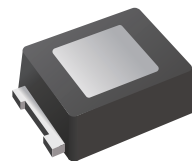




RHVxxA(C)D Series Transient Voltage Suppressors (TVS) Data Sheet

Features

- Top-side Cooling(TSC) Packaging technology
- For surface mounted applications in order to optimize board space
- Low profile package
- Low inductance
- Plastic package has Underwriters Laboratory Flammability
- Lead free in comply with EU RoHS 2011/65/EU directives



Mechanical Data

- Case: SMHS
- Terminals: Solderable per MIL-STD-750, Method 2026
- Polarity: For uni-directional types the band denotes cathode end, no marking on bi-directional types

Ordering Information

Part Number	Marking	Shipping	Reel
RHVxxA(C)D	See the Table	15000PCS Tape&Reel	13 inches

Maximum Ratings and Characteristics

Ratings at 25 °C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on TA=25°C (Note1,2,5, Fig1)	P_{PPM}	200	W
Peak Forward Surge Current (Note3)	I_{FSM} (UNI)	20	A
Peak Pulse Current on 10/1000 us waveform (Note1 Fig 2)	I_{PPM}	see Table 1	A
Steady State Power Dissipation (Note4)	$P_{M(AV)}$	1	W
Operating Junction and Storage Range	T_J, T_{STG}	-55 to +150	°C
Typical Thermal Resistance (Note6)	$R_{\theta JA}$	67	°C/W

- Note: (1) Non-repetitive current pulse per Fig 3 and derated above $T_A=25^\circ\text{C}$ per Fig 2
(2) Mounted on 5mm² copper pads to each terminal
(3) 8.3ms single half sinewave, or equivalent square wave duty cycle=4 pulses per minutes maximum, unidirectional only
(4) lead temperature at $T_L=75^\circ\text{C}$
(5) Peak pulse power. waveform is $t_p=10/1000\mu\text{s}$
(6) P.C.B. mounted with 0.1" × 0.1" (2mm x 2mm) copper pad areas.



RHVxxA(C)D Series

Transient Voltage Suppressors (TVS) Data Sheet

Electrical Characteristics ($T_A=25^{\circ}\text{C}$)

