

UNIDIRECTIONAL TRANSIENT VOLTAGE SUPPRESSORS

- HIGH SURGE CAPABILITY :
1.8 kW / 15 ms EXPO
- VERY FAST CLAMPING TIME : 1 ps



DESCRIPTION

Transient voltage suppressor diodes especially designed for load dump effect protection.

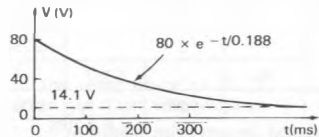
ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
P_p	Peak Pulse Power for 15 ms Exponential Pulse	T_j Initial = 25 °C See note 1	1800	W
P	Power Dissipation on Infinite Heatsink	$T_{amb} = 75$ °C	5	W
I_{FSM}	Non Repetitive Surge Peak Forward Current	T_j Initial = 25 °C $t = 10$ ms	200	A
T_{stg} T_j	Storage and Operating Junction Temperature Range		- 65 to 150 150	°C °C
T_L	Maximum Lead Temperature for Soldering During 10 s at 4 mm from Case		230	°C

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-l)}$	Junction-leads on Infinite Heatsink for $L_{lead} = 10$ mm	15	°C/W

Note : 1. For surges upper than the maximum values, the diode will present a short-circuit anode-cathode.



LOAD DUMP TRANSIENT (standard SAE J1113A1)
DB8TRANSIL2

ELECTRICAL CHARACTERISTICS ($T_j = 25^\circ\text{C}$)

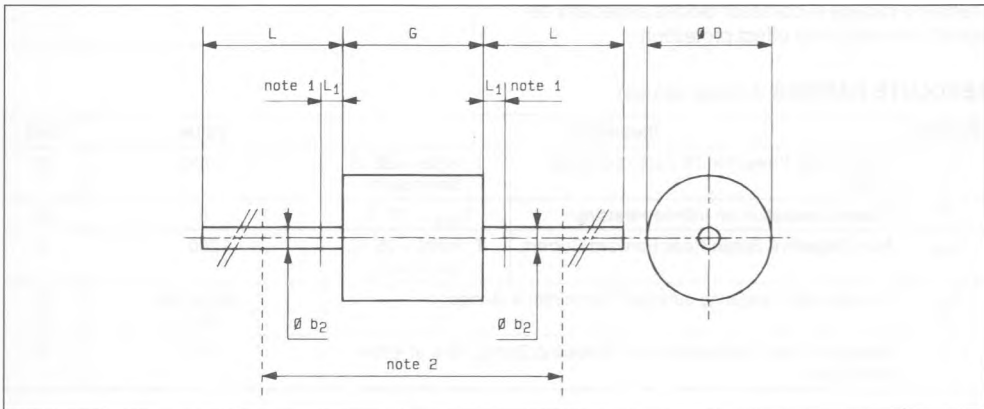
Symbol	Parameter	Value
V_{RM}	Stand-off Voltage	See table
$V_{(BR)}$	Breakdown Voltage	
$V_{(CL)}$	Clamping Voltage	
I_{pp}	Peak Pulse Current	
α_T	Temperature Coefficient of $V_{(BR)}$	
C	Capacitance	
$t_{clamping}$	Clamping Time (0 volt to $V_{(BR)}$)	1 ps max.
V_F	Peak Forward Voltage Drop ($I_{FM} = 10\text{ A}$)	1.9 V max.

Unidirectional Types	$I_{RM} @ V_{RM}$ max.		$V_{(BR)}^* @ I_R$ (V)		$V_{CL} @ I_{pp}$ max. 15 ms expo.		α_T max.	C typ. $V_R = 0$ f = 1 MHz
	(μA)	(V)	min.	(mA)	(V)	(A)	($10^{-4}/^\circ\text{C}$)	(pF)
BZW100-20	50	20	24	1	36	50	9.6	4250
BZW100-24	50	24	29	1	40	45	9.8	3500

* Pulse test $t_p \leq 50\text{ ms}$ $\delta < 2\%$.

PACKAGE MECHANICAL DATA

AG Plastic



Ref.	Millimeters		Inches		Notes
	Min.	Max.	Min.	Max.	
$\varnothing b_2$	1.35	1.45	0.053	0.057	1 - The lead diameter $\varnothing b_2$ is not controlled over zone L_1 . 2 - The minimum axial length within which the device may be placed with its leads bent at right angles is 0.79" (20 mm).
$\varnothing D$	-	8	-	0.315	
G	-	9	-	0.354	
L	20	-	0.787	-	
L_1	-	1.27	-	0.050	

Cooling method : by convection (method A).
 Marking : type number ; white band indicates cathode.
 Weight : 1 g.

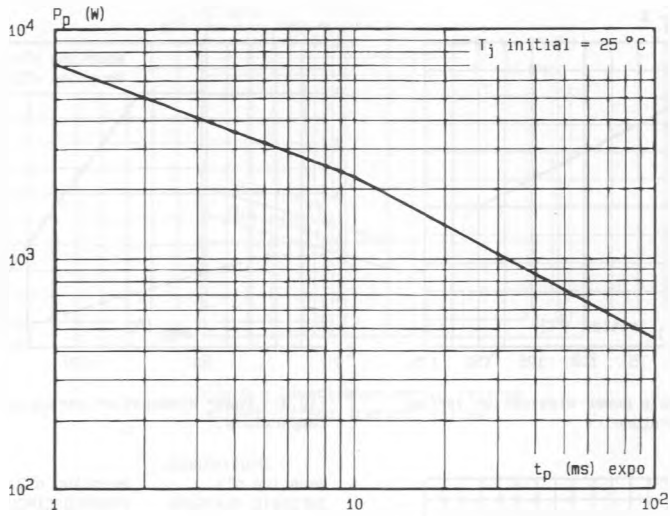


Fig.1 - Peak pulse power versus exponential pulse duration.

