

1 Characteristics

Table 1. Absolute maximum ratings ($T_{amb} = 25\text{ }^{\circ}\text{C}$)

Symbol	Parameter	Value	Unit
P_{PP}	Peak pulse power dissipation ⁽¹⁾	T_j initial = T_{amb} 1500	W
T_{stg}	Storage temperature range	-65 to +175	$^{\circ}\text{C}$
T_j	Operating junction temperature range	-55 to +175	$^{\circ}\text{C}$
T_L	Maximum lead temperature for soldering during 10 s.	260	$^{\circ}\text{C}$

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

Table 2. Thermal resistances

Symbol	Parameter	Value	Unit
$R_{th(j-l)}$	Junction to leads	SMC	15
		DO-201	20
$R_{th(j-a)}$	Junction to ambient on printed circuit on recommended pad layout	SMC	90
	Junction to ambient	DO-201	75

Figure 1. Electrical characteristics - definitions

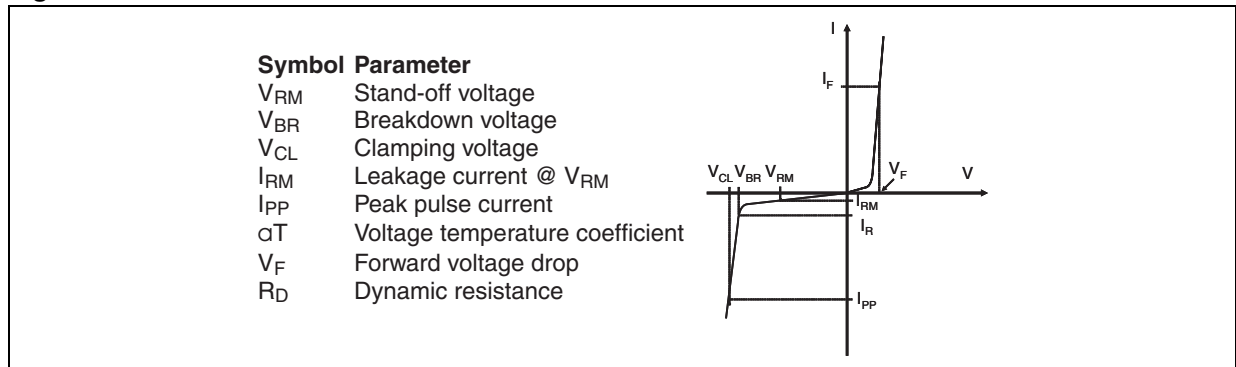


Figure 2. Pulse definition for electrical characteristics

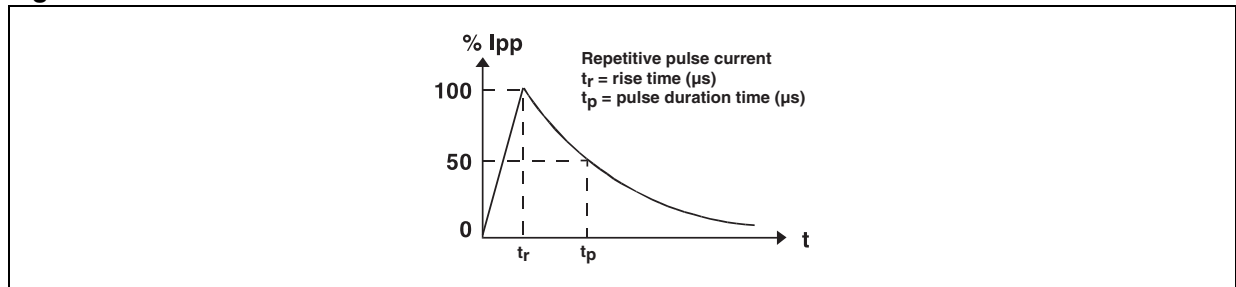


Table 3. Electrical characteristics - parameter values ($T_{amb} = 25\text{ }^{\circ}\text{C}$)