Part Number (Uni)	Part Number (Bi)	Marking	Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{PP} (V)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @ V_R (μA)
				Min	Max				
RHV5.0AD	RHV5.0CD	5D	5	6.4	7	10	9.2	21.7	400
RHV6.0AD	RHV6.0CD	6D	6	6.67	7.37	10	10.3	19.4	400
RHV6.5AD	RHV6.5CD	6D5	6.5	7.22	7.98	10	11.2	17.9	250
RHV7.0AD	RHV7.0CD	7D	7	7.78	8.6	10	12	16.7	100
RHV7.5AD	RHV7.5CD	7D5	7.5	8.33	9.21	1	12.9	15.5	50
RHV8.0AD	RHV8.0CD	8D	8	8.89	9.83	1	13.6	14.7	25
RHV8.5AD	RHV8.5CD	8D5	8.5	9.44	10.4	1	14.4	13.9	10
RHV9.0AD	RHV9.0CD	9D	9	10	11.1	1	15.4	13.0	5
RHV10AD	RHV10CD	10D	10	11.1	12.3	1	17	11.8	2.5
RHV11AD	RHV11CD	11D	11	12.2	13.5	1	18.2	11.0	2.5
RHV12AD	RHV12CD	12D	12	13.3	14.7	1	19.9	10.1	2.5
RHV13AD	RHV13CD	13D	13	14.4	15.9	1	21.5	9.3	1
RHV14AD	RHV14CD	14D	14	15.6	17.2	1	23.2	8.6	1
RHV15AD	RHV15CD	15D	15	16.7	18.5	1	24.4	8.2	1
RHV16AD	RHV16CD	16D	16	17.8	19.7	1	26	7.7	1
RHV17AD	RHV17CD	17D	17	18.9	20.9	1	27.6	7.2	1
RHV18AD	RHV18CD	18D	18	20	22.1	1	29.2	6.8	1
RHV20AD	RHV20CD	20D	20	22.2	24.5	1	32.4	6.2	1
RHV22AD	RHV22CD	22D	22	24.4	26.9	1	35.5	5.6	1
RHV24AD	RHV24CD	24D	24	26.7	29.5	1	38.9	5.1	1
RHV26AD	RHV26CD	26D	26	28.9	31.9	1	42.1	4.8	1
RHV28AD	RHV28CD	28D	28	31.1	34.4	1	45.4	4.4	1
RHV30AD	RHV30CD	30D	30	33.3	36.8	1	48.4	4.1	1
RHV33AD	RHV33CD	33D	33	36.7	40.6	1	53.3	3.8	1
RHV36AD	RHV36CD	36D	36	40	44.2	1	58.1	3.4	1
RHV40AD	RHV40CD	40D	40	44.4	49.1	1	64.5	3.1	1
RHV43AD	RHV43CD	43D	43	47.8	52.8	1	69.4	2.9	1
RHV45AD	RHV45CD	45D	45	50	55.3	1	72.7	2.8	1
RHV48AD	RHV48CD	48D	48	53.3	58.9	1	77.4	2.6	1
RHV51AD	RHV51CD	51D	51	56.7	62.7	1	82.4	2.4	1
RHV54AD	RHV54CD	54D	54	60	66.3	1	87.1	2.3	1
RHV58AD	RHV58CD	58D	58	64.4	71.2	1	93.6	2.1	1
RHV60AD	RHV60CD	60D	60	66.7	73.7	1	96.8	1.8	1
RHV64AD	RHV64CD	64D	64	71.1	78.6	1	103	1.7	1
RHV70AD	RHV70CD	70D	70	77.8	86	1	113	1.5	1
RHV75AD	RHV75CD	75D	75	83.3	92.1	1	121	1.4	1
RHV78AD	RHV78CD	78D	78	86.7	95.8	1	126	1.4	1
RHV85AD	RHV85CD	85D	85	94.4	104	1	137	1.3	1
RHV90AD	RHV90CD	90D	90	100	111	1	146	1.2	1
RHV100AD	RHV100CD	100D	100	111	123	1	162	1.1	1
RHV110AD	RHV110CD	110D	110	122	135	1	177	1.0	1
RHV120AD	RHV120CD	120D	120	133	147	1	193	0.9	1
RHV130AD	RHV130CD	130D	130	144	159	1	209	0.8	1
RHV150AD	RHV150CD	150D	150	167	185	1	243	0.7	1
RHV160AD	RHV160CD	160D	160	178	197	1	259	0.7	1
RHV170AD	RHV170CD	170D	170	189	209	1	275	0.6	1
RHV180AD	RHV180CD	180D	180	201	222	1	292	0.5	1
RHV200AD	RHV200CD	200D	200	224	247	1	324	0.5	1
RHV220AD	RHV220CD	220D	220	246	272	1	356	0.5	1



