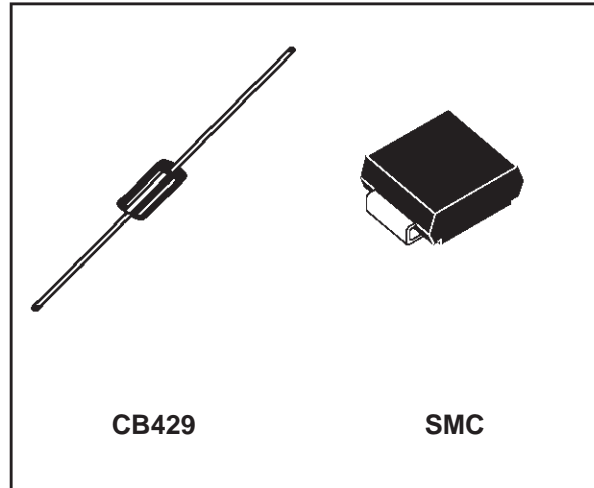


FEATURES

- UNIDIRECTIONAL TRANSIL DIODE
- PEAK PULSE POWER : 1500 W (10/100µs)
- REVERSE STAND OFF VOLTAGE : 5 V
- LOW CLAMPING FACTOR
- FAST RESPONSE TIME
- UL RECOGNIZED

DESCRIPTION

The 1N5908 and SM5908 are dedicated to the 5 V logic circuit protection (TTL and CMOS technologies). Their low clamping voltage at high current level guarantees excellent protection for sensitive components.



ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25^{\circ}\text{C}$).

Symbol	Parameter		Value	Unit
P _{PP}	Peak pulse power dissipation (see note1)	$T_j \text{ initial} = T_{amb}$	1500	W
P	Power dissipation on infinite heatsink	$T_{amb} = 75^{\circ}\text{C}$	5	W
I _{FSM}	Non repetitive surge peak forward current for unidirectional types	$t_p = 10\text{ms}$ $T_j \text{ initial} = T_{amb}$	200	A
T _{stg} T _j	Storage temperature range Maximum junction temperature		- 65 to + 175 175	$^{\circ}\text{C}$ $^{\circ}\text{C}$
T _L	Maximum lead temperature for soldering during 10s (at 5mm from case for CB429)	CB429 SMC	230 260	$^{\circ}\text{C}$ $^{\circ}\text{C}$

Note 1 : For a surge greater than the maximum values, the diode will fail in short-circuit.

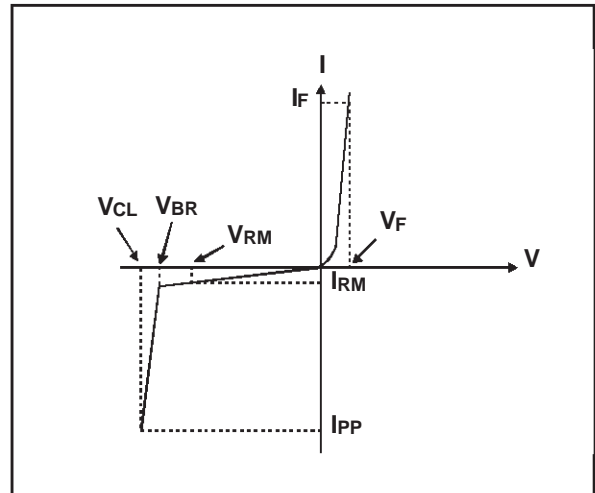
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit	
R _{th (j-l)}	Junction to leads		20	$^{\circ}\text{C/W}$	
R _{th (j-a)}	Junction to ambient on printed circuit.	L lead = 10 mm	CB429	75	$^{\circ}\text{C/W}$
		On recommended pad layout	SMC	75	$^{\circ}\text{C/W}$

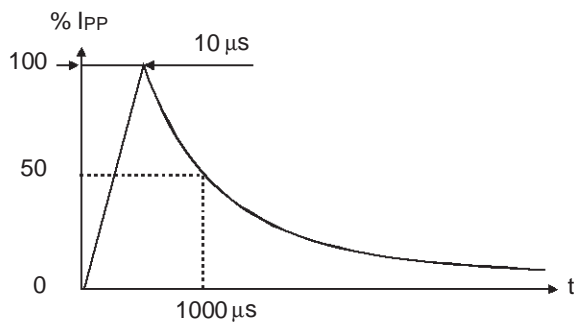
1N5908/SM5908

ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C)

