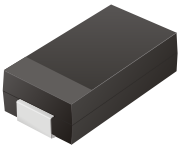
SMD Transient Voltage Suppressor

COMCHIP
www.comchip.com.tw

TV15C5V0 Thru TV15C171

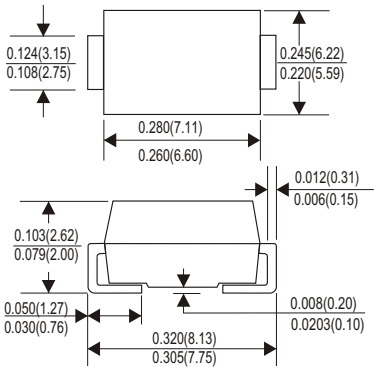
Working Peak Reverse Voltage: 5.0 - 170 Volts
Power Dissipation: 1500 Watts



Features

- Ideal for surface mount applications
- Easy pick and place
- Plastic package has Underwriters Lab. flammability classification 94V-0
- Typical IR less than 1uA above 10V
- Fast reponse time: typically less 1nS for uni-direction, less than 5nS for bi-directiona, from 0 V to BV min.

SMC/DO-214AB



Dimensions in inches and (millimeter)

Mechanical data

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

Maximum Ratings and Electrical Characterics

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

Characteristics	Symbol	Value	Units
Peak Power Dissipation on 10/1000uS Waveform (Note 1, Fig. 1)	P_{PPM}	1500	Watts
Peak Pulse Current of on 10/1000uS Waveform (Note 1, Fig. 3)	I_{PPM}	See Table 1	A
Steady State Power Dissipation at T_L=75°C (Note 2)	$P_{M(AV)}$	5.0	Watts
Peak Forfard Surge Current, 8.3mS Single Half Sine-Wave Superimposed on Rated Load, Uni-Directional Only (Note 3)	I_{FSM}	200	A
Maxinum Instantaneous Forward Voltage at 100A for Uni-Directional only (Note 3 & 4)	VF	3.5/5.0	Volts
Operation Junction Temperature Range	Tj	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Note: 1. Non-Repetitive Current Pulse, per Fig. 3 and Derated above TA=25°C, per Fig. 2.
2. Mounted on 8.0x8.0 mm^2. Copper Pads to Each Terminal.
3. Measured on 8.3 mS Single Half Sine-Wave or Equivalent Square Wave, Duty Cycle=4 Pulse per Minute Maximum.
4. VF=3.5V on TV15C5V0 thru TV15C900 Devices and VF=5.0V on TV15C101 thru TV15C171.

Rating and Characteristic Curves (TV15C5V0 Thru TV15C171)

