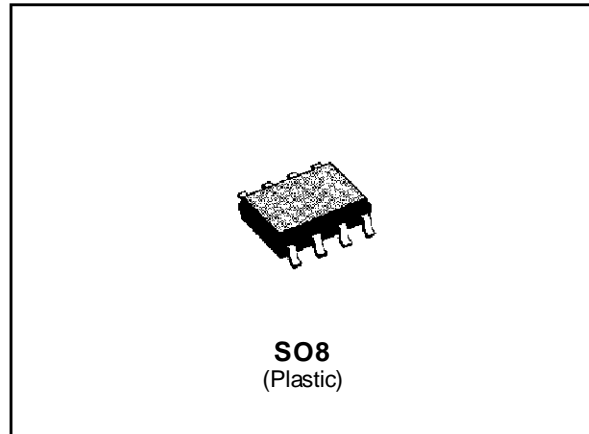


MONOLITHIC TRANSIL[®] ARRAY FOR DATA LINE PROTECTION

FEATURES

- HIGH SURGE CAPABILITY TRANSIL
ARRAY IPP = 40 A 8/20 μ s
- 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

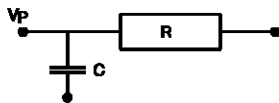


DESCRIPTION

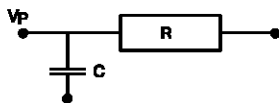
This is a specific transil array for RS232, RS423 interface protection developed in monolithic chip form in order to provide a high surge capability and a low clamping voltage

IN ACCORDANCE WITH :

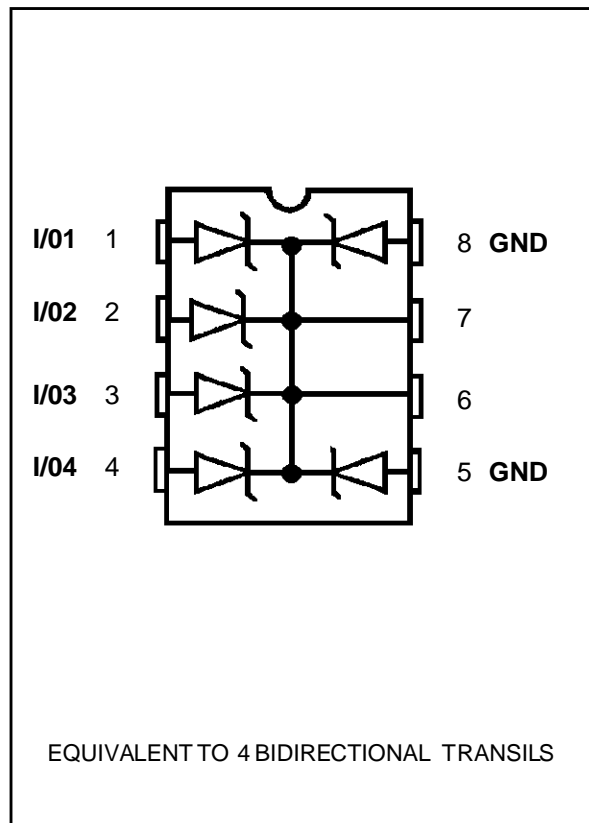
- ESD standard :
 - . IEC 801-2 15kV 5ns / 50ns
 - . IEC 801-4 40A 5ns / 50ns
 - . IEC 801-5 1kV 1.2 / 50 μ s
25A 8 / 20 μ s
 - . MIL STD 883C - Method 3015-2
V_P = 25kV
C = 150pF
R = 150 Ω
5 s duration



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



FUNCTIONAL DIAGRAM

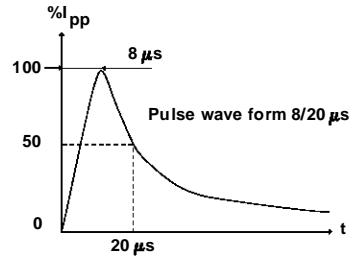


ITA6V5B1 / ITA10B1 / ITA18B1 / ITA25B1

ABSOLUTE RATINGS (limiting values) ($0^{\circ}\text{C} \leq T_{\text{amb}} \leq 70^{\circ}\text{C}$)

