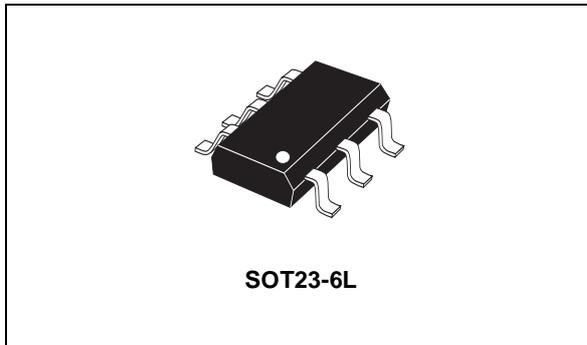


## Secondary protection for VDSL2 lines

Datasheet - production data



### Description

DSL03 is designed to protect DSL line drivers against surges defined in worldwide telecommunication standards. This device protects line drivers of various systems such as ADSL and VDSL. The low capacitance makes it suitable from ADSL to VDSL2 data rates.

DSL03 is able to survive severe conditions even when used with downgraded or oscillating gas tube.

DSL03 is packaged in a SOT23-6L.

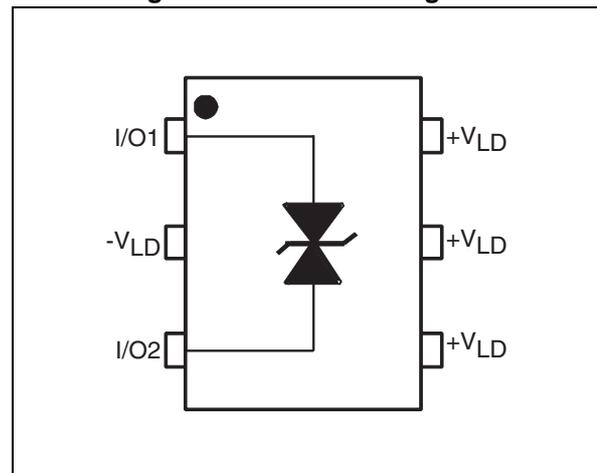
### Features

- High surge capability to comply with GR-1089 and ITU-T K20/21
- Voltages: 10, 22 and 24 V
- Low capacitance device:  $C_{typ} = 0.5 \text{ pF}$
- RoHS package
- Low leakage current:  $0.2 \mu\text{A}$  at  $25 \text{ }^\circ\text{C}$

### Complies with the following standards

- Telcordia GR-1089
  - 2.5 kV 2/10  $\mu\text{s}$  - 500 A 2/10  $\mu\text{s}$
  - AC power fault tests
- ITU-T K20/21/45
  - 6 kV 10/700  $\mu\text{s}$  - 150 A 5/310  $\mu\text{s}$
  - power induction tests
  - power contact tests
- IEC 61000-4-2, level 4
  - 15 kV (air discharge)
  - 8 kV (contact discharge)
- MIL STD 883G-Method 3015-7: Class 3
  - 25 kV (human body model)

**Figure 1. Functional diagram**



# 1 Characteristics

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

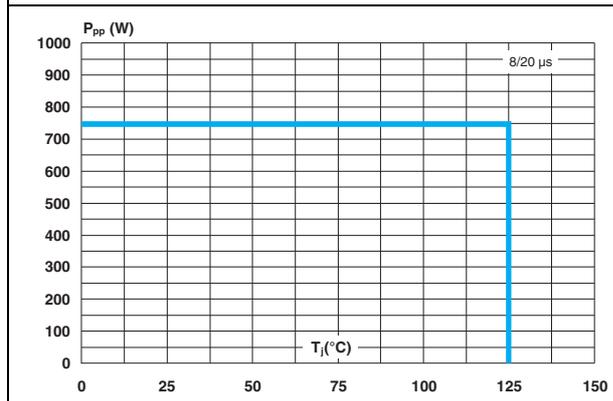
Symbol	Parameter		Value	Unit
$V_{pp}$	Peak pulse voltage	IEC 61000-4-5 contact discharge	30	kV
$I_{pp}$	Peak pulse current	8/20 $\mu\text{s}$	16	A
$T_{stg}$	Storage temperature range		-55 to 150	$^{\circ}\text{C}$
$T_j$	Operating junction temperature range		-40 to 125	$^{\circ}\text{C}$
$T_L$	Maximum temperature for soldering during 10s		260	$^{\circ}\text{C}$

