

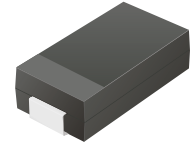
SMD Transient Voltage Suppressor



SMD Diodes Specialist

TV06B5V0-HF Thru. TV06B171-HF

Working Peak Reverse voltage: 5.0 ~ 170Volts
 Power Dissipation: 600 Watts
 RoHS Device

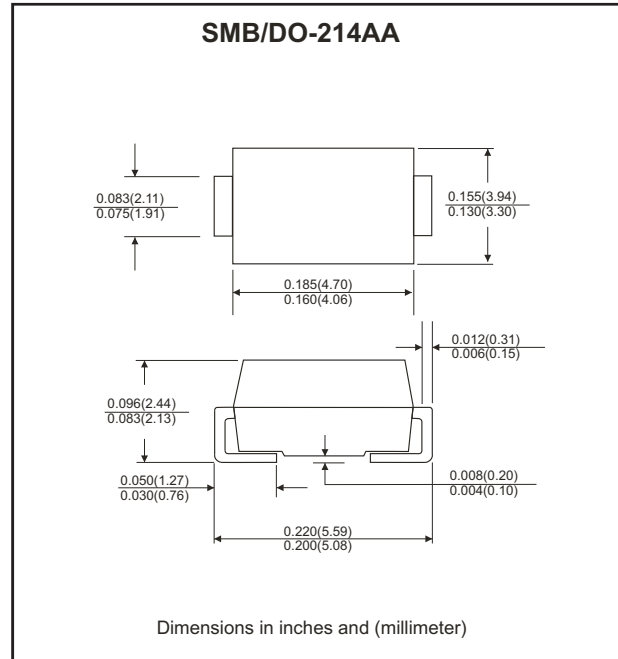


Features

- Halogen free.
- 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-directional, from 0V to BV min.

Mechanical Data

- Case: JEDEC DO-214AA molded plastic.
- Terminals: solderable per MIL-STD-750, method 2026
- Polarity: Cathode band denoted.
- Weight: 0.093 gram approx.



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 on 10/1000 μ S waveform (Note 1, Fig.1)	P _{PPM}	600	W
Peak pulse current on 10/1000 μ S 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	W
Peak forward surge current, 8.3mS single half sine-wave superimposed on rated load, uni-directional only (Note 3)	I _{FSM}	100	A
Maximum instantaneous forward voltage at 35.0A for uni-directional only (Note 3, 4)	V _F	3.5/5.0	V
Maximum operation junction temperature	T _J	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 5.0x5.0mm 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. V_F=3.5V on TV06B5V0-HF thru. TV06B900-HF devices and V_F=5.0V on TV06B101-HF thru. TV06B200-HF.

