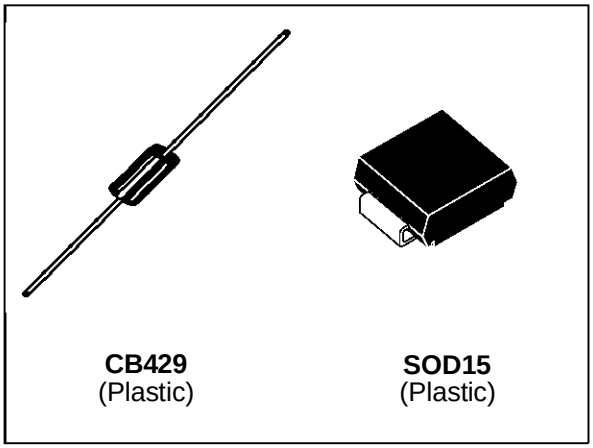
SGS-THOMSON MICROELECTRONICS

1N5908
SM5908

TRANSIL™

FEATURES

- UNIDIRECTIONAL TRANSIL DIODE
- PEAK PULSE POWER = 1500 W @ 1ms
- REVERSE STAND OFF VOLTAGE = 5 V
- LOW CLAMPING FACTOR
- FAST RESPONSE TIME
- UL RECOGNIZED



CB429
(Plastic)

SOD15
(Plastic)

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 guarantee excellent protection for sensitive components.

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

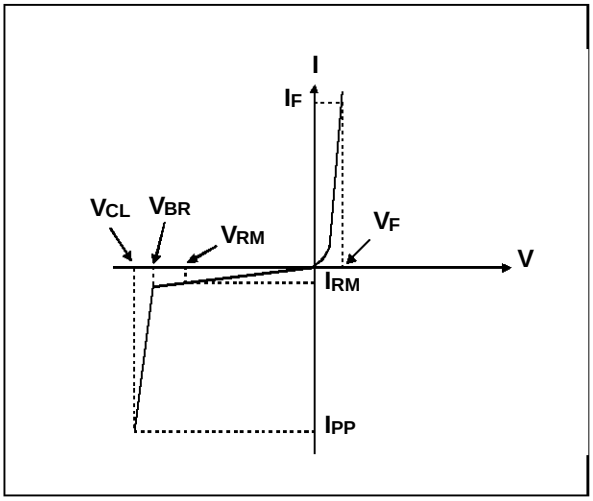
Symbol	Parameter		Value	Unit
P_p	Peak pulse power dissipation		1500	W
P	Power dissipation on infinite heatsink	T_{lead} = 75°C	5	W
T_{stg} Tj	Storage temperature range Maximum junction temperature		- 65 to + 175 175	°C °C
T_L	Maximum lead temperature for soldering during 10 s.		260	°C

THERMAL RESISTANCES

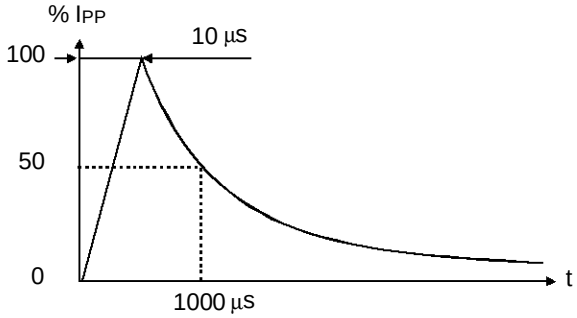
Symbol	Parameter		Value	Unit
$R_{th\ (j-l)}$	Junction to leads on infinite heatsink	CB429 SOD15	20 20	°C/W °C/W
$R_{th\ (j-a)}$	Junction to ambient on printed circuit.			
	L_{lead} = 10 mm	CB429	75	°C/W
	Mounting on standard footprint dimensions.	SOD15	75	°C/W

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 @ VRM
I_{PP}	Peak pulse current
αT	Voltage temperature coefficient
V_F	Forward voltage V_F < 3.5V @ I_F = 100 A



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



Note 1 : For surges greater than the maximum values, the diode will present a short-circuit Anode - Cathode.

Note 2 : $\Delta V_{BR} = \alpha T*(T_{amb}-25)* V_{BR}$ (25°C).