RHVxxA(C)D Series Transient Voltage Suppressors (TVS) Data Sheet

Characteristics Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

Fig.1 Peak Pulse Power Rating Curve

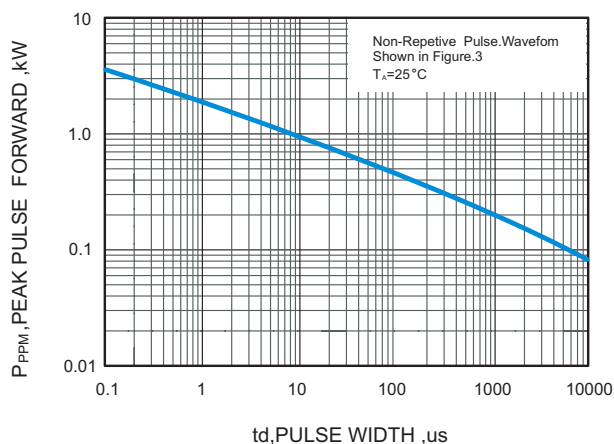


Fig.2 Forward Current Derating Curve

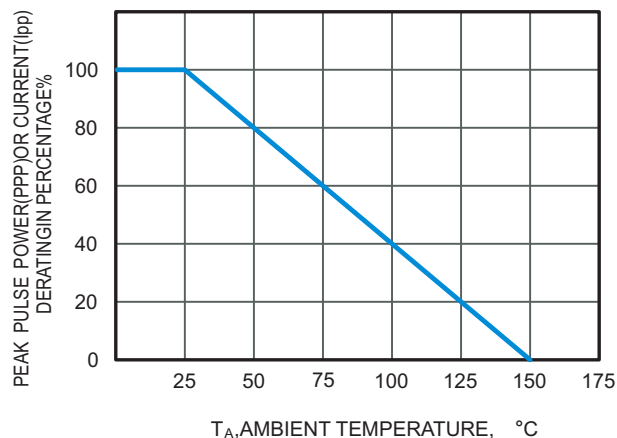


Fig.3 Pulse Waveform

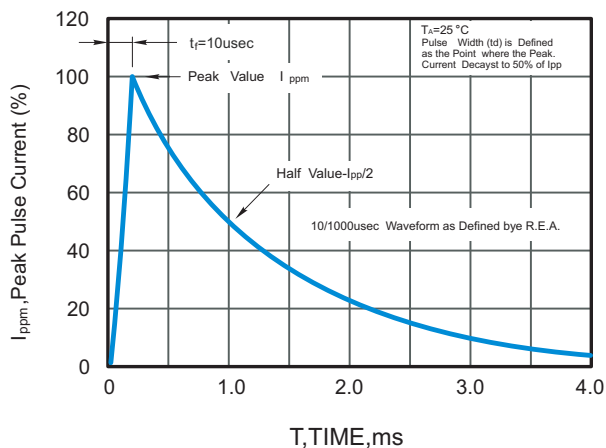
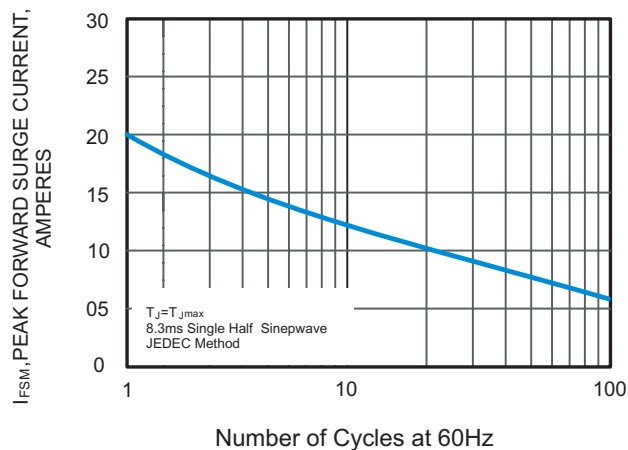


Fig.4 Maximum Non-Repetitive Peak Forward Surge Current

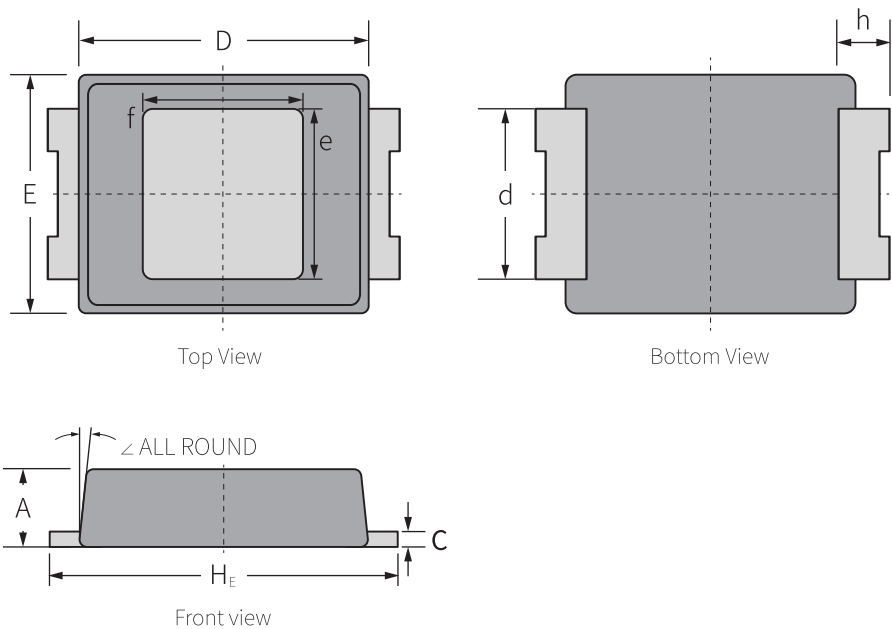




Package Outline

SMHS

Unit : mm

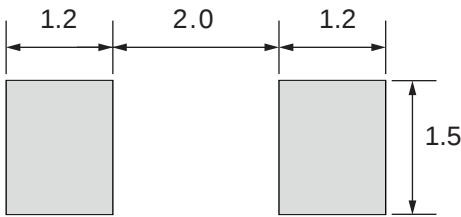


UNIT		A	C	D	E	H _E	d	e	f	h	∠
mm	max	0.99	0.25	2.90	2.10	3.50	1.30	1.30	1.25	0.70	6°
	min	0.83	0.15	2.50	1.70	2.90	1.10	1.10	1.05	0.50	

Suggested Pad Layout

SMHS

Unit : mm



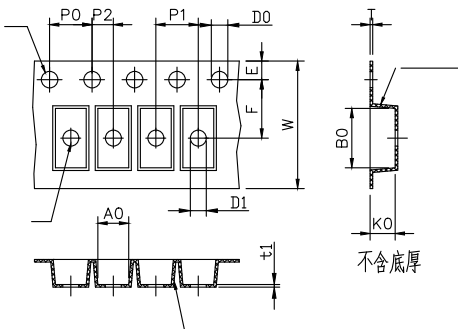
Note:
1. Controlling dimension: in millimeters.
2. General tolerance: ±0.05mm
3. The pad layout is for reference purpose only.