Symbol	Parameter
V _{RM}	Stand-off voltage
V _{BR}	Breakdown voltage
V _{CL}	Clamping voltage
I _{RM}	Leakage current @ V _{RM}
I _{PP}	Peak pulse current
α _T	Voltage temperature coefficient
V _F	Forward voltage



Types	I _{RM} @ V _{RM}		V _{BR} @ I _R		V _{CL} @ I _{PP}		V _{CL} @ I _{PP}		V _{CL} @ I _{PP}		α _T	C
	max		min		max		max		max		max	typ
	μA	V	V	mA	V	A	V	A	V	A	10 ⁻⁴ /°C	pF
1N5908 SM5908	300	5	6	1	7.6	30	8	60	8.5	120	5.7	9500



Note 2: Pulse test : t_p < 50ms

Note 3: ΔV_{BR} = α_T(T_{amb}-25) * V_{BR} (25°C).

Note 4: V_R = 0V, F = 1 MHz

Fig. 1: Peak pulse power dissipation versus initial junction temperature (printed circuit board).

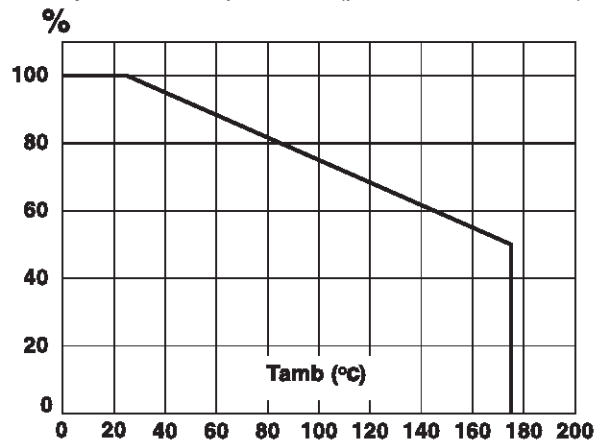


Fig. 2 : Peak pulse power versus exponential pulse duration.

