1N5908
SM5908

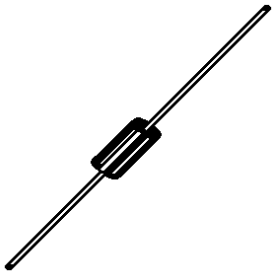
TRANSIL™

FEATURES

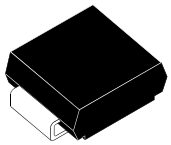
- UNIDIRECTIONAL TRANSIL DIODE
- PEAK PULSE POWER : 1500 W (10/1000µs)
- REVERSE STAND OFF VOLTAGE : 5 V
- LOW CLAMPING FACTOR
- FAST RESPONSE TIME
- UL RECOGNIZED

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.



CB429



SMC

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25°C).

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

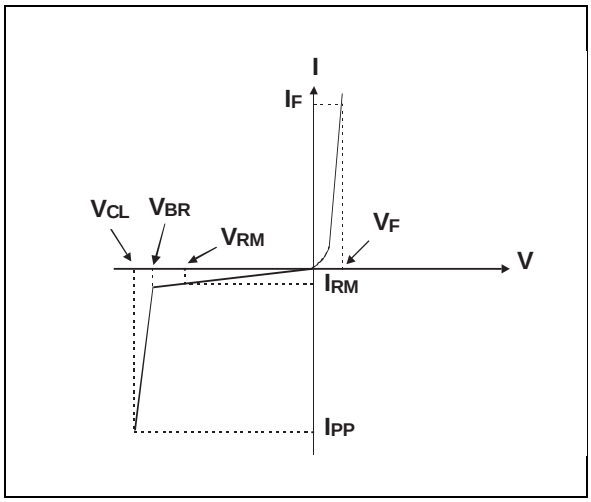
Note 1 : For a surge greater than the maximum values, the diode will fail in short-circuit.

THERMAL RESISTANCES

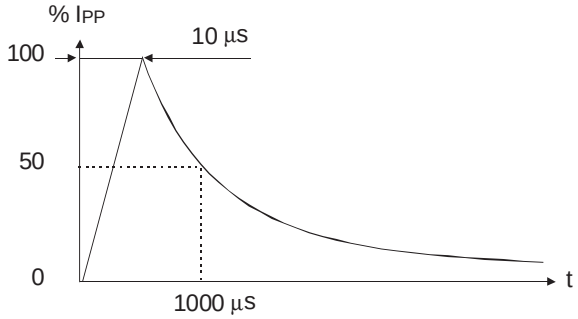
Symbol	Parameter			Value	Unit
$R_{th\ (j-l)}$	Junction to leads			20	°C/W
$R_{th\ (j-a)}$	Junction to ambient on printed circuit.	L lead = 10 mm	CB429	75	°C/W
		On recommended pad layout	SMC	75	°C/W

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
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 10/1000µs		V_{CL} @ I_{PP} max 10/1000µs		V_{CL} @ I_{PP} max 10/1000µs		αT max note3	C typ note4
	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 : tp < 50ms

Note 3 : $\Delta V_{BR} = \alpha T^*(T_{amb}-25)^* V_{BR}$ (25°C).

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

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

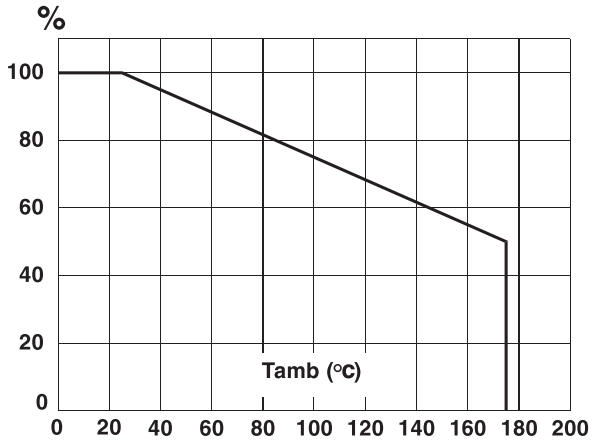


Fig. 2 : Peak pulse power versus exponential pulse duration.

