

DATA SHEET

TRANSIENT VOLTAGE SUPPRESSORS

AC/DC POWER SUPPLY

HF-L series

RoHS compliant & Halogen free



Product specification— June 30, 2023 V.2



Transient Voltage Suppressors (TVS) Data Sheet

Features

- Axial lead terminals
- High current transient suppressor
- Excellent clamping capability.
- Glass passivated junction.
- Bi-directional.
- Low slope resistance.
- Hazardous Substances Free.
- RoHS compliant
- High Temperature soldering: 265°C/10 seconds at terminals.
- Epoxy Encapsulated.
- Meets MSL level 1, per J-STD-020

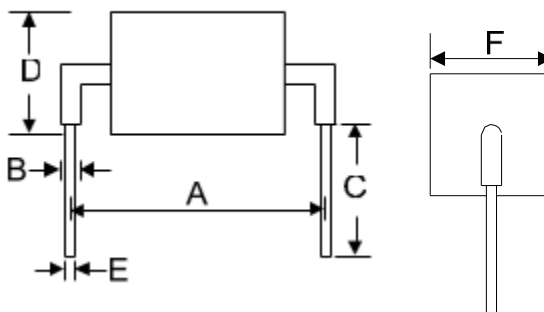


Maximum Ratings and Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Rating	Symbol	Value		Units
Current Rating	I_{PP}	HFA-L	3	KA
		HFB-L	6	
		HFC-L	10	
		HFD-L	16	
Operating junction and Storage Temperature Range.	T_J, T_{STG}	-40 to +125		°C

Package Dimensions



HFA / HFB / HFC(020-190)-L Series			HFC(012/015/200/240)-L / HFD-L Series		
Symbol	Inches	Millimeters	Symbol	Inches	Millimeters
A	0.951±0.047	24.15±1.20	A	0.951±0.047	24.15±1.20
B	0.055min	1.40min	B	0.055min	1.40min
C	0.236±0.047	6.0±1.20	C	0.236±0.047	6.0±1.20
D	0.512max	13.0max	D	0.630max	16.0max
E	0.050±0.004	1.28±0.10	E	0.050±0.004	1.28±0.10
F	0.512max	13.0max	F	0.630max	16.0max

HFB-430L			HFC-430L		
Symbol	Inches	Millimeters	Symbol	Inches	Millimeters
A	1.063±0.047	27.00±1.20	A	1.024±0.047	26.00±1.20
B	0.055min	1.40min	B	0.055min	1.40min
C	0.079min	2.00min	C	0.079min	2.00min
D	0.512max	13.0max	D	0.630max	16.0max
E	0.050±0.004	1.28±0.10	E	0.050±0.004	1.28±0.10
F	0.512max	13.0max	F	0.630max	16.0max

Electrical Characteristics (T_A=25°C)

Part Number	Reverse Stand-Off Voltage		Breakdown Voltage	Test Current	Current Rating	Maximum Clamping Voltage	Reverse Leakage
	V _{AC} (V)	V _{DC} (V)	V _{BR} (V) MIN. @ I _T	I _T (mA)	Rated I _{PP} measured with 8/20μs pulse	V _C (V) @ I _{PP}	I _R (μA) @ V _{DC}
HFA-012L	8.5	12.8	14	1	3KA	80	20
HFA-015L	11	15	17	1	3KA	85	20
HFA-020L	14	20	22	1	3KA	90	20
HFA-025L	17	25	28	1	3KA	95	20
HFA-030L	21	30	33	1	3KA	100	20
HFA-042L	30	42	47	1	3KA	105	20
HFA-058L	40	58	64	1	3KA	110	20
HFA-066L	45	66	70	1	3KA	120	20
HFA-076L	54	76	85	1	3KA	140	20
HFA-100L	72	100	110	1	3KA	165	20
HFA-133L	100	133	147	1	3KA	220	20
HFA-170L	130	170	180	1	3KA	260	20
HFA-190L	145	190	200	1	3KA	290	20
HFA-200L	150	200	222	1	3KA	330	20
HFA-240L	180	240	250	1	3KA	340	20
HFA-275L	210	275	300	1	3KA	435	20
HFA-300L	230	300	330	1	3KA	470	20
HFA-380L	275	380	401	1	3KA	520	20
HFA-430L	310	430	440	1	3KA	625	20
HFA-460L	330	460	500	1	3KA	770	20
HFA-500L	385	500	558	1	3KA	868	20
HFA-650L	460	650	680	1	3KA	900	20
HFA-1100L	770	1100	1200	1	3KA	2000	20
HFB-012L	8.5	12.8	14	1	6KA	80	20
HFB-015L	11	15	17	1	6KA	85	20
HFB-020L	14	20	22	1	6KA	90	20
HFB-025L	17	25	28	1	6KA	95	20
HFB-030L	21	30	33	1	6KA	100	20
HFB-042L	30	42	47	1	6KA	105	20
HFB-058L	40	58	64	1	6KA	110	20
HFB-066L	45	66	70	1	6KA	120	20
HFB-076L	54	76	85	1	6KA	140	20
HFB-100L	72	100	110	1	6KA	165	20
HFB-133L	100	133	147	1	6KA	220	20
HFB-150L	105	150	165	1	6KA	240	20
HFB-170L	130	170	180	1	6KA	260	20