Fig. 1 - Reverse Characteristics

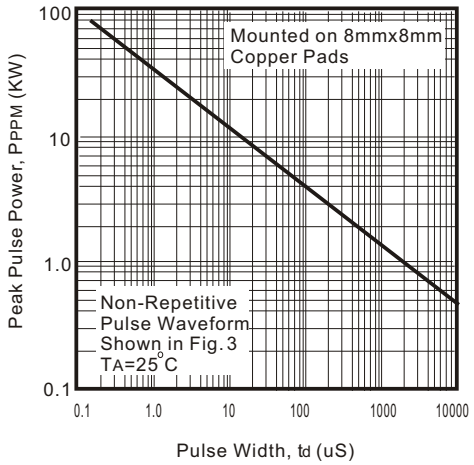


Fig. 2 - Pulse Derating Curve

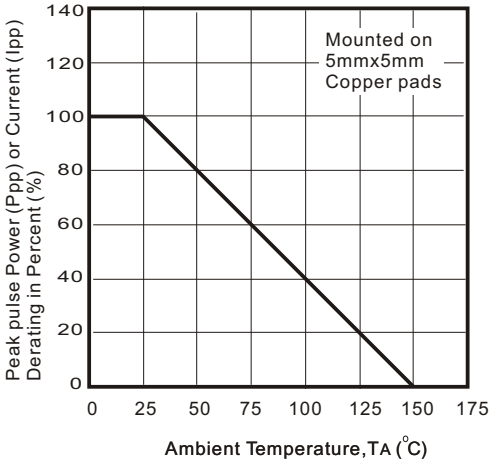


Fig. 3 - Pulse Waveform

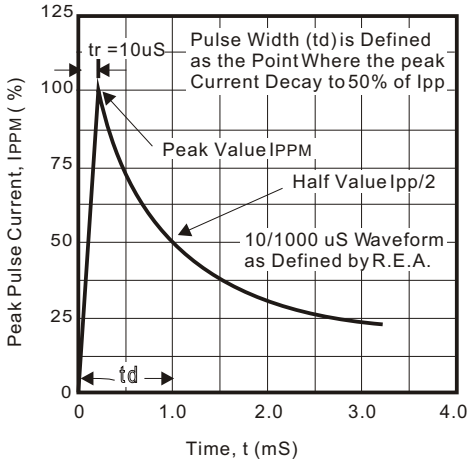


Fig. 4 - Typical Junction Capacitance for Uni-Directional Devices

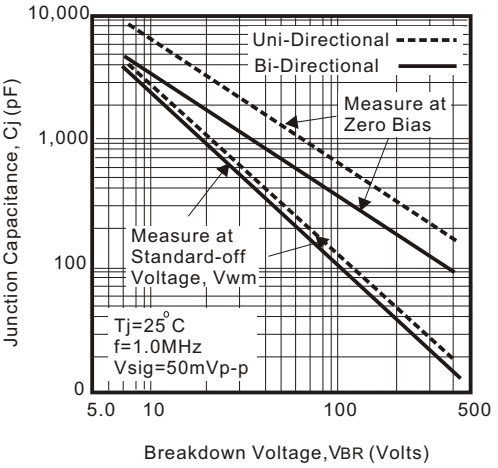


Fig. 5 - Steady State Power Derating Curve

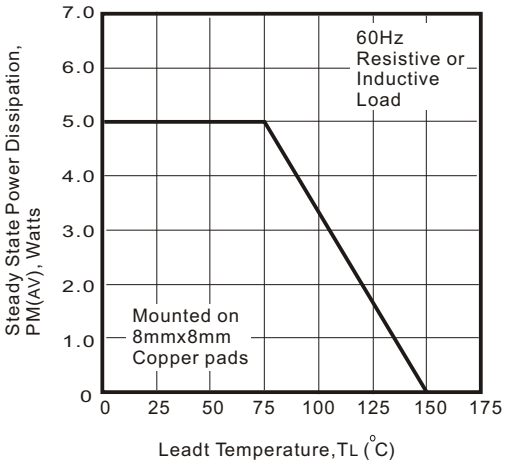


Fig. 6 - Maxinum Non-Repetitive Peak Forward Surge Current (Uni-Directional Only)

