

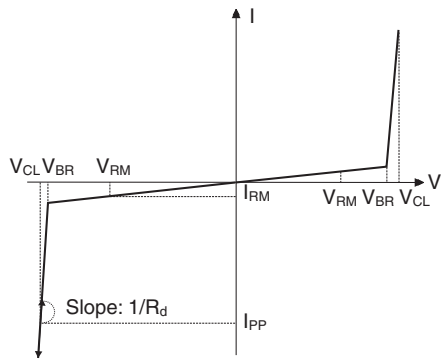
1 Characteristics

Table 2. Absolute maximum ratings

Symbol	Parameter		Value (min.)	Unit
V_{PP}	Peak pulse voltage ⁽¹⁾	IEC 61000-4-2 contact discharge	15	kV
		IEC 61000-4-2 air discharge	15	
T_j	Maximum operating junction temperature		150	°C
T_{stg}	Storage temperature range		-55 to +150	°C
T_L	Maximum lead temperature for soldering during 10 s at 5 mm for case		260	°C

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

Table 3. 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					
I_PP	Peak pulse current					
αT	Voltage temperature coefficient					
C	Capacitance					
R_d	Dynamic resistance					
Parameter	Test condition		Min	Typ	Max	Unit
V_BR ⁽¹⁾	I_R = 1 mA		6.0		9.2	V
I_RM	V_RM = 5 V				0.5	μA
R_d	Square pulse, I_PP = 6 A, t_p = 2.5 μs			1.4		Ω
αT					1.2	10 ⁻⁴ /°C
C _{i/o-i/o}	V _{I/O} = 0 V, F = 1 MHz, V _{OSC} = 30 mV	SOT-666		1.0	1.25	pF
		Flip-Chip		1.25	1.5	
	V _{I/O} = 1.65 V, V _{CC} = 4.3 V, F = 1 MHz, V _{OSC} = 400 mV	SOT-666		0.75	0.9	
		Flip-Chip		0.9	1.20	

1. Same value for I/O to I/O and I/O to GND

Figure 3. Relative variation of peak pulse power versus initial junction temperature (SOT-666)

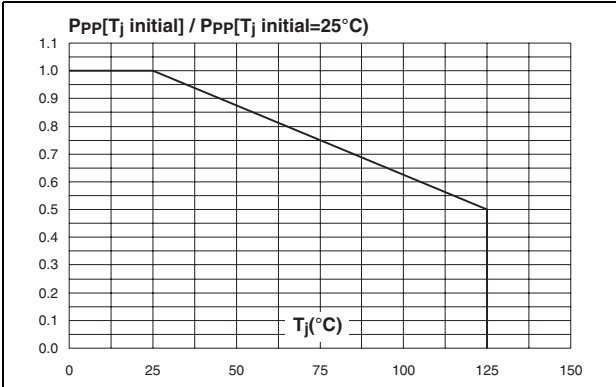


Figure 4. Relative variation of peak pulse power versus initial junction temperature (Flip-Chip)

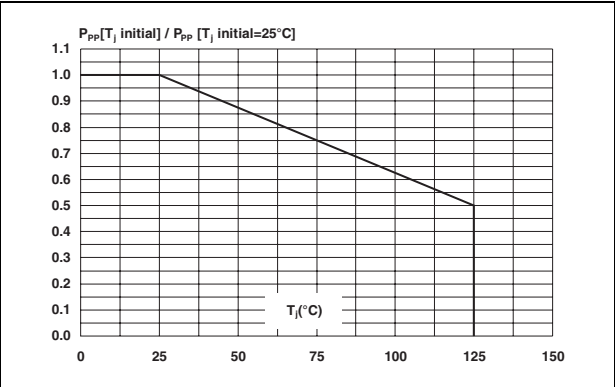


Figure 5. Peak pulse power versus exponential pulse duration (SOT-666)