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Electrical Characteristics

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)	(μ A)	UNI	BI
TV06B5V0K(B)-HF	5.00	6.40	7.82	10	100	9.6	62.5	800	KD	AD
TV06B5V0J(B)-HF	5.00	6.40	7.07	10	100	9.2	65.2	800	KE	AE
TV06B6V0K(B)-HF	6.00	6.67	8.15	10	100	11.4	52.6	800	KF	AF
TV06B6V0J(B)-HF	6.00	6.67	7.37	10	100	10.3	58.3	800	KG	AG
TV06B6V5K(B)-HF	6.50	7.22	8.82	10	100	12.3	48.7	500	KH	AH
TV06B6V5J(B)-HF	6.50	7.22	7.98	10	100	11.2	53.6	500	KK	AK
TV06B7V0K(B)-HF	7.00	7.78	9.51	1	100	13.3	45.1	200	KL	AL
TV06B7V0J(B)-HF	7.00	7.78	8.60	1	100	12.0	50.0	200	KM	AM
TV06B7V5K(B)-HF	7.50	8.33	10.2	1	100	14.3	42.0	100	KN	AN
TV06B7V5J(B)-HF	7.50	8.33	9.21	1	100	12.9	46.5	100	KP	AP
TV06B8V0K(B)-HF	8.00	8.89	10.9	1	100	15.0	40.0	50	KQ	AQ
TV06B8V0J(B)-HF	8.00	8.89	9.83	1	100	13.6	44.1	50	KR	AR
TV06B8V5K(B)-HF	8.55	9.44	11.5	1	100	15.9	37.7	10	KS	AS
TV06B8V5J(B)-HF	8.55	9.44	10.4	1	100	14.4	41.7	10	KT	AT
TV06B9V0K(B)-HF	9.00	10.0	12.2	1	100	16.9	35.5	5	KU	AU
TV06B9V0J(B)-HF	9.00	10.0	11.1	1	100	15.4	39.0	5	KV	AV
TV06B100K(B)-HF	10.0	11.1	13.6	1	100	18.8	31.9	5	KW	AW
TV06B100J(B)-HF	10.0	11.1	12.3	1	100	17.0	35.3	5	KX	AX
TV06B110K(B)-HF	11.0	12.2	14.9	1	100	20.1	29.9	5	KY	AY
TV06B110J(B)-HF	11.0	12.2	13.5	1	100	18.2	33.0	5	KZ	AZ
TV06B120K(B)-HF	12.0	13.3	16.3	1	100	22.0	27.3	5	LD	BD
TV06B120J(B)-HF	12.0	13.3	14.7	1	100	19.9	30.2	5	LE	BE
TV06B130K(B)-HF	13.0	14.4	17.6	1	100	23.8	25.2	5	LF	BF
TV06B130J(B)-HF	13.0	14.4	15.9	1	100	21.5	27.9	5	LG	BG
TV06B140K(B)-HF	14.0	15.6	19.1	1	100	25.8	23.3	5	LH	BH
TV06B140J(B)-HF	14.0	15.6	17.2	1	100	23.2	25.8	5	LK	BK
TV06B150K(B)-HF	15.0	16.7	20.4	1	100	26.9	22.3	5	LL	BL
TV06B150J(B)-HF	15.0	16.7	18.5	1	100	24.4	24.0	5	LM	BM
TV06B160K(B)-HF	16.0	17.8	21.8	1	100	28.8	20.8	5	LN	BN
TV06B160J(B)-HF	16.0	17.8	19.7	1	100	26.0	23.1	5	LP	BP
TV06B170K(B)-HF	17.0	18.9	23.1	1	100	30.5	19.7	5	LQ	BQ
TV06B170J(B)-HF	17.0	18.9	20.9	1	100	27.6	21.7	5	LR	BR
TV06B180K(B)-HF	18.0	20.0	24.4	1	100	32.2	18.6	5	LS	BS
TV06B180J(B)-HF	18.0	20.0	22.1	1	100	29.2	20.5	5	LT	BT
TV06B200K(B)-HF	20.0	22.2	27.1	1	100	35.8	16.4	5	LU	BU
TV06B200J(B)-HF	20.0	22.2	24.5	1	100	32.4	18.5	5	LV	BV
TV06B220K(B)-HF	22.0	24.4	29.8	1	100	39.4	15.2	5	LW	BW
TV06B220J(B)-HF	22.0	24.4	26.9	1	100	35.5	16.9	5	LX	BX
TV06B240K(B)-HF	24.0	26.7	32.6	1	100	43.0	14.0	5	LY	BY
TV06B240J(B)-HF	24.0	26.7	29.5	1	100	38.9	15.4	5	LZ	BZ
TV06B260K(B)-HF	26.0	28.9	35.3	1	100	46.6	12.4	5	MD	CD
TV06B260J(B)-HF	26.0	28.9	31.9	1	100	42.1	14.2	5	ME	CE
TV06B280K(B)-HF	28.0	31.1	38.0	1	100	50.0	12.0	5	MF	CF
TV06B280J(B)-HF	28.0	31.1	34.4	1	100	45.4	13.2	5	MG	CG
TV06B300K(B)-HF	30.0	33.3	40.7	1	100	53.5	11.2	5	MH	CH
TV06B300J(B)-HF	30.0	33.3	36.8	1	100	48.4	12.4	5	MK	CK
TV06B330K(B)-HF	33.0	36.7	44.9	1	100	59.0	10.2	5	ML	CL
TV06B330J(B)-HF	33.0	36.7	40.6	1	100	53.3	11.3	5	MM	CM
TV06B360K(B)-HF	36.0	40.0	48.9	1	100	64.3	9.3	5	MN	CN
TV06B360J(B)-HF	36.0	40.0	44.2	1	100	58.1	10.3	5	MP	CP
TV06B400K(B)-HF	40.0	44.4	54.3	1	100	71.4	8.4	5	MQ	CQ
TV06B400J(B)-HF	40.0	44.4	49.1	1	100	64.5	9.3	5	MR	CR