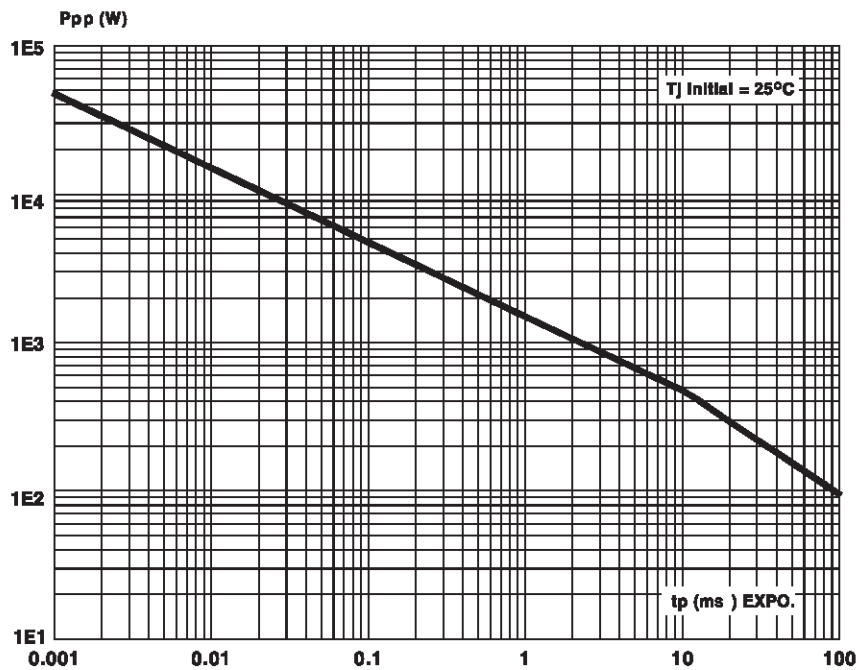
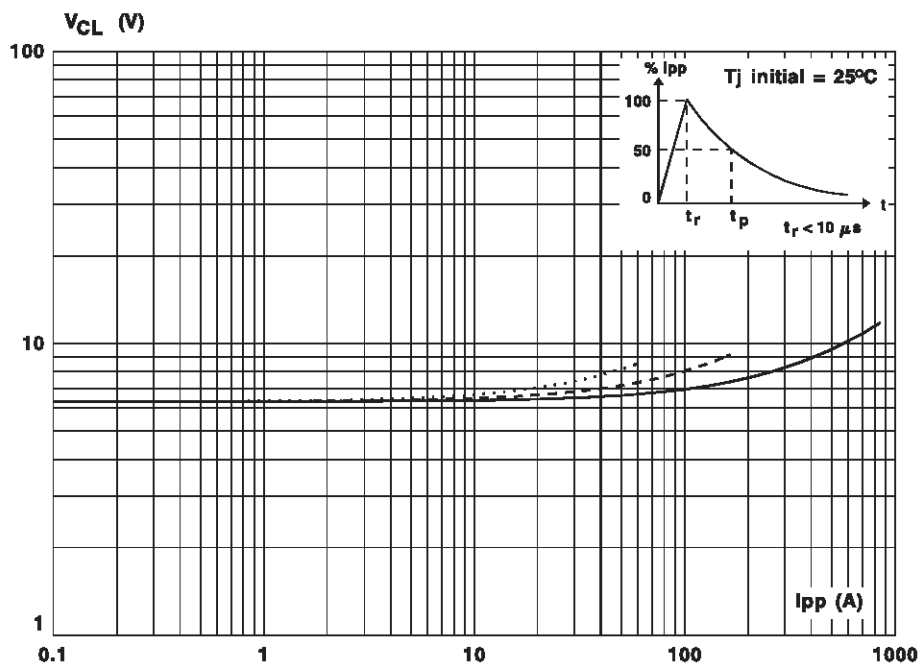


Fig. 3 : Clamping voltage versus peak pulse current.
 Exponential waveform $t_p = 10\text{ ms}$
 $t_p = 1\text{ ms}$ -----
 $t_p = 20\ \mu\text{s}$ _____



Note : The curves of the figure 3 are specified for a junction temperature of 25 °C before surge.
 The given results may be extrapolated for other junction temperatures by using the following formula :
 $\Delta V_{BR} = \alpha T (T_{amb} - 25) * V_{BR} (25^\circ\text{C})$.

1N5908/SM5908

Fig. 4 : Capacitance versus reverse applied voltage (typical values).

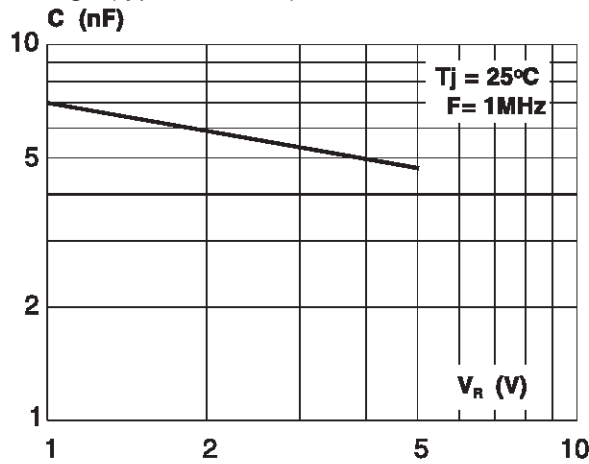


Fig. 5 : Peak forward voltage drop versus peak forward current.

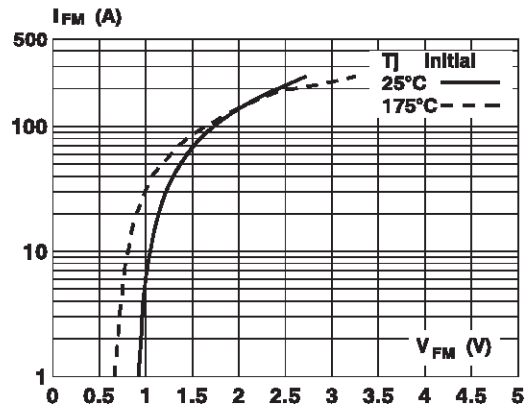


Fig. 6a/6b : Transient thermal impedance junction-ambient versus pulse duration.

