

# SMD Transient Voltage Suppressor



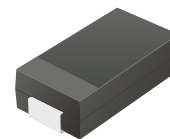
SMD Diodes Specialist

## TV15C5V0-G Thru TV15C171-G

Working Peak Reverse Voltage: 5.0 -170 Volts

Power Dissipation: 1500Watts

RoHS Device

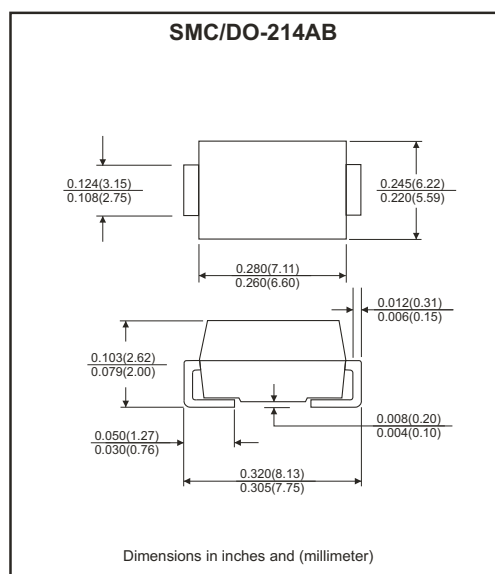


### Features

- Ideally for surface mount applications.
- Easy pick and place.
- Plastic package has Underwriters Lab. flammability classification 94V-0.
- Typical IR less than 1 $\mu$ A above 10V.
- Fast response time: typically less 1nS for uni-direction, less than 5nS for bi-directional, from 0V to BV min.

### Mechanical Data

- Case: JEDEC DO-214AB molded plastic.
- Terminals: solderable per MIL-STD-750, method 2026.
- Polarity: Cathode band denoted.
- Weight: Approx. 0.21 grams.



### Maximum Ratings and Electrical Characteristics

Rating at 25 °C ambient temperature unless otherwise specified.  
Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

Characteristics	Symbol	Value	Units
Peak power dissipation at 10/1000 $\mu$ S waveform (Note 1, Fig.1)	P <sub>PPM</sub>	1500	W
Peak pulse current at 10/1000 $\mu$ S waveform (Note 1, Fig.3)	I <sub>PPM</sub>	See table 1	A
Steady state power dissipation at T <sub>L</sub> =75 °C (Note 2)	P <sub>M(AV)</sub>	5.0	W
Peak forward surge current, 8.3mS single half sine-wave superimposed on rated load, uni-directional only (Note 3)	I <sub>FSM</sub>	200	A
Maximum instantaneous forward voltage at 100A for uni-directional only (Note 3 & 4)	V <sub>F</sub>	3.5/5/0	V
Operation junction temperature range	T <sub>J</sub>	-55 to +150	°C
Storage temperature range	T <sub>STG</sub>	-55 to +150	°C

Note: 1. Non-Repetitive current pulse, per Fig. 3 and derated above T<sub>A</sub>=25 °C, per Fig. 2.  
2. Mounted on 8x8 mm copper pads to each terminal.  
3. Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle =4 pulse per minute maximum.  
4. V<sub>F</sub>=3.5V on TV15C5V0 thru TV15C900 devices and V<sub>F</sub>=5.0V on TV15C101 thru TV15C171.

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Ratings and Characteristics Curve (TV15C5V0-G Thru. TV15C171-G)

