

SMD Transient Voltage Suppressor



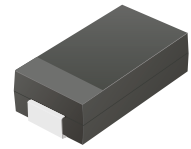
SMD Diodes Specialist

TV30C5V0-G Thru. TV30C441-G

Working Peak Reverse Voltage: 5.0 to 440 Volts

Power Dissipation: 3000 Watts

RoHS Device

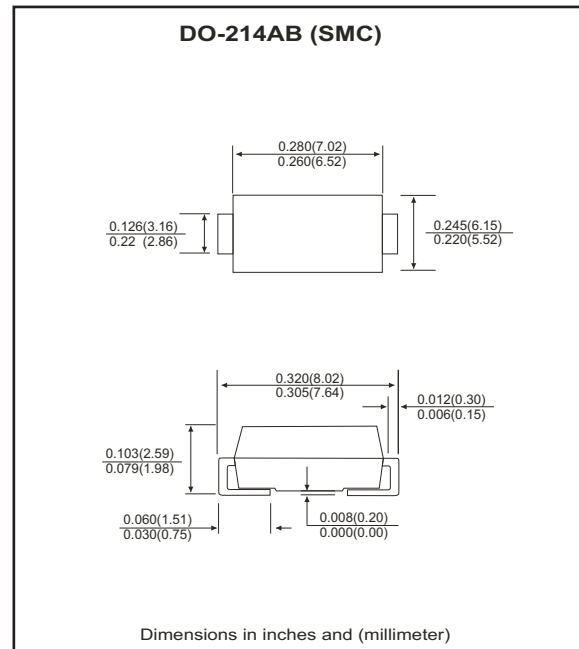


Features

- Ideally for surface mount applications.
- Easy pick and place.
- Plastic package has Underwriters Lab. flammability classification 94V-0.
- Typical IR less than 1 μ A 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 10/1000 μ S waveform (Note 1)	P _{PP}	3000	W
Peak pulse current on 10/1000 μ S waveform (Note 1)	I _{PP}	See Next Table	A
Steady state power dissipation at T _L =75 °C	P _D	6.0	W
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, uni-directional only (Note 3)	I _{FSM}	300	A
Maximum instantaneous forward voltage at 100.0A for uni-directional only (Note 3)	V _F	3.5/5.0	V
Maximum operating junction temperature	T _J	150	°C
Storage temperature range	T _{STG}	-55 to +150	°C

Notes:

1. Non-repetitive current pulse, per Fig. 5 and derated above T_A=25 °C, per Fig. 1
2. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.
3. V_F<3.5V for devices of V_{BR}<200V and V_F<5.0V for devices of V_{BR}>201V

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RATING AND CHARACTERISTIC CURVES (TV30C5V0-G Thru. TV30C441-G)