RHVxxA(C)D Series Transient Voltage Suppressors (TVS) Data Sheet

Carrier Tape Dimensions

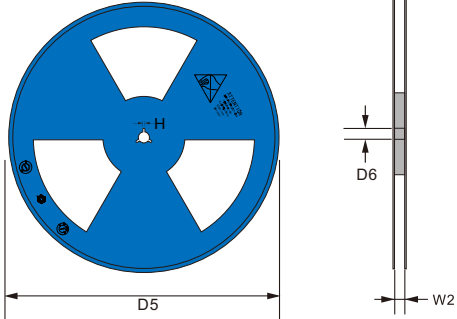
Unit : mm



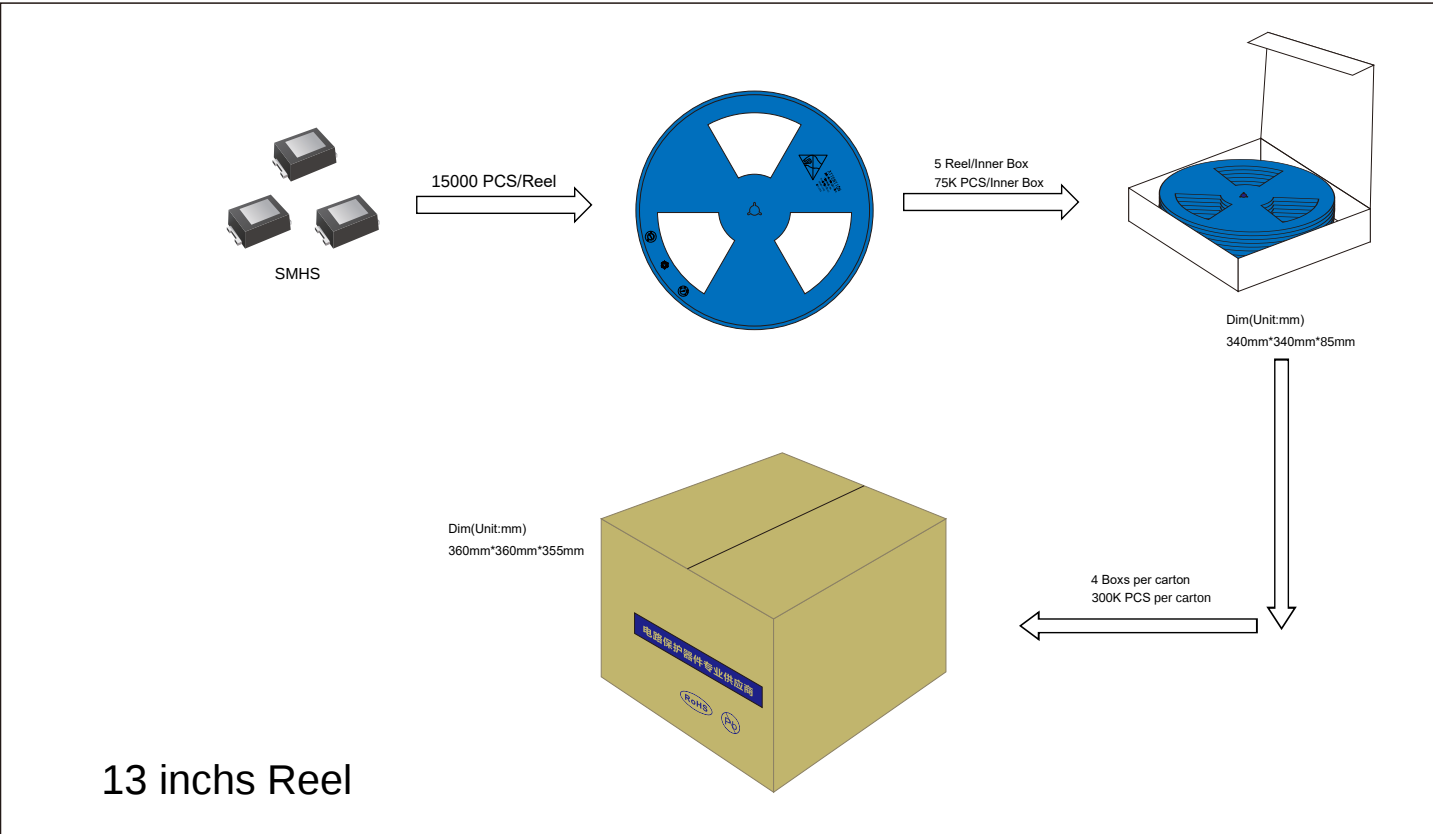
Symbol	Spec	Symbol	Spec
W	8.00±0.10	P2	2.00±0.10
E	1.75±0.10	t	0.22±0.02
F	3.50±0.10	t1	0.05+
D0	1.55±0.10	A0	2.15±0.10
D1	1.10±0.10	B0	3.40±0.10
P0	4.00±0.10	K0	1.15±0.10
P1	4.00±0.10		