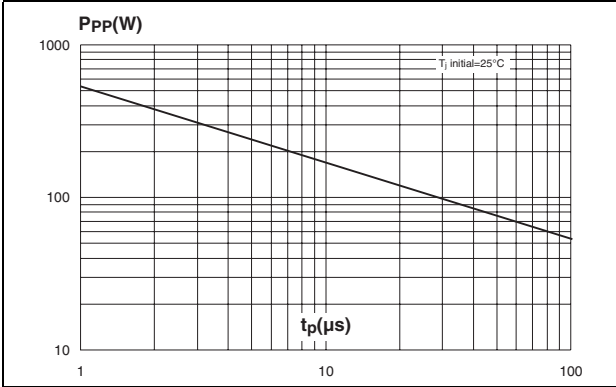


Figure 6. Peak pulse power versus exponential pulse duration (Flip-Chip)

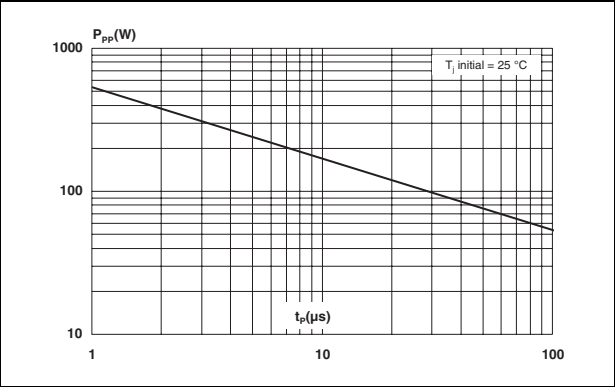


Figure 7. Clamping voltage versus peak pulse current (typical values) (SOT-666)

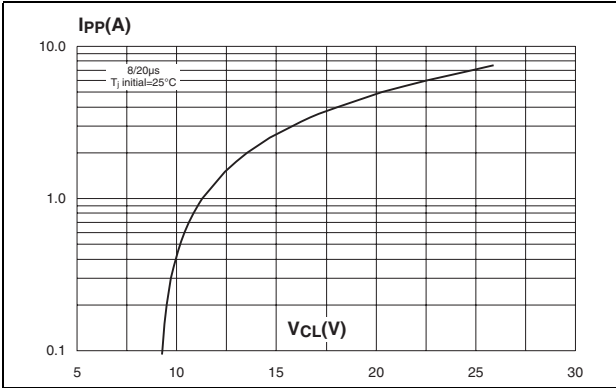


Figure 8. Clamping voltage versus peak pulse current (typical values) (Flip-Chip)

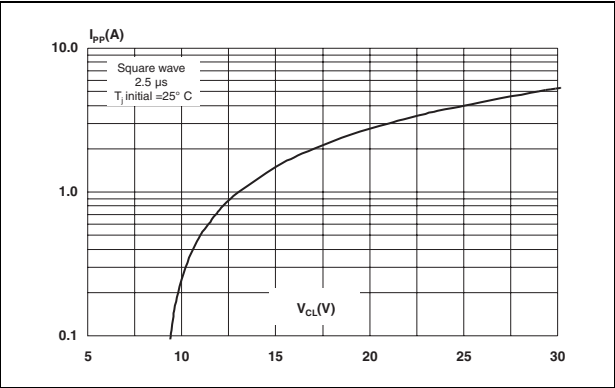


Figure 9. Junction capacitance versus reverse voltage applied (typical values) (SOT-666)

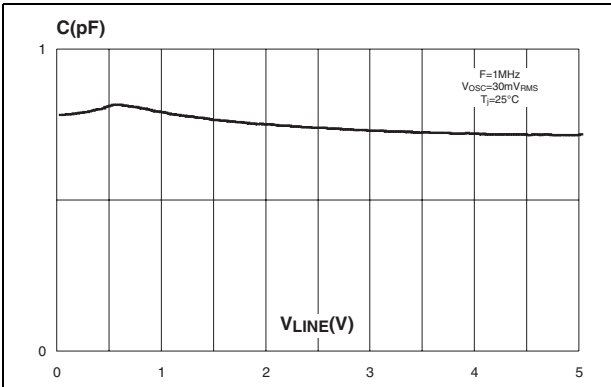


Figure 10. Junction capacitance versus reverse voltage applied (typical values) (Flip-Chip)