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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)	(μ A)	UNI	BI
TV06B430K(B)-HF	43.0	47.8	58.4	1	100	76.7	7.8	5	MS	CS
TV06B430J(B)-HF	43.0	47.8	52.8	1	100	69.4	8.6	5	MT	CT
TV06B450K(B)-HF	45.0	50.0	61.1	1	100	80.3	7.5	5	MU	CU
TV06B450J(B)-HF	45.0	50.0	55.3	1	100	72.7	8.3	5	MV	CV
TV06B480K(B)-HF	48.0	53.3	65.1	1	100	85.5	7.0	5	MW	CW
TV06B480J(B)-HF	48.0	53.3	58.9	1	100	77.4	7.7	5	MX	CX
TV06B510K(B)-HF	51.0	56.7	69.3	1	100	91.1	6.6	5	MY	CY
TV06B510J(B)-HF	51.0	56.7	62.7	1	100	82.4	7.3	5	MZ	CZ
TV06B540K(B)-HF	54.0	60.0	73.3	1	100	96.3	6.2	5	ND	DD
TV06B540J(B)-HF	54.0	60.0	66.3	1	100	87.1	6.9	5	NE	DE
TV06B580K(B)-HF	58.0	64.4	78.7	1	100	103	5.8	5	NF	DF
TV06B580J(B)-HF	58.0	64.4	71.2	1	100	93.6	6.4	5	NG	DG
TV06B600K(B)-HF	60.0	66.7	81.5	1	100	107	5.6	5	NH	DH
TV06B600J(B)-HF	60.0	66.7	73.7	1	100	96.8	6.2	5	NK	DK
TV06B640K(B)-HF	64.0	71.1	86.9	1	100	114	5.3	5	NL	DL
TV06B640J(B)-HF	64.0	71.1	78.6	1	100	103	5.8	5	NM	DM
TV06B700K(B)-HF	70.0	77.8	95.1	1	100	125	4.8	5	NN	DN
TV06B700J(B)-HF	70.0	77.8	86.0	1	100	113	5.3	5	NP	DP
TV06B750K(B)-HF	75.0	83.3	102	1	100	134	4.5	5	NQ	DQ
TV06B750J(B)-HF	75.0	83.3	92.1	1	100	121	4.9	5	NR	DR
TV06B780K(B)-HF	78.0	86.7	106	1	100	139	4.3	5	NS	DS
TV06B780J(B)-HF	78.0	86.7	95.8	1	100	126	4.7	5	NT	DT
TV06B850K(B)-HF	85.0	94.4	115	1	100	151	3.9	5	NU	DU
TV06B850J(B)-HF	85.0	94.4	104	1	100	137	4.4	5	NV	DV
TV06B900K(B)-HF	90.0	100	122	1	100	160	3.8	5	NW	DW
TV06B900J(B)-HF	90.0	100	111	1	100	146	4.1	5	NX	DX
TV06B101K(B)-HF	100.0	111	136	1	100	179	3.4	5	NY	DY
TV06B101J(B)-HF	100.0	111	123	1	100	162	3.7	5	NZ	DZ
TV06B111K(B)-HF	110.0	122	149	1	100	196	3.0	5	PD	ED
TV06B111J(B)-HF	110.0	122	135	1	100	177	3.4	5	PE	EE
TV06B121K(B)-HF	120.0	133	163	1	100	214	2.8	5	PF	EF
TV06B121J(B)-HF	120.0	133	147	1	100	193	3.1	5	PG	EG
TV06B131K(B)-HF	130.0	144	176	1	100	231	2.6	5	PH	EH
TV06B131J(B)-HF	130.0	144	159	1	100	209	2.9	5	PK	EK
TV06B151K(B)-HF	150.0	167	204	1	100	268	2.2	5	PL	EL
TV06B151J(B)-HF	150.0	167	185	1	100	243	2.5	5	PM	EM
TV06B161K(B)-HF	160.0	178	218	1	100	287	2.1	5	PN	EN
TV06B161J(B)-HF	160.0	178	197	1	100	259	2.3	5	PP	EP
TV06B171K(B)-HF	170.0	189	231	1	100	304	2.0	5	PQ	EQ
TV06B171J(B)-HF	170.0	189	209	1	100	275	2.2	5	PR	ER

