SGS-THOMSON MICROELECTRONICS

NTSP1

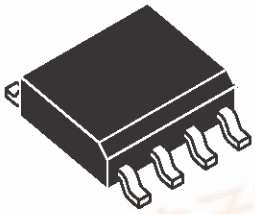
Application Specific Discretes
A.S.D.™

NETWORK TERMINATION S INTERFACE PROTECTION

MAIN APPLICATIONS

ISDN equipment where transient overvoltage and electrostatic discharge protection is required, such as:

- S interface on NT equipment
- S interface of terminal equipment



SO8

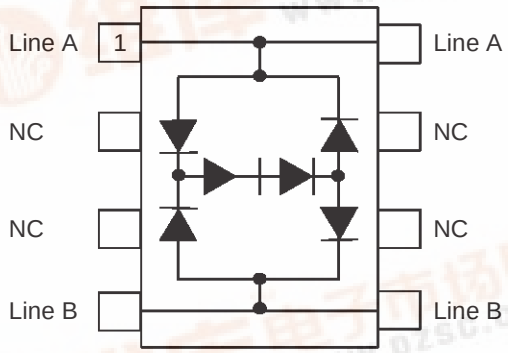
DESCRIPTION

The NTSP1 is a monolithic diode structure especially designed to protect ISDN S/T interfaces against transient overvoltage and ESD surges.

FEATURES

- Peak pulse current : I_{PP} = 10 A max (5 / 310 µs)
- Clamping voltage : V_{CL} = 3 V max
- Low leakage current : I_R = 1 µA
- Capacitance : C = 40 pF typ.

FUNCTIONAL DIAGRAM



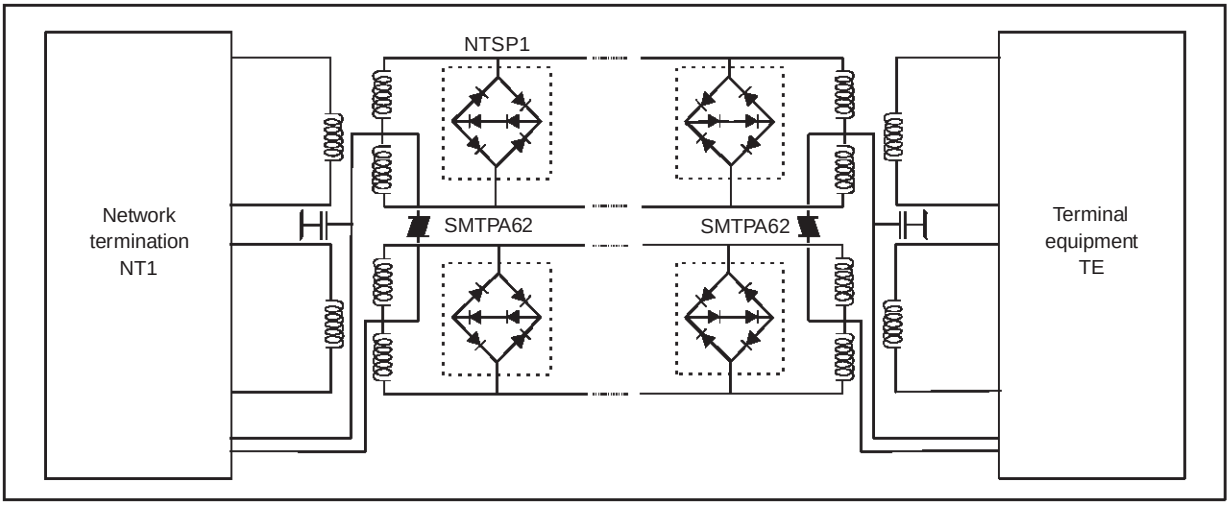
BENEFITS

- Monolithic diode structure for high reliability
- Transient overvoltage and ESD surges protection
- Board space saving

COMPLIES WITH THE FOLLOWING STANDARDS :

CCITT K21	1 kV, 10/700 µs (with serial resistance of 100 Ω) see test circuit
CCITT K22	1 kV, 1.2/50 µs (with serial resistance of 50 Ω)
IEC 1000-4-5	2 kV, 1.2/50 µs (with serial resistance of 100 Ω)
IEC 1000-4-2	15 kV (air discharge) 8 kV (contact discharge)