HFB-190L	145	190	200	1	6KA	290	20
Part Number	Reverse Stand-Off Voltage		Breakdown Voltage	Test Current	Current Rating	Maximum Clamping Voltage	Reverse Leakage
	V _{AC} (V)	V _{DC} (V)	V _{BR} (V) MIN.@I _T	I _T (mA)	Rated I _{PP} measured with 8/20μs pulse	V _C (V)@I _{PP}	I _R (μA)@V _{DC}
HFB-200L	150	200	222	1	6KA	330	20
HFB-240L	180	240	250	1	6KA	340	20
HFB-275L	210	275	300	1	6KA	435	20
HFB-300L	230	300	330	1	6KA	470	20
HFB-380L	275	380	401	1	6KA	520	20
HFB-430L	310	430	440	1	6KA	625	20
HFC-012L	8.5	12.8	14	1	10KA	80	20
HFC-015L	11	15	17	1	10KA	85	20
HFC-020L	14	20	22	1	10KA	90	20
HFC-025L	17	25	28	1	10KA	95	20
HFC-030L	21	30	33	1	10KA	100	20
HFC-042L	30	42	47	1	10KA	105	20
HFC-058L	40	58	64	1	10KA	110	20
HFC-066L	45	66	70	1	10KA	120	20
HFC-076L	54	76	85	1	10KA	140	20
HFC-100L	72	100	110	1	10KA	165	20
HFC-133L	100	133	147	1	10KA	220	20
HFC-170L	130	170	180	1	10KA	260	20
HFC-190L	145	190	200	1	10KA	290	20
HFC-200L	150	200	222	1	10KA	330	20
HFC-240L	169	240	250	1	10KA	340	20
HFC-380L	275	380	401	1	10KA	520	20
HFC-430L	310	430	440	1	10KA	625	20
HFD-012L	8.5	12.8	14	1	16KA	80	20
HFD-015L	11	15	17	1	16KA	85	20
HFD-020L	14	20	22	1	16KA	90	20
HFD-025L	17	25	28	1	16KA	95	20
HFD-030L	21	30	33	1	16KA	100	20
HFD-042L	30	42	47	1	16KA	105	20
HFD-058L	40	58	64	1	16KA	110	20
HFD-066L	45	66	70	1	16KA	120	20
HFD-076L	54	76	85	1	16KA	140	20
HFD-100L	72	100	110	1	16KA	165	20
HFD-133L	100	133	147	1	16KA	220	20
HFD-170L	130	170	180	1	16KA	260	20
HFD-190L	145	190	200	1	16KA	290	20
HFD-200L	150	200	222	1	16KA	330	20