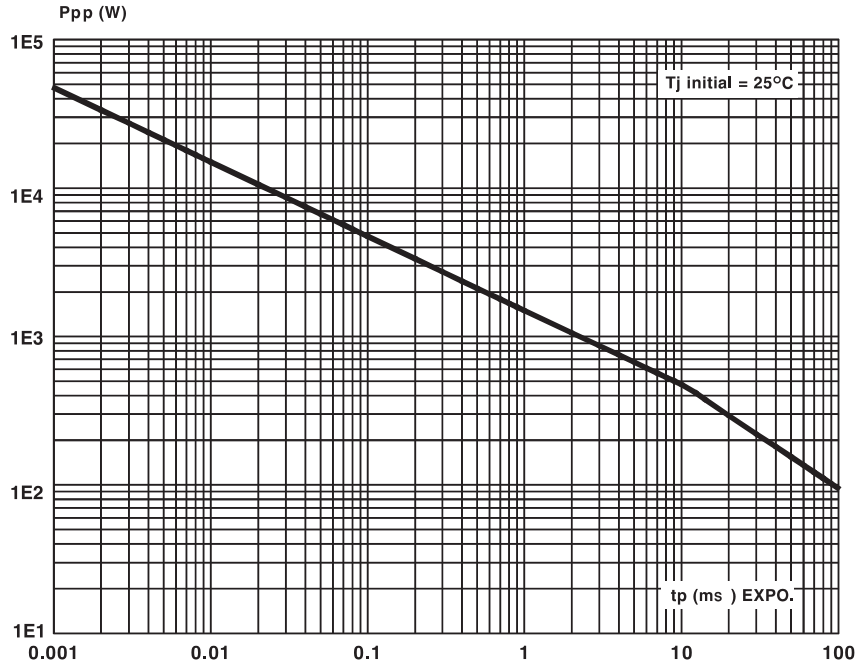
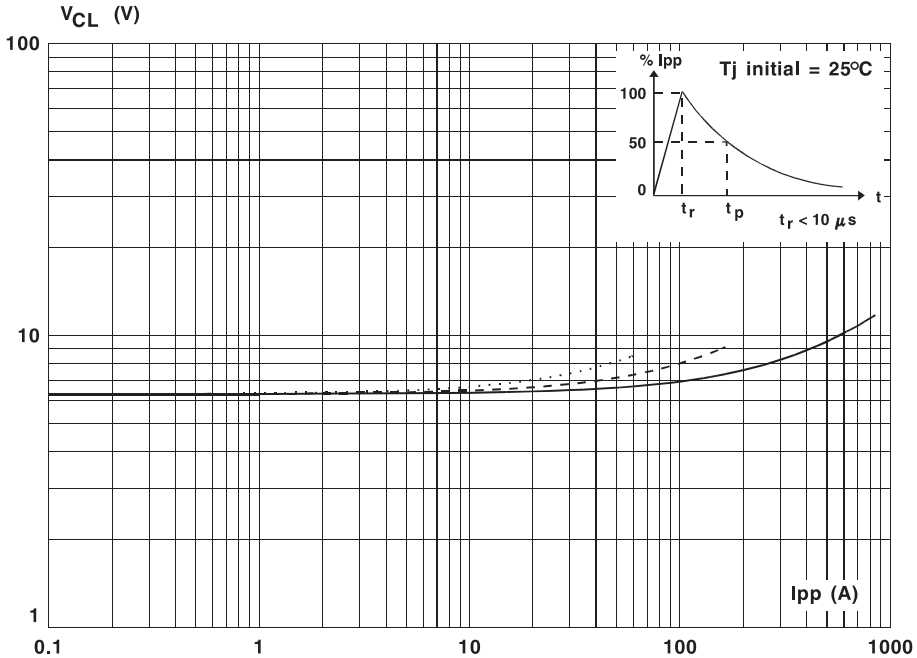


Fig. 3 : Clamping voltage versus peak pulse current.
Exponential waveform t_p = 10 ms.....
t_p = 1 ms----------
t_p = 20 µs_____



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°C).