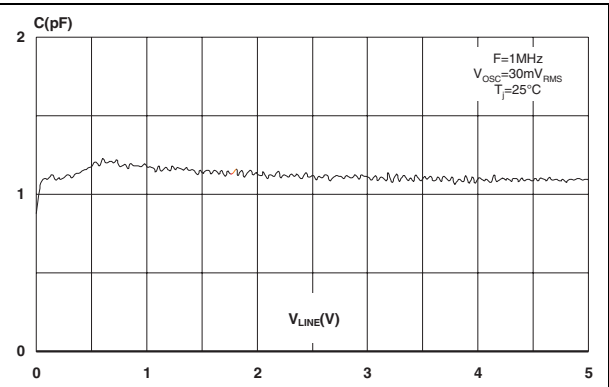


Figure 11. Relative variation of leakage current versus junction temperature (typical values) (SOT-666)

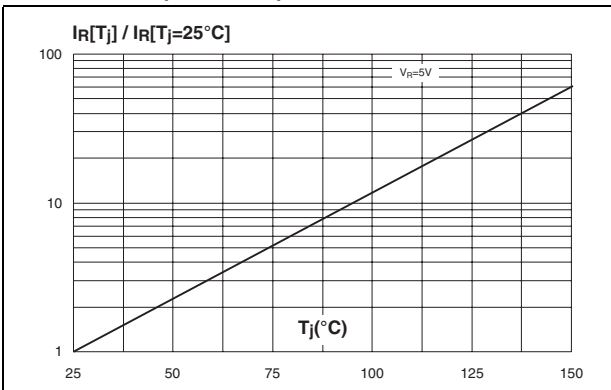


Figure 12. Relative variation of leakage current versus junction temperature (typical values) (Flip-Chip)

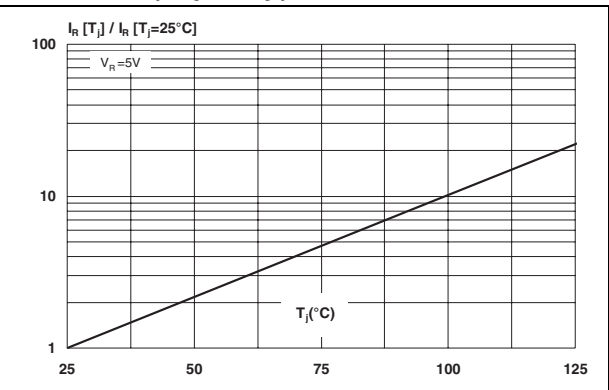


Figure 13. Remaining voltage after ESDAULC6-3BP6 during ESD 15 kV positive surge (air discharge) (SOT-666)

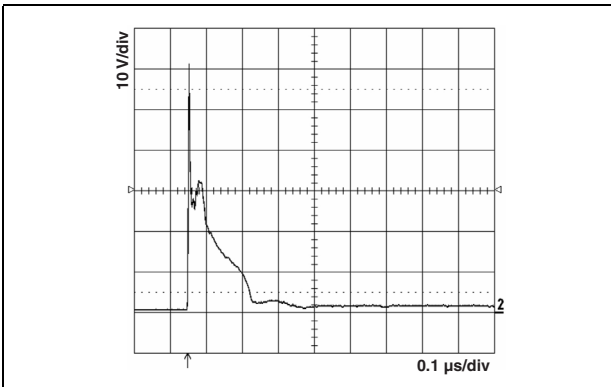


Figure 14. Remaining voltage after ESDAULC6-3BF2 during ESD 15 kV positive surge (air discharge) (Flip-Chip)

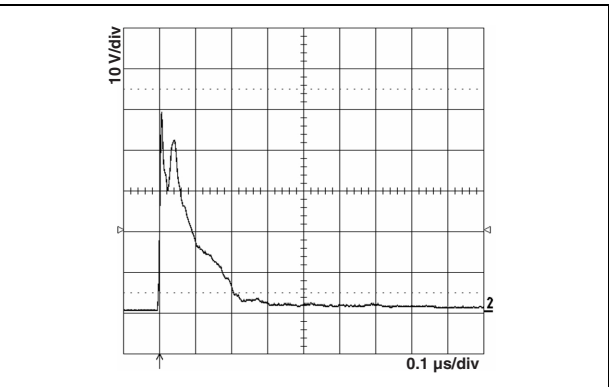


Figure 15. Remaining voltage after ESDAULC6-3BP6 during ESD 15 kV negative surge (air discharge) (SOT-666)

