



1N5908
SM5908

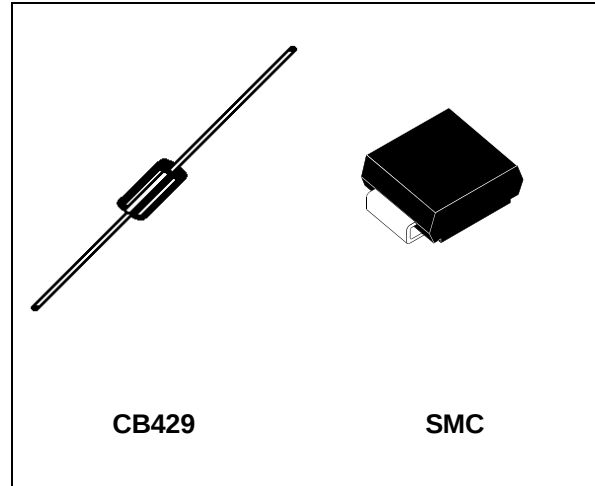
TRANSIL™

FEATURES

- UNIDIRECTIONAL TRANSIL DIODE
- PEAK PULSE POWER : 1500 W (10/1000μs)
- 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	$^{\circ}\text{C}$ $^{\circ}\text{C}$

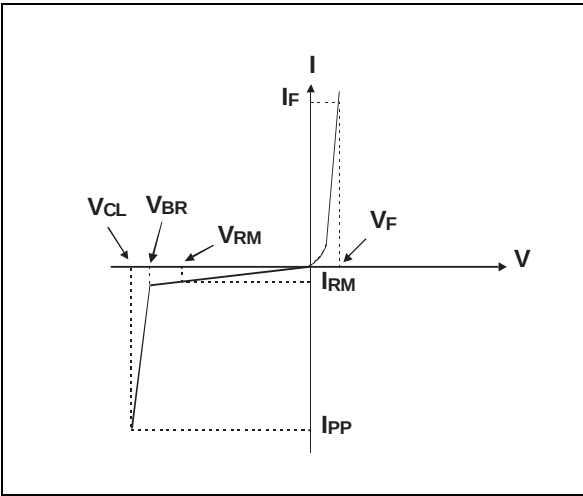
Note 1 : For a surge greater than the maximum values, the diode will fail in short-circuit.

THERMAL RESISTANCES

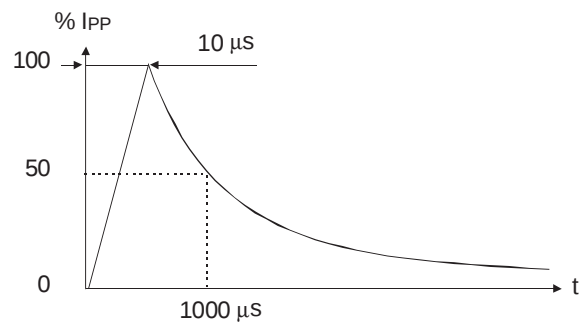
Symbol	Parameter			Value	Unit
$R_{th(j-l)}$	Junction to leads			20	$^{\circ}\text{C/W}$
$R_{th(j-a)}$	Junction to ambient on printed circuit.	L lead = 10 mm	CB429	75	$^{\circ}\text{C/W}$
		On recommended pad layout	SMC	75	$^{\circ}\text{C/W}$

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

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
αT	Voltage temperature coefficient
V_F	Forward voltage



Types	$I_{RM} @ V_{RM}$ max		$V_{BR} @ I_R$ min note2		$V_{CL} @ I_{PP}$ max 10/1000 μs		$V_{CL} @ I_{PP}$ max 10/1000 μs		$V_{CL} @ I_{PP}$ max 10/1000 μs		αT max note3	C typ note4
	μA	V	V	mA	V	A	V	A	V	A	$10^{-4}/^{\circ}\text{C}$	pF
1N5908 SM5908	300	5	6	1	7.6	30	8	60	8.5	120	5.7	9500



Note 2 : Pulse test : $t_p < 50\text{ms}$
Note 3 : $\Delta V_{BR} = \alpha T (T_{amb} - 25) \cdot V_{BR} (25^{\circ}\text{C})$.
Note 4 : $V_R = 0\text{V}$, $F = 1\text{MHz}$

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

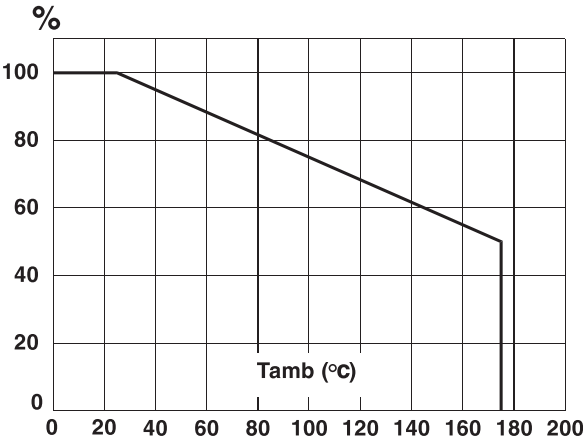


Fig. 2 : Peak pulse power versus exponential pulse duration.

