



# 500 Watt, Bi-Directional TVS Diode

Rev 1.0  
12/04/18

Silicon Transient Voltage Suppressor diode in bare die form

## Features:

- 500W peak pulse power dissipation
- Excellent clamping capabilities
- Very fast response time
- Metalized for Wire Bonding
- High Reliability tested grades.

## Ordering Information

The following part suffixes apply:

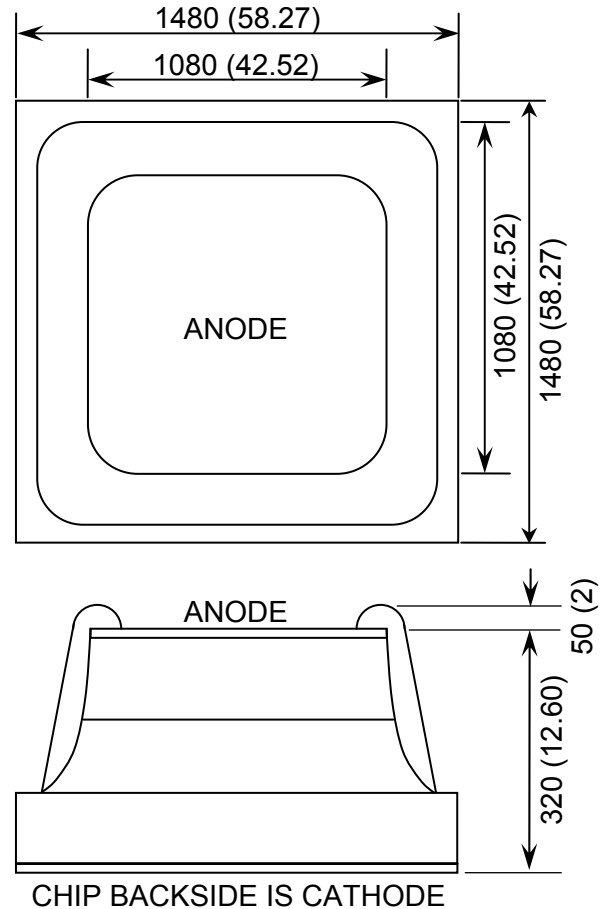
- No suffix - MIL-STD-750 /2073 Visual Inspection
- "H" - MIL-STD-750 /2073 Visual Inspection  
+ MIL-PRF-38534 Class H LAT
- "K" - MIL-STD-750 /2072 Visual Inspection  
+ MIL-PRF-38534 Class K LAT

LAT = Lot Acceptance Test.

For further information on LAT process flows see below.

[www.siliconsupplies.com/quality/bare-die-lot-qualification](http://www.siliconsupplies.com/quality/bare-die-lot-qualification)

## Die Dimensions in $\mu\text{m}$ (mils)



## Supply Formats:

- Default – Die in Waffle Pack (100 per tray capacity)
- Sawn Wafer on Tape – By specific request
- Unsawn Wafer – By specific request
- With additional electrical selection – By specific request

## Mechanical Specification

Die Size (Unsawn)	1480 x 1480 58.27 x 58.27	$\mu\text{m}$ mils
Anode Pad Size	1080 x 1080 42.52 x 42.52	$\mu\text{m}$ mils
Die Thickness	370 14.57	$\mu\text{m}$ mils
Top Metal Composition	Al >4 $\mu\text{m}$	
Back Metal Composition	Al/Ti/Ni/Au	





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## Absolute Maximum Ratings $T_J = 25^\circ\text{C}$ unless otherwise stated

PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation 10/1000 $\mu\text{s}$ waveform <sup>1</sup>	$P_{PP}$	500	W
Power dissipation Infinite heatsink at $T_L = 75^\circ\text{C}$ <sup>1</sup>	$P_D$	1	W
Operating Temperature Range	$T_J$	-55 to +150	$^\circ\text{C}$
Storage Temperature Range	$T_S$	-65 to +200	$^\circ\text{C}$