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 the bi-direction TV06B5V0KB, the maximum V_{BR} is 7.25V.
4. For bi-directional devices having V_R of 10 volts and under, the I_R limit is double.

Rating and Characteristics Curves (TV06B5V0-HF Thru. TV06B171-HF)

Fig.1 Reverse Characteristics

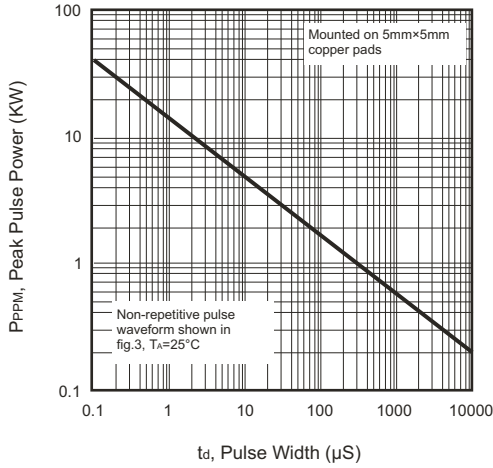


Fig.2 Pulse Derating Curve

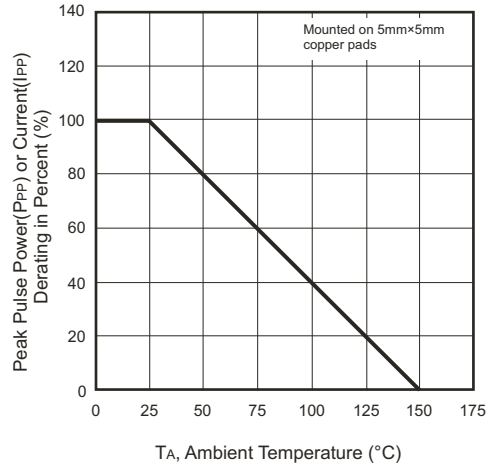


Fig.3 Pulse Waveform

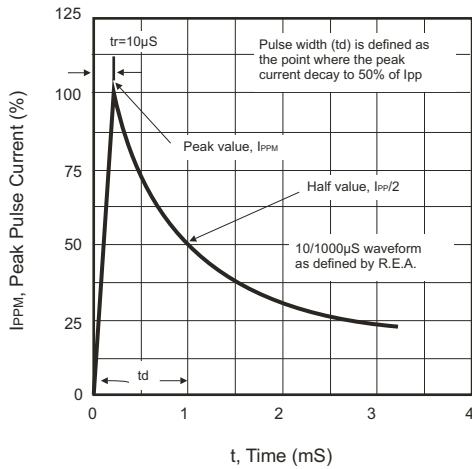


Fig.4 Typical Junction Capacitance for Uni-directional Devices

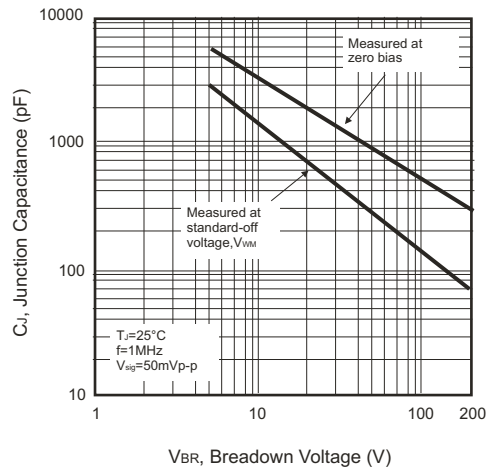


Fig.5 Typical Junction Capacitance for Bi-directional Devices

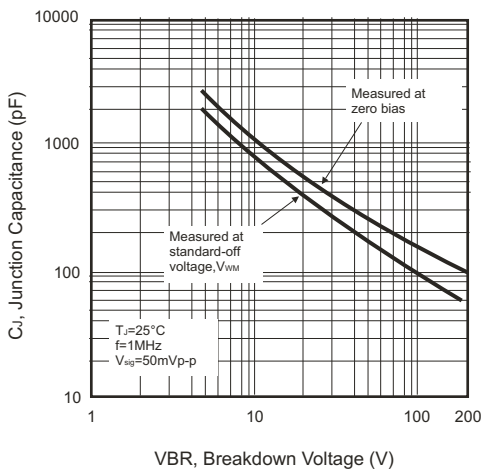
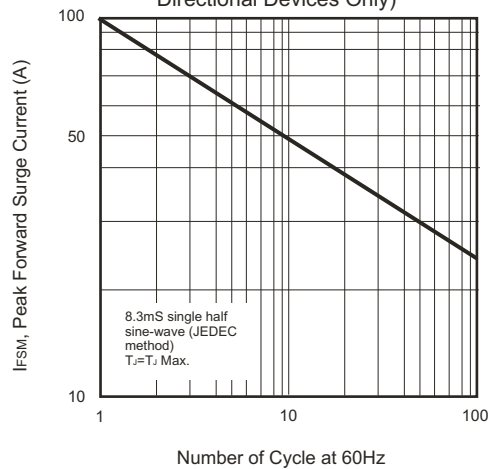
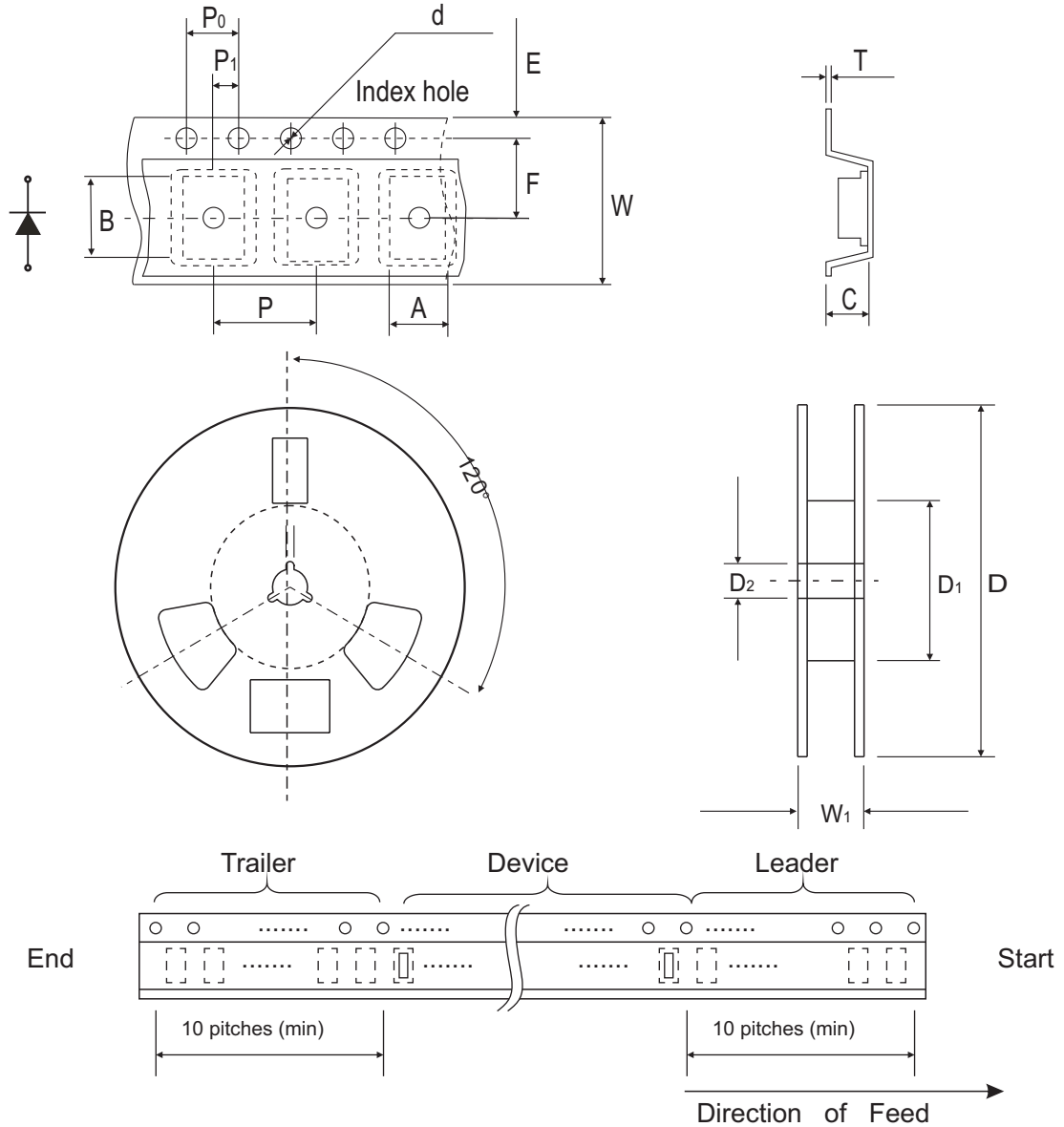