APPLICATION EXAMPLE : typical connection diagram



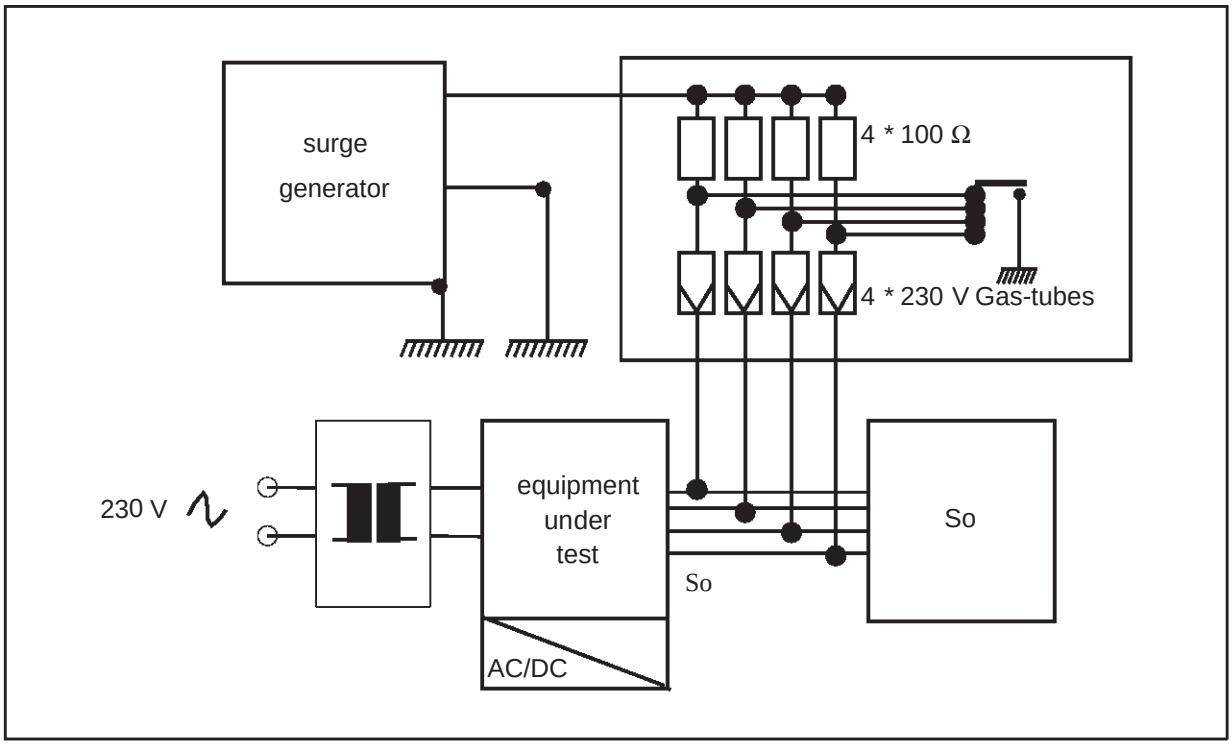
ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C)

Symbol	Parameter	Test condition	Value	Unit
I_{PP}	Peak pulse current	1 kV 10/700 µs (see test circuit) 2 kV 1.2/50 µs (see test circuit)	10 20	A
T_{stg}	Storage temperature range		-40 to +150	°C
T_L	Lead temperature for soldering during 10 s		260	°C