Fig.1 Pulse Derating Curve

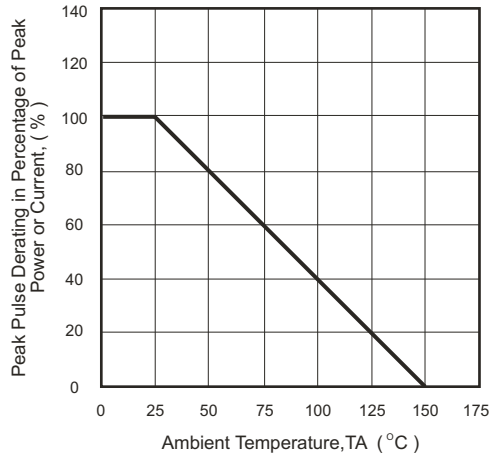


Fig.2 Max. Non-Repetitive Surge Current

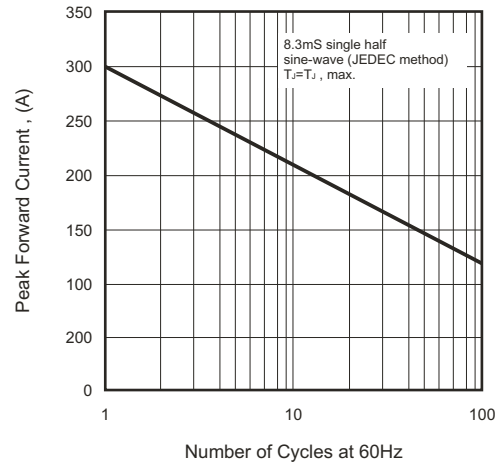


Fig.3 Steady State Power Derating Curve

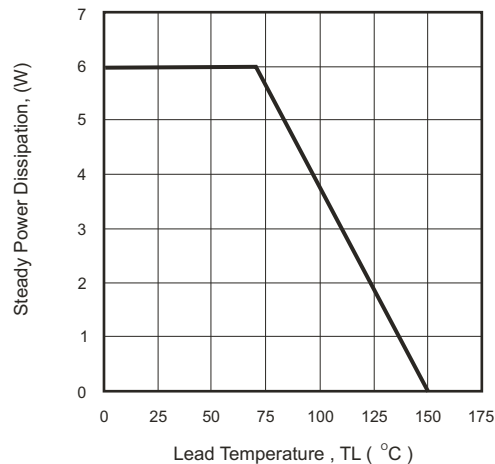


Fig.4 Peak Pulse Power Rating Curve

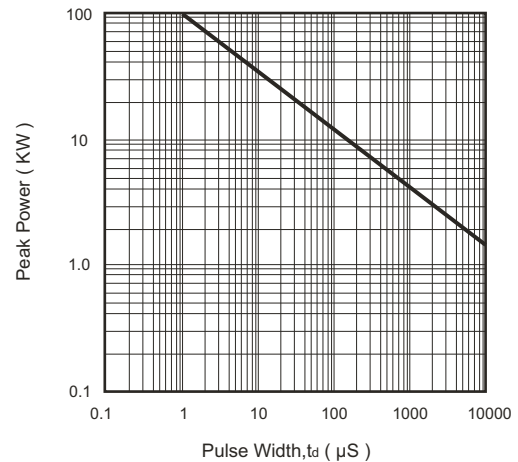


Fig.5 Pulse Waveform

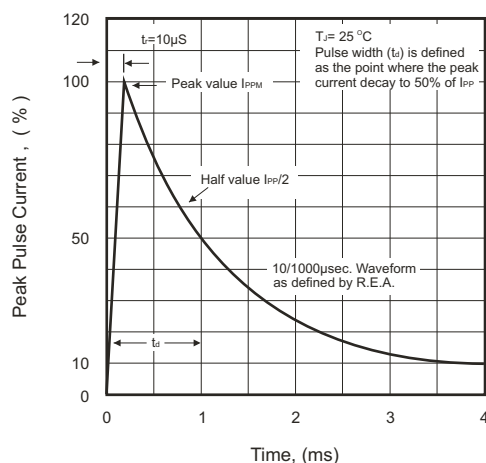
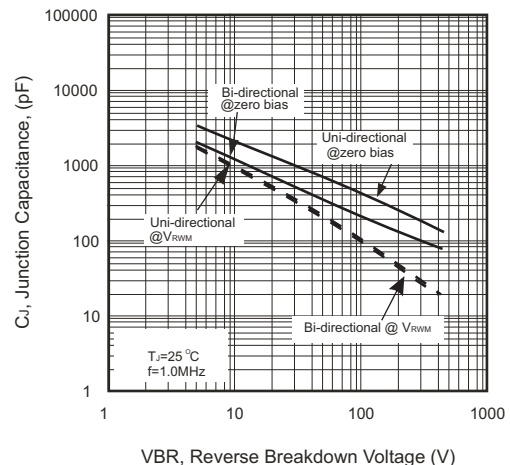