Fig.1 Reverse Characteristics

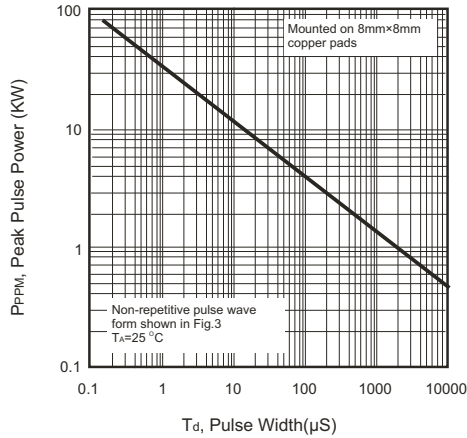


Fig.2 Pulse Derating curve

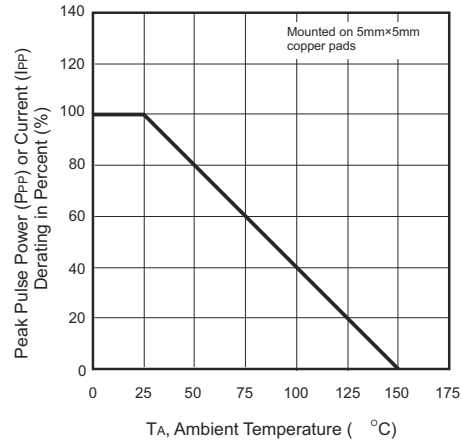


Fig.3 Pulse Waveform

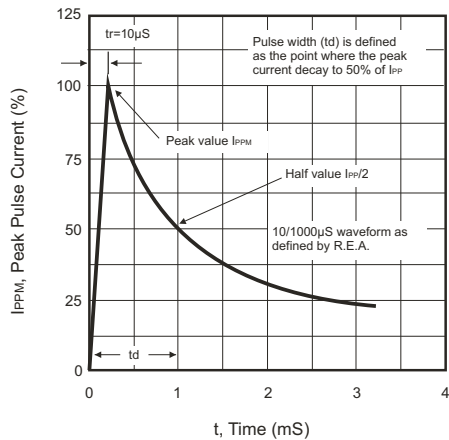


Fig.4 Typical Junction Capacitance for Uni-Directional Devices

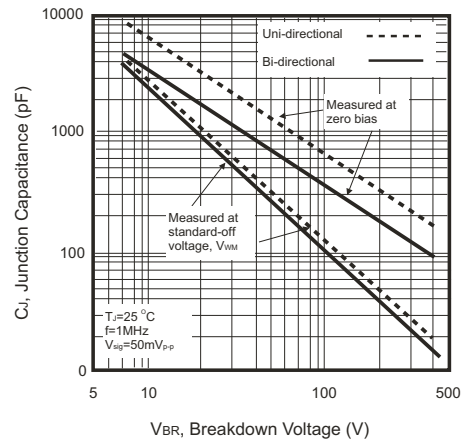


Fig.5 Steady State Power Derating Curve

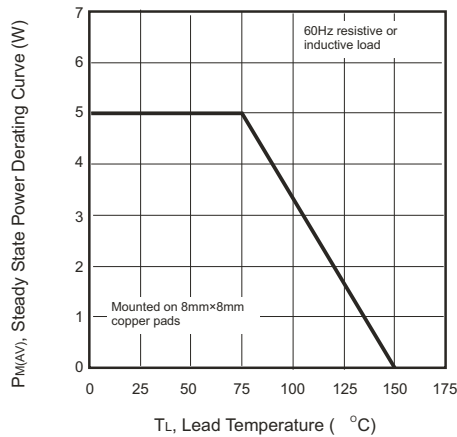
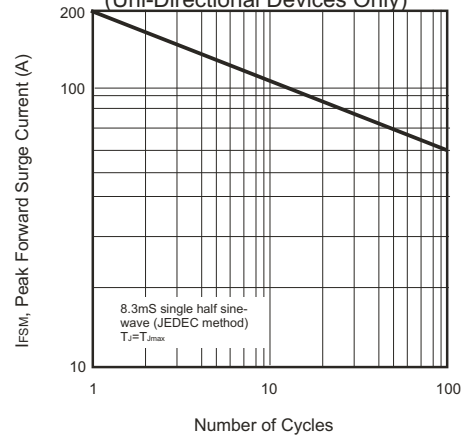