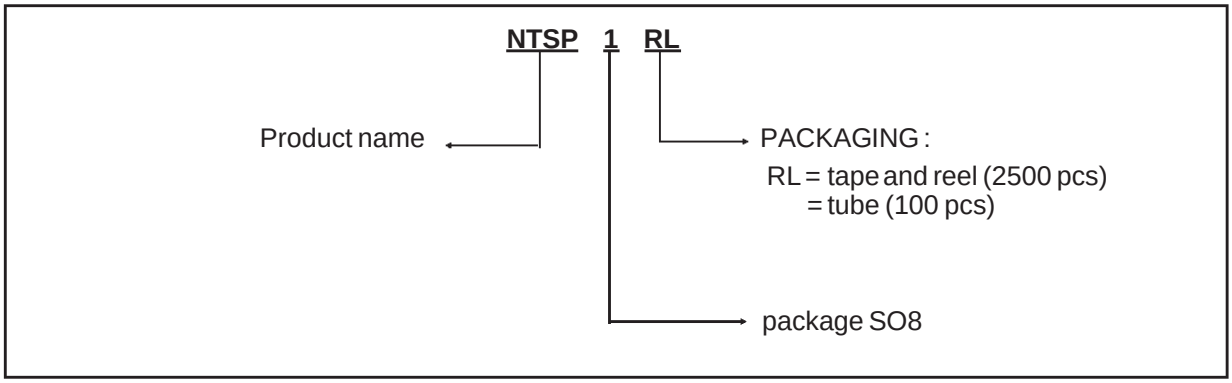
ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C)

Type	Parameter	Test condition	Typ.	Max.	Unit
V_{CL}	Clamping voltage	1 mA, measured at 50 Hz at I_{PP}, 10/700 µs at I_{PP}, 1.2/50 µs		3 15 25	V
I_R	Leakage current	V_R = 1.2 V, 25 °C V_R = 1.2 V, 70 °C		1 5	µA µA
C	Capacitance	V_R = 1.2 V, F = 1 MHz	40		pF

TEST CIRCUIT
(Transversal mode)

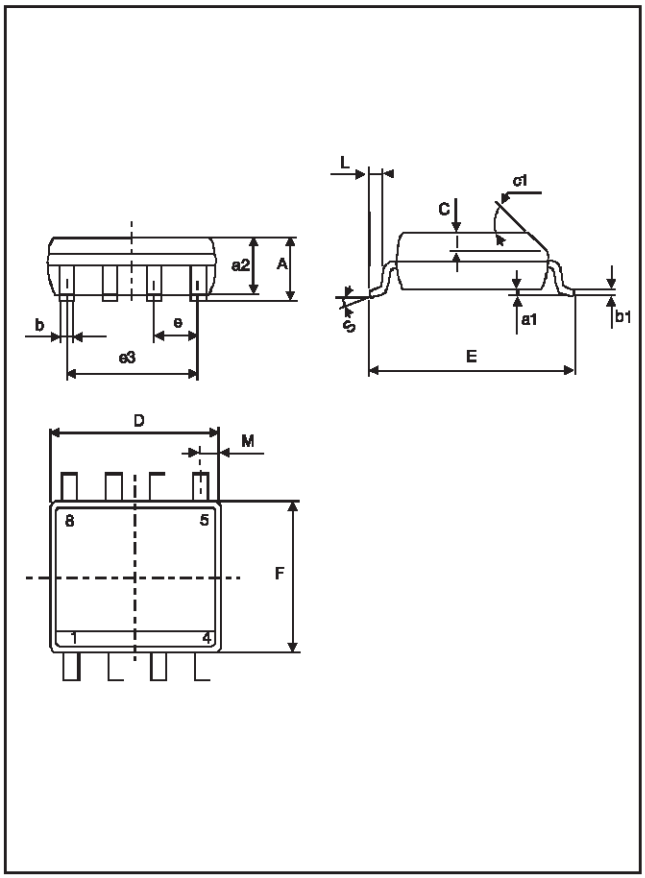


ORDER CODE



PACKAGE MECHANICAL DATA

SO8 (Plastic)



REF.	DIMENSIONS					
	Millimetres			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75			0.069
a1	0.1		0.25	0.004		0.010
a2			1.65			0.065
b	0.35		0.48	0.014		0.019
b1	0.19		0.25	0.007		0.010
C		0.50			0.020	
c1	45° (typ)					
D	4.8		5.0	0.189		0.197
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		3.81			0.150	
F	3.8		4.0	0.15		0.157
L	0.4		1.27	0.016		0.050
M			0.6			0.024
S	8° (max)					

Weight : 0.08g

MARKING

Type	Marking
NTSP1	NTSP1