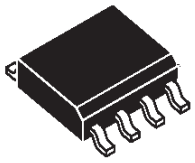
SGS-THOMSON MICROELECTRONICS

ITA6V5C1 / ITA10C1 ITA18C1 / ITA25C1

MONOLITHIC TRANSIL® ARRAY FOR DATA LINE PROTECTION

FEATURES

- HIGH SURGE CAPABILITY TRANSIL ARRAY I_{PP} = 40 A 8/20µs
- UP TO 5 BIDIRECTIONAL TRANSIL FUNCTIONS
- BREAK DOWN VOLTAGE AND MAXIMUM DIFFERENTIAL VOLTAGE BETWEEN TWO INPUT PINS :
  ITA6V5 = 6.5 V
  ITA10 = 10 V
  ITA18 = 18 V
  ITA25 = 25 V
- LOW CLAMPING FACTOR (V_{CL} / V_{BR}) AT HIGH CURRENT LEVEL
- LOW LEAKAGE CURRENT
- LOW INPUT CAPACITANCE



SO8

DESCRIPTION

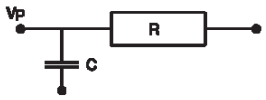
This is a specific transil array for RS232, RS423 interface protection developed in monolithic chip form in order to provide a high surge capability and a low clamping voltage

IN ACCORDANCE WITH :

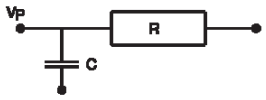
- ESD standard :

. IEC 801-2	15kV	5ns / 50ns
. IEC 801-4	40A	5ns / 50ns
. IEC 801-5	1kV	1.2 / 50µs
	25A	8 / 20µs

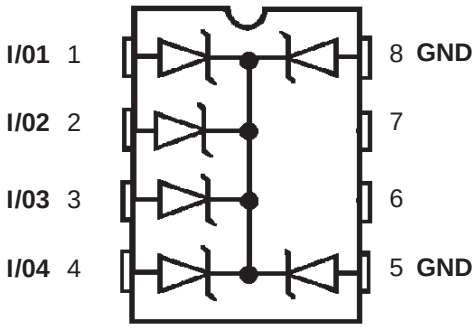
. MIL STD 883C - Method 3015-2
V_P = 25kV
C = 150pF
R = 150Ω
5 s duration



- Human body test :
V_P = 4kV
C = 150pF
R = 150Ω



FUNCTIONAL DIAGRAM



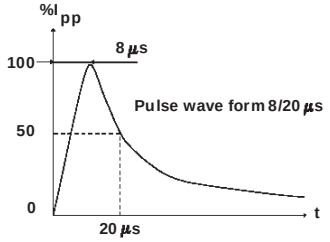
EQUIVALENT TO 4 BIDIRECTIONAL TRANSILS

ABSOLUTE RATINGS (limiting values) (0°C ≤ Tamb ≤ 70°C)

Symbol	Parameter		Value	Unit
I_{PP}	Peak pulse current for 8/20 µsexponential pulse	See note	40	A
I^2t	Wire I^2t value	See note	0.6	A^2s
T_{stg} T_j	Storage and Junction Temperature Range		- 55 to + 150 125	°C °C

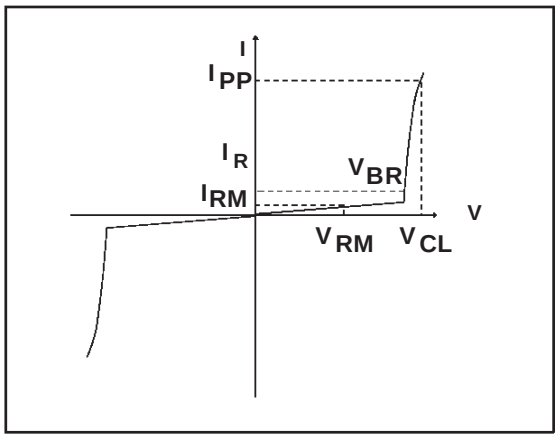
Note :

For surges greater than the maximum value specified, the input/output will present first a short circuit to the common bus line and after an open circuit caused by the wire.