Fig. 6a : CB429 Package.
(For FR4 PC Board with $L_{lead} = 10$ mm)

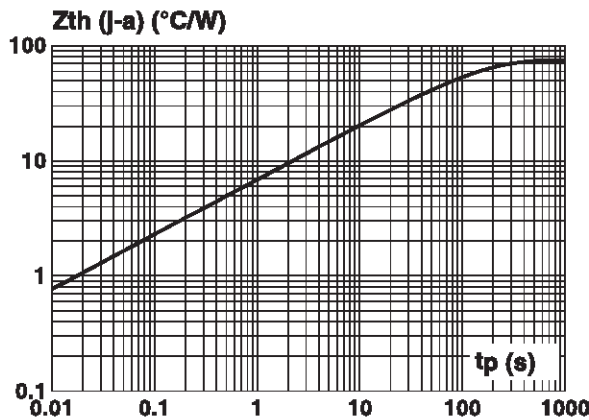


Fig. 6b : SMC Package.
Mounting on FR4 PC Board with recommended pad layout.

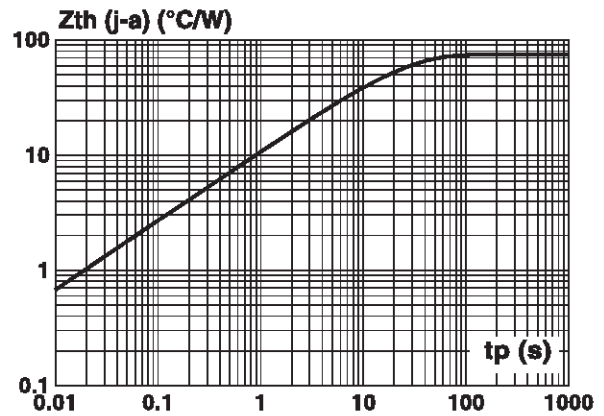
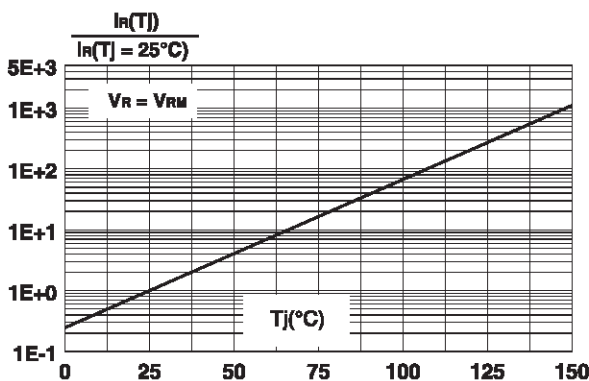
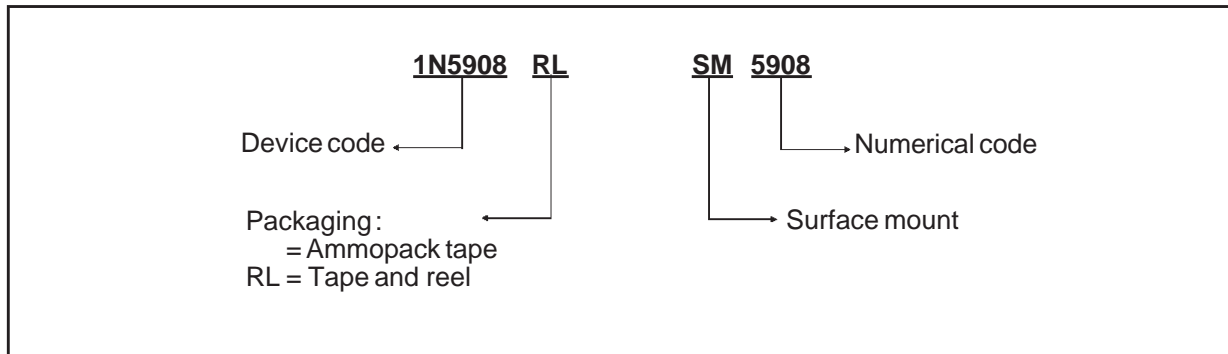


Fig. 7 : Relative variation of leakage current versus junction temperature.



