



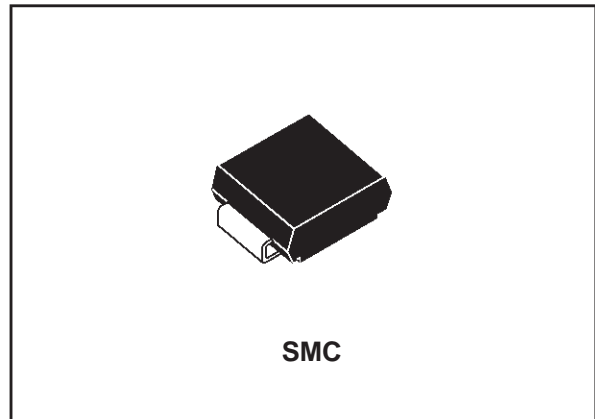
SMTHDTxx

Application Specific Discretés
A.S.D.™

TRISIL™
DISCRETE SOLUTION FOR ISDN PROTECTION

FEATURES

- UNIDIRECTIONAL CROWBAR PROTECTION.
- PEAK PULSE CURRENT:
IPP = 75 A , 10/1000 μs.
- HOLDING CURRENT = 150mA.
- BREAKDOWN VOLTAGE:
SMTHDT58 = 58V.
SMTHDT80 = 80V.
SMTHDT120 = 120V.
- PACKAGES:
SMTHDTxx = SURFACE MOUNT PACKAGE.



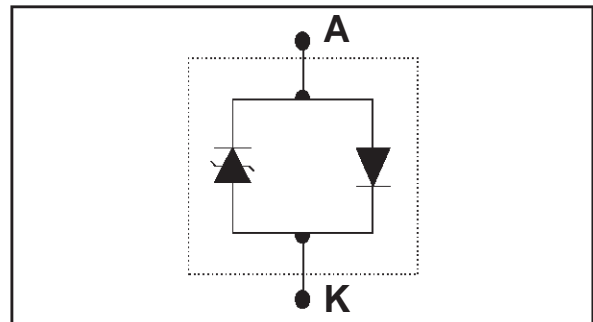
DESCRIPTION: TRIBALANCED PROTECTION

Dedicated protection devices for ISDN LINE CARD and high speed data telecom lines.

Used with the recommended configuration using 3 components, they will provide =

- Dual bidirectionnal protection, with fixed breakdown voltage in both common and differential modes.
- Low capacitances from lines to ground.
- Very good capacitance balance : ΔC= 30 pF.

FUNCTIONAL DIAGRAM.



ABSOLUTE RATINGS (limiting values) (-40°C ≤ T_{amb} ≤ +85°C)

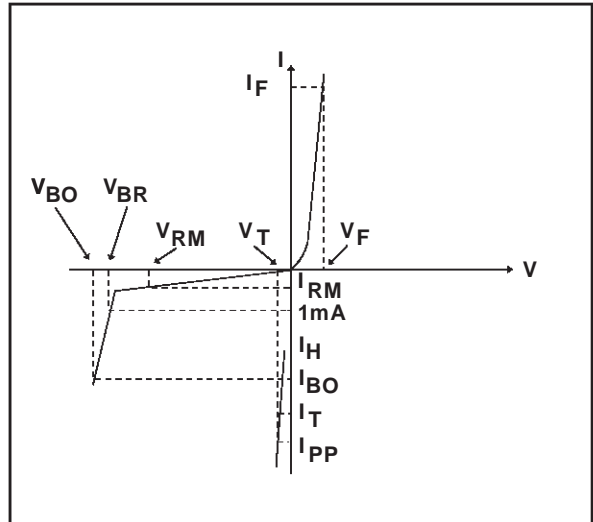
Symbol	Parameter		Value	Unit
I _{PP}	Peak pulse current	10/1000 μs 8/20 μs	75 150	A
I _{TSM}	Non repetitive surge peak on-state current	tp = 20 ms	30	A
di/dt	Critical rate of rise of on-state current	Non repetitive	100	A/μs
dv/dt	Critical rate of rise of off-state voltage	67% V _{BR}	5	KV/μs
T _{stg} T _j	Storage and operating junction temperature range		- 40 to + 150 + 150	°C °C

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
R _{th (j-l)}	Junction-leads Thermal Resistance	SMC	200	°C/W

SMTHDTxx

Symbol	Parameter
V_{RM}	Stand-off voltage
V_{BR}	Breakdown voltage
V_{BO}	Breakover voltage
I_H	Holding current
V_T	On-state voltage
V_F	Forward Voltage Drop
I_{BO}	Breakover current
I_{PP}	Peak pulse current
V_F	Forward Voltage Drop



PARAMETERS RELATED TO THE DIODE.