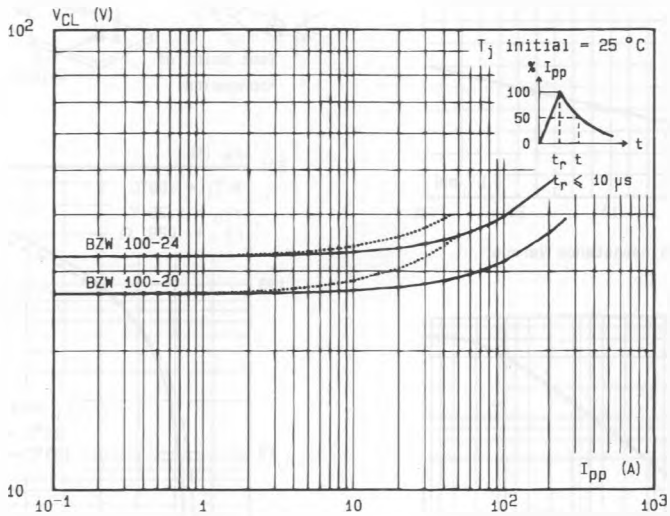


Fig.2 - Clamping voltage versus peak pulse current exponential waveform $t = 15\text{ ms}$
 $t = 1\text{ ms}$ —

Note : The curves of the figure 2 are specified for a junction temperature of $25\text{ }^\circ\text{C}$ before surge. The given results may be extrapolated for other junction temperatures by using the following formula : $\Delta V (BR) = \alpha_T [V (BR)] \times [T_j - 25] \times V (BR)$
For intermediate voltages, extrapolate the given results.

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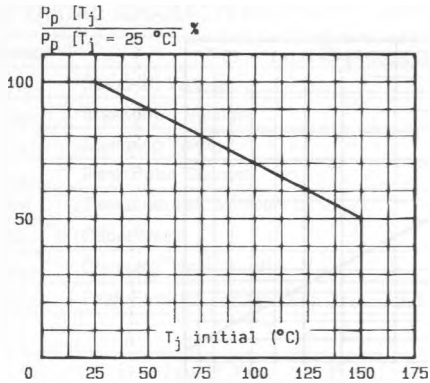


Fig.3 - Allowable power dissipation versus junction temperature.

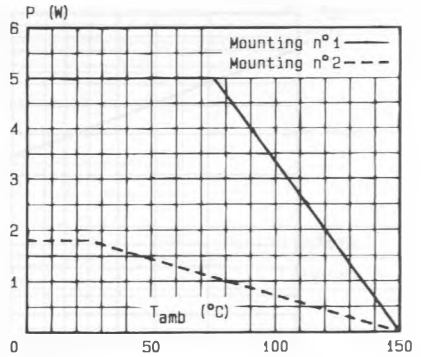


Fig.4 - Power dissipation versus ambient temperature.

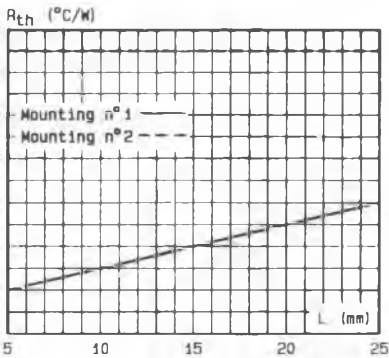


Fig.5 - Thermal resistance versus lead length.

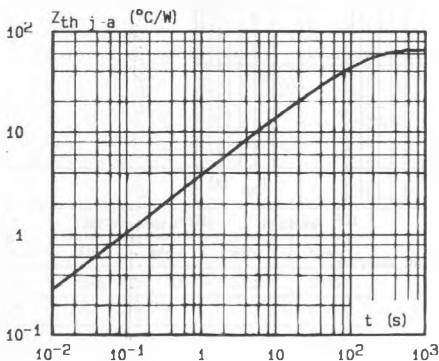
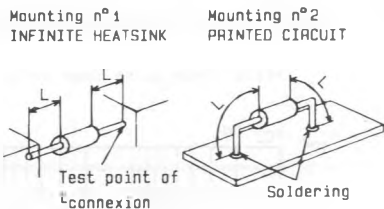


Fig.6 - Transient thermal impedance junction-ambient for mounting n°2 versus pulse duration (L = 10 mm).

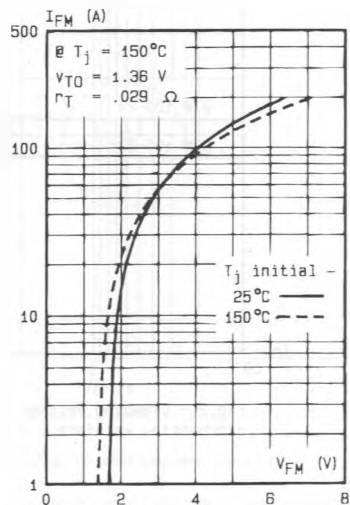


Fig.7 - Peak forward current versus peak forward voltage drop (maximum values).

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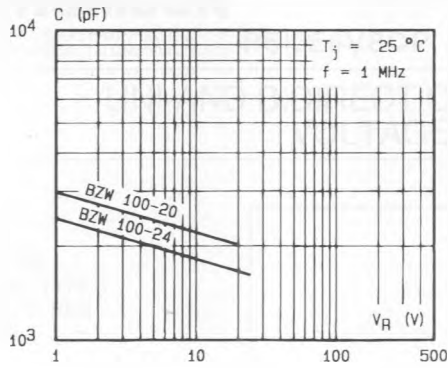


Fig.8 - Capacitance versus reverse applied voltage (typical values).

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