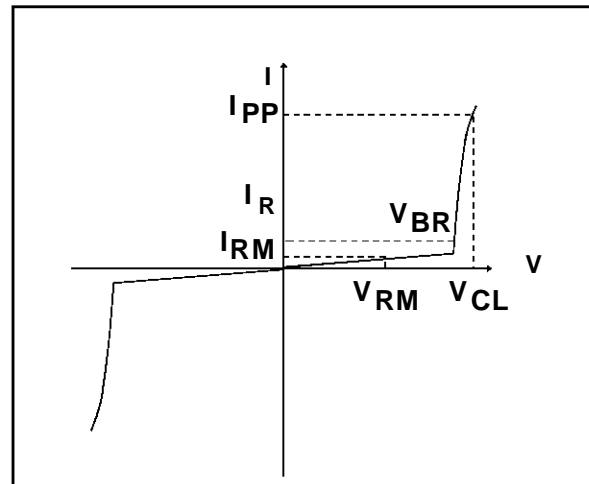
Symbol	Parameter	Value	Unit
I_{PP}	Peak pulse current for 8/20 μs exponential pulse	See note	A
I^2t	Wire I^2t value	See note	A^2s
T_{stg} T_{j}	Storage and Junction Temperature Range	- 55 to + 150 125	$^{\circ}\text{C}$ $^{\circ}\text{C}$

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	$I_{\text{RM}} @ V_{\text{RM}}$ max		$V_{\text{BR}} @ I_{\text{R}}$ min Note 1		$V_{\text{CL}} @ I_{\text{PP}}$ 8/20 μs Note 1		$V_{\text{CL}} @ I_{\text{PP}}$ 8/20 μs max Note 1		C1 max Note 2	C2 max Note 3	αT max
	μA	V	V	mA	V	A	V	A	pF	pF	$10^{-4}/^{\circ}\text{C}$
ITA6V5B1	50	5	6.5	1	10	10	12	25	750	550	4
ITA10B1	10	8	10	1	15	10	19	25	570	260	8
ITA18B1	4	15	18	1	25	10	28	25	350	180	9
ITA25B1	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} .

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

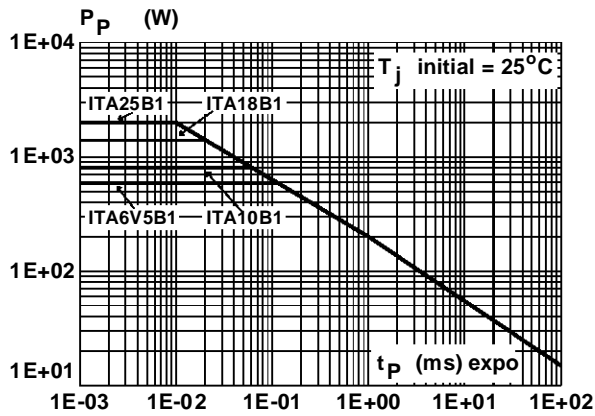


Figure 2 : Clamping voltage versus peak pulse current exponential waveform 8/20 μ s.

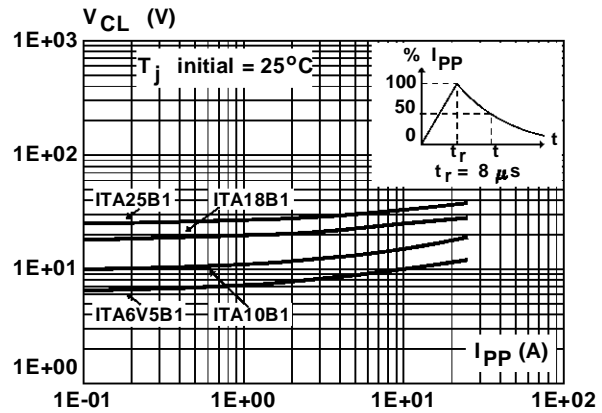


Figure 3 : Peak current I_{DC} inducing open circuit of the wire for one input/output versus pulse duration (typical values).

