

# SMD Transient Voltage Suppressor

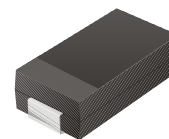


## TV30C5V0-G Thru. TV30C171-G

Working Peak Reverse Voltage: 5.0 to 170 Volts

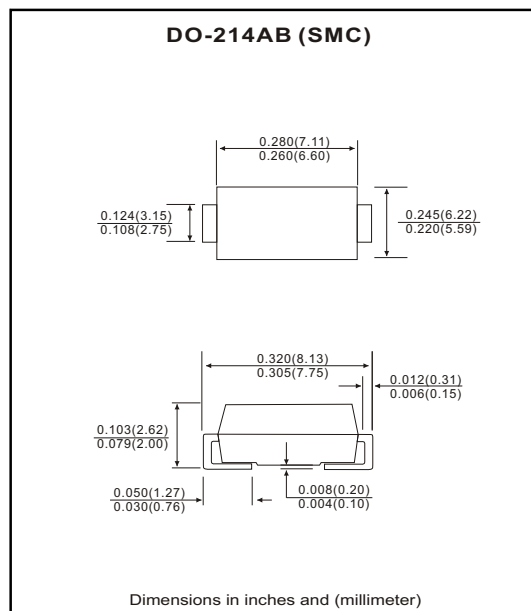
Power Dissipation: 3000 Watts

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 1µA above 10V.
- Fast response time: typically less than 1nS for uni-direction, less than 5nS for bi-direction, from 0V to BV min.
- Use in sensitive electronic protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, automotive and telecommunication.



### Mechanical data

- Case: JEDEC DO-214AB, molded plastic.
- Terminals: solderable per MIL-STD-750, method 2026.
- Polarity: Color band denotes cathode end.
- Approx. weight: 0.21 grams

### Maximum Ratings and Electrical Characteristics

Ratings 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 on 10/1000µS waveform (Note 1, Fig. 1)	P <sub>PPM</sub>	3000	Watts
Peak pulse current on 10/1000µS 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	Watts
Peak forward surge current, 8.3mS single half sine-wave superimposed on rated load, uni-directional only (Note 3)	I <sub>FSM</sub>	250	A
Maximum instantaneous forward voltage at 25.0A for uni-directional only (Note 3)	V <sub>F</sub>	3.5/5.0	V
Maximum operating junction temperature	T <sub>J</sub>	150	°C
Storage temperature range	T <sub>STG</sub>	-55 to +150	°C

Notes:

1. Non-repetitive current pulse, per Fig. 3 and derated above T<sub>A</sub>=25°C, per Fig. 2.
2. Mounted on 8.0x8.0mm<sup>2</sup> copper pads to each terminal.
3. Measured on 8.3mS single half sine-wave or equivalent square wave, duty cycle=4 pulses maximum per minute.

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## RATING AND CHARACTERISTIC CURVES (TV30C5V0-G thru TV30C171-G)