Order code	$I_{RM} @ V_{RM}$		$V_{BR} @ I_R^{(1)}$		$V_{CL} @ I_{PP}, 10/1000\text{ }\mu\text{s}$		$V_{CL} @ I_{PP}, 10/1000\text{ }\mu\text{s}$		$V_{CL} @ I_{PP}, 10/1000\text{ }\mu\text{s}$		$\alpha T^{(2)}$	C
	max		min		max		max		max		max	typ
	μA	V	V	mA	V	A ⁽³⁾	V	A ⁽³⁾	V	A ⁽³⁾	10-4/ $^{\circ}\text{C}$	pF
1N5908	300	5	6	1	7.6	30	8	60	8.5	120	5.7	9500
SM5908												

1. Pulse tes: $t_p < 50\text{ ms}$

2. To calculate V_{BR} or V_{CL} versus junction temperature, use the following formulas:

$$V_{BR} @ T_J = V_{BR} @ 25^{\circ}\text{C} \times (1 + \alpha T \times (T_J - 25))$$

$$V_{CL} @ T_J = V_{CL} @ 25^{\circ}\text{C} \times (1 + \alpha T \times (T_J - 25))$$

3. Surge capability given for both directions

Figure 3. Peak pulse power dissipation versus initial junction temperature

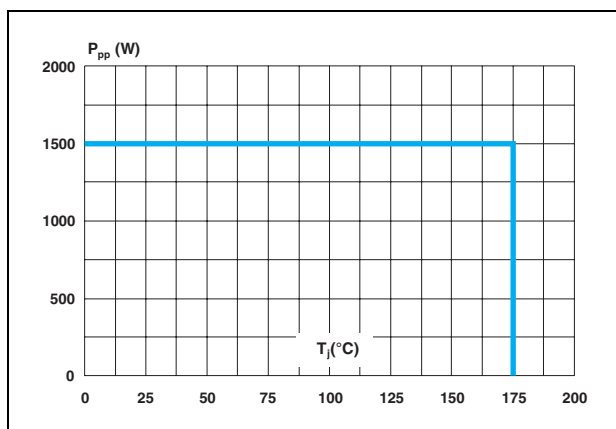


Figure 4. Peak pulse power versus exponential pulse duration (T_j initial = $25\text{ }^{\circ}\text{C}$)

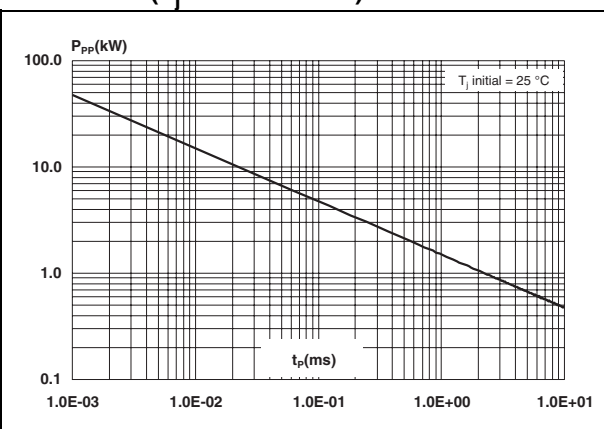


Figure 5. Clamping voltage versus peak pulse current (exponential waveform, typical values)

