

Features

- Asymmetrical diode configuration ensures an optimized protection against ElectroMagnetic Interferences (EMI) of a LIN Electronic Control Unit (ECU)
- Max. peak pulse power: $P_{PP} = 160 \text{ W}$ at $t_p = 8/20 \mu\text{s}$
- Low clamping voltage: $V_{CL} = 40 \text{ V}$ at $I_{PP} = 1 \text{ A}$
- Ultra low leakage current: $I_{RM} < 1 \text{ nA}$
- ESD protection of up to 23 kV
- IEC 61000-4-2 $\pm 30\text{kV}$ contact ; $\pm 30\text{kV}$ air
- IEC 61000-4-4 (EFT) 40A (5/50ns)

Applications

- Microprocessor based equipment
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- LIN-bus protection

Quick reference data

Table 1. Quick reference data
T_{amb} = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V _{RWM}	reverse standoff voltage					
	PESD1LIN (15 V)		-	-	15	V
	PESD1LIN (24 V)		-	-	24	V
C _d	diode capacitance	V _R = 0 V; f = 1 MHz	-	13	17	pF

Pinning information

Table 2. Pinning

Pin	Description	Simplified outline	Graphic symbol
1	cathode 1 (15 V)		 006aab041
2	cathode 2 (24 V)		

Limiting values

Table 3. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Min	Max	Unit
P _{PP}	peak pulse power	t _p = 8/20 μs	[1] -	160	W
I _{PP}	peak pulse current	t _p = 8/20 μs	[1] -	3	A
T _j	junction temperature		-	150	°C
T _{amb}	ambient temperature		-65	+150	°C
T _{stg}	storage temperature		-65	+150	°C

[1] Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC 61000-4-5.

Table 4. ESD maximum ratings

Symbol	Parameter	Conditions	Min	Max	Unit
V _{ESD}	electrostatic discharge voltage	IEC 61000-4-2 (contact discharge)	[1] -	23	kV
		MIL-STD-883 (human body model)	-	10	kV

[1] Device stressed with ten non-repetitive ESD pulses.

Table 5. ESD standards compliance

Standard	Conditions
IEC 61000-4-2; level 4 (ESD)	> 15 kV (air); > 8 kV (contact)
MIL-STD-883; class 3 (human body model)	> 4 kV

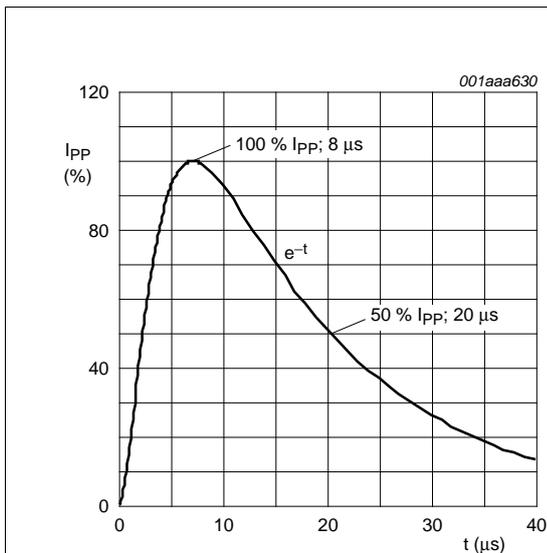


Fig 1. 8/20 μs pulse waveform according to IEC 61000-4-5

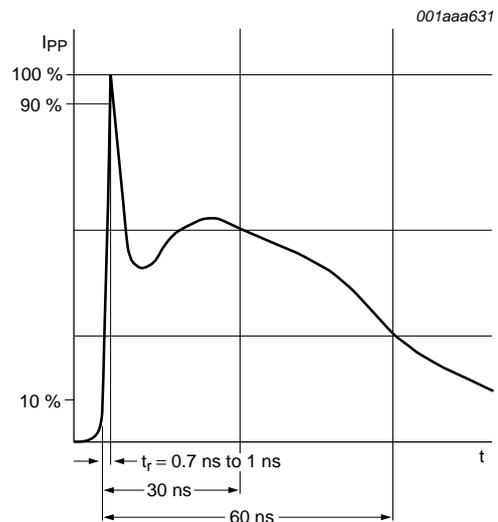


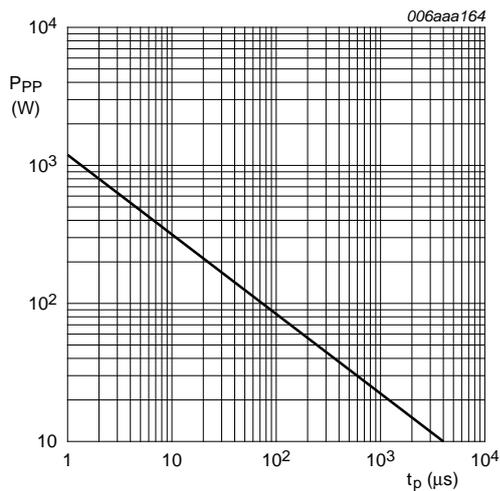
Fig 2. ESD pulse waveform according to IEC 61000-4-2

