33.80										33-
MAZS3300H	33.20	34.00	34.90										33^

■ Electrical characteristics within part numbers (continued)  $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Part Number	Zener voltage $V_Z$ (V)				Reverse current $I_R$ ( $\mu\text{A}$ )		Zener operating resistance				Temperature coefficient of zener voltage $S_Z$ (mV/ $^\circ\text{C}$ )		Marking symbol
	Min	Nom	Max	$I_Z$ (mA)	Max	$V_R$ (V)	$R_Z$ ( $\Omega$ )		$R_{ZK}$ ( $\Omega$ )		Typ	$I_Z$ (mA)	
							Max	$I_Z$ (mA)	Max	$I_Z$ (mA)			
MAZS360	34.00	36.00	38.00	2	0.05	27.0	250	2	250	0.5	33.0	2	36 or 36_ or 36- or 36^
MAZS3600L	34.10	35.00	35.90										36_
MAZS3600M	35.10	36.00	36.90										36-
MAZS3600H	36.10	37.00	37.90										36^
MAZS390	37.00	39.00	41.00	2	0.05	30.0	300	2	300	0.5	35.6	2	39 or 39_ or 39- or 39^
MAZS3900L	37.10	38.00	39.00										39_
MAZS3900M	38.00	39.00	40.00										39-
MAZS3900H	39.00	40.00	41.00										39^





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