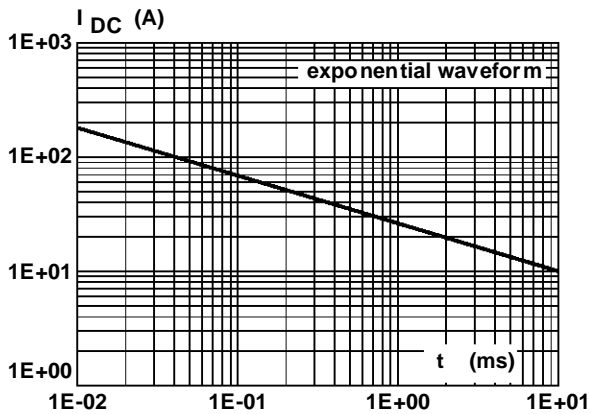
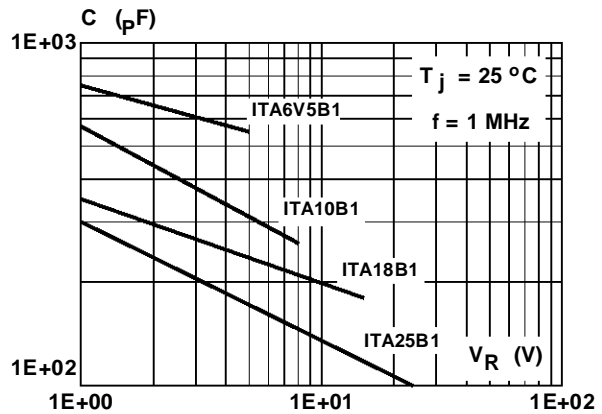


Figure 4 : Junction capacitance versus reverse applied voltage for one input/output (typical values).



Note : The curve of the figure2 is specified for a junction temperature of 25°C before surge.

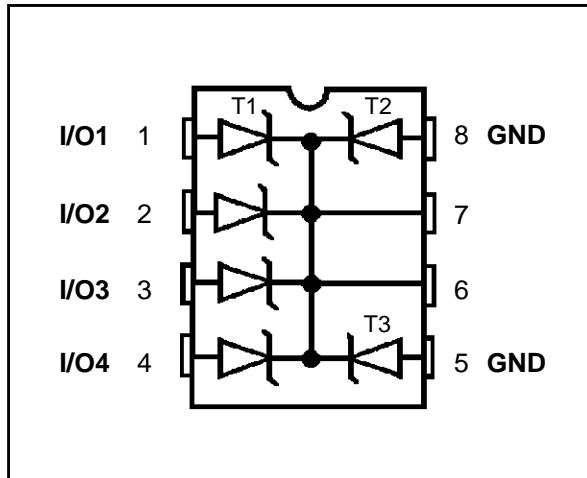
APPLICATION NOTICE

Types	Maximum differential voltage between two input pins at 25°C	
	V	
ITA6V5B1	6.5	
ITA10B1	10	
ITA18B1	18	
ITA25B1	25	

INSTRUCTION GUIDE

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

Figure 5 : Equivalent to 4 Bidirectional Transils



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

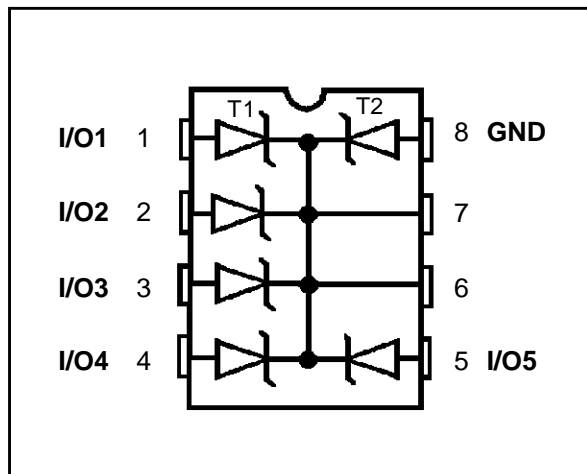
The main application of this device is to be configured as a 4, bidirectional Transil Array as per the Pin-out of Fig 5.

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.

Figure 6 : Equivalent to 5 Bidirectional Transils



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

The ITAxxB1 can be used as a 5 bidirectional Transil Array.