Fig.6 Maximum Non-repetitive Peak Forward Surge Current (Uni-Directional Devices Only)



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Table 1 - Specification

Part No	Absolute Maximum Rating(Ta=25 °C)					Electrical Characteristic(Ta=25 °C)				
	VRWM	VBR Min	VBR Max	IT	IFSM	MAX VC	IR@VRWM	Marking Code		
	(V)	(V)	(V)	(mA)	(A)@8.3ms	(V)	IPP(A)	(uA)	UNI	BI
TV15C5V0K(B)-G	5.00	6.40	7.82	10	200	9.6	156.2	800	GDD	BDD
TV15C5V0J(B)-G	5.00	6.40	7.07	10	200	9.2	163.6	800	GDE	BDE
TV15C6V0K(B)-G	6.00	6.67	8.15	10	200	11.4	131.6	800	GDF	BDF
TV15C6V0J(B)-G	6.00	6.67	7.37	10	200	10.3	145.6	800	GDG	BDG
TV15C6V5K(B)-G	6.50	7.22	8.82	10	200	12.3	122.0	500	GDH	BDH
TV15C6V5J(B)-G	6.50	7.22	7.98	10	200	11.2	133.9	500	GDK	BDK
TV15C7V0K(B)-G	7.00	7.78	9.51	1	200	13.3	112.8	200	GDL	BDL
TV15C7V0J(B)-G	7.00	7.78	8.60	1	200	12.0	125.0	200	GDM	BDM
TV15C7V5K(B)-G	7.50	8.33	10.20	1	200	14.3	104.9	100	GDN	BDN
TV15C7V5J(B)-G	7.50	8.33	9.21	1	200	12.9	116.3	100	GDP	BDP
TV15C8V0K(B)-G	8.00	8.89	10.90	1	200	15.0	100.0	50	GDQ	BDQ
TV15C8V0J(B)-G	8.00	8.89	9.83	1	200	13.6	110.3	50	GDR	BDR
TV15C8V5K(B)-G	8.55	9.44	11.50	1	200	15.9	94.3	10	GDS	BDS
TV15C8V5J(B)-G	8.55	9.44	10.40	1	200	14.4	104.2	10	GDT	BDT
TV15C9V0K(B)-G	9.00	10.0	12.20	1	200	16.9	88.7	5	GDU	BDU
TV15C9V0J(B)-G	9.00	10.0	11.10	1	200	15.4	97.4	5	GDV	BDV
TV15C100K(B)-G	10.0	11.1	13.6	1	200	18.8	79.8	5	GDW	BDW
TV15C100J(B)-G	10.0	11.1	12.3	1	200	17.0	88.2	5	GDX	BDX
TV15C110K(B)-G	11.0	12.2	14.9	1	200	20.1	74.6	5	GDY	BDY
TV15C110J(B)-G	11.0	12.2	13.5	1	200	18.2	82.4	5	GDZ	BDZ