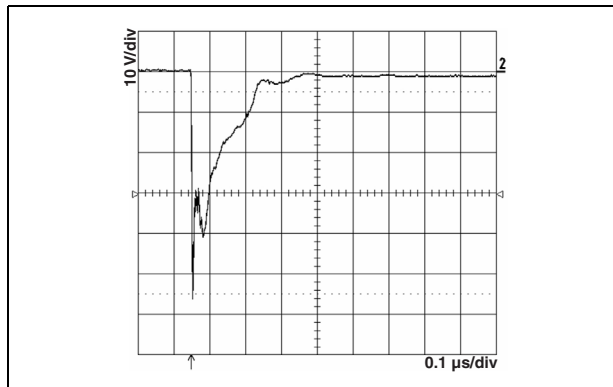


Figure 16. Remaining voltage after ESDAULC6-3BF2 during ESD 15 kV negative surge (air discharge) (Flip-Chip)

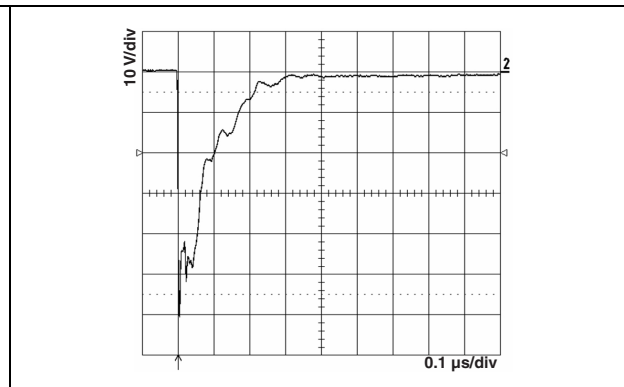


Figure 17. S21 attenuation measurement results of each channel (SOT-666)

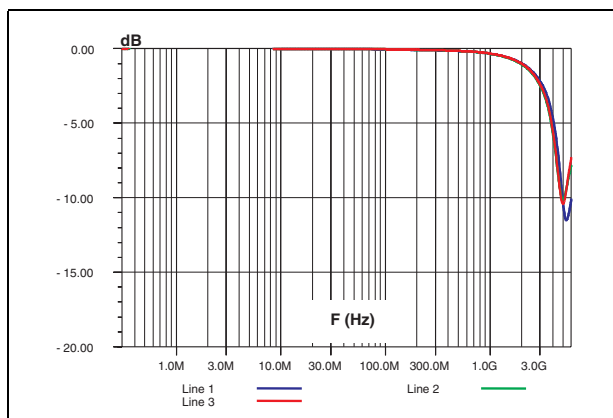


Figure 18. S21 attenuation measurement results of channel 1 (Flip-Chip)

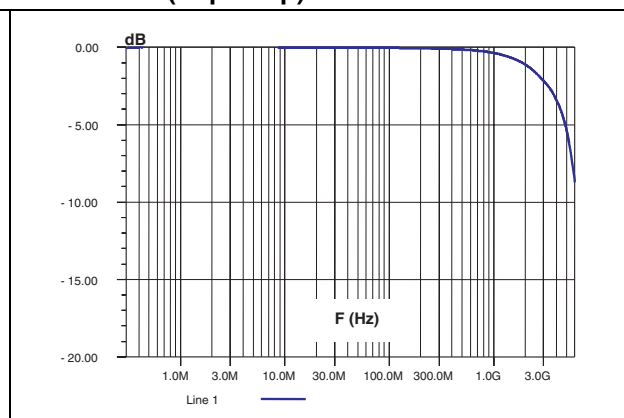


Figure 19. Analog crosstalk measurements between channels (SOT-666)

