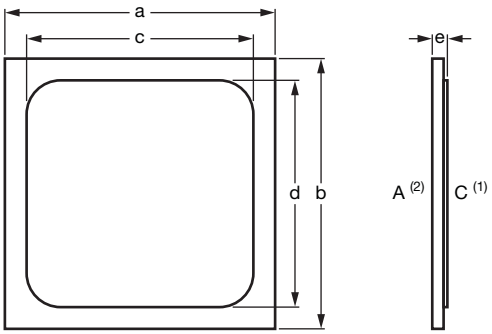
TV050B...S4PT Series

Vishay General Semiconductor

PAR® Transient Voltage Suppressor
Bare Die (50 mils x 50 mils)



FEATURES

- Junction passivation optimized design passivated anisotropic rectifier technology
- 300 W (6.8 V to 9.1 V), 400 W (10 V to 43 V) peak pulse power capability with a 10/1000 µs waveform in equivalent package
- Unidirectional polarity only

CIRCUIT DIAGRAM

Notes

(1) Front metallization side: Cathode
(2) Back metallization side: Anode

MECHANICAL DATA

DEVICE (1)	ASSEMBLY	DIMENSIONS in inches (millimeters)						TYPICAL TOTAL METAL THICKNESS			
		CHIP SIZE		SOLDERABLE		CHIP THICKNESS		FRONT SIDE C		BACK SIDE A	
		a, b		c, d		e		METAL	THICKNESS	METAL	THICKNESS
		min.	max.	min.	max.	min.	max.				
TV050B...S4PT	Solderable	0.048 (1.219)	0.050 (1.270)	0.039 (0.991)	0.041 (1.041)	0.011 (0.279)	0.013 (0.330)	Ni/Au	0.75 µm	Ni/Au	0.75 µm

Note

(1) Refer to Device Code definition

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

DEVICE	BREAKDOWN VOLTAGE V_{BR} (1) AT I_T (V)		TEST CURRENT I_T (mA)	STAND-OFF VOLTAGE V_{WM} (V)	MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (µA)	FINISH GOOD (for reference not guarantee for bare die)			
						MAXIMUM CLAMPING VOLTAGE (2) V_C AT I_{PPM}		OPERATING JUNCTION TEMPERATURE RANGE	PACKAGE EQUIVALENT PRODUCT (3)
	MIN.	MAX.				(V)	(A)		
TV050B6P8S4PT	6.45	7.14	10	5.80	300	10.5	28.6	- 65 °C to + 185 °C	TMPG06-6.8A
TV050B7P5S4PT	7.13	7.88	10	6.40	150	11.3	26.5	- 65 °C to + 185 °C	TMPG06-7.5A
TV050B8P2S4PT	7.79	8.61	10	7.02	50	12.1	24.8	- 65 °C to + 185 °C	TMPG06-8.2A
TV050B9P1S4PT	8.65	9.55	1	7.78	10	13.4	22.4	- 65 °C to + 185 °C	TMPG06-9.1A
TV050B010S4PT	9.5	10.5	1	8.55	5	14.5	27.6	- 65 °C to + 185 °C	TMPG06-10A
TV050B011S4PT	10.5	11.6	1	9.4	2	15.6	25.6	- 65 °C to + 185 °C	TMPG06-11A
TV050B012S4PT	11.4	12.6	1	10.2	1	16.7	24.0	- 65 °C to + 185 °C	TMPG06-12A
TV050B013S4PT	12.4	13.7	1	11.1	1	18.2	22.0	- 65 °C to + 185 °C	TMPG06-13A
TV050B015S4PT	14.3	15.8	1	12.8	1	21.2	18.9	- 65 °C to + 185 °C	TMPG06-15A
TV050B016S4PT	15.2	16.8	1	13.6	1	22.5	17.8	- 65 °C to + 185 °C	TMPG06-16A
TV050B018S4PT	17.1	18.9	1	15.3	1	25.5	15.9	- 65 °C to + 185 °C	TMPG06-18A
TV050B020S4PT	19.0	21.0	1	17.0	1	27.7	14.4	- 65 °C to + 185 °C	TMPG06-20A
TV050B022S4PT	20.9	23.1	1	18.8	1	30.6	13.1	- 65 °C to + 185 °C	TMPG06-22A
TV050B024S4PT	22.8	25.2	1	20.5	1	33.2	12.0	- 65 °C to + 185 °C	TMPG06-24A