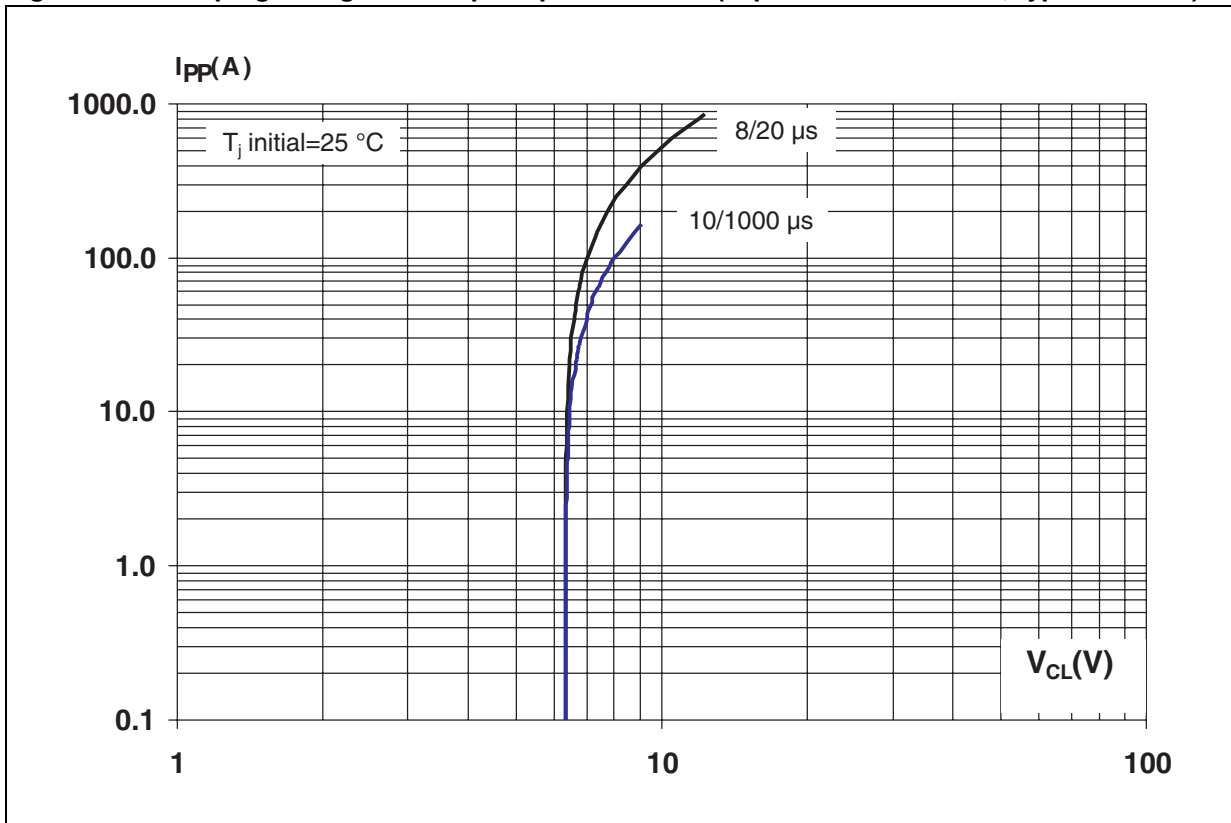


Figure 6. Junction capacitance versus reverse applied voltage (typical values)

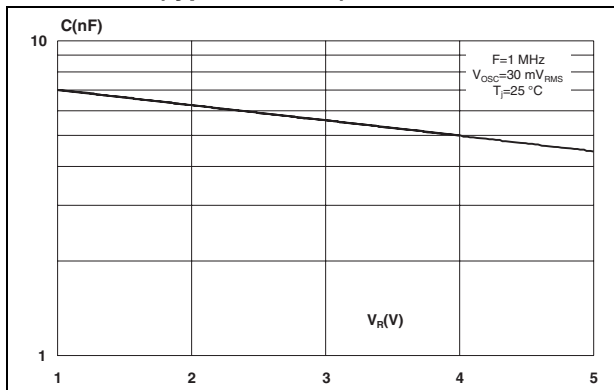


Figure 7. Peak forward voltage drop versus peak forward current (typical values)

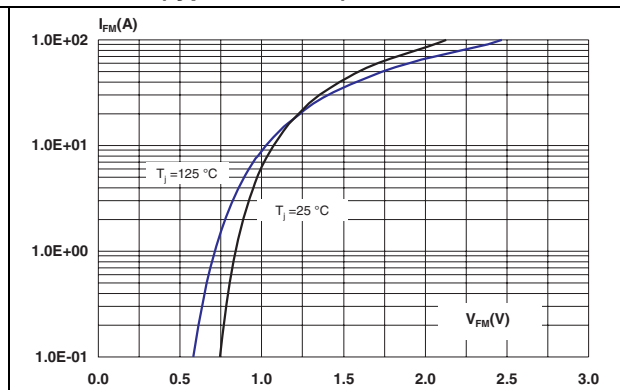


Figure 8. Relative variation of thermal impedance, junction to ambient, versus pulse duration (SMC)