Reel Dimensions

Unit : mm

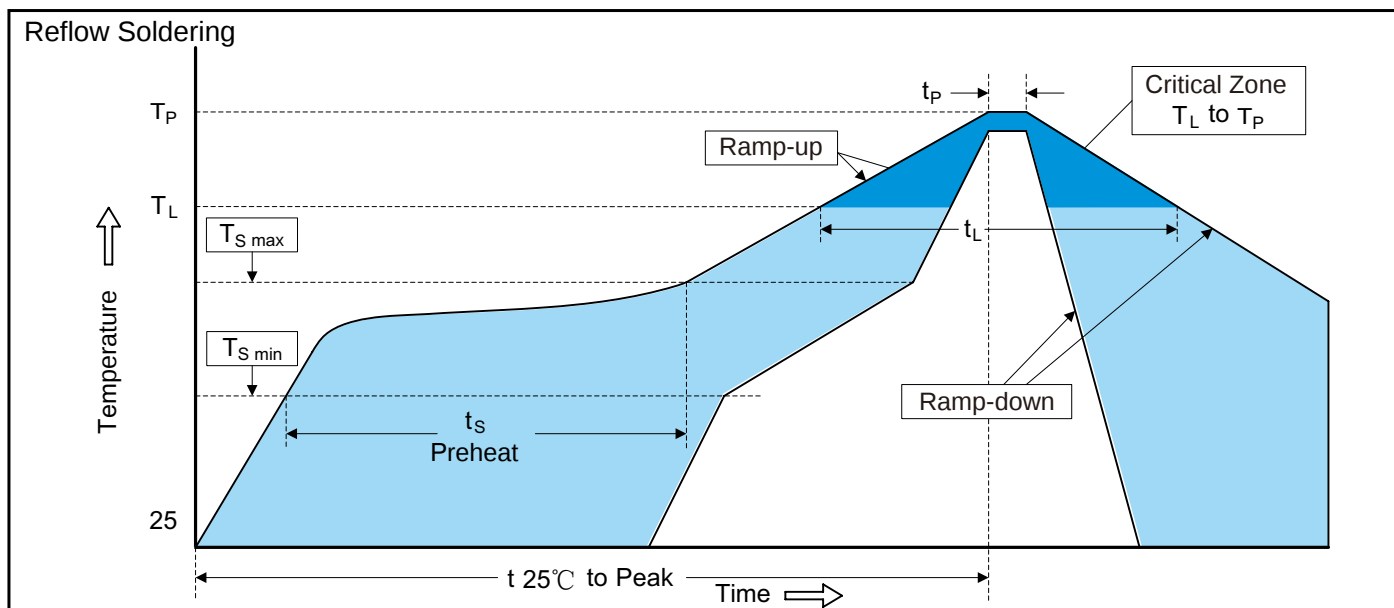
13" Reel 	D5	Φ330.0±5.0
	D6	Φ13.5±0.5
	H	2.5±1.0
	W2	8.0±2.0
	Quantity: 15000PCS	

Packaging





Recommended Soldering Conditions



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat	
-Temperature Min ($T_{S\ min}$)	150°C
-Temperature Max ($T_{S\ max}$)	200°C
-Time (min to max) (t_s)	60-180 seconds
$T_{S\ max}$ to T_L	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature (T_L)	217°C
-Time (t_L)	60-150 seconds
Peak Temperature (T_P)	260°C
Time within 5°C of actual Peak Temperature (t_p)	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.