Fig. 1: Power dissipation derating versus ambient temperature

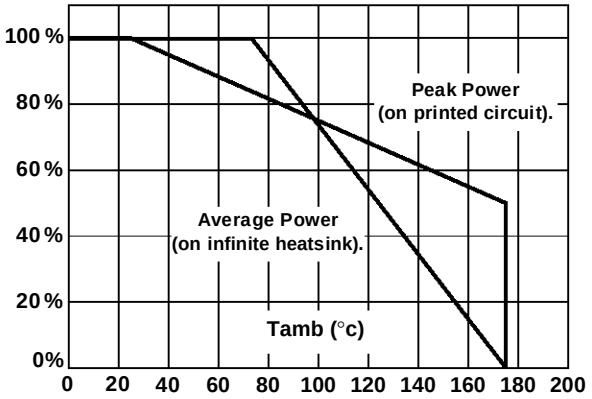


Fig. 2 : Peak pulse power versus exponential pulse duration.

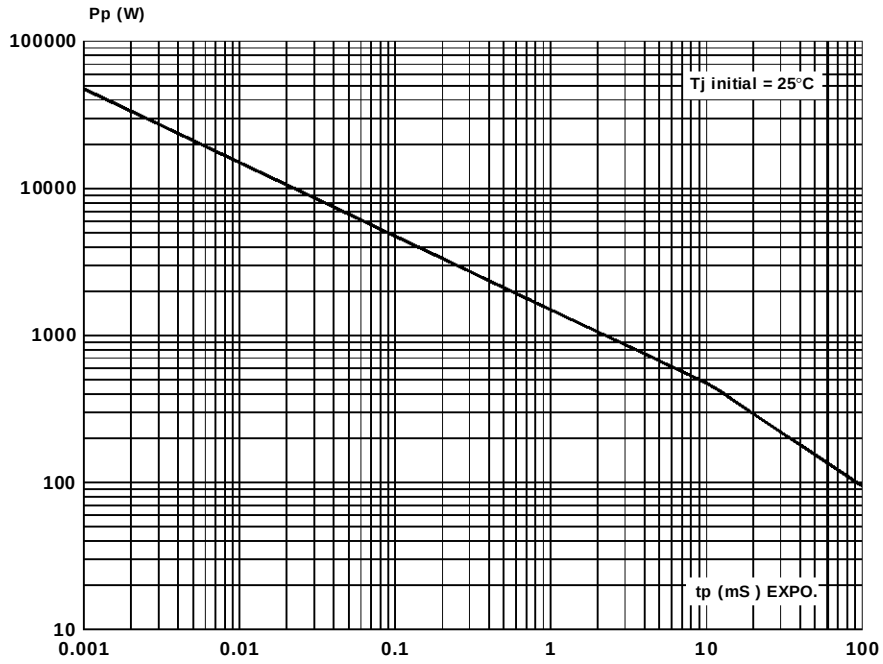
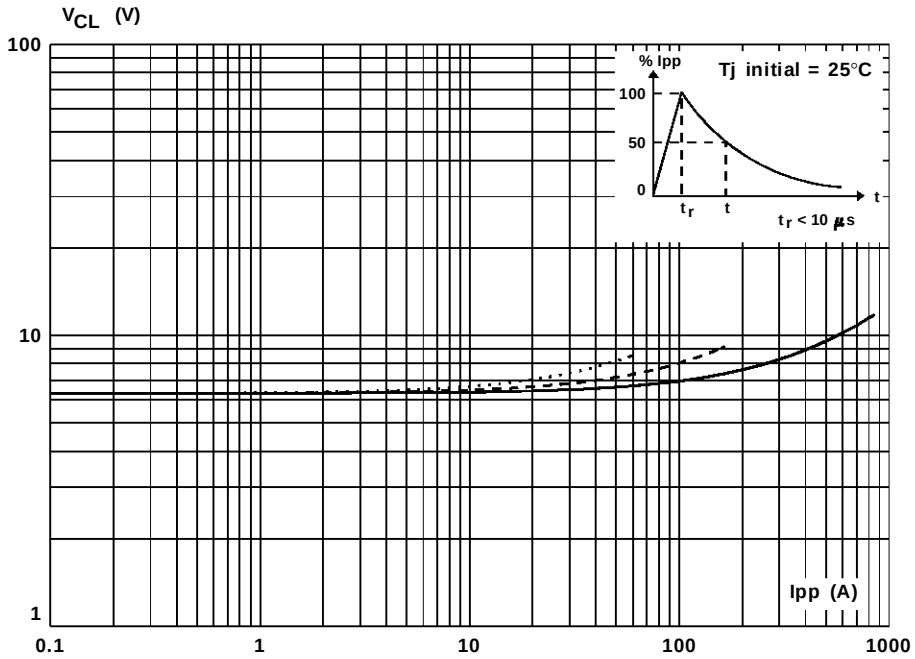


