



600 Watt, Uni-Directional TVS Diode

Rev 1.0
12/04/18

Silicon Transient Voltage Suppressor diode in bare die form

Features:

- 600W peak pulse power dissipation
- Excellent clamping capabilities
- Low Leakage Current
- Metalized for Wire Bonding
- High Reliability tested grades.

Ordering Information

The following part suffixes apply:

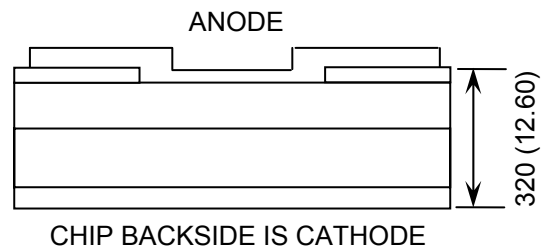
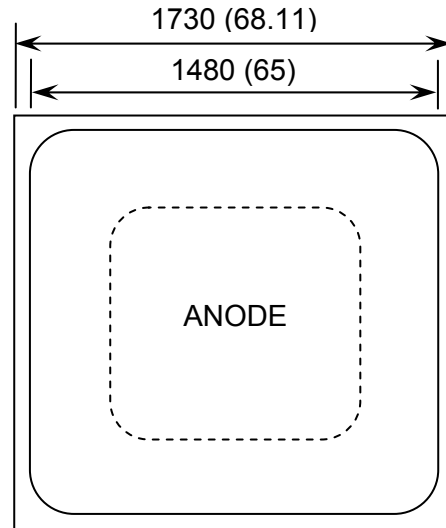
- No suffix - MIL-STD-750 /2073 Visual Inspection
- "H" - MIL-STD-750 /2073 Visual Inspection
+ MIL-STD-38534 Class H LAT
- "K" - MIL-STD-750 /2072 Visual Inspection
+ MIL-STD-38534 Class K LAT

LAT = Lot Acceptance Test.

For further information on LAT process flows see below.

www.siliconsupplies.com/quality/bare-die-lot-qualification

Die Dimensions in μm (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)	1730 x 1730 68.11 x 68.11	μm mils
Anode Pad Size	1480 x 1380 65 x 65	μm mils
Die Thickness	250 9.84	μm mils
Top Metal Composition	Al $\geq 4\mu\text{m}$	
Back Metal Composition	Ti/Ni/Ag $\geq 2.5\mu\text{m}$	





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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 μs waveform ¹	P_{PP}	600	W
Peak forward surge current, 8.3ms single half sine-wave ²	I_{FSM}	100	A
ESD IEC61000-4-2 (Air) ³	V_{ESD}	$\pm 30\text{V}$	kV
ESD IEC61000-4-2 (Contact) ³			
Operating Temperature Range	T_J	-55 to +175	$^\circ\text{C}$
Storage Temperature Range	T_S	-65 to +200	$^\circ\text{C}$

1. Performance at die level dependent on assembly method and substrate choice. 2. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum. 3. Tested in SMAF package.

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

DEVICE ⁴	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	μA
P6SE3.3A	3.3	5.23	5.97	10	8	75	50
P6SE5.0A	5	6.43	6.97	10	9.2	65.2	20
P6SE6.0A	6	6.7	7.34	10	10.3	58.3	20
P6SE6.5A	6.5	7.25	7.95	10	11.2	53.6	15
P6SE7.0A	7	7.81	8.57	10	12	50	15
P6SE7.5A	7.5	8.36	9.18	1	12.9	46.5	10
P6SE8.0A	8	8.92	9.8	1	13.6	44.1	2
P6SE8.5A	8.5	9.47	10.37	1	14.4	41.7	2
P6SE9.0A	9	10.03	11.07	1	15.4	39	0.2
P6SE10A	10	11.13	12.27	1	17	35.3	0.2
P6SE11A	11	12.23	13.47	1	18.2	33	0.2
P6SE12A	12	13.33	14.67	1	19.9	30.2	0.2
P6SE13A	13	14.43	15.87	1	21.5	27.9	0.8
P6SE14A	14	15.63	17.17	1	23.2	25.9	0.8
P6SE15A	15	16.73	18.29	1	24.4	24.6	0.8
P6SE16A	16	17.83	19.67	1	26	23.1	0.8
P6SE17A	17	18.93	20.87	1	27.6	21.7	0.8
P6SE18A	18	20.03	22.07	1	29.2	20.5	0.8
P6SE20A	20	22.23	24.47	1	32.4	18.5	0.8
P6SE22A	22	24.43	26.87	1	35.5	16.9	0.8





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	V_{RRM}	$V_{BR(MIN)}$ (V)	$V_{BR(MAX)}$ (V)	I_T	V_C	I_{PP}	I_R
	V	V	V	mA	V	A	μA
P6SE24A	24	26.73	29.47	1	38.9	15.4	0.8
P6SE26A	26	28.93	31.87	1	42.1	14.2	0.8
P6SE28A	28	31.13	34.37	1	45.4	13.2	0.8
P6SE30A	30	33.33	36.77	1	48.4	12.4	0.8
P6SE33A	33	36.73	40.57	1	53.3	11.3	0.8
P6SE36A	36	40.03	44.17	1	58.1	10.3	0.8
P6SE40A	40	44.43	49.07	1	64.5	9.3	0.8
P6SE43A	43	47.83	52.77	1	69.4	8.6	0.8
P6SE45A	45	50.03	55.27	1	72.7	8.3	0.8
P6SE48A	48	53.33	58.87	1	77.4	7.7	0.8
P6SE51A	51	56.73	62.67	1	82.4	7.3	0.8
P6SE54A	54	60.03	66.27	1	87.1	6.9	0.8
P6SE58A	58	64.43	71.17	1	93.6	6.4	0.8
P6SE60A	60	66.73	73.67	1	96.8	6.2	0.8
P6SE64A	64	71.13	78.57	1	103	5.8	0.8

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

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