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

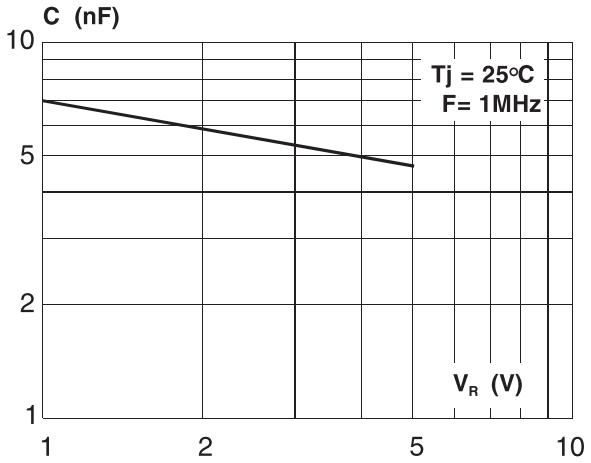


Fig. 5 : Peak forward voltage drop versus peak forward current.

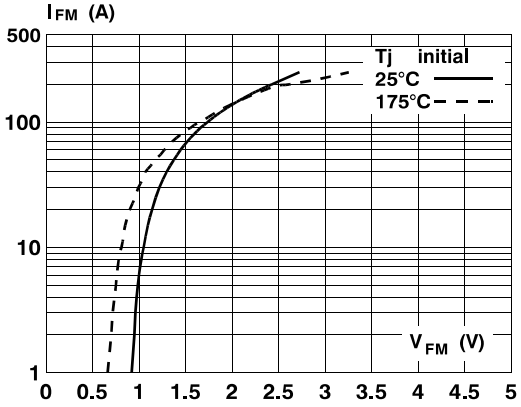


Fig. 6a/6b : Transient thermal impedance junction-ambient versus pulse duration.

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

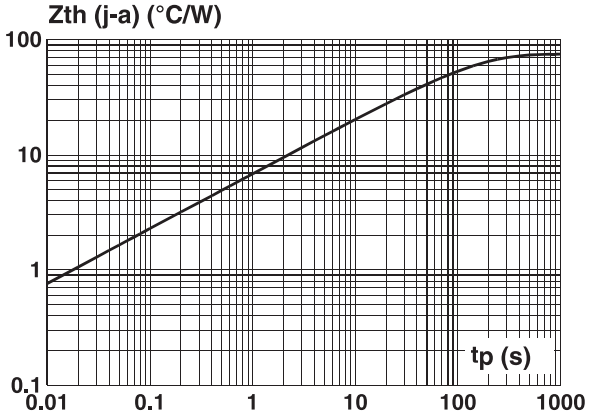


Fig. 6b : SMC Package.
Mounting on FR4 PC Board with recommended pad layout.

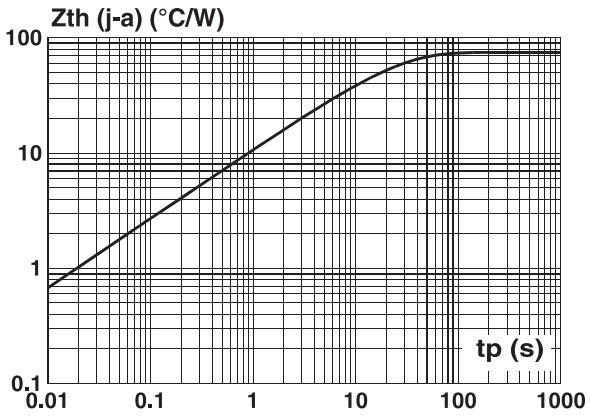
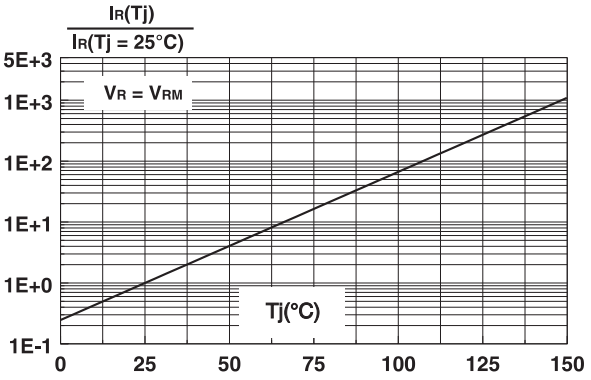
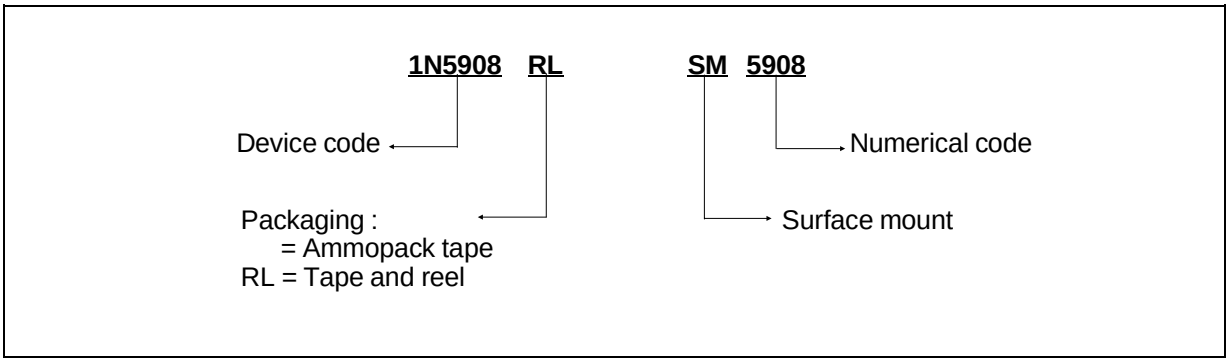