1. Tested in DO-15. Performance at die level is dependent on assembly method and substrate choice.

## Electrical Characteristics $T_J = 25^\circ\text{C}$ unless otherwise stated

DEVICE <sup>4</sup>	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE @ $I_T$		TEST CURRENT	MAX CLAMPING VOLTAGE $V_C @ I_{PP}$	PEAK PULSE CURRENT	REVERSE LEAKAGE $I_R @ V_{RRM}$
	$V_{RRM}$	$V_{BR(MIN)}$ (V)	$V_{BR(MAX)}$ (V)	$I_T$	$V_C$	$I_{PP}$	$I_R$
	V	V	V	mA	V	A	$\mu\text{A}$
SA5.0CA	5	6.4	7	10	9.2	54.3	600
SA6.0CA	6	6.67	7.37	10	10.3	48.5	600
SA6.5CA	6.5	7.22	7.98	10	11.2	44.64	400
SA7.0CA	7	7.78	8.6	10	12	41.67	150
SA7.5CA	7.5	8.33	9.21	1	12.9	38.76	50
SA8.0CA	8	8.89	9.83	1	13.6	36.76	25
SA8.5CA	8.5	9.44	10.4	1	14.4	34.72	5
SA9.0CA	9	10	11.1	1	15.4	32.47	5
SA10CA	10	11.1	12.3	1	17	29.41	5
SA11CA	11	12.2	13.5	1	18.2	27.47	5
SA12CA	12	13.3	14.7	1	19.9	25.13	5
SA13CA	13	14.4	15.9	1	21.5	23.26	5
SA14CA	14	15.6	17.2	1	23.2	21.55	5
SA15CA	15	16.7	18.5	1	24.4	20.49	5
SA16CA	16	17.8	19.7	1	26	19.23	5
SA17CA	17	18.9	20.9	1	27.6	18.12	5
SA18CA	18	20	22.1	1	29.2	17.12	5
SA19CA	19	21.1	23.3	1	30.8	16.24	5
SA20CA	20	22.2	24.5	1	32.4	15.43	5
SA22CA	22	24.4	26.9	1	35.5	14.8	5

2. Suffix "A" denotes 5% tolerance of  $V_{BR}$





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	$V_{RRM}$	$V_{BR(MIN)}$	$V_{BR(MAX)}$	$I_T$	$V_C$	$I_{PP}$	$I_R$
	V	V	V	mA	V	A	$\mu\text{A}$
SA24CA	24	26.7	29.5	1	38.9	12.85	5
SA26CA	26	28.9	31.9	1	42.1	11.88	5
SA28CA	28	31.1	34.4	1	45.4	11.01	5
SA30CA	30	33.3	36.8	1	48.4	10.33	5
SA33CA	33	36.7	40.6	1	53.3	9.38	5
SA36CA	36	40	44.2	1	58.1	8.61	5
SA40CA	40	44.4	49.1	1	64.5	7.75	5
SA43CA	43	47.8	52.8	1	69.4	7.2	5
SA45CA	45	50	55.3	1	72.7	6.88	5
SA48CA	48	53.3	58.9	1	77.4	6.46	5
SA51CA	51	56.7	62.7	1	82.4	6.07	5
SA54CA	54	60	66.3	1	87.1	5.74	5
SA58CA	58	64.4	71.2	1	93.6	5.34	5
SA60CA	60	66.7	73.7	1	96.8	5.17	5
SA64CA	64	71.1	78.6	1	103	4.85	5
SA70CA	70	77.8	86	1	113	4.42	5
SA75CA	75	83.3	92.1	1	121	4.13	5
SA78CA	78	86.7	95.8	1	126	3.97	5
SA80CA	80	88.8	97.6	1	130	3.86	5
SA85CA	85	94.4	104	1	137	3.65	5
SA90CA	90	100	111	1	146	3.42	5
SA100CA	100	111	123	1	162	3.09	5
SA110CA	110	122	135	1	177	2.82	5
SA120CA	120	133	147	1	193	2.59	5
SA130CA	130	144	159	1	209	2.39	5
SA140CA	140	155	171	1	227	2.2	5
SA150CA	150	167	185	1	243	2.06	5
SA160CA	160	178	197	1	259	1.93	5
SA170CA	170	189	209	1	275	1.82	5
SA180CA	180	200	220	1	292	1.71	5
SA190CA	190	211	232	1	308	1.62	5

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