Fig.6 Typical Junction Capacitance



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Part No	Absolute Maximum Rating (Ta= 25 °C)					Electrical Characteristic (Ta= 25 °C)				
	V _{RWM}	V _{BR} Min.	V _{BR} Max.	I _T	I _{FSM}	Max. V _C		I _R @V _{RWM}	Marking Code	
	(V)	(V)	(V)	(mA)	(A)@8.3mS	(V)	I _{PP} (A)	(uA)	Uni	Bi
TV30C5V0K(B)-G	5.0	6.40	7.30	10	300	9.6	312.50	1000	HDD	IDD
TV30C5V0J(B)-G	5.0	6.40	7.00	10	300	9.2	326.09	1000	HDE	IDE
TV30C6V0K(B)-G	6.0	6.67	8.15	10	300	11.4	263.16	1000	HDF	IDF
TV30C6V0J(B)-G	6.0	6.67	7.37	10	300	10.3	291.26	1000	HDG	IDG
TV30C6V5K(B)-G	6.5	7.22	8.82	10	300	12.3	243.90	500	HDH	IDH
TV30C6V5J(B)-G	6.5	7.22	7.98	10	300	11.2	267.86	500	HDK	IDK
TV30C7V0K(B)-G	7.0	7.78	9.51	10	300	13.3	225.56	200	HDL	IDL
TV30C7V0J(B)-G	7.0	7.78	8.60	10	300	12.0	250.00	200	HDM	IDM
TV30C7V5K(B)-G	7.5	8.33	10.20	1	300	14.3	209.79	100	HDN	IDN
TV30C7V5J(B)-G	7.5	8.33	9.21	1	300	12.9	232.56	100	HDP	IDP
TV30C8V0K(B)-G	8.0	8.89	10.90	1	300	15.0	200.00	50	HDQ	IDQ
TV30C8V0J(B)-G	8.0	8.89	9.83	1	300	13.6	220.59	50	HDR	IDR
TV30C8V5K(B)-G	8.5	9.44	11.50	1	300	15.9	188.68	25	HDS	IDS
TV30C8V5J(B)-G	8.5	9.44	10.40	1	300	14.4	208.33	25	HDT	IDT
TV30C9V0K(B)-G	9.0	10.00	12.20	1	300	16.9	177.51	10	HDU	IDU
TV30C9V0J(B)-G	9.0	10.00	11.10	1	300	15.4	194.81	10	HDV	IDV
TV30C100K(B)-G	10.0	11.10	13.60	1	300	18.8	159.57	5	HDW	IDW
TV30C100J(B)-G	10.0	11.10	12.30	1	300	17.0	176.47	5	HDX	IDX
TV30C110K(B)-G	11.0	12.20	14.90	1	300	20.1	149.25	5	HDY	IDY
TV30C110J(B)-G	11.0	12.20	13.50	1	300	18.2	164.84	5	HDZ	IDZ
TV30C120K(B)-G	12.0	13.30	16.30	1	300	22.0	136.36	5	HED	IED
TV30C120J(B)-G	12.0	13.30	14.70	1	300	19.9	150.75	5	HEE	IEE
TV30C130K(B)-G	13.0	14.40	17.60	1	300	23.8	126.05	5	HEF	IEF
TV30C130J(B)-G	13.0	14.40	15.90	1	300	21.5	139.53	5	HEG	IEG
TV30C140K(B)-G	14.0	15.60	19.10	1	300	25.8	116.28	5	HEH	IEH
TV30C140J(B)-G	14.0	15.60	17.20	1	300	23.2	129.31	5	HEK	IEK
TV30C150K(B)-G	15.0	16.70	20.40	1	300	26.9	111.52	5	HEL	IEL
TV30C150J(B)-G	15.0	16.70	18.50	1	300	24.4	122.95	5	HEM	IEM
TV30C160K(B)-G	16.0	17.80	21.80	1	300	28.8	104.17	5	HEN	IEN
TV30C160J(B)-G	16.0	17.80	19.70	1	300	26.0	115.38	5	HEP	IEP
TV30C170K(B)-G	17.0	18.90	23.10	1	300	30.5	98.36	5	HEQ	IEQ
TV30C170J(B)-G	17.0	18.90	20.90	1	300	27.6	108.70	5	HER	IER
TV30C180K(B)-G	18.0	20.00	24.40	1	300	32.2	93.17	5	HES	IES
TV30C180J(B)-G	18.0	20.00	22.10	1	300	29.2	102.74	5	HET	IET
TV30C190K(B)-G	19.0	21.13	25.76	1	300	34.0	88.21	5	HEA	IEA
TV30C190J(B)-G	19.0	21.10	23.30	1	300	30.8	97.47	5	HEB	IEB
TV30C200K(B)-G	20.0	21.13	27.10	1	300	35.8	83.80	5	HEU	IEU
TV30C200J(B)-G	20.0	21.10	24.50	1	300	32.4	92.59	5	HEV	IEV
TV30C220K(B)-G	22.0	24.40	29.80	1	300	39.4	76.14	5	HEW	IEW
TV30C220J(B)-G	22.0	24.40	26.90	1	300	35.5	84.51	5	HEX	IEX
TV30C240K(B)-G	24.0	26.70	32.60	1	300	43.0	69.77	5	HEY	IEY
TV30C240J(B)-G	24.0	26.70	29.50	1	300	38.9	77.12	5	HEZ	IEZ
TV30C260K(B)-G	26.0	28.90	35.30	1	300	46.6	64.38	5	HFD	IFD
TV30C260J(B)-G	26.0	28.90	31.90	1	300	42.1	71.26	5	HFE	IFE
TV30C280K(B)-G	28.0	31.10	38.00	1	300	50.0	60.00	5	HFF	IFF
TV30C280J(B)-G	28.0	31.10	34.40	1	300	45.4	66.08	5	HFG	IFG
TV30C300K(B)-G	30.0	33.30	40.70	1	300	53.5	56.07	5	HFH	IFH
TV30C300J(B)-G	30.0	33.30	36.80	1	300	48.4	61.98	5	HFK	IFK

