



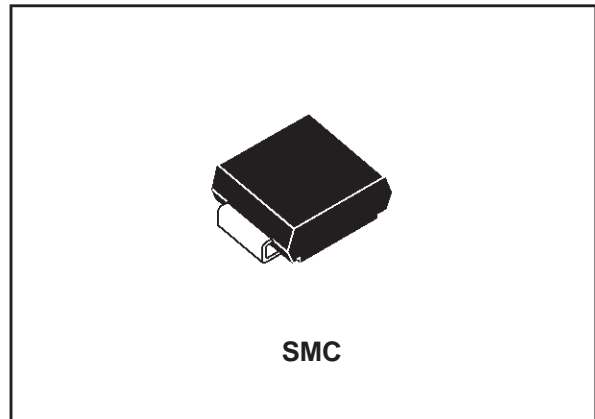
# SMTHDTxx

Application Specific Discretes  
A.S.D.<sup>TM</sup>

TRISIL<sup>TM</sup>  
DISCRETE SOLUTION FOR ISDN PROTECTION

## FEATURES

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



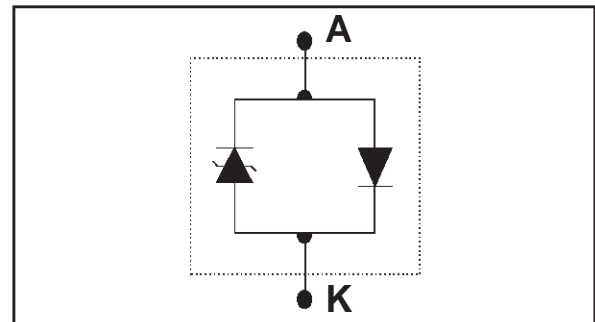
## DESCRIPTION: TRIBALANCED PROTECTION

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 :  $\Delta C = 30$  pF.

## FUNCTIONAL DIAGRAM.



## ABSOLUTE RATINGS (limiting values) (-40°C ≤ T<sub>amb</sub> ≤ +85°C)

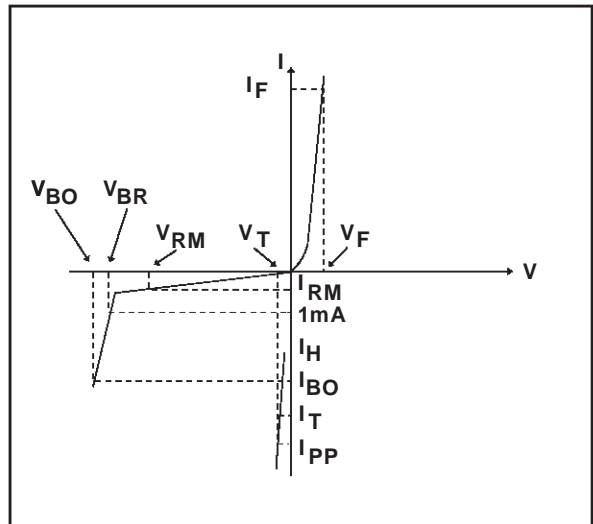
Symbol	Parameter		Value	Unit
I <sub>PP</sub>	Peak pulse current	10/1000 $\mu$ s 8/20 $\mu$ s	75 150	A
I <sub>TSM</sub>	Non repetitive surge peak on-state current	tp = 20 ms	30	A
di/dt	Critical rate of rise of on-state current	Non repetitive	100	A/ $\mu$ s
dv/dt	Critical rate of rise of off-state voltage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

## THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
R <sub>th (j-l)</sub>	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.