TV15C120K(B)-G	12.0	13.3	16.3	1	200	22.0	68.2	5	GED	BED
TV15C120J(B)-G	12.0	13.3	14.7	1	200	19.0	75.3	5	GEE	BEE
TV15C130K(B)-G	13.0	14.4	17.6	1	200	23.8	63.0	5	GEF	BEF
TV15C130J(B)-G	13.0	14.4	15.9	1	200	21.5	69.7	5	GDG	BEG
TV15C140K(B)-G	14.0	15.6	19.1	1	200	25.8	58.1	5	GEH	BEH
TV15C140J(B)-G	14.0	15.6	17.2	1	200	23.2	64.7	5	GEK	BEK
TV15C150K(B)-G	15.0	16.7	20.4	1	200	26.9	55.8	5	GEL	BEL
TV15C150J(B)-G	15.0	16.7	18.5	1	200	24.4	61.5	5	GEM	BEM
TV15C160K(B)-G	16.0	17.8	21.8	1	200	28.8	52.1	5	GEN	BEN
TV15C160J(B)-G	16.0	17.8	19.7	1	200	26.0	57.7	5	GEP	BEP
TV15C170K(B)-G	17.0	18.9	23.1	1	200	30.0	49.2	5	GEQ	BEQ
TV15C170J(B)-G	17.0	18.9	20.9	1	200	27.6	53.3	5	GER	BER
TV15C180K(B)-G	18.0	20.0	24.4	1	200	32.2	46.6	5	GES	BES
TV15C180J(B)-G	18.0	20.0	22.1	1	200	29.2	51.4	5	GET	BET
TV15C200K(B)-G	20.0	22.2	27.1	1	200	35.8	41.9	5	GEU	BEU
TV15C200J(B)-G	20.0	22.2	24.5	1	200	32.4	46.3	5	GEV	BEV
TV15C220K(B)-G	22.0	24.4	29.8	1	200	39.4	38.1	5	GEW	BEW
TV15C220J(B)-G	22.0	24.4	26.9	1	200	35.5	42.2	5	GEX	BEX
TV15C240K(B)-G	24.0	26.7	32.6	1	200	43.0	34.9	5	GEY	BEY
TV15C240J(B)-G	24.0	26.7	29.5	1	200	38.9	38.6	5	GEZ	BEZ
TV15C260K(B)-G	26.0	28.9	35.3	1	200	46.6	32.2	5	GFD	BFD
TV15C260J(B)-G	26.0	28.9	31.9	1	200	42.1	35.6	5	GFE	BFE
TV15C280K(B)-G	28.0	31.1	38.0	1	200	50.0	30.0	5	GFF	BFF
TV15C280J(B)-G	28.0	31.1	34.4	1	200	45.4	33.0	5	GFG	BFG
TV15C300K(B)-G	30.0	33.3	40.7	1	200	43.5	28.0	5	GFH	BFH
TV15C300J(B)-G	30.0	33.3	36.8	1	200	48.4	31.0	5	GFK	BFK
TV15C330K(B)-G	33.0	36.7	44.9	1	200	59.0	25.2	5	GFL	BFL
TV15C330J(B)-G	33.0	36.7	40.6	1	200	53.3	28.1	5	GFM	BFM