ELECTRICAL CHARACTERISTICS

Symbol	Parameter
I_{RM}	Leakage Current @ V_{RM}
V_{RM}	Stand-off Voltage
V_{BR}	Breakdown Voltage
V_{CL}	Clamping Voltage
I_{PP}	Surge Current
C	Input Capacitance



Types	I_{RM} @ V_{RM} max		V_{BR} @ I_R min Note 1		V_{CL} @ I_{PP} 8/20µs Note 1		V_{CL} max Note 1	I_{PP} 8/20µs	C 1 max Note 2	C 2 max Note 3	αT max
	µA	V	V	mA	V	A	V	A	pF	pF	10^{-4}/°C
ITA6V5C1	10	5	6.5	1	10	10	12	25	750	550	4
ITA10C1	10	8	10	1	15	10	19	25	570	260	8
ITA18C1	4	15	18	1	25	10	28	25	350	180	9
ITA25C1	4	24	25	1	33	10	38	25	300	100	12

All parameters tested at 25°C, except where indicated.
Note 1: Between I/O pin and ground.
Note 2: Between two input Pins at 0 V Bias.
Note 3: Between two input Pins at V_{RM}.

SGS-THOMSON MICROELECTRONICS

Fig.1 : Typical Peak pulse power versus exponential pulse duration.

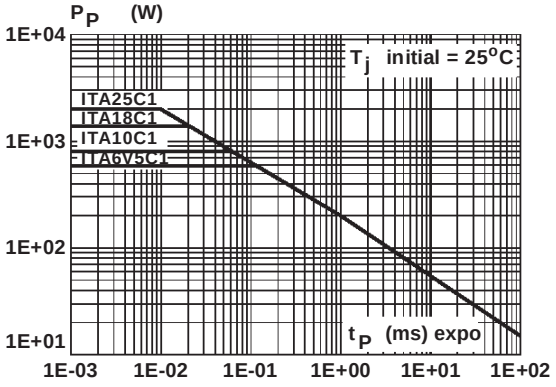


Fig.2 : Clamping voltage versus peak pulse current exponentialwaveform 8/20 µs.

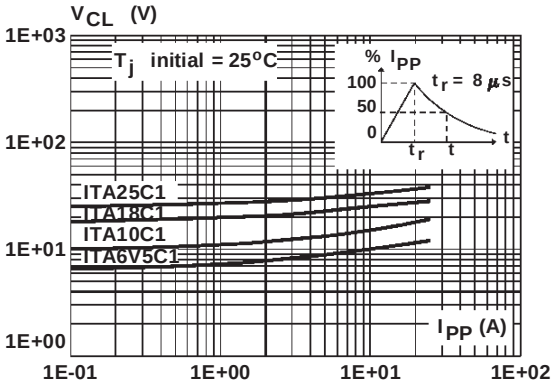


Fig.3 : Peak current I_{DC} inducing open circuit of the wire for one input/output versus pulse duration (typical values).

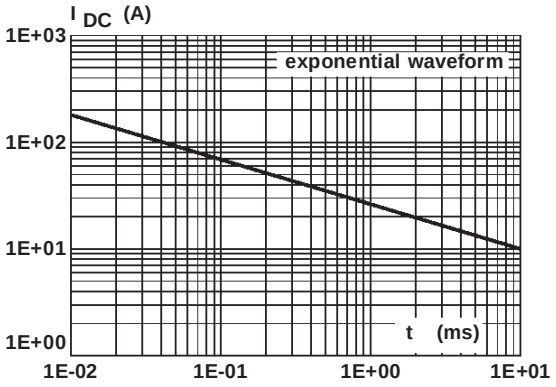
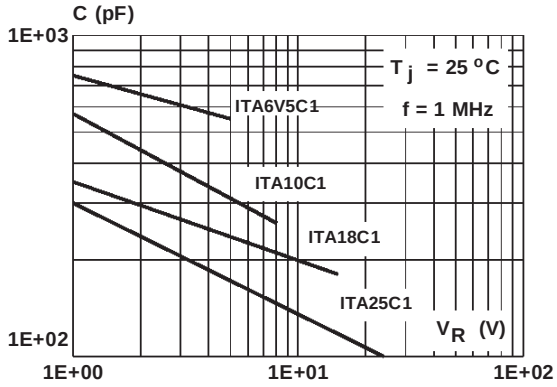


Fig.4 : Junction capacitance versus reverse applied voltage for one input/output (typical values).



Note :

The curve of the figure 2 is specified for a junction temperature of 25°C before surge.