**Table 2. Electrical characteristics ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ )**

Order code	$I_{RM} @ V_{RM}$ I/O to I/O		$V_{BR} @ I_{BR}$ I/O to I/O		$V_{CL} @ I_{PP}$ 8/20 $\mu\text{s}$ I/O to I/O		C I/O to I/O	C I/O to I/O	$\Delta C$ I/O to I/O
	Max. $\mu\text{A}$	V	Min V	mA	Max. V	A	typ. (1) pF	max.(1) pF	typ.(2) pF
DSL03-010SC6	0.2	10	10.5	1	29	16	0.5	3	0.2
DSL03-022SC6	0.2	22	25	1	52	16	0.5	3	0.2
DSL03-024SC6	0.2	24	28	1	55	16	0.5	3	0.2

1. Test conditions:  $V_R = 2\text{ V}$  bias,  $V_{RMS} = 1\text{ V}$ ,  $F = 1\text{ MHz}$
2. Measured between 1 V and  $V_{RM}$

**Figure 2. Peak pulse power dissipation versus initial junction temperature (typical values, 8/20 $\mu\text{s}$ )**



**Figure 3. Leakage current versus junction temperature (typical values)**

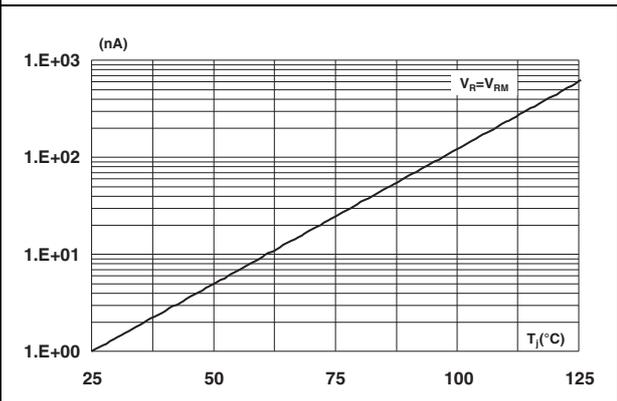
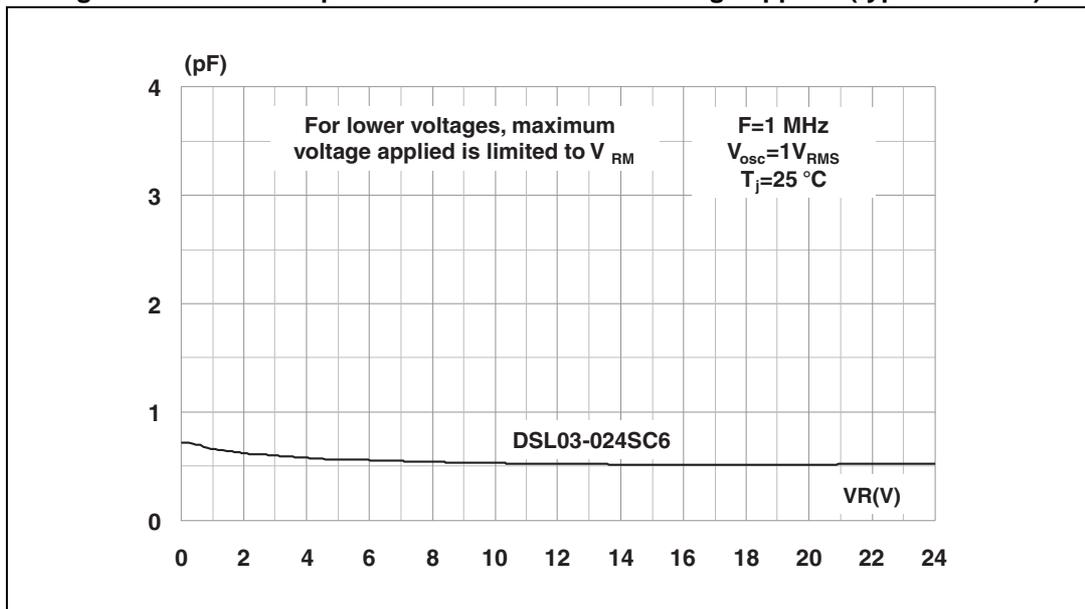