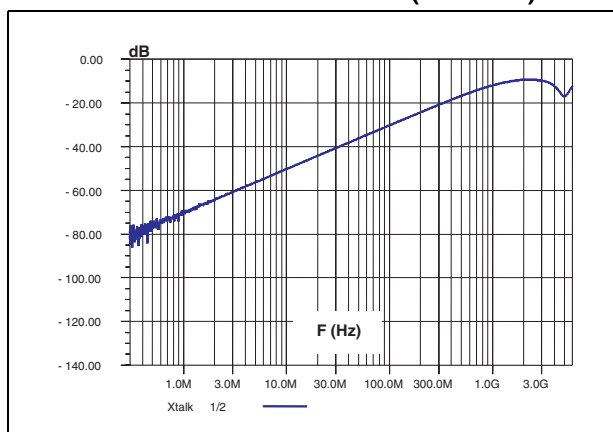
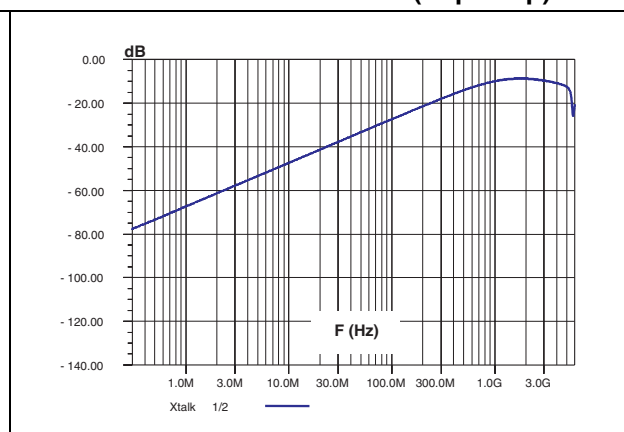


Figure 20. Analog crosstalk measurements between channels (Flip-Chip)