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Part No	Absolute Maximum Rating (Ta= 25 °C)					Electrical Characteristic (Ta= 25 °C)				
	V _{RWM}	V _{BR} Min.	V _{BR} Max.	I _T	I _{FSM}	Max. V _C		I _R @V _{RWM}	Marking Code	
	(V)	(V)	(V)	(mA)	(A)@8.3mS	(V)	IPP(A)	(uA)	Uni	Bi
TV30C330K(B)-G	33.0	36.70	44.90	1	300	59.0	50.85	5	HFL	IFL
TV30C330J(B)-G	33.0	36.70	40.60	1	300	53.3	56.29	5	HFM	IFM
TV30C360K(B)-G	36.0	40.00	48.90	1	300	64.3	46.66	5	HFN	IFN
TV30C360J(B)-G	36.0	40.00	44.20	1	300	58.1	51.64	5	HFP	IFP
TV30C400K(B)-G	40.0	44.40	54.30	1	300	71.4	42.02	5	HFQ	IFQ
TV30C400J(B)-G	40.0	44.40	49.10	1	300	64.5	46.51	5	HFR	IFR
TV30C430K(B)-G	43.0	47.80	58.40	1	300	76.7	39.11	5	HFS	IFS
TV30C430J(B)-G	43.0	47.80	52.80	1	300	69.4	43.23	5	HFT	IFT
TV30C450K(B)-G	45.0	50.00	61.10	1	300	80.3	37.36	5	HFU	IFU
TV30C450J(B)-G	45.0	50.00	55.30	1	300	72.7	41.27	5	HFV	IFV
TV30C480K(B)-G	48.0	53.30	65.10	1	300	85.5	35.09	5	HFV	IFV
TV30C480J(B)-G	48.0	53.30	58.90	1	300	77.4	38.76	5	HFX	IFX
TV30C510K(B)-G	51.0	56.70	69.30	1	300	91.1	32.93	5	HFY	IFY
TV30C510J(B)-G	51.0	56.70	62.70	1	300	82.4	36.41	5	HFZ	IFZ
TV30C540K(B)-G	54.0	60.00	73.30	1	300	96.3	31.15	5	GGD	IGD
TV30C540J(B)-G	54.0	60.00	66.30	1	300	87.1	34.44	5	GGE	IGE
TV30C580K(B)-G	58.0	64.40	78.70	1	300	103.0	29.13	5	GGF	IGF
TV30C580J(B)-G	58.0	64.40	71.20	1	300	93.6	32.05	5	HGG	IGG
TV30C600K(B)-G	60.0	66.70	81.50	1	300	107.0	28.04	5	HGH	IGH
TV30C600J(B)-G	60.0	66.70	73.70	1	300	96.8	30.99	5	HGK	IGK
TV30C640K(B)-G	64.0	71.10	86.90	1	300	114.0	26.32	5	HGL	IGL
TV30C640J(B)-G	64.0	71.10	78.60	1	300	103.0	29.13	5	HGM	IGM
TV30C700K(B)-G	70.0	77.80	95.10	1	300	125.0	24.00	5	HGN	IGN
TV30C700J(B)-G	70.0	77.80	86.00	1	300	113.0	26.55	5	HGP	IGP
TV30C750K(B)-G	75.0	83.30	102.00	1	300	134.0	22.39	5	HGQ	IGQ
TV30C750J(B)-G	75.0	83.30	92.10	1	300	121.0	24.79	5	HGR	IGR
TV30C780K(B)-G	78.0	86.70	106.00	1	300	139.0	21.58	5	HGS	IGS
TV30C780J(B)-G	78.0	86.70	95.80	1	300	126.0	23.81	5	HGT	IGT
TV30C800K(B)-G	80.0	88.96	108.80	1	300	143.2	20.95	5	HGA	IGA
TV30C800J(B)-G	80.0	88.80	97.60	1	300	129.6	23.15	5	HGB	IGB
TV30C850K(B)-G	85.0	94.40	115.00	1	300	151.0	19.87	5	HGU	IGU
TV30C850J(B)-G	85.0	94.40	104.00	1	300	137.0	21.90	5	HGV	IGV
TV30C900K(B)-G	90.0	100.00	122.00	1	300	160.0	18.75	5	HGW	IGW
TV30C900J(B)-G	90.0	100.00	111.00	1	300	146.0	20.55	5	HGX	IGX
TV30C101K(B)-G	100.0	111.00	136.00	1	300	179.0	16.76	5	HGY	IGY
TV30C101J(B)-G	100.0	111.00	123.00	1	300	162.0	18.52	5	HGZ	IGZ
TV30C111K(B)-G	110.0	122.00	149.00	1	300	196.0	15.31	5	HHH	IHH
TV30C111J(B)-G	110.0	122.00	135.00	1	300	177.0	16.95	5	HHE	IHE
TV30C121K(B)-G	120.0	133.00	163.00	1	300	214.0	14.02	5	HHF	IHF
TV30C121J(B)-G	120.0	133.00	147.00	1	300	193.0	15.54	5	HHG	IHG
TV30C131K(B)-G	130.0	144.00	176.00	1	300	231.0	12.99	5	HHH	IHH
TV30C131J(B)-G	130.0	144.00	159.00	1	300	209.0	14.35	5	HHK	IHK
TV30C141K(B)-G	140.0	155.68	190.40	1	300	250.6	11.97	5	HHA	IHA
TV30C141J(B)-G	140.0	155.00	171.00	1	300	226.8	13.23	5	HHB	IHB
TV30C151K(B)-G	150.0	167.00	204.00	1	300	268.0	11.19	5	HHL	IHL
TV30C151J(B)-G	150.0	167.00	185.00	1	300	243.0	12.35	5	HHM	IHM