Characteristics

Table 6. Characteristics
T_{amb} = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V _{RWM}	reverse standoff voltage					
	PESD1LIN (15 V)		-	-	15	V
	PESD1LIN (24 V)		-	-	24	V
I _{RM}	reverse leakage current					
	PESD1LIN (15 V)	V _{RWM} = 15 V	-	< 1	50	nA
	PESD1LIN (24 V)	V _{RWM} = 24 V	-	< 1	50	nA
V _{BR}	breakdown voltage	I _R = 5 mA				
	PESD1LIN (15 V)		17.1	18.9	20.3	V
	PESD1LIN (24 V)		25.4	27.8	30.3	V
C _d	diode capacitance	V _R = 0 V; f = 1 MHz	-	13	17	pF
V _{CL}	clamping voltage		[1]			
	PESD1LIN (15 V)	I _{PP} = 1 A	-	-	25	V
		I _{PP} = 5 A	-	-	44	V
	PESD1LIN (24 V)	I _{PP} = 1 A	-	-	40	V
		I _{PP} = 3 A	-	-	70	V
r _{dif}	differential resistance					
	PESD1LIN (15 V)	I _R = 1 mA	-	-	225	Ω
	PESD1LIN (24 V)	I _R = 1 mA	-	-	300	Ω

[1] Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC 61000-4-5.



T_{amb} = 25 °C
Fig 3. Peak pulse power as a function of exponential pulse duration; typical values

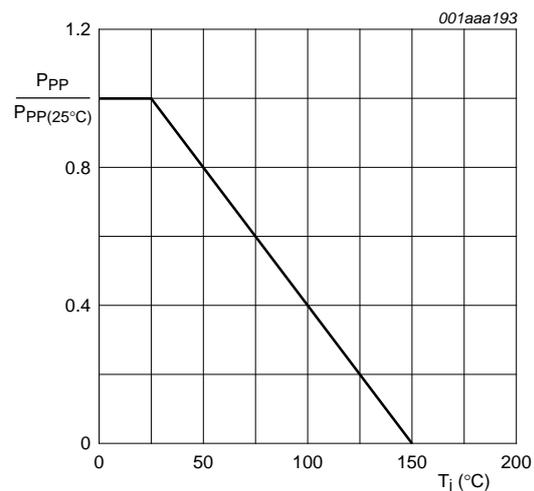


Fig 4. Relative variation of peak pulse power as a function of junction temperature; typical values

Package outline

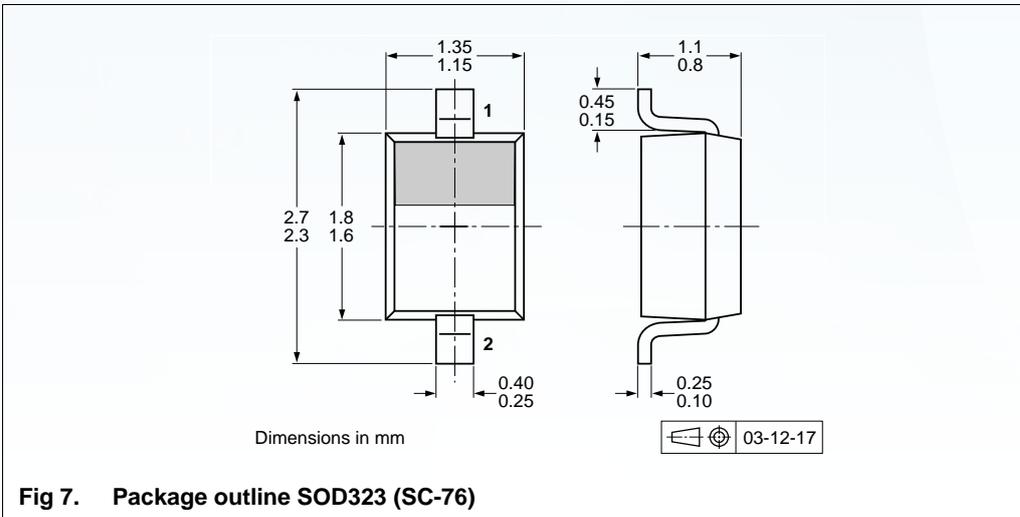


Fig 7. Package outline SOD323 (SC-76)