2 Application examples

Figure 21. USB2.0 (high speed) protection application schematic

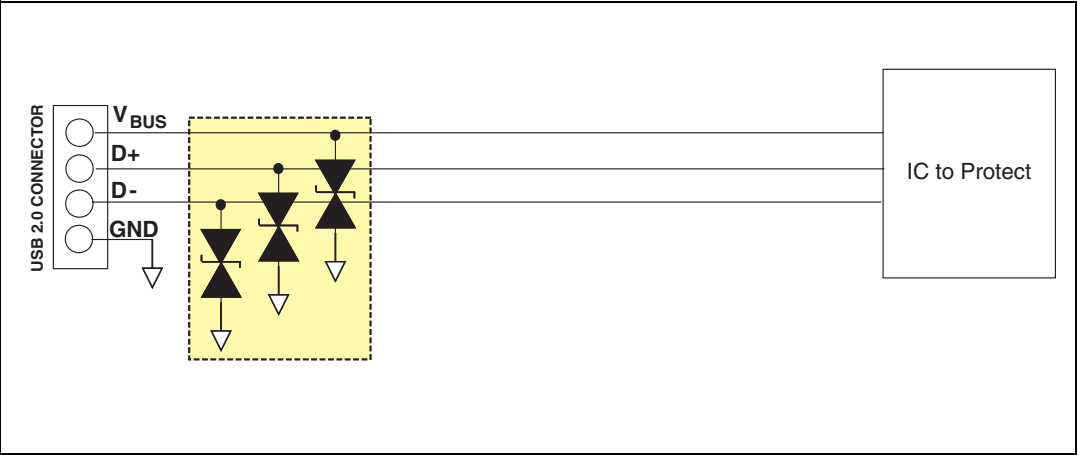


Figure 22. Audio jack protection application schematic

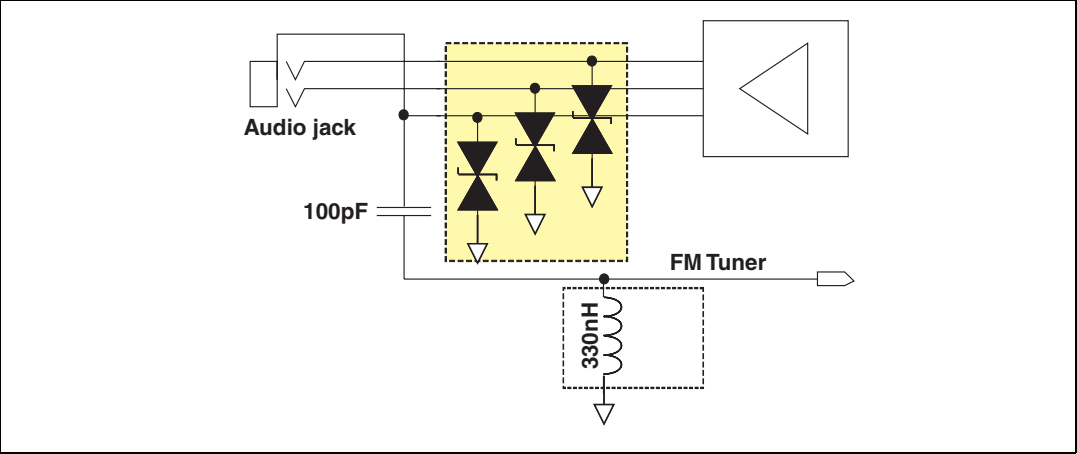
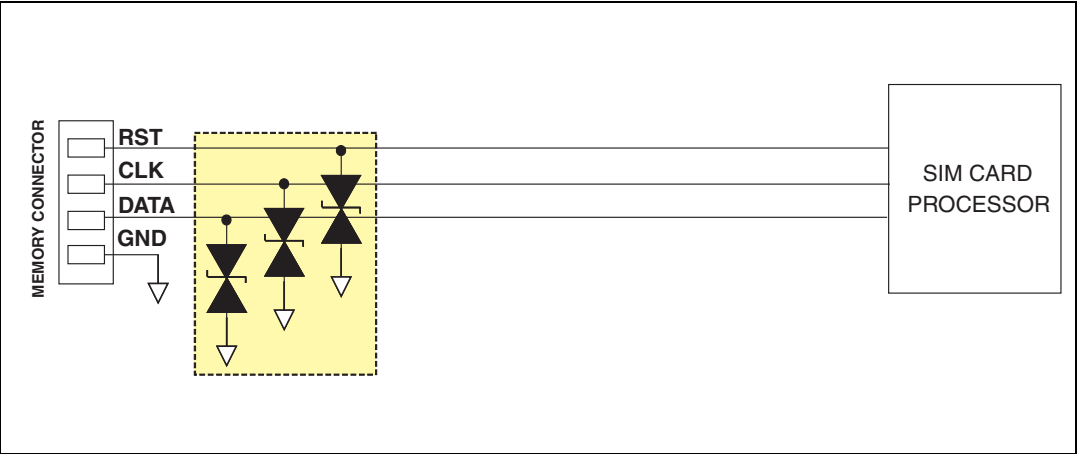
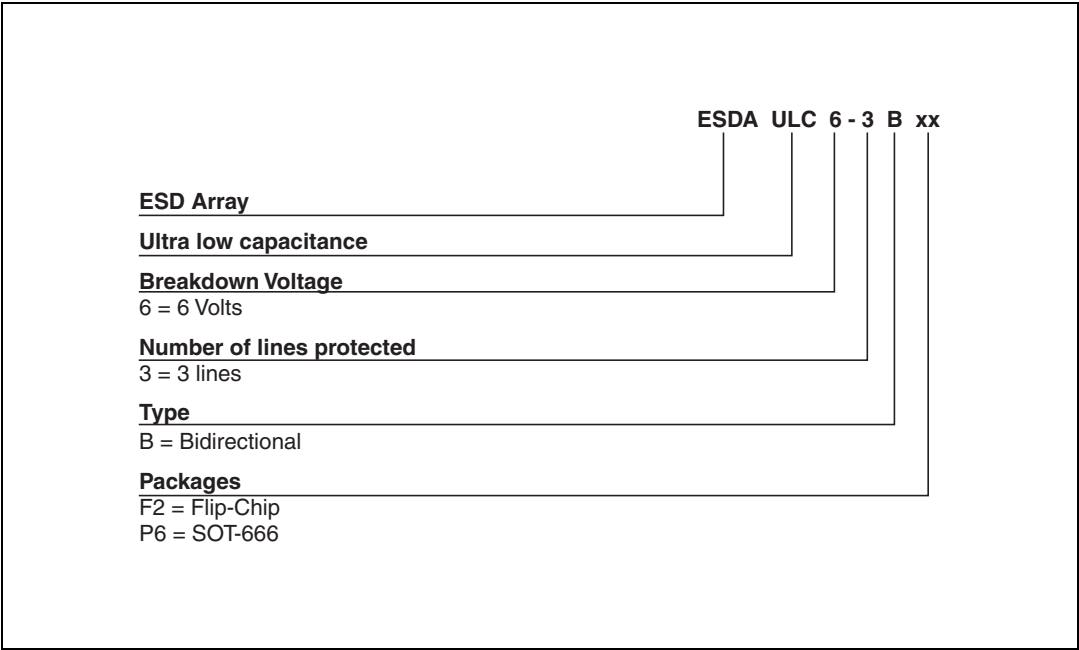