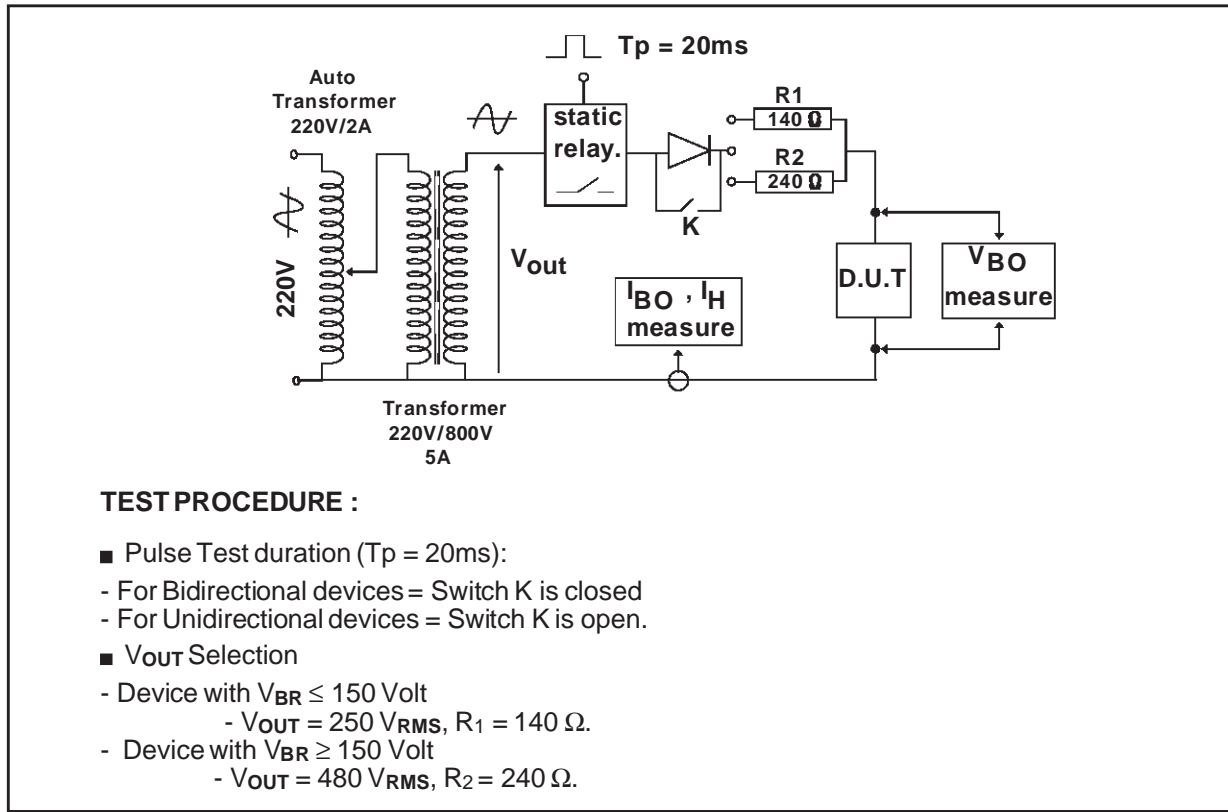
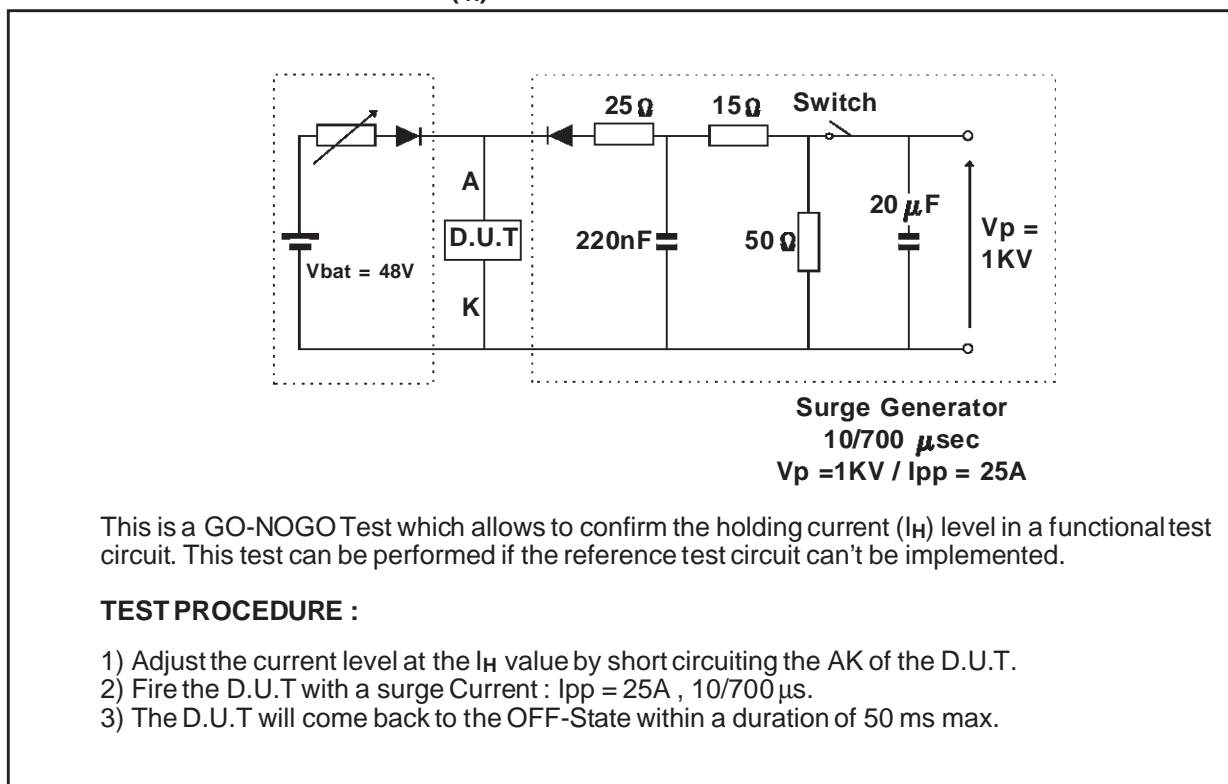
Types	$I_R @ V_{RM}$		$V_{BR} @ I_R$		$V_{BO}$	$I_{BO}$		$I_H$	$V_T$	$C$
	max		min		max	min	max	min	max	max
	$\mu A$	V	V	mA	V	mA	mA	mA	V	pF
SMTHDT58	10	56	58	1	80	150	800	150	5	400
SMTHDT80	10	68	80	1	120	150	800	150	5	250
SMTHDT120	10	102	120	1	180	150	800	150	5	200