Fig. 3 : Clamping voltage versus peak pulse current.
Exponential waveform t_p = 20 µs.....
t_p = 1 ms----------
t_p = 10 ms_____



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).
For intermediate voltages, extrapolate the given results.

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

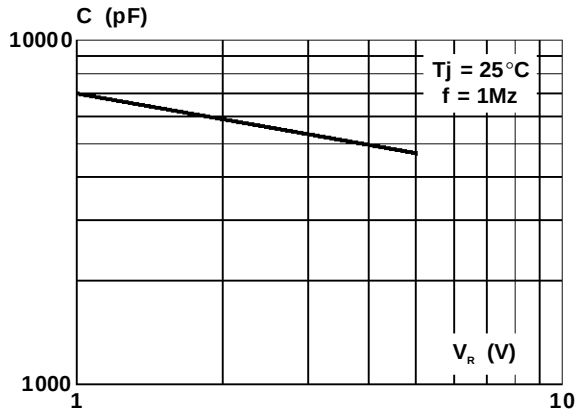


Fig. 5 : Peak forward voltage drop versus peak forward current.

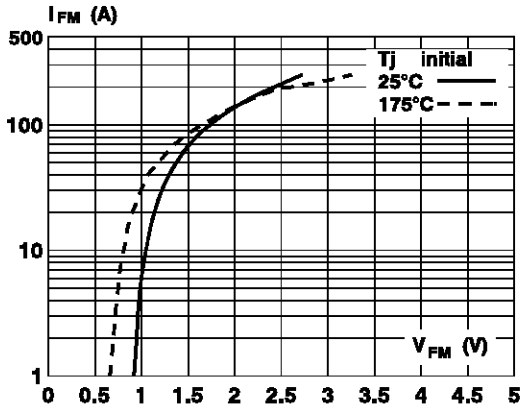


Fig. 6a/6b : Transient thermal impedance junction-ambient versus pulse duration.

Fig. 6a : CB429 Package.
Mounting on PC board (L_{lead} = 10 mm).

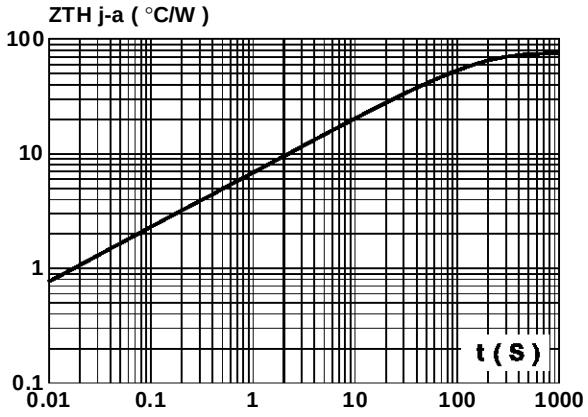
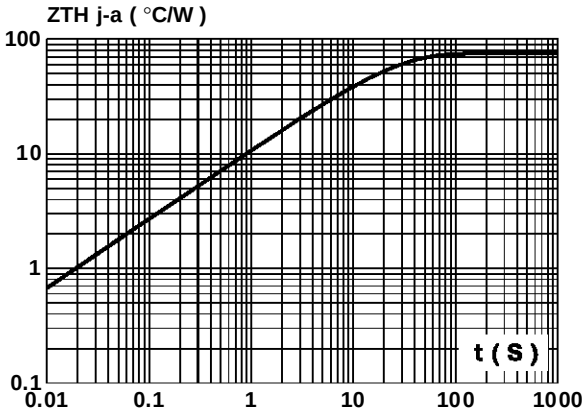


Fig. 6b : SOD15 Package.
Mounting on PC board with standard footprint dimensions.

