

6600W Transient Voltage Suppressor (TVS)

TH8S Series
15 To 43 V
6600W

Description

The TH8S series of high current uni/bi-directional transient suppressors are designed for A.C. line protection and high power DC bus clamping applications. These devices offer uni/bi-directional port protection from 15 volts to 43 volts.

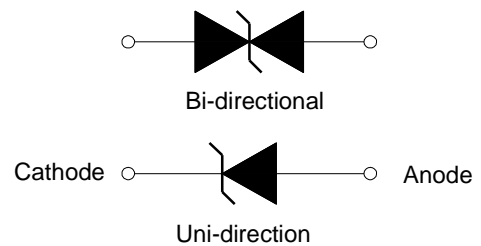
They provide a clamping voltage lower than the avalanche voltage. Therefore, any voltage rise due to increased current conduction is contained to a minimum, providing the best possible protection level. They can also be connected in series and/or parallel to create very high capacity protection solutions.



Features

- ⌌ Low zener impedance.
- ⌌ Excellent clamping capability.
- ⌌ JEDEC R-6/P-600 Molded Plastic.
- ⌌ Repetition rate (duty cycle): 0.01%.
- ⌌ Color band denoted cathode except bidirectional.
- ⌌ High temperature soldering: 260°C/10s at terminals.
- ⌌ Glass passivated chip junction in R-6/P600 package.
- ⌌ 6600W Peak Pulse power capability at 10×1000μs waveform.
- ⌌ Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- ⌌ AEC-Q101 qualified.

Functional Diagram



Absolute Maximum Ratings (T_A=25°C, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 10/1000μs waveform	P _{PP}	6600	W
Peak pulse current of on 10/1000μs waveform	I _{PP}	See Next Table	A
Steady state power dissipation at T _L =75°C	P _{M(AV)}	8	W
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +150	°C
Peak forward surge current, 8.3 ms single half sine-wave	I _{FSM}	500	A

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Electrical Characteristics (T_A=25°C)

Part Number		V _R	I _R @V _R	V _{BR} @I _T		I _T	V _C @I _{PP}	I _{PP} ^①
Uni	Bi	(V)	μA	min(V)	max(V)	mA	max(V)	A
TH8S15A	TH8S15CA	15	5	16.7	18.5	5	24.4	270.5
TH8S16A	TH8S16CA	16	5	17.8	19.7	5	26.0	253.8
TH8S18A	TH8S18CA	18	5	20.0	22.1	5	29.2	226.0
TH8S20A	TH8S20CA	20	5	22.2	24.5	5	32.4	203.7
TH8S22A	TH8S22CA	22	5	24.4	26.9	5	35.5	186.0
TH8S24A	TH8S24CA	24	5	26.7	29.5	5	38.9	169.6
TH8S26A	TH8S26CA	26	5	28.9	31.9	5	42.1	156.8
TH8S28A	TH8S28CA	28	5	31.1	34.4	5	45.4	145.4
TH8S30A	TH8S30CA	30	5	33.3	36.8	5	48.4	136.3
TH8S33A	TH8S33CA	33	5	36.7	40.6	5	53.3	123.8
TH8S36A	TH8S36CA	36	5	40.0	44.2	5	58.1	113.6
TH8S40A	TH8S40CA	40	5	44.4	49.1	5	64.5	102.3
TH8S43A	TH8S43CA	43	5	47.8	52.8	5	69.4	95.1

Note:

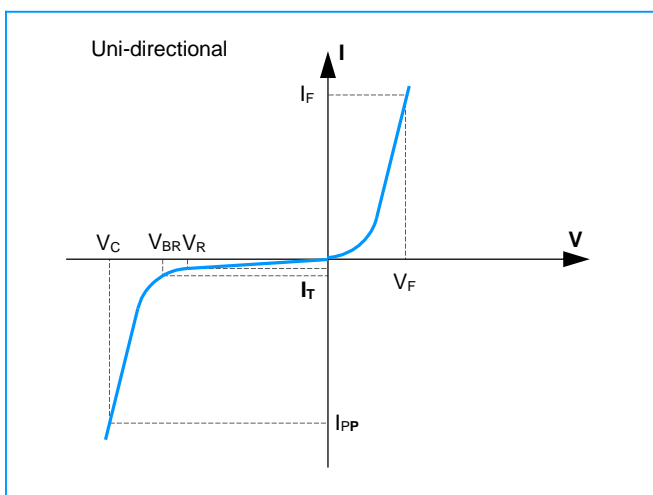
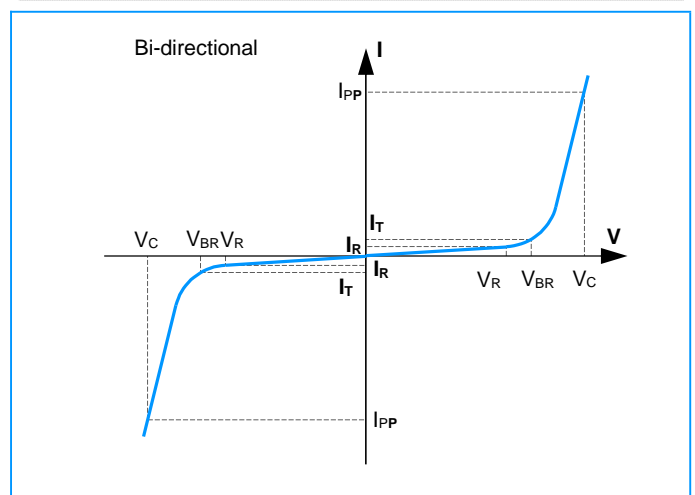
① Surge waveform: 10/1000μs.

 V_R: Stand-off Voltage -- Maximum voltage that can be applied.

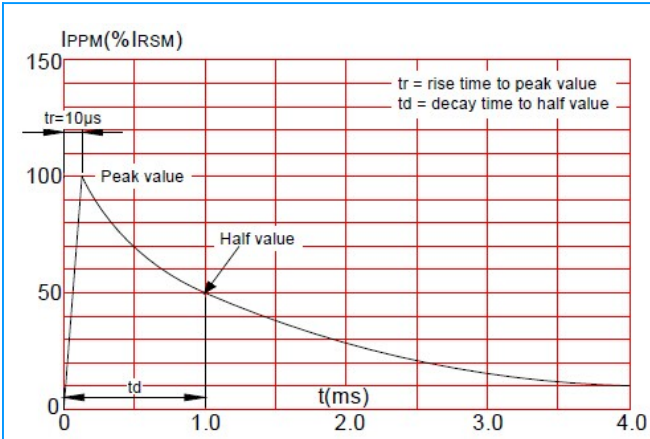
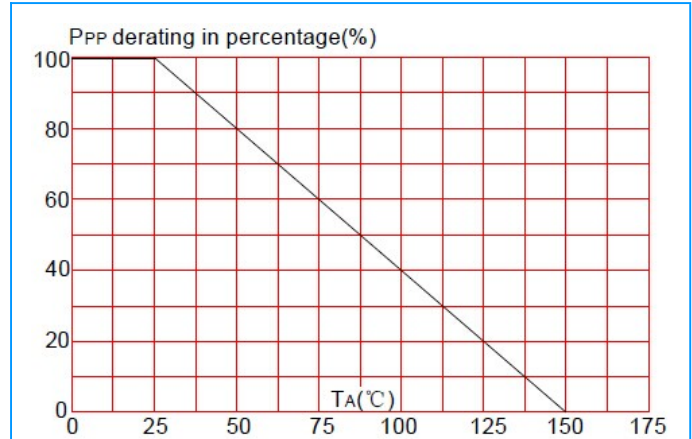
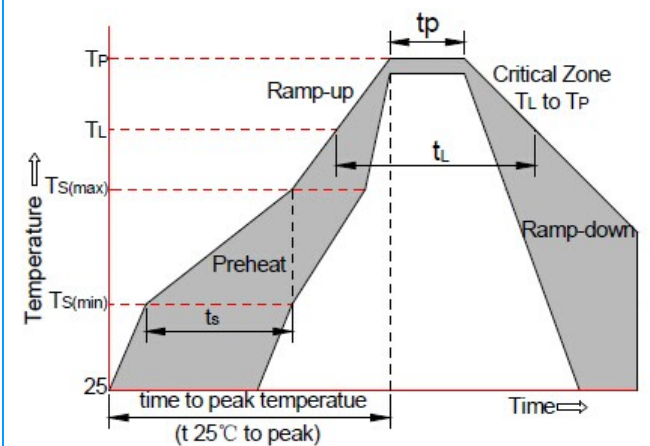
 V_{BR}: Breakdown Voltage.