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

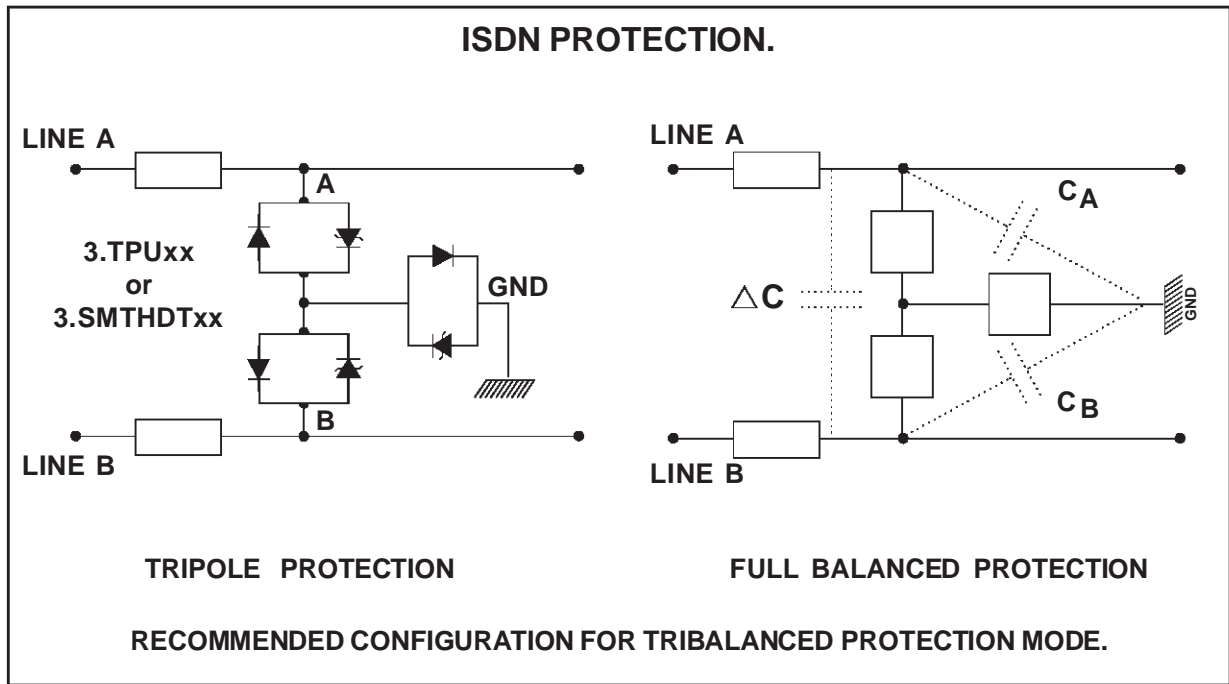
**Note 1 :** See the reference test circuit for  $I_H$ ,  $I_{BO}$  and  $V_{BO}$  parameters.

**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

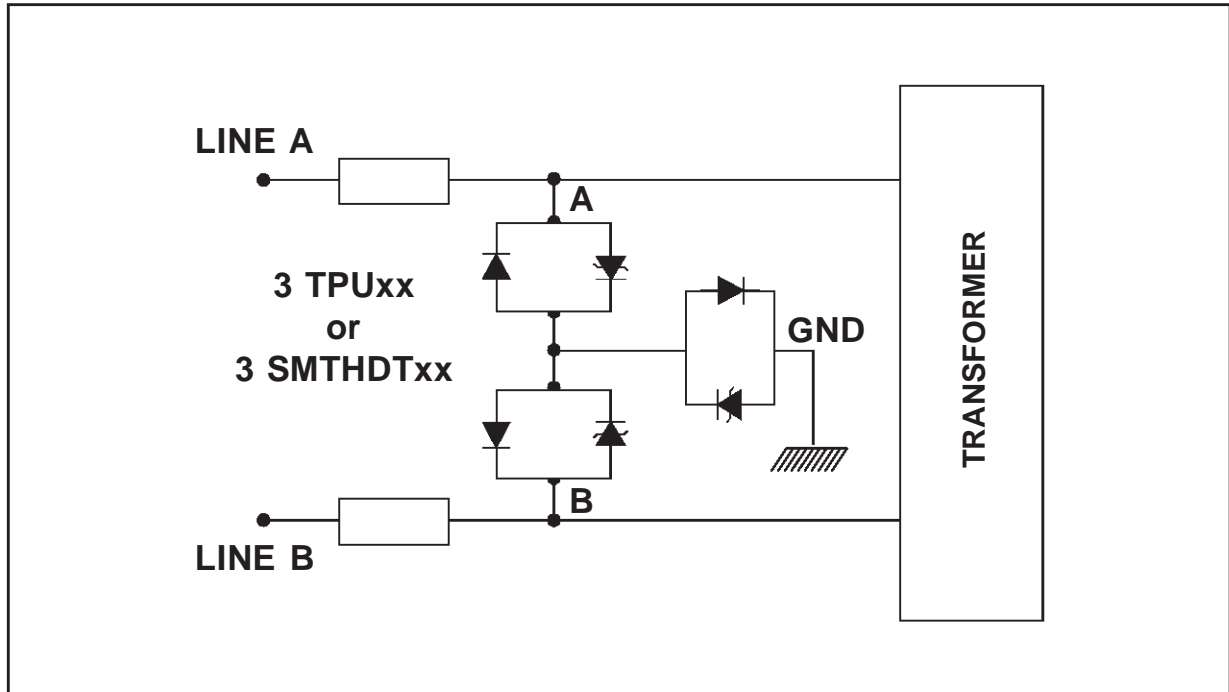


CAPACITANCE CHARACTERISTICS

Type	CONFIGURATION		C <sub>A</sub> pF Max	C <sub>B</sub> 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