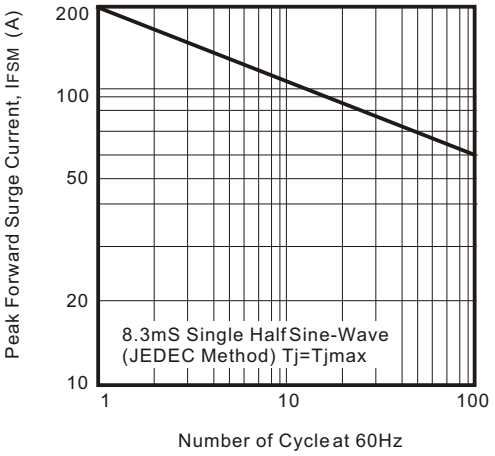


Table 1. Specification

Part No.	Absolute Maximum Rating (Ta=25°C)					Electrical Characteristics (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)	5.00	6.40	7.55	10	100	9.6	156.2	800	GDD	BDD
TV15C5V0J(B)	5.00	6.40	7.25	10	100	9.2	163.0	800	GDE	BDE
TV15C6V0K(B)	6.00	6.67	8.45	10	100	11.4	131.6	800	GDF	BDF
TV15C6V0J(B)	6.00	6.67	7.67	10	100	10.3	145.6	800	GDG	BDG
TV15C6V5K(B)	6.50	7.22	9.14	10	100	12.3	122.0	500	GDH	BDH
TV15C6V5J(B)	6.50	7.22	8.30	10	100	11.2	133.9	500	GDK	BDK
TV15C7V0K(B)	7.00	7.78	9.86	1	100	13.3	112.8	200	GDL	BDL
TV15C7V0J(B)	7.00	7.78	8.95	1	100	12.0	125.0	200	GDM	BDM
TV15C7V5K(B)	7.50	8.33	10.67	1	100	14.3	104.9	100	GDN	BDN
TV15C7V5J(B)	7.50	8.33	9.58	1	100	12.9	116.3	100	GDP	BDP
TV15C8V0K(B)	8.00	8.89	11.30	1	100	15.0	100.0	50	GDQ	BDQ
TV15C8V0J(B)	8.00	8.89	10.23	1	100	13.6	110.3	50	GDR	BDR
TV15C8V5K(B)	8.50	9.44	11.9	1	100	15.9	94.3	10	GDS	BDS
TV15C8V5J(B)	8.50	9.44	10.8	1	100	14.4	104.2	10	GDT	BDT
TV15C9V0K(B)	9.00	10.00	12.6	1	100	16.9	88.7	5	GDU	BDU
TV15C9V0J(B)	9.00	10.00	11.5	1	100	15.4	97.4	5	GDV	BDV
TV15C100K(B)	10.00	11.10	14.1	1	100	18.8	79.8	5	GDW	BDW
TV15C100J(B)	10.00	11.10	12.8	1	100	17.0	88.2	5	GDX	BDX
TV15C110K(B)	11.00	12.20	15.4	1	100	20.1	74.6	5	GDY	BDY
TV15C110J(B)	11.00	12.20	14.0	1	100	18.2	82.4	5	GDZ	BDZ
TV15C120K(B)	12.00	13.30	16.9	1	100	22.0	68.2	5	GED	BED
TV15C120J(B)	12.00	13.30	15.3	1	100	19.9	75.3	5	GEE	BEE
TV15C130K(B)	13.00	14.40	18.2	1	100	23.8	63.0	5	GEF	BEF
TV15C130J(B)	13.00	14.40	16.5	1	100	21.5	69.7	5	GEG	BEG
TV15C140K(B)	14.00	15.60	19.8	1	100	25.8	58.1	5	GEH	BEH
TV15C140J(B)	14.00	15.60	17.9	1	100	23.2	64.7	5	GEK	BEK
TV15C150K(B)	15.00	16.70	21.1	1	100	26.9	55.8	5	GEL	BEL
TV15C150J(B)	15.00	16.70	19.2	1	100	24.4	61.5	5	GEM	BEM
TV15C160K(B)	16.00	17.80	22.6	1	100	28.8	52.1	5	GEN	BEN
TV15C160J(B)	16.00	17.80	20.5	1	100	26.0	57.7	5	GEP	BEP
TV15C170K(B)	17.00	18.90	23.9	1	100	30.5	49.2	5	GEQ	BEQ
TV15C170J(B)	17.00	18.90	21.7	1	100	27.6	53.3	5	GER	BER
TV15C180K(B)	18.00	20.00	25.3	1	100	32.2	46.6	5	GES	BES
TV15C180J(B)	18.00	20.00	23.3	1	100	29.2	51.4	5	GET	BET
TV15C200K(B)	20.00	22.20	28.1	1	100	35.8	41.9	5	GEU	BEU
TV15C200J(B)	20.00	22.20	25.5	1	100	32.4	46.3	5	GEV	BEV
TV15C220K(B)	22.00	24.40	30.9	1	100	39.4	38.1	5	GEW	BEW
TV15C220J(B)	22.00	24.40	28.0	1	100	35.5	42.2	5	GEX	BEX
TV15C240K(B)	24.00	26.70	33.8	1	100	43.0	34.9	5	GEY	BEY
TV15C240J(B)	24.00	26.70	30.7	1	100	38.9	38.6	5	GEZ	BEZ
TV15C260K(B)	26.00	28.90	36.6	1	100	46.6	32.2	5	GFD	BFD
TV15C260J(B)	26.00	28.90	33.2	1	100	42.1	35.6	5	GFE	BFE
TV15C280K(B)	28.00	31.10	39.4	1	100	50.0	30.0	5	GFF	BFF
TV15C280J(B)	28.00	31.10	35.8	1	100	45.4	33.0	5	GFG	BFG
TV15C300K(B)	30.00	33.30	42.2	1	100	53.5	28.0	5	GFH	BFH
TV15C300J(B)	30.00	33.30	38.3	1	100	48.4	31.0	5	GFK	BFK
TV15C330K(B)	33.00	36.70	46.5	1	100	59.0	25.2	5	GFL	BFL
TV15C330J(B)	33.00	36.70	42.2	1	100	53.3	28.1	5	GFM	BFM
TV15C360K(B)	36.00	40.00	50.7	1	100	64.3	23.3	5	GFN	BFN
TV15C360J(B)	36.00	40.00	46.0	1	100	58.1	25.8	5	GFP	BFP
TV15C400K(B)	40.00	44.40	56.3	1	100	71.4	21.0	5	GFQ	BFQ
TV15C400J(B)	40.00	44.40	51.1	1	100	64.5	23.2	5	GFR	BFR
TV15C430K(B)	43.00	47.80	60.5	1	100	76.7	19.6	5	GFS	BFS
TV15C430J(B)	43.00	47.80	54.9	1	100	69.4	21.6	5	GFT	BFT
TV15C450K(B)	45.00	50.00	63.3	1	100	80.3	18.7	5	GFU	BFU
TV15C450J(B)	45.00	50.00	57.5	1	100	72.7	20.6	5	GFV	BFV