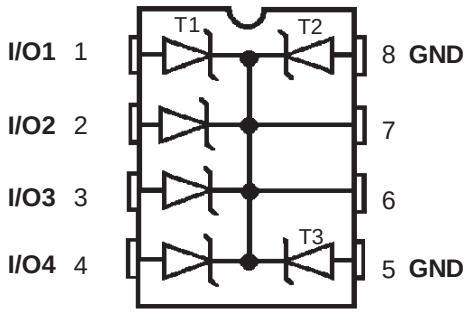
APPLICATION NOTICE

Types	Maximum differential voltage between two input pins at 25°C
	V
ITA6V5C1	6.5
ITA10C1	10
ITA18C1	18
ITA25C1	25

INSTRUCTION GUIDE

This monolithic Transil Array is based on 6 Unidirectional Transils with a common cathode and can be configurated to offer 4 or 5 bidirectional functions, according to the following customer application.

Fig 5 : EQUIVALENT TO 4 BIDIRECTIONAL TRANSILS

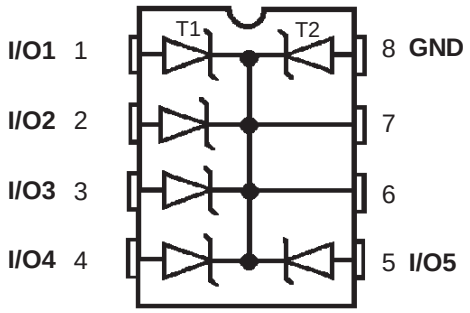


UTILIZATION AS A BIDIRECTIONAL TRANSIL ARRAY WITH 4 I/Os.

The main application of this device is to be configurated as a 4, bidirectional Transil Array as per the Pin-out of Fig 5.
Pins 5 and 8 are connected to ground.
INPUTS/OUTPUTS are from Pin 1 to Pin 4.

Note : The bidirectional function is made with 2 unidirectional Transils. One (T1) is connected to the INPUT/OUTPUT, the other one (T2) is connected to the ground (see Fig 5).
Ground is connected via 2 diodes T2 and T3 .
This allows to withstand 2 specified surges on 2 different lines at the same time.

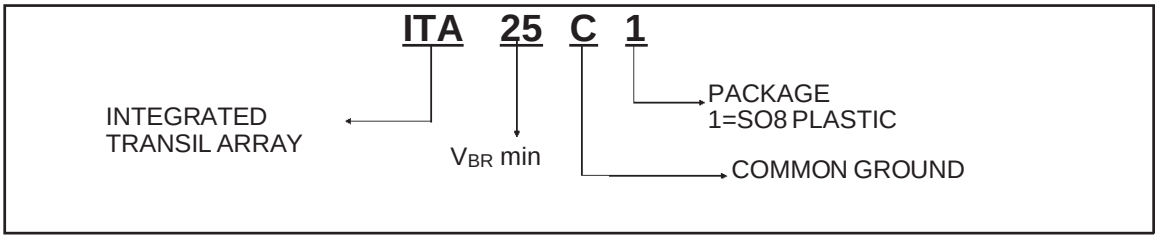
Fig 6 : EQUIVALENT TO 5 BIDIRECTIONAL TRANSILS



UTILIZATION AS A BIDIRECTIONAL TRANSIL ARRAY WITH 5 I/Os.

The ITAxxC1 can be used as a 5 bidirectional Transil Array.
Ground can be connected to any pin (except 6 and 7).
The other pins are used as INPUTS and OUTPUTS.
The bidirectional function is made with 2 unidirectional Transils T1 and T2. One example with ground on Pin 8 is shown in Fig 6.
This configuration allows to withstand only one specified surge at the same time.

ORDER CODE

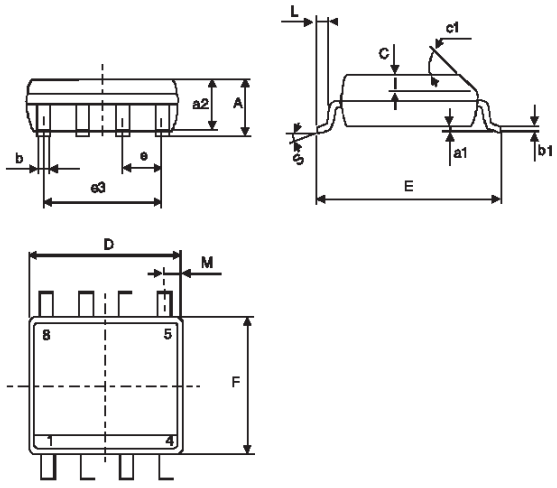


MARKING

TYPE	ITA6V5C1	ITA10C1	ITA18C1	ITA25C1
MARKING	6V5C1	10C1	18C1	25C1

PACKAGE MECHANICAL DATA

SO8



Weight : 0.077g

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)					

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