Figure 23. SIM card protection application schematic



3 Ordering information scheme



4 Package information

- Epoxy meets UL 94, V0

Table 4. SOT-666 dimensions

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.45		0.60	0.018		0.024
A3	0.08		0.18	0.003		0.007
b	0.17		0.34	0.007		0.013
b1	0.19	0.27	0.34	0.007	0.011	0.013
D	1.50		1.70	0.059		0.067
E	1.50		1.70	0.059		0.067
E1	1.10		1.30	0.043		0.051
e		0.50			0.020	
L1		0.19			0.007	
L2	0.10		0.30	0.004		0.012
L3		0.10			0.004	

Figure 24. SOT-666 footprint (dimensions in mm)

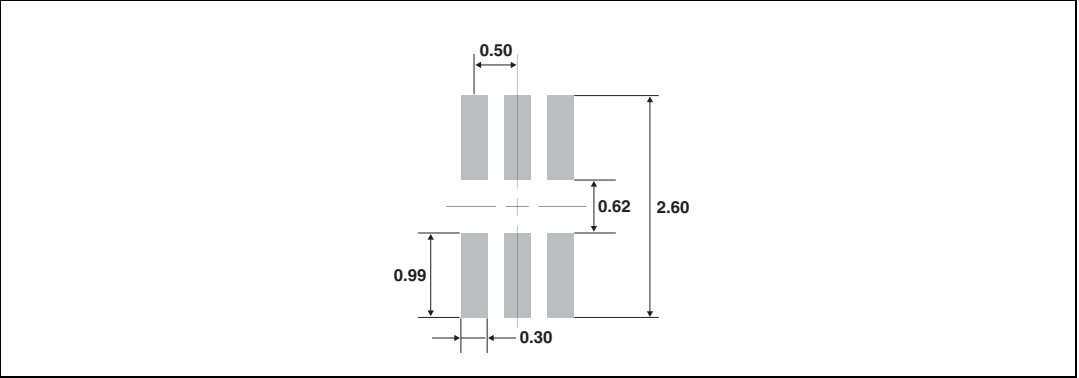


Figure 25. Flip-Chip dimensions

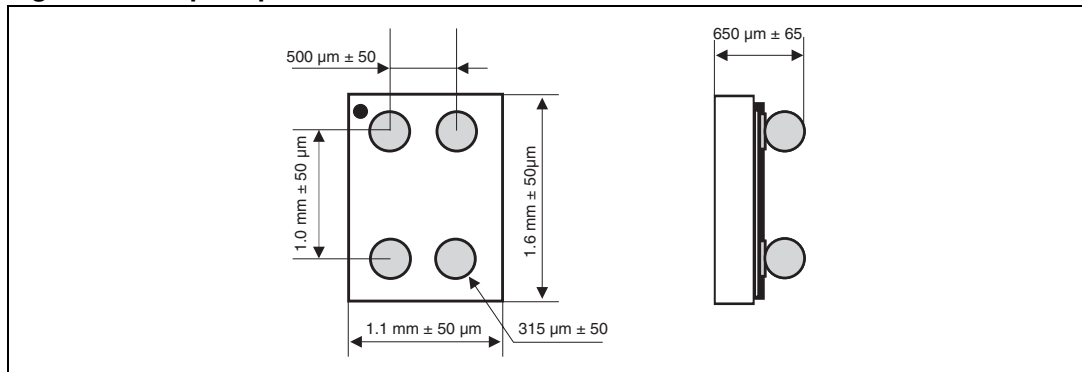


Figure 26. Flip-Chip footprint

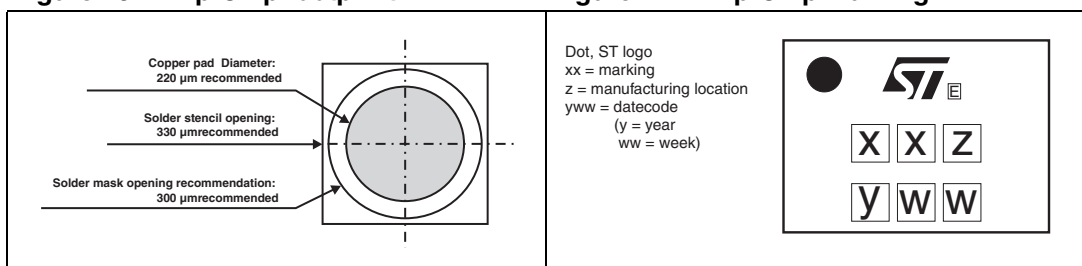


Figure 27. Flip-Chip marking