Rev. A

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	VRWM	VBR Min	VBR Max	IT	IFSM	MAX VC	IR@VRWM	Marking Code		
	(V)	(V)	(V)	(mA)	(A)@8.3ms	(V)	IPP(A)	(uA)	UNI	BI
TV15C360K(B)-G	36.0	40.0	48.9	1	200	64.3	23.3	5	GFN	BFN
TV15C360J(B)-G	36.0	40.0	44.2	1	200	58.1	25.8	5	GFP	BFP
TV15C400K(B)-G	40.0	44.4	54.3	1	200	71.4	21.0	5	GFQ	BFQ
TV15C400J(B)-G	40.0	44.4	49.1	1	200	64.5	23.2	5	GFR	BFR
TV15C430K(B)-G	43.0	47.8	58.4	1	200	76.7	19.6	5	GFS	BFS
TV15C430J(B)-G	43.0	47.8	52.8	1	200	69.4	21.6	5	GFT	BFT
TV15C450K(B)-G	45.0	50.0	61.1	1	200	80.3	18.7	5	GFU	BFU
TV15C450J(B)-G	45.0	50.0	55.3	1	200	72.7	20.6	5	GFV	BFV
TV15C480K(B)-G	48.0	53.3	65.1	1	200	76.7	17.5	5	GFW	BFW
TV15C480J(B)-G	48.0	53.3	58.9	1	200	77.4	19.4	5	GFX	BFX
TV15C510K(B)-G	51.0	56.7	69.3	1	200	80.3	18.7	5	GFY	BFY
TV15C510J(B)-G	51.0	56.7	62.7	1	200	72.7	20.6	5	GFZ	BFZ
TV15C540K(B)-G	54.0	60.0	73.3	1	200	85.5	15.6	5	GGD	BGD
TV15C540J(B)-G	54.0	60.0	66.3	1	200	77.4	17.2	5	GGE	BGE
TV15C580K(B)-G	58.0	64.4	78.7	1	200	91.1	14.6	5	GGF	BGF
TV15C580J(B)-G	58.0	64.4	71.2	1	200	82.4	16.0	5	GGG	BGG
TV15C600K(B)-G	60.0	66.7	81.5	1	200	96.3	14.0	5	GGH	BGH
TV15C600J(B)-G	60.0	66.7	73.7	1	200	87.1	15.5	5	GGK	BGK
TV15C640K(B)-G	64.0	71.1	86.9	1	200	103.0	13.2	5	GGL	BGL
TV15C640J(B)-G	64.0	71.1	78.6	1	200	93.6	14.6	5	GGM	BGM
TV15C700K(B)-G	70.0	77.8	95.1	1	200	107.0	12.0	5	GGN	BGN
TV15C700J(B)-G	70.0	77.8	86.0	1	200	96.8	13.3	5	GGP	BGP
TV15C750K(B)-G	75.0	83.7	102.0	1	200	114.0	11.2	5	GGQ	BGQ
TV15C750J(B)-G	75.0	83.7	92.1	1	200	103.0	12.4	5	GGR	BGR
TV15C780K(B)-G	78.0	86.7	106.0	1	200	139.0	10.8	5	GGS	BGS
TV15C780J(B)-G	78.0	86.7	95.8	1	200	126.0	11.4	5	GGT	BGT
TV15C850K(B)-G	85.0	94.4	115.0	1	200	151.0	9.9	5	GGU	BGU
TV15C850J(B)-G	85.0	94.4	104.0	1	200	137.0	10.4	5	GGV	BGV
TV15C900K(B)-G	90.0	100	122.0	1	200	160.0	9.4	5	GGW	BGW
TV15C900J(B)-G	90.0	100	111.0	1	200	146.0	10.3	5	GGX	BGX
TV15C101K(B)-G	100	111	136.0	1	200	179.0	8.4	5	GGY	BGY
TV15C101J(B)-G	100	111	123.0	1	200	162.0	9.3	5	GGZ	BGZ
TV15C111K(B)-G	110	122	149.0	1	200	196.0	7.7	5	GHD	BHD
TV15C111J(B)-G	110	122	135.0	1	200	177.0	8.4	5	GHE	BHE
TV15C121K(B)-G	120	133	163.0	1	200	214.0	7.0	5	GHF	BHF
TV15C121J(B)-G	120	133	147.0	1	200	193.0	7.9	5	GHG	BHG
TV15C131K(B)-G	130	144	176.0	1	200	231.0	6.5	5	GHH	BHH
TV15C131J(B)-G	130	144	159.0	1	200	209.0	7.2	5	GHK	BHK
TV15C151K(B)-G	150	167	204.0	1	200	268.0	5.6	5	GHL	BHL
TV15C151J(B)-G	150	167	185.0	1	200	243.0	6.2	5	GHM	BHM
TV15C161K(B)-G	160	178	218.0	1	200	287.0	5.2	5	GHN	BHN
TV15C161J(B)-G	160	178	197.0	1	200	259.0	5.8	5	GHP	BHP
TV15C171K(B)-G	170	189	231.0	1	200	304.0	4.9	5	GHQ	BHQ
TV15C171J(B)-G	170	189	209.0	1	200	275.0	5.5	5	GHR	BHR

Notes:

1. Suffix K denotes 10% tolerance devices, suffix J denotes 5% tolerance devices.
2. Suffix B after part number to specify bi-directional devices.
3. For bi-directional devices having V<sub>R</sub> of 10 volts and under, the I<sub>R</sub> limits is double.