Soldering

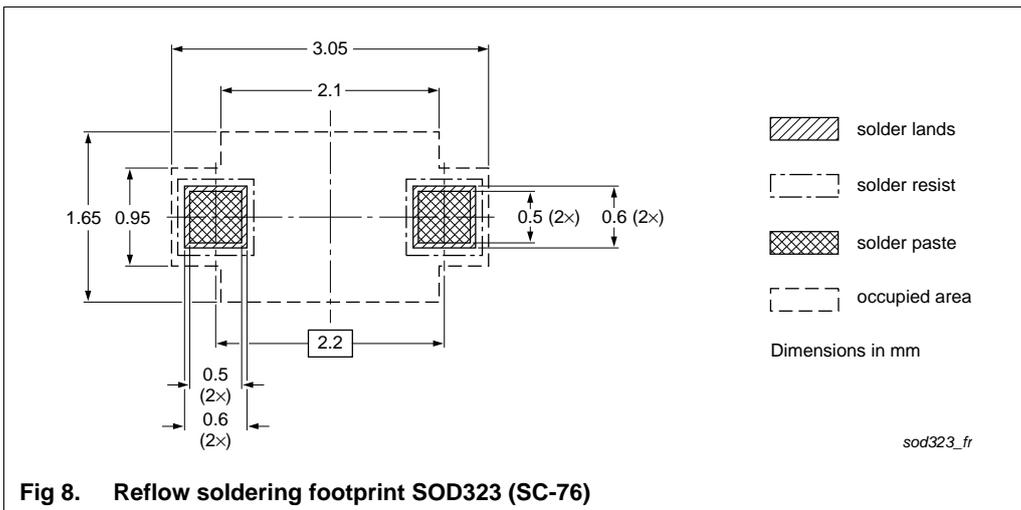


Fig 8. Reflow soldering footprint SOD323 (SC-76)

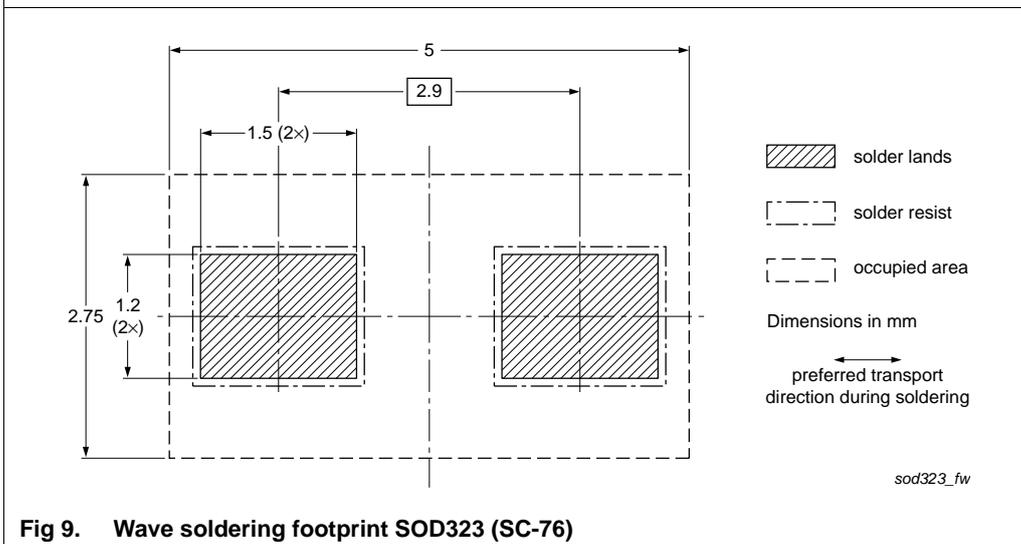
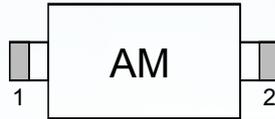


Fig 9. Wave soldering footprint SOD323 (SC-76)

Marking



Ordering information

Order code	Package	Base qty	Delivery mode
PESD1LIN(24V)	SOD-323	3000	Tape and reel

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