For technical questions within your region, please contact one of the following:
DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

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ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)									
DEVICE	BREAKDOWN VOLTAGE V_{BR} (1) AT I_T (V)		TEST CURRENT I_T (mA)	STAND-OFF VOLTAGE V_{WM} (V)	MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (µA)	FINISH GOOD (for reference not guarantee for bare die)			
						MAXIMUM CLAMPING VOLTAGE (2) V_C AT I_{PPM}		OPERATING JUNCTION TEMPERATURE RANGE	PACKAGE EQUIVALENT PRODUCT (3)
	MIN.	MAX.				(V)	(A)		
TV050B027S4PT	25.7	28.4	1	23.1	1	37.5	10.7	- 65 °C to + 185 °C	TMPG06-27A
TV050B030S4PT	28.5	31.5	1	25.6	1	41.4	9.7	- 65 °C to + 185 °C	TMPG06-30A
TV050B033S4PT	31.4	34.7	1	28.2	1	45.7	8.8	- 65 °C to + 185 °C	TMPG06-33A
TV050B036S4PT	34.2	37.8	1	30.8	1	49.9	8.0	- 65 °C to + 185 °C	TMPG06-36A
TV050B039S4PT	37.1	41.0	1	33.3	1	53.9	7.4	- 65 °C to + 185 °C	TMPG06-39A
TV050B043S4PT	40.9	45.2	1	36.8	1	59.3	6.7	- 65 °C to + 185 °C	TMPG06-43A

Notes

(1) Pulse test: $t_p \leq 50$ ms

(2) Non-repetitive current pulse, per fig. 1

(3) Package equivalent product quality level information will provide per customer request but only for reference no guarantee bare die can meet the same

PACKAGING			
DEVICE	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY
TV050B...S4PT	T	12 mm tape/4 mm pitch, 7" diameter plastic tape and reel	6000

CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

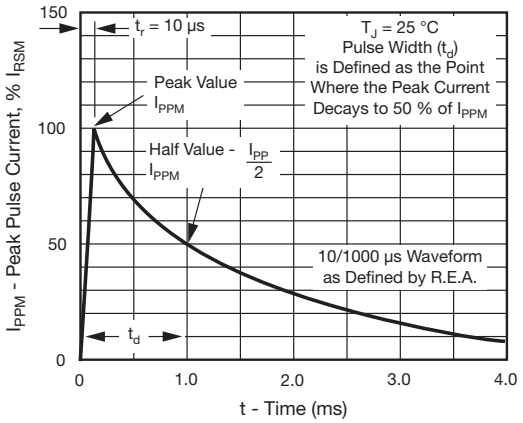

Fig. 1 - Pulse Waveform

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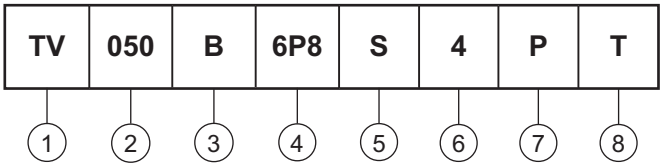
DEVICE CODE



1 - Transient Voltage Suppressor

2 - Die dimensions in mils

3 - Patented PAR TVS
- B = Named as breakdown voltage (V_{BR})
- T = Named as stand-off voltage (V_{WM})
- L = Load dump rectifier

4 - Breakdown voltage (V_{BR})

5 - Chip surface metallization (see Mechanical Data table)
- A = Bondable
- S = Solderable

6 - Wafer diameter in inches
- 4 = 4" wafer
- 6 = 6" wafer

7 - Quality level code
- P = Packaged die, high reliability grade (1)
- O = Packaged die, commercial grade (1)
- N = Non packaged die (2)

8 - Packaging (see Packaging table)

Notes

(1) Packaged die
- Existing die in qualified package

(2) Non packaged die
- Existing fab. process
- Non standard die metal
- Die metal has been qualified
- No production in packaged form

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