Fig.1 Reverse Characteristics

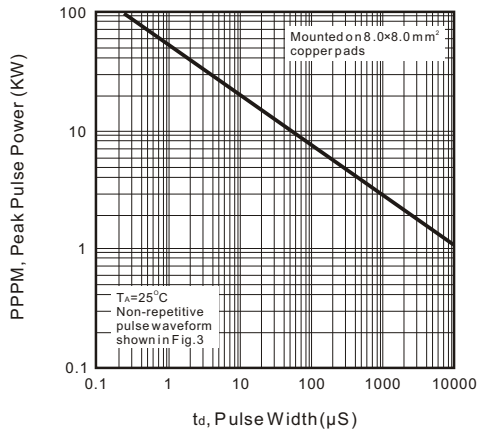


Fig.2 Pulse Derating Curve

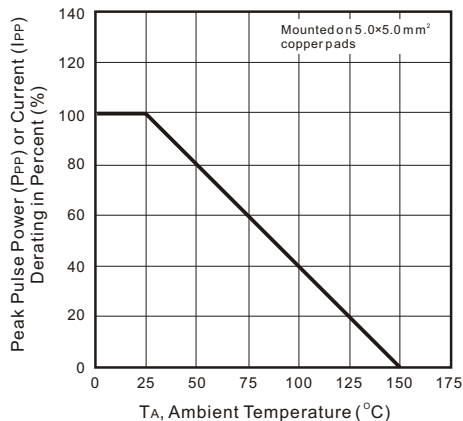


Fig.3 Pulse Waveform

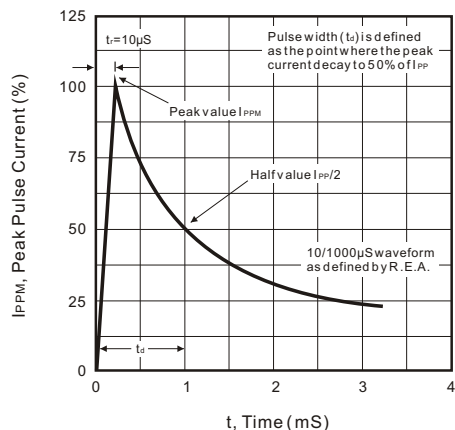


Fig.4 Typical Junction Capacitance

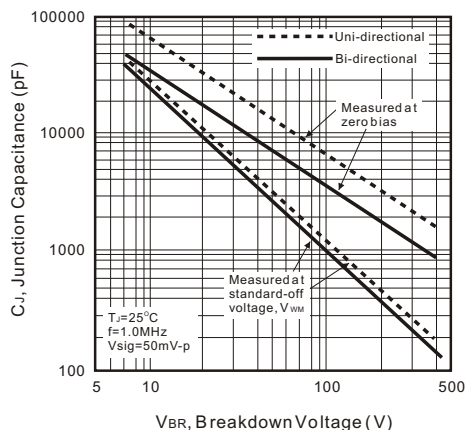


Fig.5 Steady State Power Derating Curve

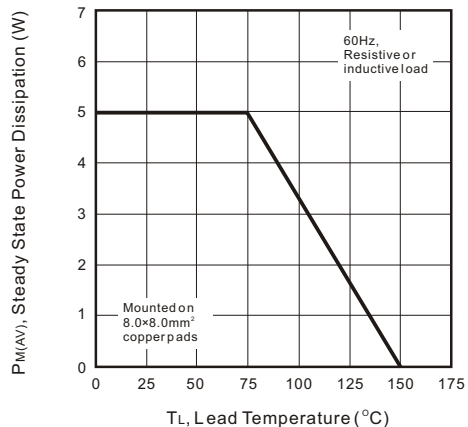
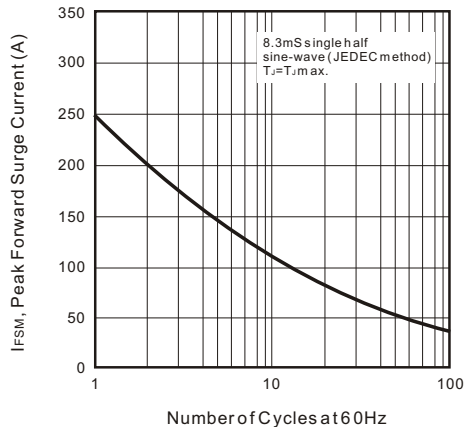


Fig.6 Max. Non-repetitive Forward Surge Current (Uni-directional only)