Parameter	Test conditions	Value	Unit
V_F	$I_F = 5A, T_P = 500 \mu s$	5	V

PARAMETERS RELATED TO THE PROTECTION TRISIL.

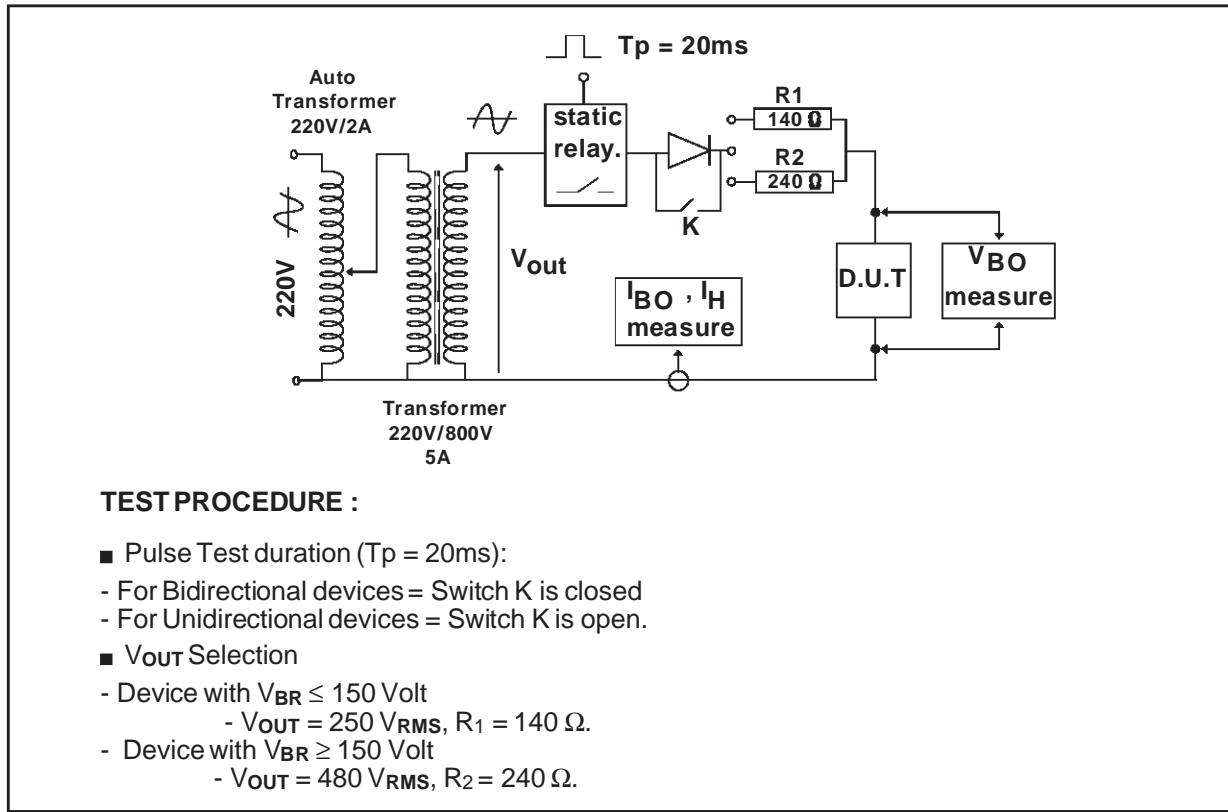
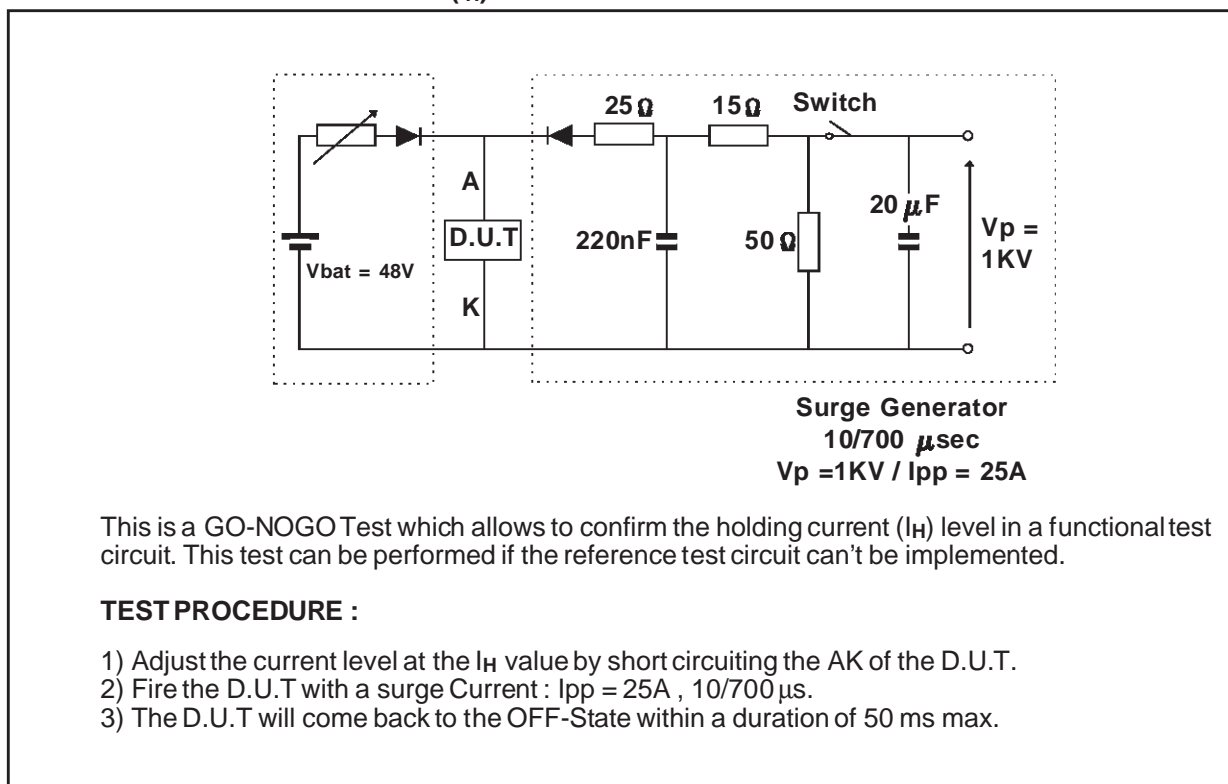
Types	$I_R @ V_{RM}$		$V_{BR} @ I_R$		V_{BO}	I_{BO}		I_H	V_T	C
	max		min		max	min	max	min	max	max
	μA	V	V	mA	V	mA	mA	mA	V	pF
SMTHDT58	10	56	58	1	80	150	800	150	5	400
SMTHDT80	10	68	80	1	120	150	800	150	5	250
SMTHDT120	10	102	120	1	180	150	800	150	5	200