Fig. 7 : Relative variation of leakage current versus junction temperature.



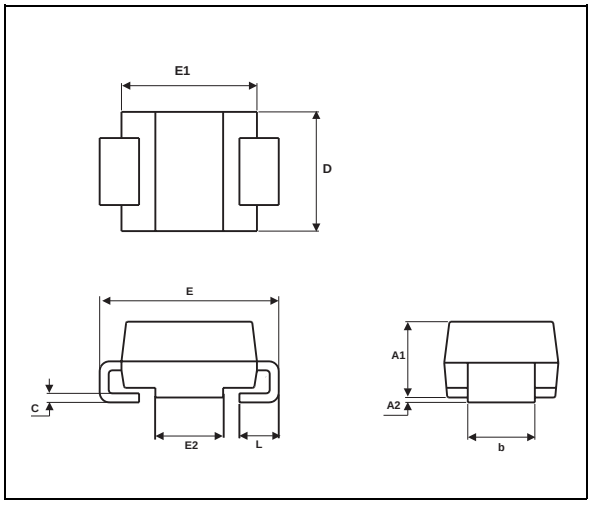
ORDER CODE



MARKING : Logo, type code and cathode band

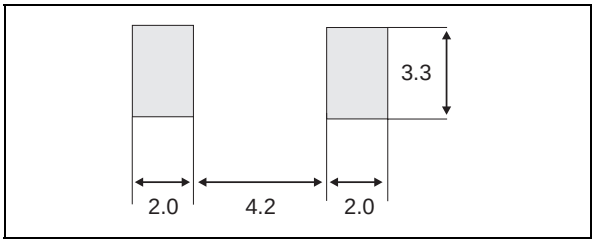
Package	Type	Marking
SMC	SM5908	MDC
CB429	1N5908	1N5908
A white band indicates the cathode		

PACKAGE MECHANICAL DATA
SMC (Plastic)



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	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)

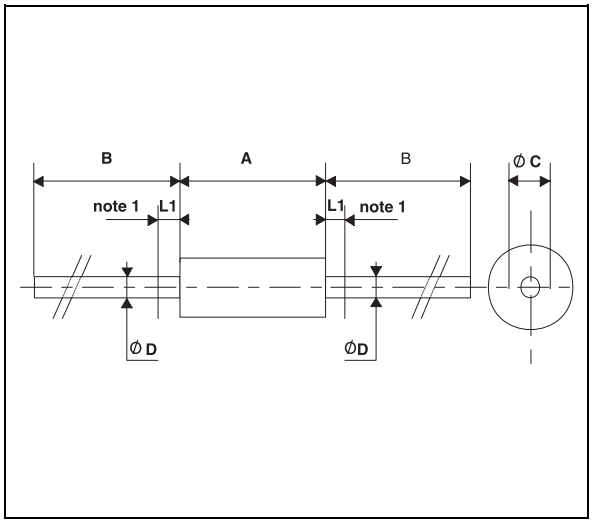


Packaging : Standard packaging is in tape and reel.

Weight = 0.25 g.

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		
∅ C	4.90	5.00	5.10	0.193	0.197	0.201
∅ 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.