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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
TV30C5V0K(B)-G	5.00	6.40	7.30	10	250	9.6	312.5	1000	HDD	IDD
TV30C5V0J(B)-G	5.00	6.40	7.00	10	250	9.2	326.1	1000	HDE	IDE
TV30C6V0K(B)-G	6.00	6.67	8.15	10	250	11.4	263.2	1000	HDF	IDF
TV30C6V0J(B)-G	6.00	6.67	7.37	10	250	10.3	291.3	1000	HDG	IDG
TV30C6V5K(B)-G	6.50	7.22	8.82	10	250	12.3	243.9	500	HDH	IDH
TV30C6V5J(B)-G	6.50	7.22	7.98	10	250	11.2	267.9	500	HDK	IDK
TV30C7V0K(B)-G	7.00	7.78	9.51	10	250	13.3	225.6	200	HDL	IDL
TV30C7V0J(B)-G	7.00	7.78	8.60	10	250	12.0	250.0	200	HDM	IDM
TV30C7V5K(B)-G	7.50	8.33	10.30	1	250	14.3	209.8	100	HDN	IDN
TV30C7V5J(B)-G	7.50	8.33	9.21	1	250	12.9	232.6	100	HDP	IDP
TV30C8V0K(B)-G	8.00	8.89	10.90	1	250	15.0	200.0	50	HDQ	IDQ
TV30C8V0J(B)-G	8.00	8.89	9.83	1	250	13.6	220.6	50	HDR	IDR
TV30C8V5K(B)-G	8.55	9.44	11.50	1	250	15.9	188.7	20	HDS	IDS
TV30C8V5J(B)-G	8.55	9.44	10.40	1	250	14.4	208.3	20	HDT	IDT
TV30C9V0K(B)-G	9.00	10.0	12.20	1	250	16.9	177.5	10	HDU	IDU
TV30C9V0J(B)-G	9.00	10.0	11.10	1	250	15.4	194.8	10	HDV	IDV
TV30C100K(B)-G	10.0	11.1	13.60	1	250	18.8	159.6	5	HDW	IDW
TV30C100J(B)-G	10.0	11.1	12.30	1	250	17.0	176.5	5	HDX	IDX
TV30C110K(B)-G	11.0	12.2	14.90	1	250	20.1	149.3	5	HDY	IDY
TV30C110J(B)-G	11.0	12.2	13.50	1	250	18.2	164.8	5	HDZ	IDZ
TV30C120K(B)-G	12.0	13.3	16.30	1	250	19.9	136.4	5	HED	IED
TV30C120J(B)-G	12.0	13.3	14.70	1	250	19.9	150.8	5	HEE	IEE
TV30C130K(B)-G	13.0	14.4	17.60	1	250	23.8	126.1	5	HEF	IEF
TV30C130J(B)-G	13.0	14.4	15.90	1	250	21.5	139.5	5	HEG	IEG
TV30C140K(B)-G	14.0	15.6	19.10	1	250	25.8	116.3	5	HEH	IEH
TV30C140J(B)-G	14.0	15.6	17.20	1	250	23.2	129.3	5	HEK	IEK
TV30C150K(B)-G	15.0	16.7	20.40	1	250	26.9	111.5	5	HEL	IEL
TV30C150J(B)-G	15.0	16.7	18.50	1	250	24.4	123.0	5	HEM	IEM
TV30C160K(B)-G	16.0	17.8	21.80	1	250	28.8	104.2	5	HEN	IEN
TV30C160J(B)-G	16.0	17.8	19.70	1	250	26.0	115.4	5	HEP	IEP
TV30C170K(B)-G	17.0	18.9	23.10	1	250	30.5	98.4	5	HEQ	IEQ
TV30C170J(B)-G	17.0	18.9	20.90	1	250	27.6	108.7	5	HER	IER
TV30C180K(B)-G	18.0	20.0	24.40	1	250	32.2	93.2	5	HES	IES
TV30C180J(B)-G	18.0	20.0	22.10	1	250	29.2	102.7	5	HET	IET
TV30C200K(B)-G	20.0	22.2	27.10	1	250	35.8	83.8	5	HDU	IEU
TV30C200J(B)-G	20.0	22.2	24.50	1	250	32.4	92.6	5	HEV	IEV
TV30C220K(B)-G	22.0	24.4	29.80	1	250	39.4	76.1	5	HEW	IEW
TV30C220J(B)-G	22.0	24.4	26.90	1	250	35.5	84.5	5	HEX	IEX
TV30C240K(B)-G	24.0	26.7	32.60	1	250	43.0	69.8	5	HEY	IEY
TV30C240J(B)-G	24.0	26.7	29.50	1	250	38.9	77.1	5	HEZ	IEZ
TV30C260K(B)-G	26.0	28.9	35.30	1	250	46.6	64.4	5	HFD	IFD
TV30C260J(B)-G	26.0	28.9	31.90	1	250	42.1	71.3	5	HFE	IFE
TV30C280K(B)-G	28.0	31.1	38.00	1	250	50.0	60.0	5	HFF	IFF
TV30C280J(B)-G	28.0	31.1	34.40	1	250	45.4	66.1	5	HFG	IFG
TV30C300K(B)-G	30.0	33.3	40.70	1	250	53.5	56.1	5	HFH	IFH
TV30C300J(B)-G	30.0	33.3	36.80	1	250	48.4	62.0	5	HFK	IFK
TV30C330K(B)-G	33.0	36.7	44.90	1	250	59.0	50.8	5	HFL	IFL
TV30C330J(B)-G	33.0	36.7	40.60	1	250	53.3	56.3	5	HFM	IFM