All parameters tested at 25 °C, except where indicated.

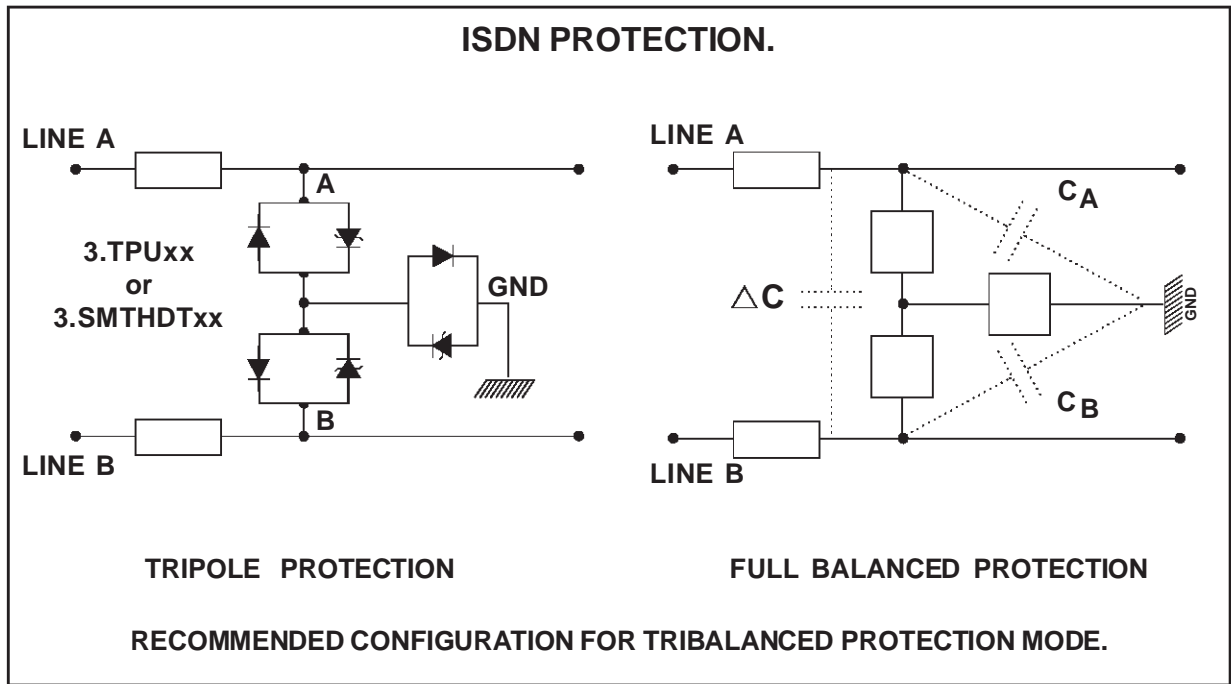
Note 1 : See the reference test circuit for I_H , I_{BO} and V_{BO} parameters.

Note 2 : Square pulse $T_p = 500 \mu s - I_T = 5A$.

Note 3 : $V_R = 1V, F = 1MHz$.

REFERENCE TEST CIRCUIT FOR I_H , I_{BO} and V_{BO} parameters :FUNCTIONAL HOLDING CURRENT (I_H) TEST CIRCUIT = GO - NOGO TEST.

APPLICATION NOTE

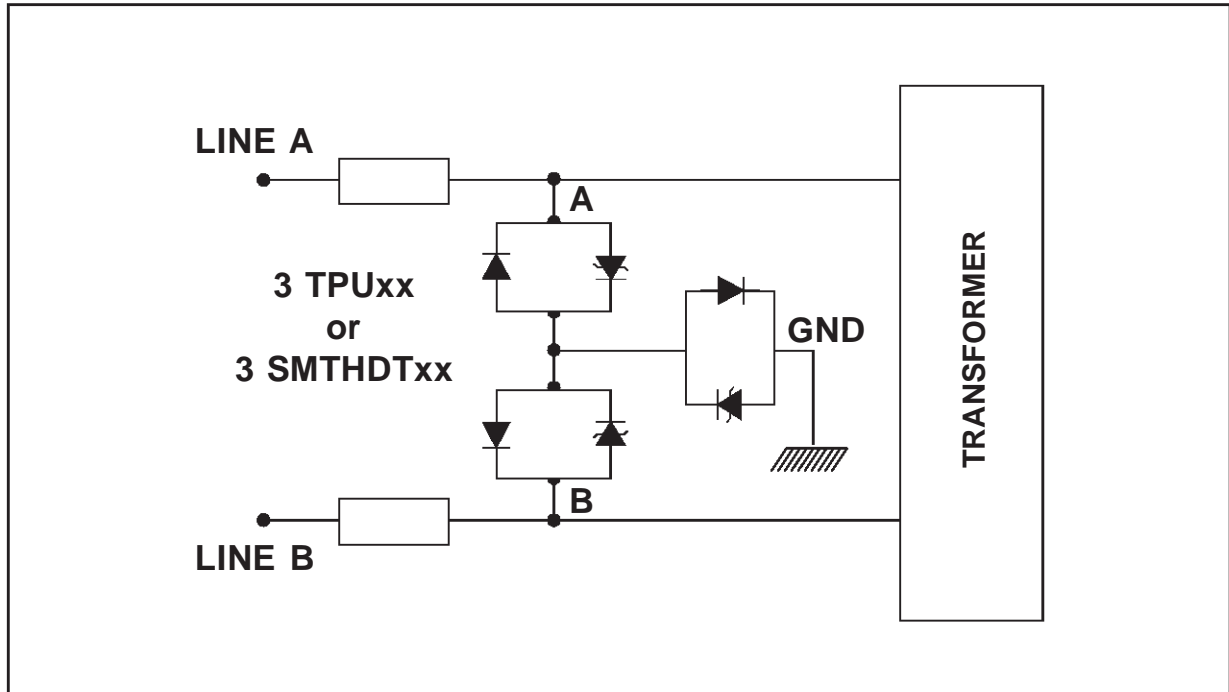


CAPACITANCE CHARACTERISTICS

Type	CONFIGURATION		C _A pF Max	C _B pF Max	ΔC pF Max
	LINE A	LINE B			
SMTHDT58	48	0	80	60	30
SMTHDT80	56	0	70	50	30
SMTHDT120	110	0	70	50	30