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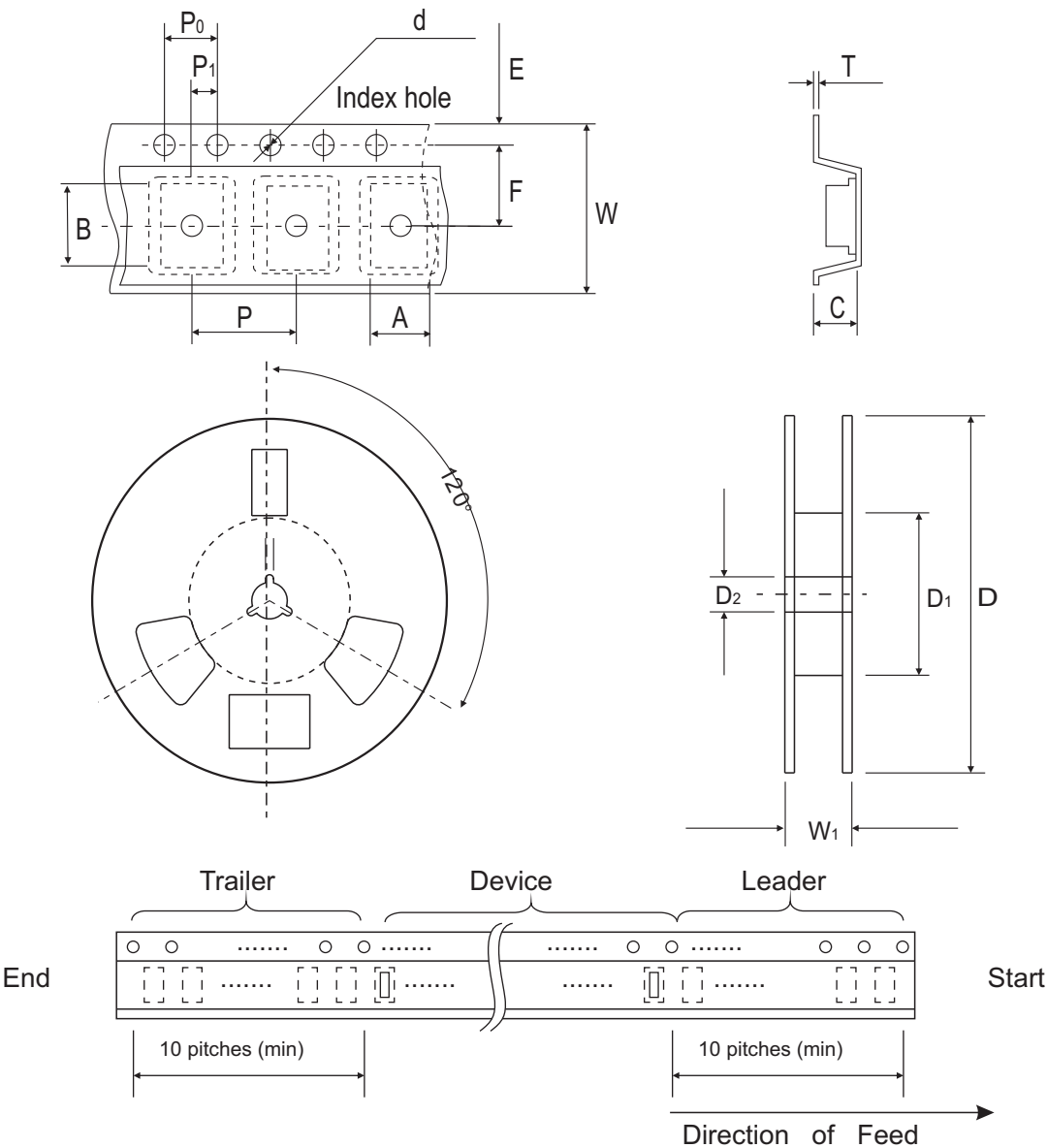
Electrical Characteristics (TV30C5V0-G Thru. TV30C441-G)