ORDER CODE



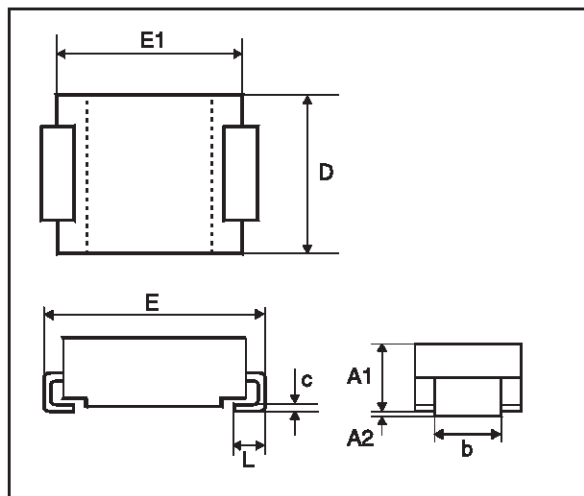
MARKING : Logo, type code and cathode band

Package	Type	Marking
SMC	SM5908	MDC
CB429	1N5908	1N5908

A white band indicates the cathode

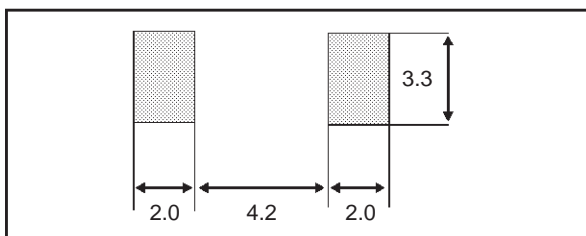
PACKAGE MECHANICAL DATA

SMC (Plastic)



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A1	2.40	2.70	3.00	0.094	0.106	0.118
A2	0.05		0.20	0.002		0.008
b	2.90		3.10	0.114		0.122
c	0.29		0.32	0.011		0.013
E1	6.30	6.40	6.60	0.248	0.252	0.260
D	4.80	5.00	5.20	0.189	0.197	0.205
E	7.60	7.80	8.00	0.299	0.307	0.315
L	1.30		1.70	0.051		0.067

FOOT PRINT (in millimeters)



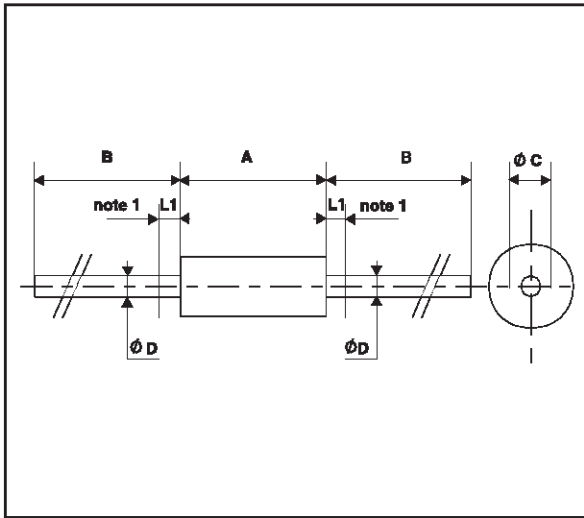
Packaging : Standard packaging is in tape and reel.

Weight = 0.25 g.

1N5908/SM5908

PACKAGE MECHANICAL DATA

CB429 (Plastic)



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.45	9.50	9.80	0.372	0.374	0.386
B	26			1.024		
Ø C	4.90	5.00	5.10	0.193	0.197	0.201
Ø D	0.94	1.00	1.06	0.037	0.039	0.042
L1			1.27			0.050
Note : The lead is not controlled within zone L ₁						

Packaging : Standard packaging is in tape and reel.

Weight = 0.85 g.

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1998 SGS-THOMSON Microelectronics - Printed in Italy - All rights reserved.

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - France - Germany - Italy - Japan - Korea - Malaysia - Malta - Morocco
The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.