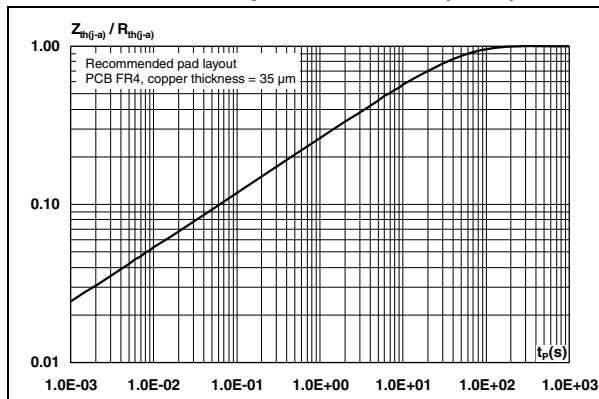


Figure 9. Relative variation of thermal impedance, junction to ambient, versus pulse duration (DO-201)

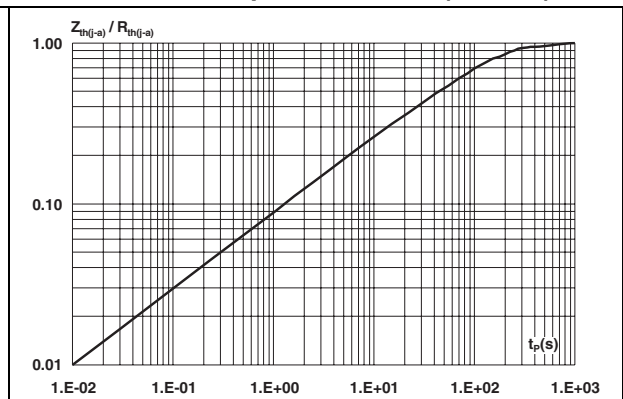


Figure 10. Thermal resistance junction to ambient versus copper surface under each lead (SMC)

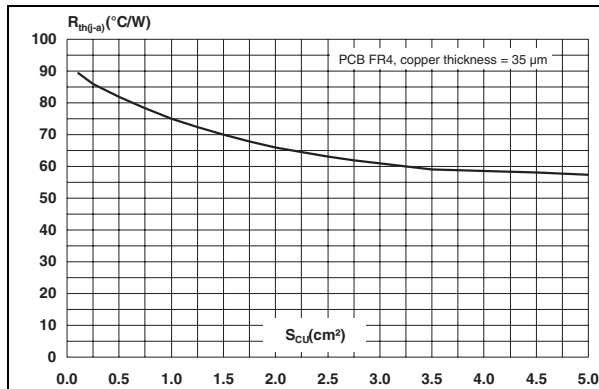
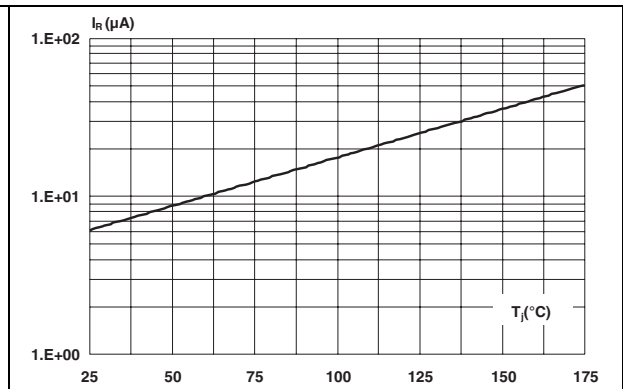


Figure 11. Leakage current versus junction temperature (typical values)