Figure 4. Junction capacitance versus reverse voltage applied (typical values)



## 2 Package information

- Epoxy meets UL94, V0
- Lead-free package

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

**Figure 5. SOT23-6L wide dimension definitions**

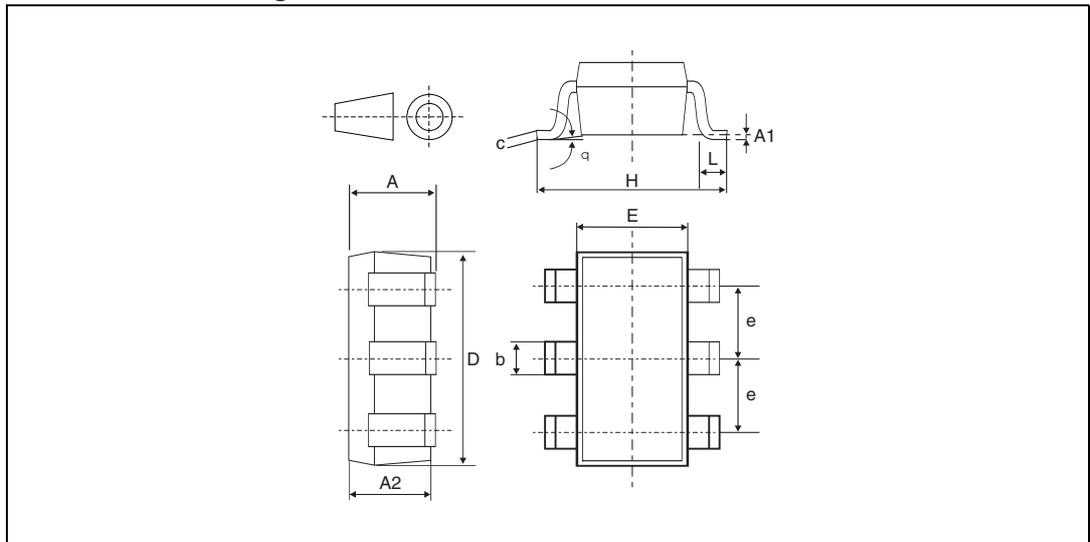
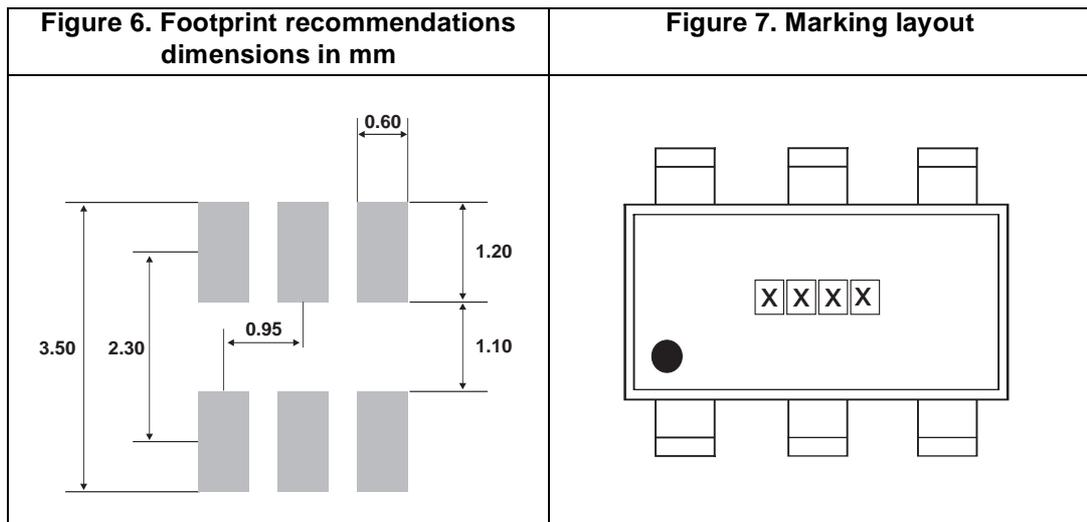