Part No.	Absolute Maximum Rating (Ta=25°C)					Electrical Characteristics (Ta=25°C)				
	V_{RWM}	V_{BR} Min	V_{BR} Max	I_T	I_{FSM}	Max Vc		I_R @V_{RWM}	Marking Code	
	(V)	(V)	(V)	(mA)	(A) @ 8.3mS	(V)	Ipp(A)	(uA)	UNI	BI
TV15C480K(B)	48.00	53.30	67.5	1	100	85.5	17.5	5	GFW	BFW
TV15C480J(B)	48.00	53.30	61.3	1	100	77.4	19.4	5	GFX	BFX
TV15C510K(B)	51.00	56.70	71.8	1	100	91.1	16.5	5	GFY	BFY
TV15C510J(B)	51.00	56.70	65.2	1	100	82.4	18.2	5	GFZ	BFZ
TV15C540K(B)	54.00	60.00	76.0	1	100	96.3	15.6	5	GGD	BGD
TV15C540J(B)	54.00	60.00	69.0	1	100	87.1	17.2	5	GGE	BGE
TV15C580K(B)	58.00	64.40	81.6	1	100	103.0	14.6	5	GGF	BGF
TV15C580J(B)	58.00	64.40	74.1	1	100	93.6	16.0	5	GGG	BGG
TV15C600K(B)	60.00	66.70	84.5	1	100	107.0	14.0	5	GGH	BGH
TV15C600J(B)	60.00	66.70	76.7	1	100	96.8	15.5	5	GGK	BGK
TV15C640K(B)	64.00	71.10	90.1	1	100	114.0	13.2	5	GGL	BGL
TV15C640J(B)	64.00	71.10	81.8	1	100	103.0	14.6	5	GGM	BGM
TV15C700K(B)	70.00	77.80	98.6	1	100	125.0	12.0	5	GGN	BGN
TV15C700J(B)	70.00	77.80	89.5	1	100	113.0	13.3	5	GGP	BGP
TV15C750K(B)	75.00	83.30	105.7	1	100	134.0	11.2	5	GGQ	BGQ
TV15C750J(B)	75.00	83.30	95.8	1	100	121.0	12.4	5	GGR	BGR
TV15C780K(B)	78.00	86.70	109.8	1	100	139.0	10.8	5	GGS	BGS
TV15C780J(B)	78.00	86.70	99.7	1	100	126.0	11.4	5	GGT	BGT
TV15C850K(B)	85.00	94.40	119.2	1	100	151.0	9.9	5	GGU	BGU
TV15C850J(B)	85.00	94.40	108.2	1	100	137.0	10.4	5	GGV	BGV
TV15C900K(B)	90.00	100.00	126.5	1	100	160.0	9.4	5	GGW	BGW
TV15C900J(B)	90.00	100.00	115.5	1	100	146.0	10.3	5	GGX	BGX
TV15C101K(B)	100.00	111.00	141.0	1	100	179.0	8.4	5	GGY	BGY
TV15C101J(B)	100.00	111.00	128.0	1	100	162.0	9.3	5	GGZ	BGZ
TV15C111K(B)	110.00	122.00	154.5	1	100	196.0	7.7	5	GHD	BHD
TV15C111J(B)	110.00	122.00	140.5	1	100	177.0	8.4	5	GHE	BHE
TV15C121K(B)	120.00	133.00	169.0	1	100	214.0	7.0	5	GHF	BHF
TV15C121J(B)	120.00	133.00	153.0	1	100	193.0	7.9	5	GHG	BHG
TV15C131K(B)	130.00	144.00	182.5	1	100	231.0	6.5	5	GHH	BHH
TV15C131J(B)	130.00	144.00	165.5	1	100	209.0	7.2	5	GHK	BHK
TV15C151K(B)	150.00	167.00	211.5	1	100	268.0	5.6	5	GHL	BHL
TV15C151J(B)	150.00	167.00	192.5	1	100	243.0	6.2	5	GHM	BHM
TV15C161K(B)	160.00	178.00	226.0	1	100	287.0	5.2	5	GHN	BHN
TV15C161J(B)	160.00	178.00	205.0	1	100	259.0	5.8	5	GHP	BHP
TV15C171K(B)	170.00	189.00	239.5	1	100	304.0	4.9	5	GHQ	BHQ
TV15C171J(B)	170.00	189.00	217.5	1	100	275.0	5.5	5	GHR	BHR

Note:

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 VR of 10 volts and under, the IR limit is double.