Part No.	Absolute Maximum Rating (T _A =25 °C)					Electrical Characteristic (T _A =25 °C)				
	V _{RWM}	V _{BR} Min.	V _{BR} Max.	I _T	I _{FSM}	Max V _C		I _R @V _{RWM}	Marking Code	
	(V)	(V)	(V)	(mA)	(A)@8.3mS	(V)	I _{PP} (A)	(uA)	Uni	Bi
TV30C161K(B)-G	160.0	178.00	218.00	1	300	287.0	10.45	5	HHN	IHN
TV30C161J(B)-G	160.0	178.00	197.00	1	300	259.0	11.58	5	HHP	IHP
TV30C171K(B)-G	170.0	189.00	231.0	1	300	304.0	9.87	5	HHQ	IHQ
TV30C171J(B)-G	170.0	189.00	209.0	1	300	275.0	10.91	5	HHR	IHR
TV30C181K(B)-G	180.0	200.16	244.80	1	300	322.2	9.31	5	HHS	IHS
TV30C181J(B)-G	180.0	200.00	220.00	1	300	291.6	10.29	5	HHT	IHT
TV30C191K(B)-G	190.0	211.28	258.40	1	300	340.1	8.82	5	HHU	IHU
TV30C191J(B)-G	190.0	211.00	232.00	1	300	307.8	9.75	5	HHV	IHV
TV30C201J(B)-G	200.0	224.00	247.00	1	300	324.0	9.26	5	HHW	IHW
TV30C221J(B)-G	220.0	246.00	272.00	1	300	356.0	8.43	5	HHX	IHX
TV30C251J(B)-G	250.0	279.00	309.00	1	300	405.0	7.41	5	HHZ	IHZ
TV30C301J(B)-G	300.0	335.00	371.00	1	300	486.0	6.17	5	HJE	IJE
TV30C351J(B)-G	350.0	391.00	432.00	1	300	567.0	5.29	5	HJG	IJG
TV30C401J(B)-G	400.0	447.00	494.00	1	300	648.0	4.63	5	HJK	IJK
TV30C441J(B)-G	440.0	492.00	543.00	1	300	713.0	4.21	5	HJM	IJM