Table 3. SOT23-6L dimension values

Ref.	Dimensions					
	Millimeters			Inches		
	Min.		Max.	Min.		Max.
A	0.90		1.45	0.035		0.057
A1	0		0.10	0		0.004
A2	0.90		1.30	0.035		0.051
b	0.35		0.50	0.014		0.020
c	0.09		0.20	0.004		0.008
D	2.80		3.05	0.11		0.118
E	1.50		1.75	0.059		0.069
e		0.95			0.037	
H	2.60		3.00	0.102		0.118
L	0.10		0.60	0.004		0.024
θ	0°		10°	0°		10°



### 3 Ordering information

Figure 8. Ordering information scheme

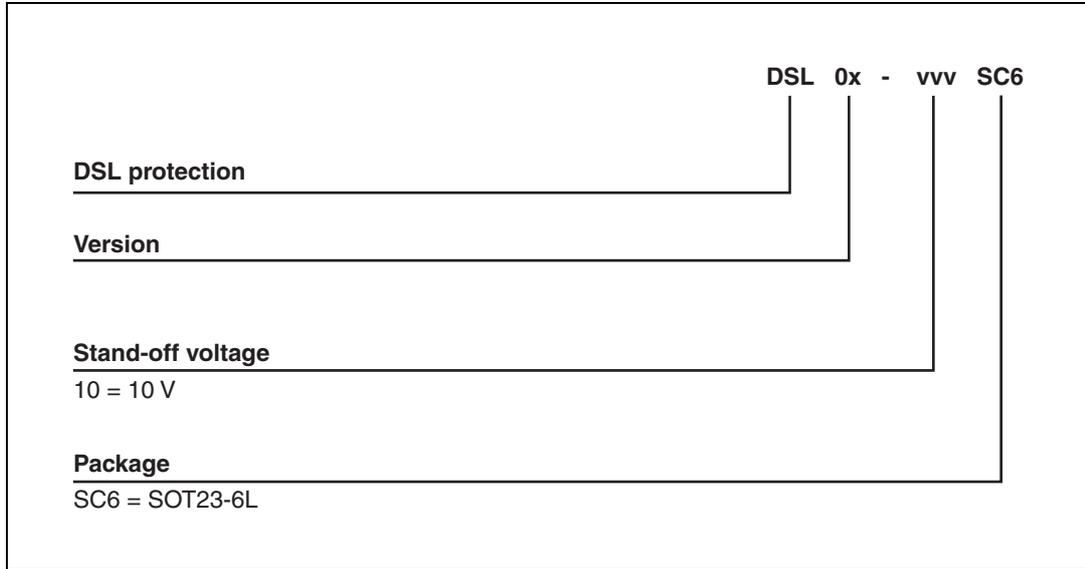


Table 4. Ordering information

Ordering code	Marking	Package	Weight	Base qty	Delivery mode
DSL03-010SC6	ST10	SOT23-6L	17.3 mg	3000	Tape and reel
DSL03-022SC6	ST22				
DSL03-024SC6	ST24				

### 4 Revision history

Table 5. Document revision history

Date	Revision	Changes
07-Feb-2014	1	Initial release

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