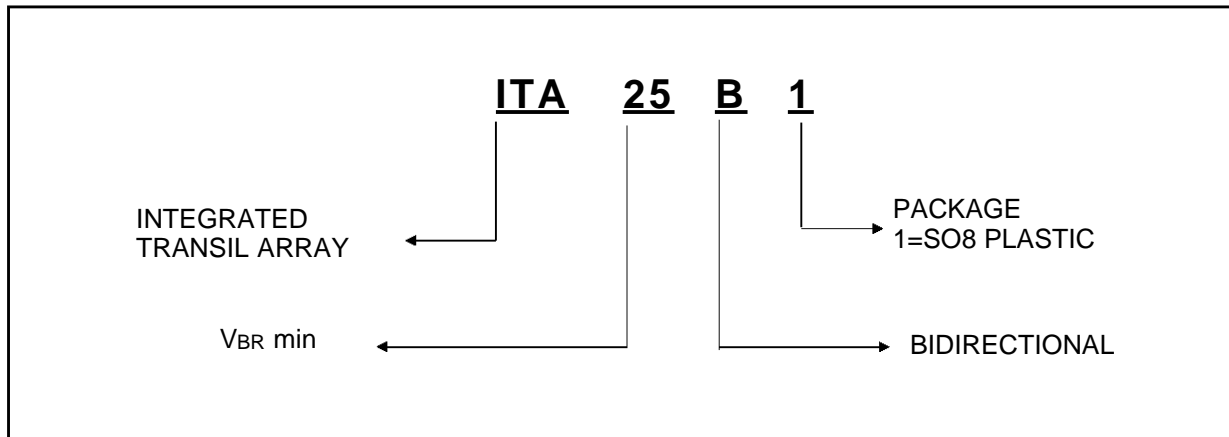
Ground can be connected to any pin (except 6 and 7).

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

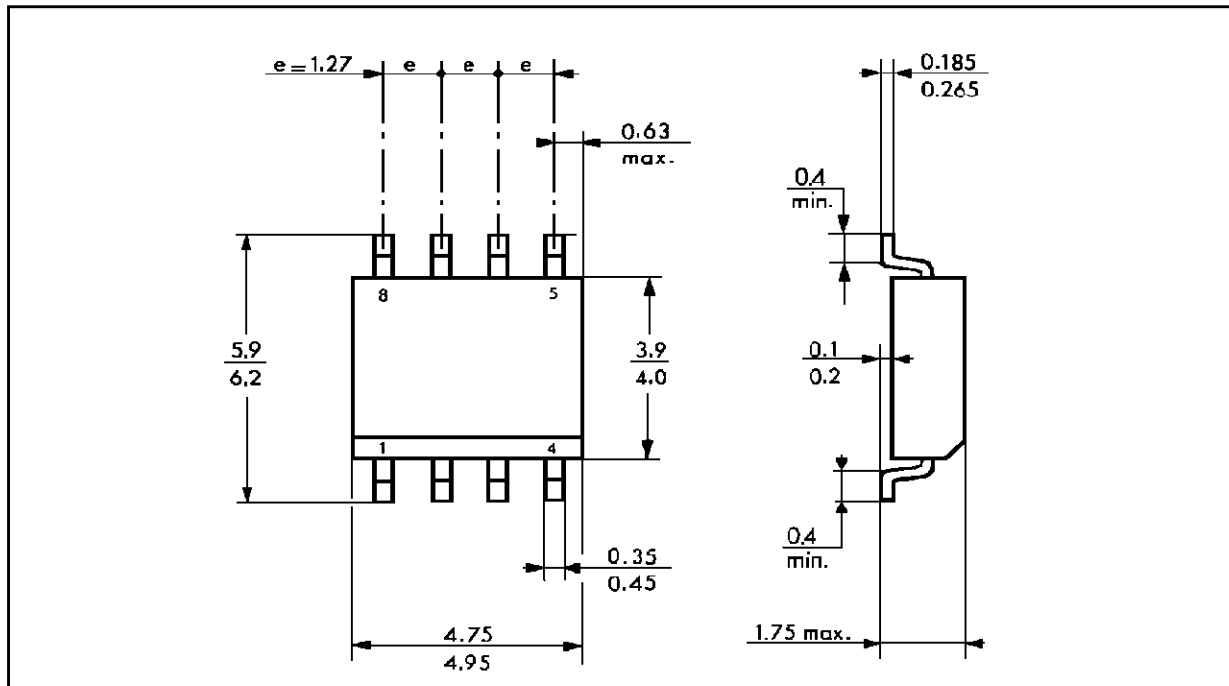


MARKING

TYPE	MARKING
ITA6V5B1	6V5B1
ITA10B1	10B1
ITA18B1	18B1
ITA25B1	25B1

PACKAGE MECHANICAL DATA (in millimeters)

SO8 Plastic



Packaging : Products supplied in antistatic tubes.

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