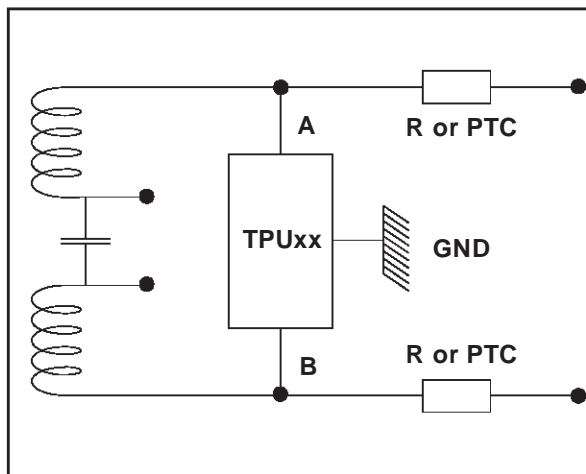
APPLICATION NOTE

Discrete ISDN Protection solution

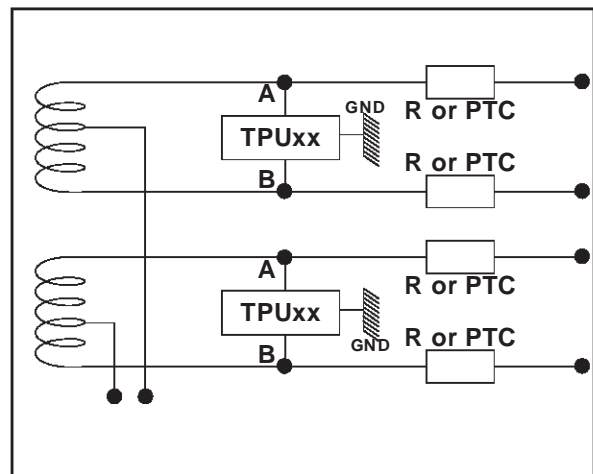


EQUIVALENT PROTECTION FUNCTION

U Interface Protection



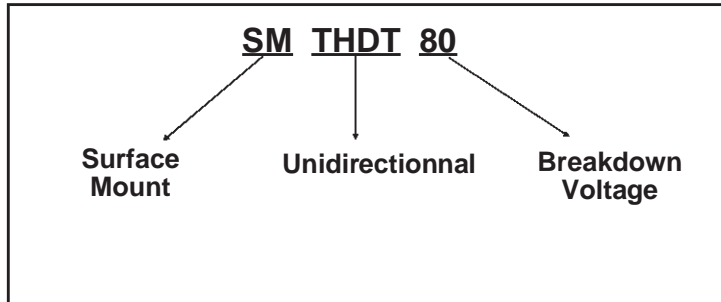
S Interface Protection



This topology assumes the same breakdown voltage level in positive and negative for differential or common mode surge.

SMTHDTxx

ORDER CODE



MARKING

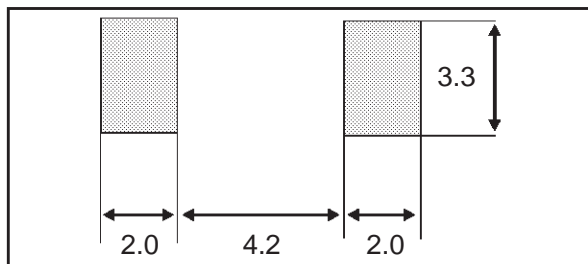
Package	Type	Marking
SMC	SMTHDT58	W01
	SMTHDT80	W03
	SMTHDT120	W05

PACKAGE MECHANICAL DATA

SMC

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

FOOTPRINT DIMENSIONS (in millimeters)



Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics

© 1999 STMicroelectronics - Printed in Italy - All rights reserved.

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - China - Finland - France - Germany - Hong Kong - India - Italy - Japan - Malaysia
Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - U.S.A.

<http://www.st.com>