Notes: 1. TA=25°C unless otherwise specified

2. Using 8/20μs wave shape pulses as defined in IEC61000-4-5

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

Figure 1. Power Derating Curve

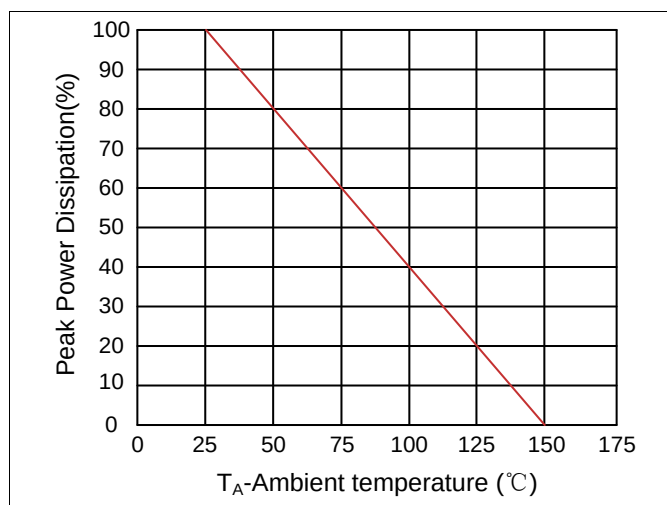
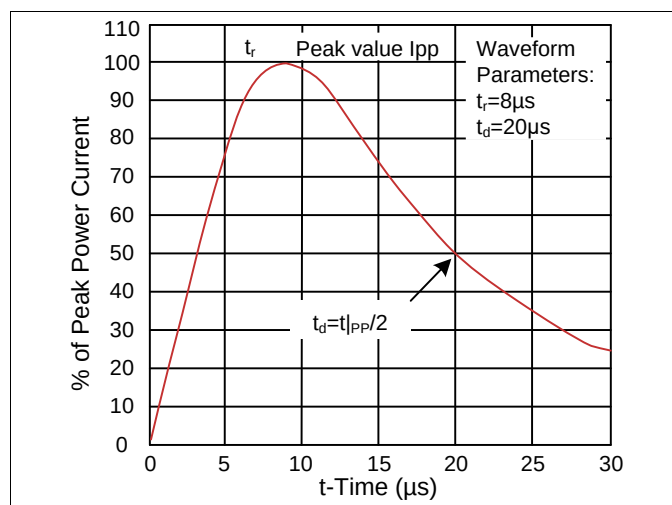
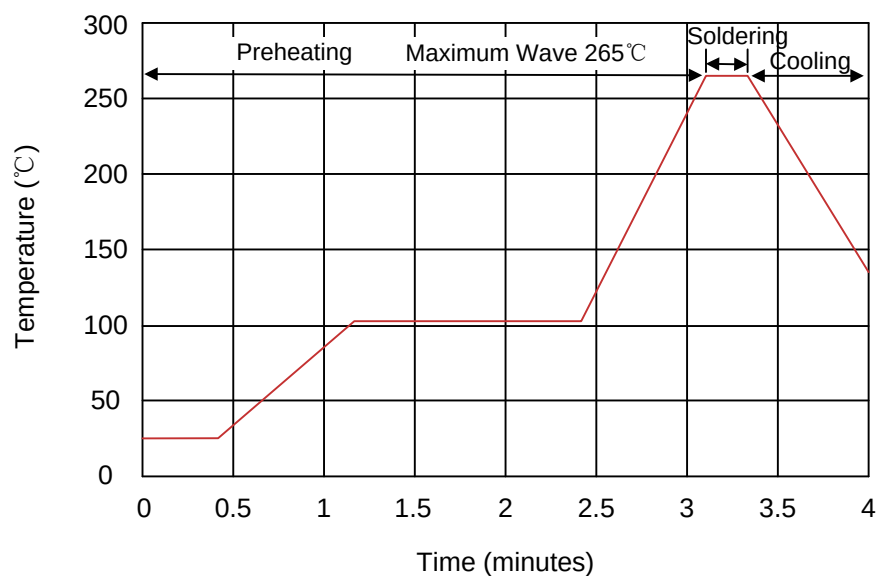