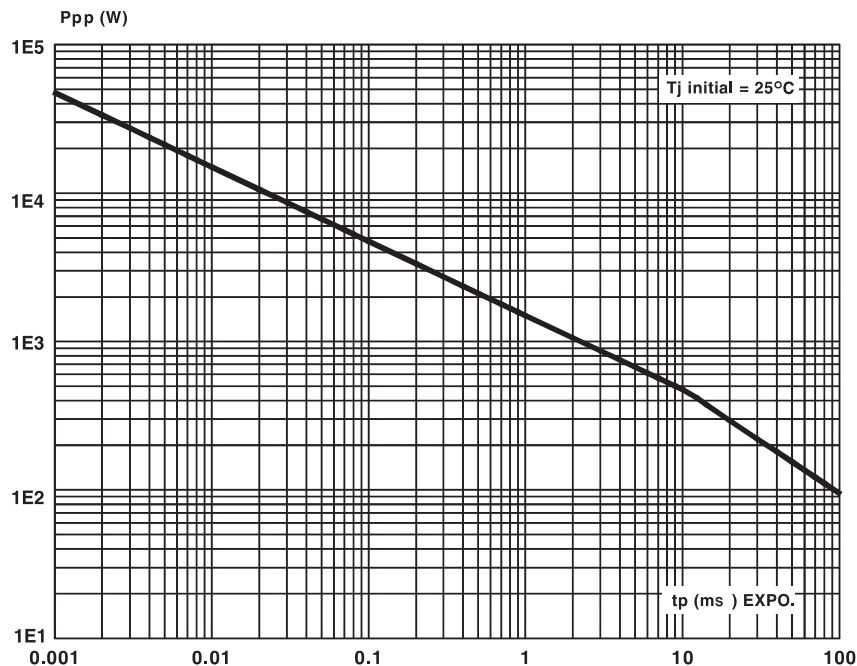
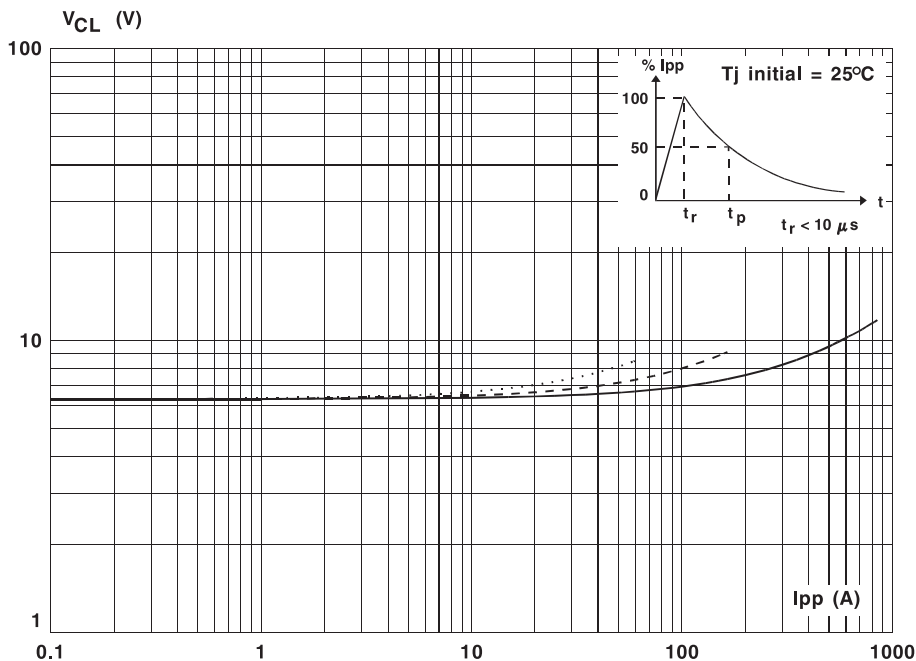


Fig. 3 : Clamping voltage versus peak pulse current.
Exponential waveform $t_p = 10\text{ ms}$
 $t_p = 1\text{ ms}$ -----
 $t_p = 20\text{ }\mu\text{s}$ _____



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 :
 $\Delta V_{BR} = \alpha T (T_{amb} - 25) * V_{BR} (25^\circ\text{C})$.