REV:B

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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
TV30C360K(B)-G	36.0	40.0	48.9	1	250	64.3	46.7	5	HFN	IFN
TV30C360J(B)-G	36.0	40.0	44.2	1	250	58.1	51.6	5	HFP	IFP
TV30C400K(B)-G	40.0	44.4	54.3	1	250	71.4	42.0	5	HFQ	IFQ
TV30C400J(B)-G	40.0	44.4	49.1	1	250	64.5	46.5	5	HFR	IFR
TV30C430K(B)-G	43.0	47.8	58.4	1	250	76.7	39.1	5	HFS	IFS
TV30C430J(B)-G	43.0	47.8	52.8	1	250	69.4	43.2	5	HFT	IFT
TV30C450K(B)-G	45.0	50.0	61.1	1	250	80.3	37.4	5	HFU	IFU
TV30C450J(B)-G	45.0	50.0	55.3	1	250	72.7	41.3	5	HFV	IFV
TV30C480K(B)-G	48.0	53.3	65.1	1	250	85.5	35.1	5	HFV	IFV
TV30C480J(B)-G	48.0	53.3	58.9	1	250	77.4	38.8	5	HFX	IFX
TV30C510K(B)-G	51.0	56.7	69.3	1	250	91.1	32.9	5	HFY	IFY
TV30C510J(B)-G	51.0	56.7	62.7	1	250	82.4	36.4	5	HFZ	IFZ
TV30C540K(B)-G	54.0	60.0	73.3	1	250	96.3	31.2	5	GGD	IGD
TV30C540J(B)-G	54.0	60.0	66.3	1	250	87.1	34.4	5	GGE	IGE
TV30C580K(B)-G	58.0	64.4	78.7	1	250	103	29.1	5	GGF	IGF
TV30C580J(B)-G	58.0	64.4	71.2	1	250	93.6	32.1	5	HGG	IGG
TV30C600K(B)-G	60.0	66.7	81.5	1	250	107	28.0	5	HGH	IGH
TV30C600J(B)-G	60.0	66.7	73.7	1	250	96.8	31.0	5	HGK	IGK
TV30C640K(B)-G	64.0	71.1	86.4	1	250	114	26.3	5	HGL	IGL
TV30C640J(B)-G	64.0	71.1	78.6	1	250	103	29.1	5	HGM	IGM
TV30C700K(B)-G	70.0	77.8	95.1	1	250	125	24.0	5	HGN	IGN
TV30C700J(B)-G	70.0	77.8	86.0	1	250	113	26.5	5	HGP	IGP
TV30C750K(B)-G	75.0	83.3	102.0	1	250	134	22.4	5	HGQ	IGQ
TV30C750J(B)-G	75.0	83.3	92.1	1	250	121	24.8	5	HGR	IGR
TV30C780K(B)-G	78.0	86.7	106.0	1	250	139	21.6	5	HGS	IGS
TV30C780J(B)-G	78.0	86.7	95.8	1	250	126	23.8	5	HGT	IGT
TV30C850K(B)-G	85.0	94.4	115.0	1	250	151	19.9	5	HGU	IGU
TV30C850J(B)-G	85.0	94.4	104.0	1	250	137	21.9	5	HGV	IGV
TV30C900K(B)-G	90.0	100	122.0	1	250	160	18.8	5	HGW	IGW
TV30C900J(B)-G	90.0	100	111.0	1	250	146	20.5	5	HGX	IGX
TV30C101K(B)-G	100	111	136.0	1	250	179	16.8	5	HGY	IGY
TV30C101J(B)-G	100	111	123.0	1	250	162	18.5	5	HGZ	IGZ
TV30C111K(B)-G	110	122	149.0	1	250	196	15.3	5	HHD	IHD
TV30C111J(B)-G	110	122	135.0	1	250	177	16.9	5	HHE	IHE
TV30C121K(B)-G	120	133	163.0	1	250	214	14.0	5	HHF	IHF
TV30C121J(B)-G	120	133	147.0	1	250	193	15.5	5	HHG	IHG
TV30C131K(B)-G	130	144	176.0	1	250	231	13.0	5	HHH	IHH
TV30C131J(B)-G	130	144	159.0	1	250	209	14.4	5	HHK	IHK
TV30C151K(B)-G	150	167	204.0	1	250	268	11.2	5	HHL	IHL
TV30C151J(B)-G	150	167	185.0	1	250	243	12.3	5	HHM	IHM
TV30C161K(B)-G	160	178	218.0	1	250	287	10.5	5	HHN	IHN
TV30C161J(B)-G	160	178	197.0	1	250	259	11.6	5	HHP	IHP
TV30C171K(B)-G	170	189	231.0	1	250	304	9.9	5	HHQ	IHQ
TV30C171J(B)-G	170	189	209.0	1	250	275	10.9	5	HHR	IHR

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>RO</sub> of 10 volts and under, the I<sub>R</sub> limit is double.