Figure 2. Pulse Waveform



Recommended Soldering Conditions

Wave Soldering

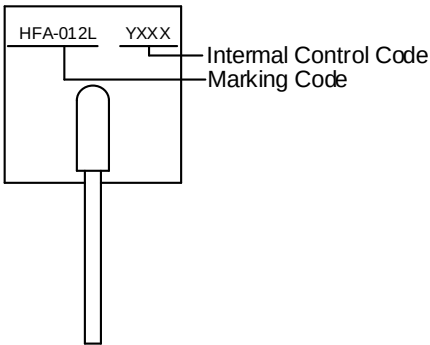


Recommended Conditions

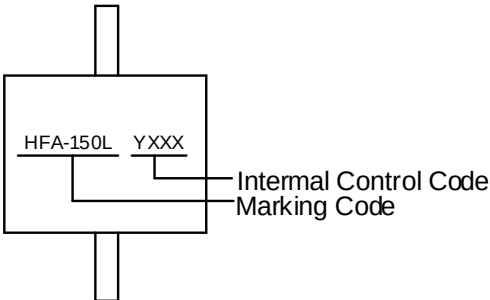
Item	Conditions
Peak Temperature	265°C
Dipping Time	10 seconds
Soldering	1 time

Part Number Code

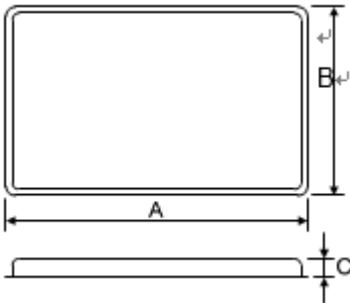
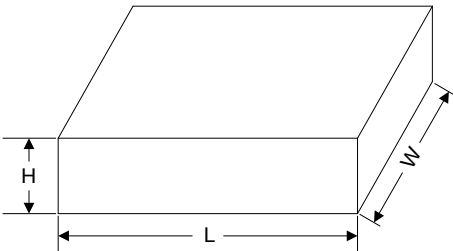
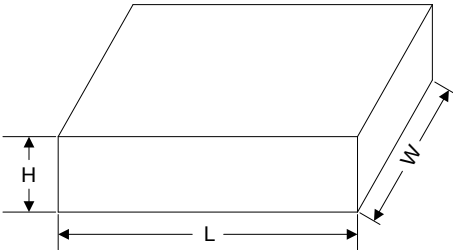
Side:



TCP:



Packaging

Skin packing			Symbol	Dimension (mm)
			A	230.0
			B	150.0
			C	15.0
HFA-012L~ HFA-200L; HFB-012L~HFB-076L; HFC-012L~HFC-042L; Inner Box			Quantity: 20PCS	
			L	250.0
			W	65.0
			H	165.0
HFA-240L~HFA-650L; HFB-100L~HFB-430L; HFC-058L~HFC-430L; HFD-012L~HFD-200L; Inner Box			Quantity: 80PCS	
			L	250.0
			W	65.0
			H	165.0
			Quantity: 60PCS	

LEGAL DISCLAIMER

YAGEO, its distributors and agents (collectively, "YAGEO"), hereby disclaims any and all liabilities for any errors, inaccuracies or incompleteness contained in any product related information, including but not limited to product specifications, datasheets, pictures and/or graphics. YAGEO may make changes, modifications and/or improvements to product related information at any time and without notice.

YAGEO makes no representation, warranty, and/or guarantee about the fitness of its products for any particular purpose or the continuing production of any of its products. To the maximum extent permitted by law, YAGEO disclaims (i) any and all liability arising out of the application or use of any YAGEO product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for a particular purpose, non-infringement and merchantability.

YAGEO products are designed for general purpose applications under normal operation and usage conditions. Please contact YAGEO for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property: Aerospace equipment (artificial satellite, rocket, etc.), Atomic energy-related equipment, Aviation equipment, Disaster prevention equipment, crime prevention equipment, Electric heating apparatus, burning equipment, Highly public information network equipment, data-processing equipment, Medical devices, Military equipment, Power generation control equipment, Safety equipment, Traffic signal equipment, Transportation equipment and Undersea equipment, or for any other application or use in which the failure of YAGEO products could result in personal injury or death, or serious property damage. Particularly **YAGEO Corporation and its affiliates do not recommend the use of commercial or automotive grade products for high reliability applications or manned space flight.**

Information provided here is intended to indicate product specifications only. YAGEO reserves all the rights for revising this content without further notification, as long as products are unchanged. Any product change will be announced by PCN.