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

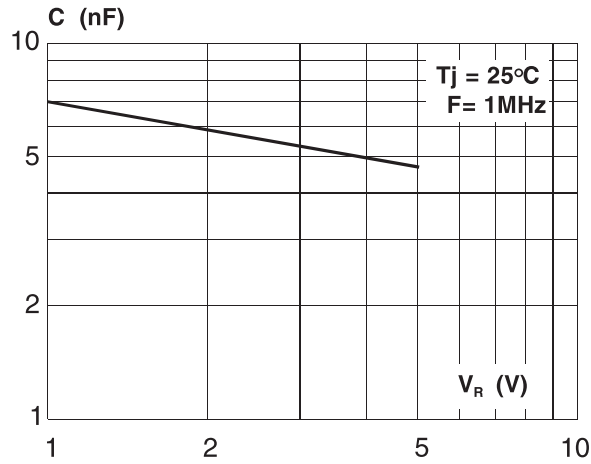


Fig. 5 : Peak forward voltage drop versus peak forward current.

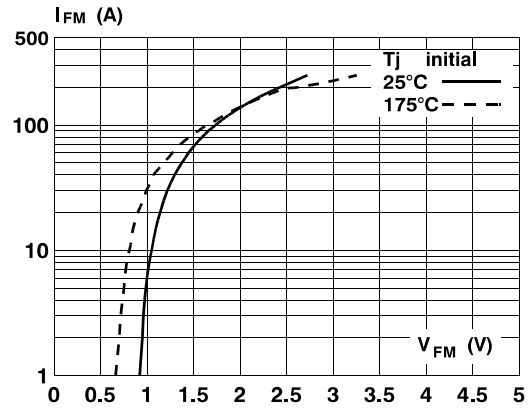


Fig. 6a/6b : Transient thermal impedance junction-ambient versus pulse duration.

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

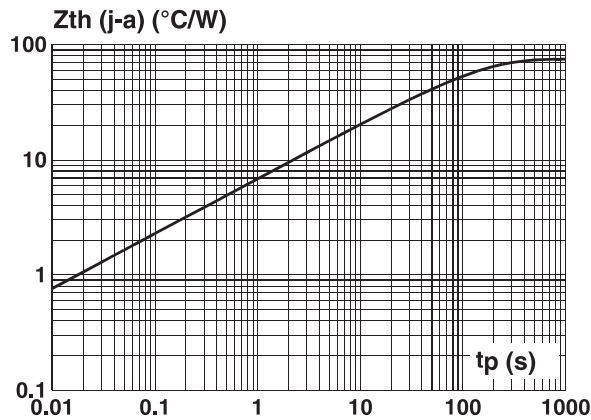


Fig. 6b : SMC Package.
Mounting on FR4 PC Board with recommended pad layout.

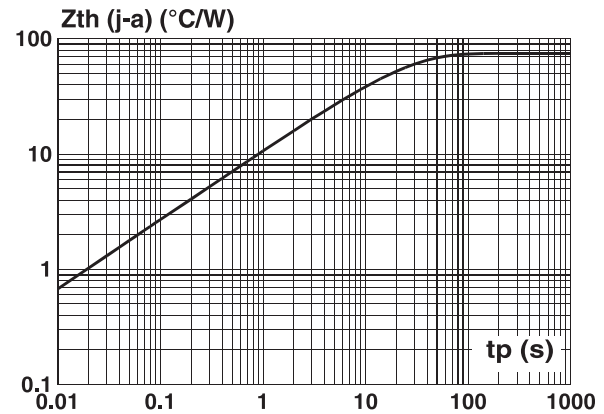
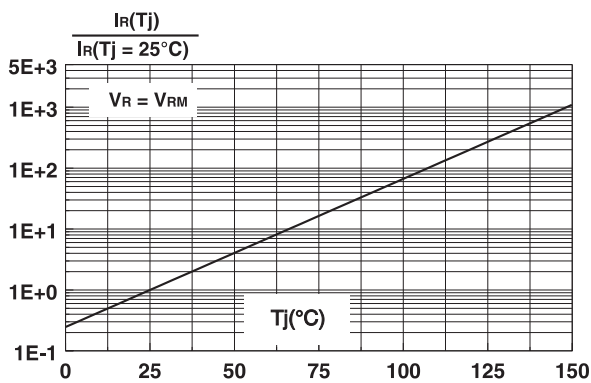
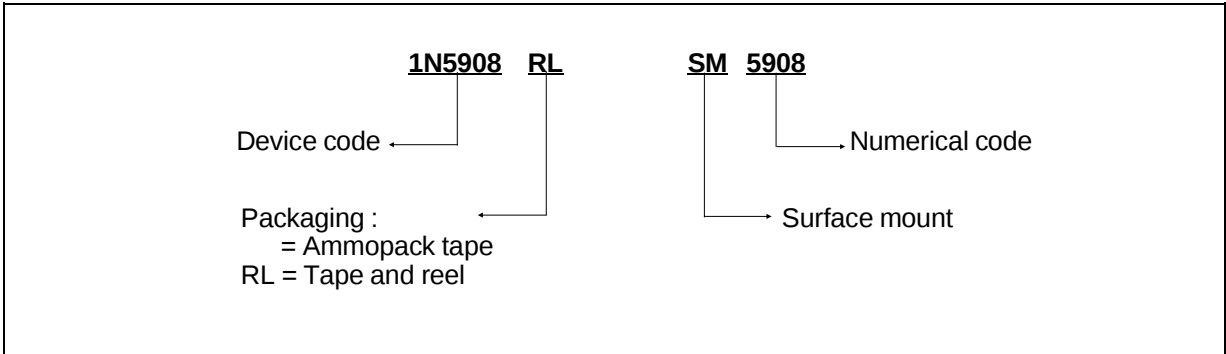