Fig.6 Maximum Non-Repetitive Peak Forward Surge Current (Uni-Directional Devices Only)



Reel Taping Specification



DO-214AA (SMB)	SYMBOL	A	B	C	d	D	D ₁	D ₂
	(mm)	4.00 (max)	5.90 (max)	2.66 (max)	1.50 ± 0.10	330 ± 2.00	50.0 MIN.	13.5 ± 1.00
	(inch)	0.157 (max)	0.232 (max)	0.105 (max)	0.059 ± 0.004	12.99 ± 0.079	1.969 MIN.	0.531 ± 0.040

DO-214AA (SMB)	SYMBOL	E	F	P	P ₀	P ₁	W	W ₁
	(mm)	1.75 ± 0.10	5.50 ± 0.05	8.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	12.0 ± 0.20	18.4 (max)
	(inch)	0.689 ± 0.004	0.217 ± 0.002	0.315 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.472 ± 0.008	0.724 (max)

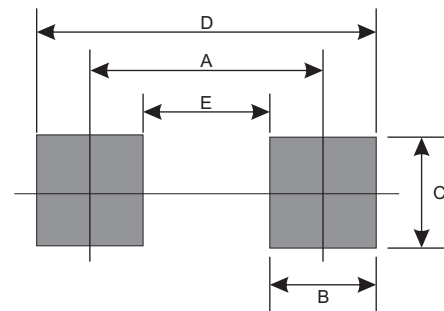
Marking Code

Part Number	Marking Code
TV06B-HF Series	XX



Suggested PAD Layout

SIZE	SMB	
	(mm)	(inch)
A	4.50	0.177
B	1.50	0.059
C	3.60	0.142
D	6.00	0.236
E	3.00	0.118



Standard Package

Case Type	Qty per Reel	Reel Size
	(Pcs)	(inch)
SMB	4000	13