2 Package information

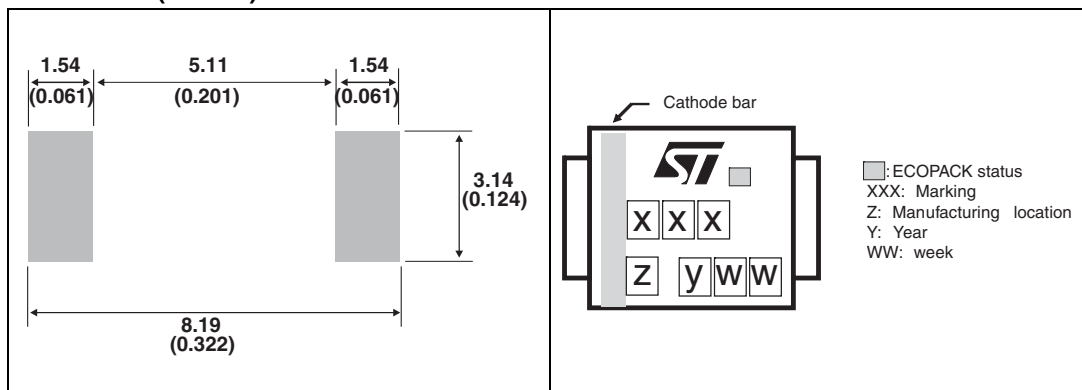
- Case: JEDEC DO-214AB molded plastic over planar junction
- Terminals: solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: for unidirectional types the band indicates cathode
- Flammability: epoxy is rated UL94V-0
- RoHS package

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: www.st.com. ECOPACK® is an ST trademark.

Table 4. SMC dimensions

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

Figure 12. SMC footprint dimensions mm **Figure 13. SMC marking layout⁽¹⁾**
(inches)

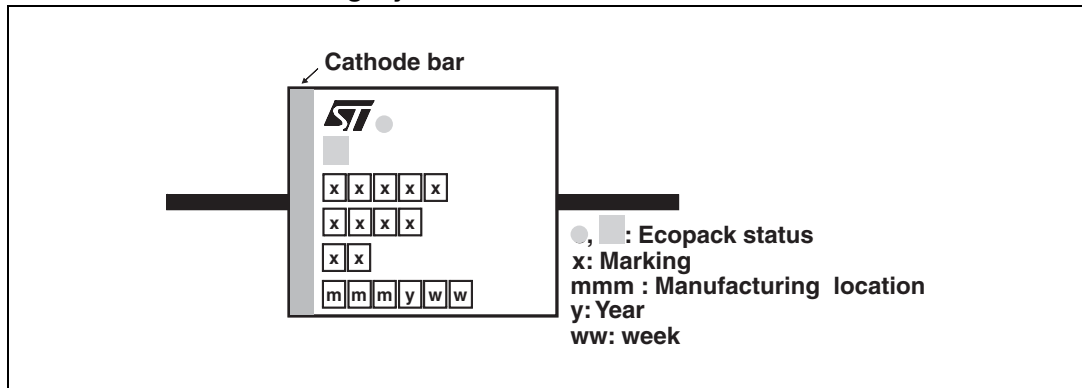


1. Marking layout can vary according to assembly location.

Table 5. DO-201 Dimensions

	Dimensions				
	Millimeters		Inches		
	Min.	Max.	Min.	Max.	
	A	8.5	9.5	0.335	0.374
	B	25.4		1	
Ø C	4.8	5.3	0.189	0.209	
Ø D	0.96	1.06	0.038	0.042	

Table 6. DO-201 marking layout



3 Ordering information

Table 7. Ordering information

Order code	Marking	Package	Weight	Base qty	Delivery mode
SM5908	MDC	SMC	0.25 g	2500	Tape and reel
1N5908	1N5908	DO-201	0.9 g	600	Ammopack

4 Revision history

Table 8. Document revision history

Date	Revision	Changes
Aug-1999	2A	Previous release
20-Sep-2011	3	Added cathode bands. Added standards compliance statements. Updated Description . Updated Table 1 and Table 2 . Updated Figures 3 through 11 . Updated Section 2: Package information .

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