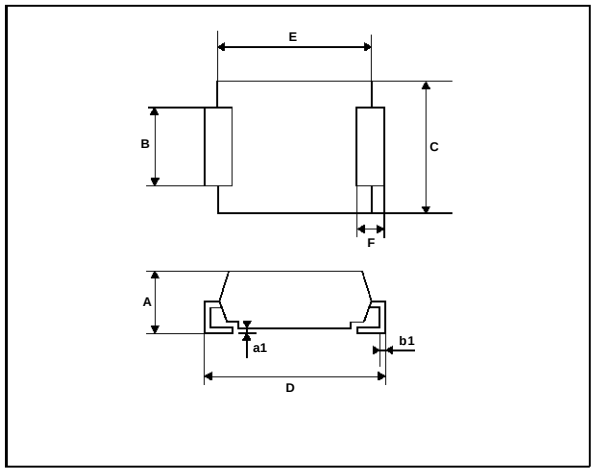


MARKING : Logo, type code and cathode band

Package	Type	Marking
SOD15	SM5908	MDC
A band indicates the cathode		

PACKAGE MECHANICAL DATA

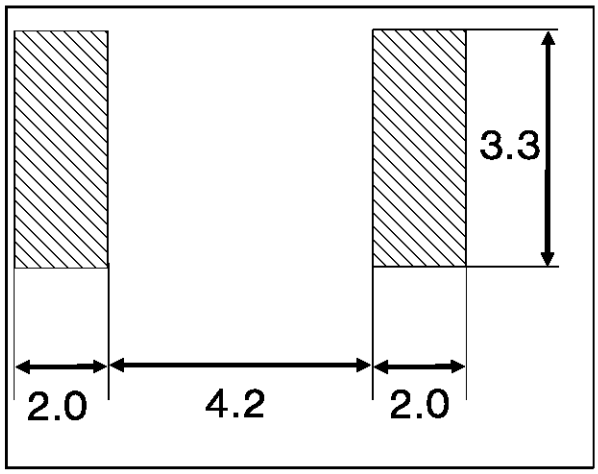
SOD15



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.50	3.10	0.098	0.122
a1	0.05	0.20	0.002	0.008
B	2.90	3.10	0.114	0.122
b1	0.29	0.32	0.011	0.012
C	4.80	5.20	0.189	0.204
D	7.60	8.00	0.299	0.315
E	6.30	6.60	0.225	0.259
F	1.30	1.70	0.051	0.056

FOOT PRINT (in millimeters)

Weight = 0.25 g.



Packaging :

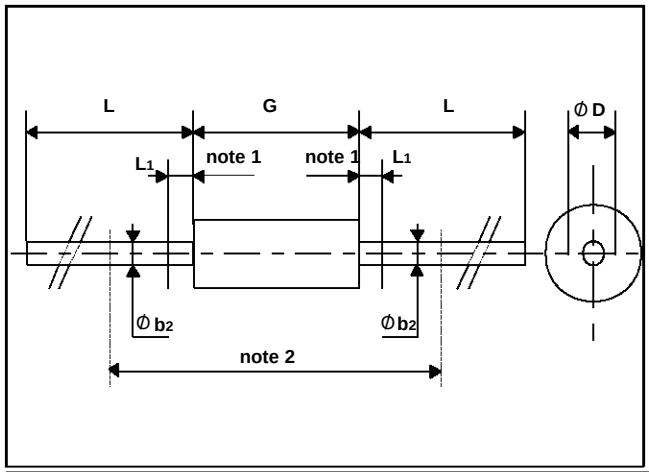
SOD15 = Standard packaging is in Film and Reel
- RL : tape and reel
- No suffix : tape

MARKING : Logo, type code and cathode band

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

PACKAGE MECHANICAL DATA

CB429



REF.	DIMENSIONS				NOTES
	Millimeters		Inches		
	Min.	Max.	Min.	Max.	
∅ b2		1.092		0.043	1 The lead diameter ∅ b2 is not controlled over zone L1
∅ D		5.10		0.020	
G		8.89		0.350	2 The minimum axial lengh within which the device may be placed with its leads bent at right angles is 0.59" (15 mm)
L	25.4		1.00		
L1		1.25		0.049	

Packaging :

Weight = 0.85 g.

Axial Diode CB429 = Products Supplied in Tape and Reel.
- RL : tape and reel
- No suffix : tape