 V_C: Clamping Voltage -- Peak voltage measured across the suppressor at a specified I_{pp}.

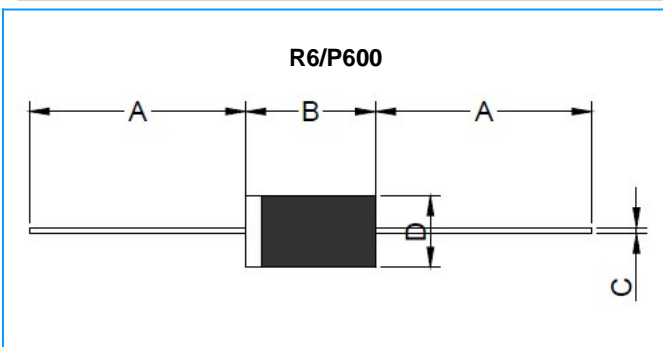
 I_R: Reverse Leakage Current.

Ratings and Characteristic Curves (T_A=25°C unless otherwise noted)
Fig.1 : V- I Curve Characteristics

Fig.2 : V- I Curve Characteristics


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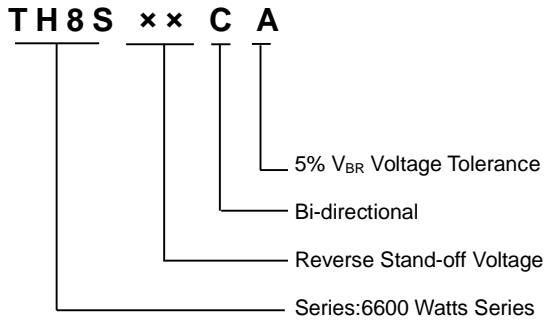
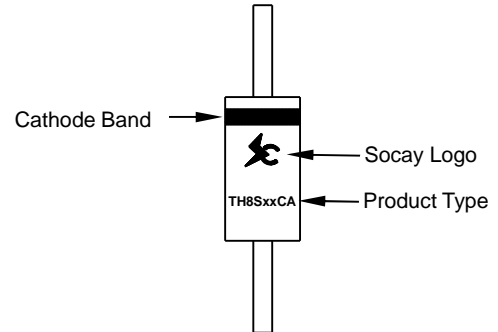
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Fig.3 : Pulse Waveform

Fig.4 : Pulse Derating Curve

Soldering Parameters
Fig.5 : Reflow Condition


Reflow Condition		Pb-Free assembly (see Fig.5)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max ($T_{s(max)}$)	+200°C
	- Time (Min to Max) (T_s)	60 -180 secs.
Average ramp up rate (Liquid μs Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	- Temperature (T_L) (Liquid μ s)	+217°C
	- Time (t_L)	60 -150 secs.
Peak Temperature (T_P)		260(+0/-5)°C
Time within 5°C of actual peak Temperature (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temperature (T_P)		8 min. Max
Do not exceed		+260°C

Package Mechanical Data


Ref.	Dimensions			
	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	1.000	—	25.40	—
B	0.339	0.370	8.60	9.40
C	0.048	0.052	1.20	1.40
D	0.340	0.360	8.60	9.10

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Part Numbering

Part Marking

Packaging

Part Number	Component Package	Quantity	Packaging Option
TH8SXXA/CA	R6/P600	800 PCS	Reel