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 V_R of 10 volts and under, the I_R limit is double.

Reel Taping Specification



	SYMBOL	A	B	C	d	D	D1	D2
DO-214AB (SMC)	(mm)	6.05 ± 0.10	8.31 ± 0.10	4.50 (max)	$1.55 \pm 0.10-0.0$	330	50.0 MIN.	13.0 ± 0.20
	(inch)	0.256 ± 0.004	0.327 ± 0.004	0.177 (max)	0.061 ± 0.004	13.00	1.969 MIN.	0.512 ± 0.008

	SYMBOL	E	F	P	P0	P1	W	W1
DO-214AB (SMC)	(mm)	1.75 ± 0.10	7.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 1.00	16.0 ± 0.30	22.4 MAX.
	(inch)	0.069 ± 0.004	0.295 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.040	0.630 ± 0.012	0.882 MAX.

Marking Code

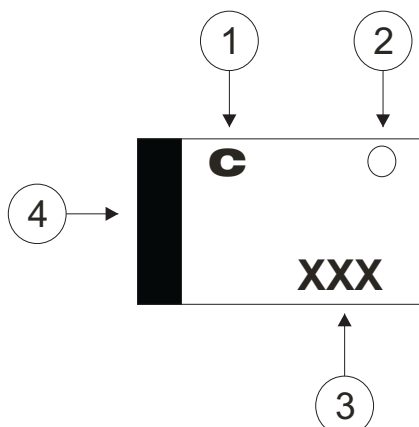
1. C: COMCHIP

2. 0: Package

○	PKG
C	SMC
B	SMB
C	SMC

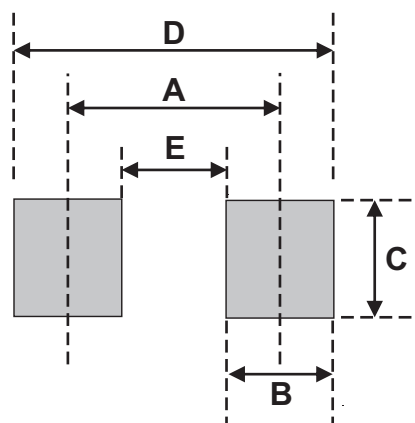
3. XXX: Marking code(see Page.3~5)

4. : Cathod Band



Suggested PAD Layout

SIZE	DO-214AB(SMC)	
	(mm)	(inch)
A	6.20	0.244
B	1.60	0.063
C	4.80	0.189
D	7.80	0.307
E	4.60	0.181



Standard Package

Case Type	Qty per Reel	Reel Size
	(Pcs)	(inch)
DO-214AB (SMC)	3000	13