Dot, ST logo
 xx = marking
 z = manufacturing location
 yww = datecode
 (y = year
 ww = week)

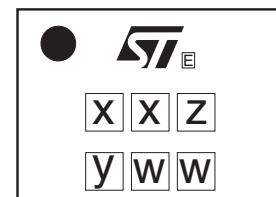
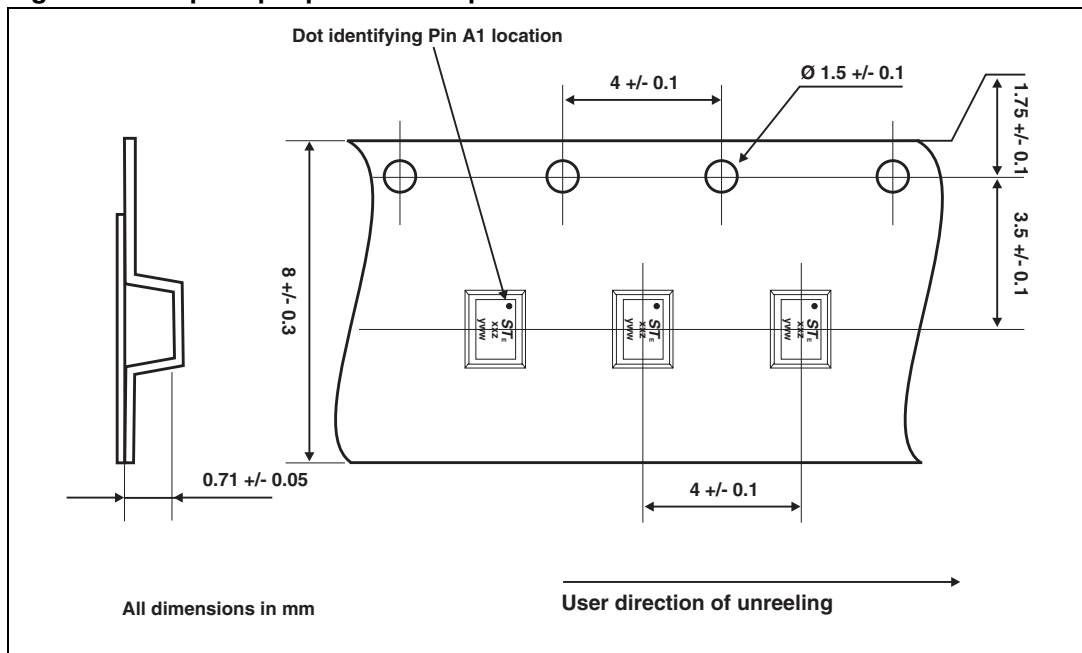


Figure 28. Flip-Chip tape and reel specifications



In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a lead-free second level interconnect. The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: www.st.com.

5 Ordering information

Table 5. Ordering information

Part number	Marking	Package	Weight	Base qty	Delivery mode
ESDAULC6-3BP6	3	SOT-666	2.9 mg	5000	Tape and reel
ESDAULC6-3BF2	3B	Flip-Chip	2.22 mg	5000	Tape and reel

6 Revision history

Table 6. Revision history

Datet	Revision	Changes
03-Jul-2007	1	Initial release

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