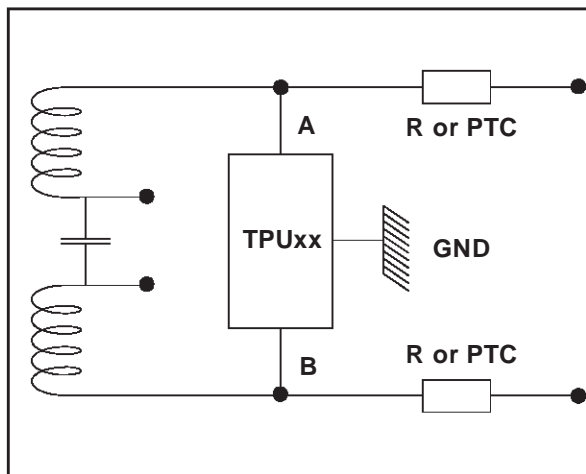
APPLICATION NOTE

Discrete ISDN Protection solution

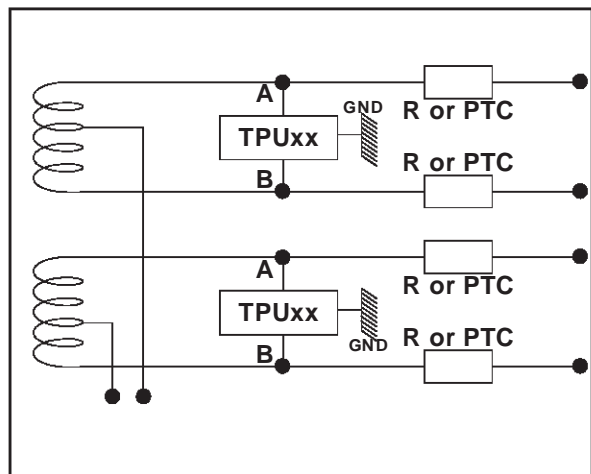


EQUIVALENT PROTECTION FUNCTION

U Interface Protection



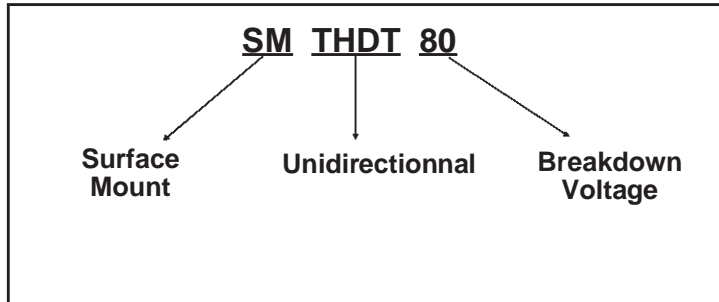
S Interface Protection



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

# SMTHDTxx

## ORDER CODE



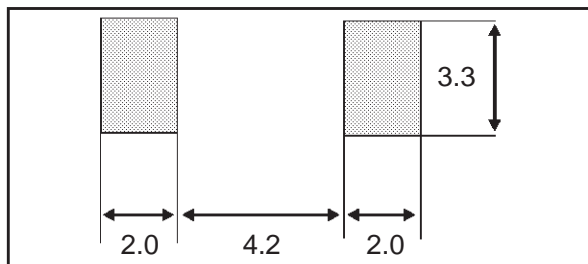
## MARKING

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)



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