Fig. 7 : Relative variation of leakage current versus junction temperature.



ORDER CODE

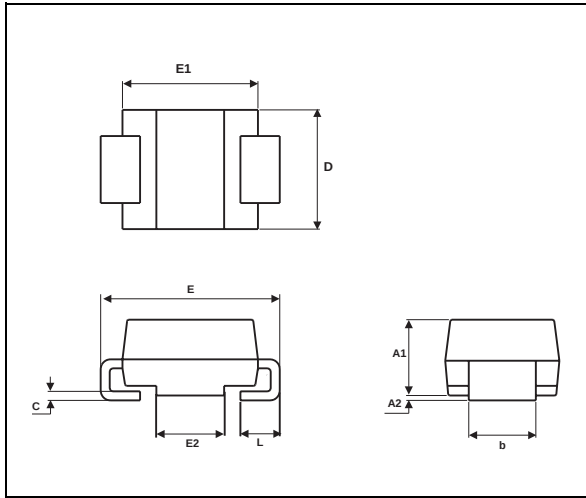


MARKING : Logo, type code and cathode band

Package	Type	Marking
SMC	SM5908	MDC
CB429	1N5908	1N5908

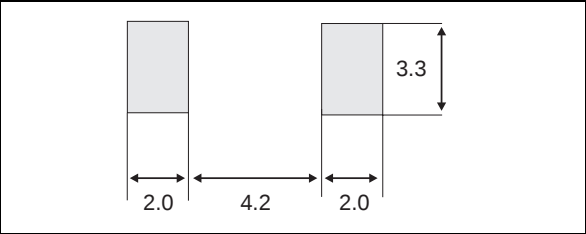
A white band indicates the cathode

PACKAGE MECHANICAL DATA
SMC (Plastic)



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A1	1.90	2.45	0.075	0.096
A2	0.05	0.20	0.002	0.008
b	2.90	3.2	0.114	0.126
c	0.15	0.41	0.006	0.016
E	7.75	8.15	0.305	0.321
E1	6.60	7.15	0.260	0.281
E2	4.40	4.70	0.173	0.185
D	5.55	6.25	0.218	0.246
L	0.75	1.60	0.030	0.063

FOOT PRINT (in millimeters)



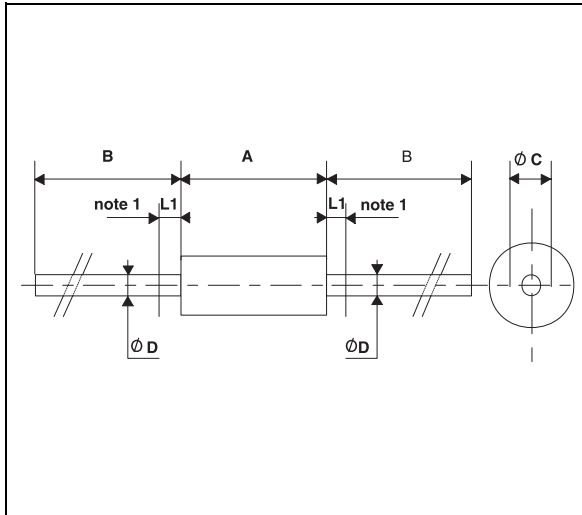
Packaging : Standard packaging is in tape and reel.

Weight = 0.25 g.

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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		
ϕC	4.90	5.00	5.10	0.193	0.197	0.201
ϕD	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.

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