ITAxxB1

BIDIRECTIONAL TRANSIL™ ARRAY FOR DATALINE PROTECTION

ASD™

MAIN APPLICATIONS

Differential data transmission lines protection, such as :

- RS-232
- RS-423
- RS-422
- RS-485

FEATURES

- High surge capability Transil array: I_{PP} = 40 A (8/20µs)
- Peak pulse power : 300 W (8/20µs)
- Up to 5 bidirectional Transil functions
- Low clamping factor (V_{CL} / V_{BR}) at high current level
- Low leakage current
- ESD protection up to 15kV

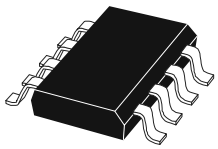
DESCRIPTION

Transil diode arrays provide high overvoltage protection by clamping action. Their instantaneous response to transient overvoltages makes them particularly suited to protect voltage sensitive devices such as MOS Technology and low voltage supplied IC's.

The ITA series combines high surge capability against energetic pulses with high voltage performance against ESD.

COMPLIES WITH THE FOLLOWING STANDARDS:

- IEC61000-4-2 level 4:
  - 15kV (air discharge)
  - 8kV (contact discharge)
- MIL STD 883E-Method 3015-7: class3
  - 25kV HBM (Human Body Model)

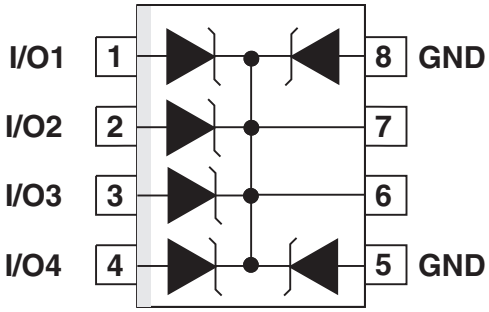


SO-8

Table 1: Order Codes

Part Number	Marking
ITA6V5B1	6V5B1
ITA6V5B1RL	6V5B1
ITA10B1	10B1
ITA18B1	18B1
ITA18B1RL	18B1
ITA25B1	25B1
ITA25B1RL	25B1

Figure 1: Functional Diagram



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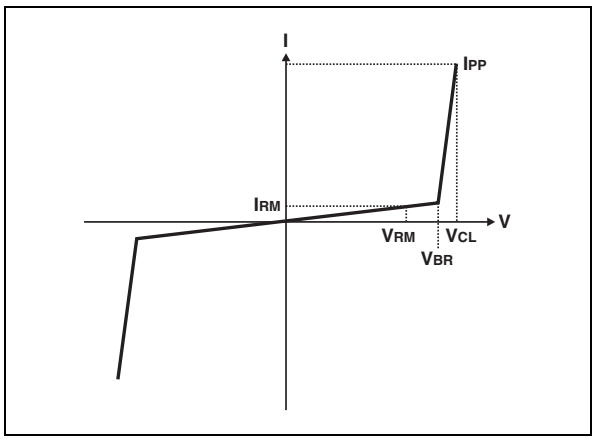
Table 2: Absolute Ratings (T_{amb} = 25°C)

Symbol	Parameter		Value	Unit
P_{PP}	Peak pulse power (8/20µs) (see note 1)	T_j initial = T_{amb}	300	W
I_{PP}	Peak pulse current (8/20µs) (see note 1)	T_j initial = T_{amb}	40	A
I^2t	Wire I^2t value (see note 1)		0.6	A^2s
T_j	Maximum operating junction temperature		125	°C
T_{stg}	Storage temperature range		-55 to +150	°C
T_L	Maximum lead temperature for soldering during 10 s at 5mm for case		260	°C

Note 1: For surges greater than the specified maximum value, the I/O will first present a short-circuit and after an open circuit caused by the wire melting.

Table 3: Electrical Characteristics (T_{amb} = 25°C)

Symbol	Parameter
V_{RM}	Stand-off voltage
V_{BR}	Breakdown voltage
V_{CL}	Clamping voltage
I_{RM}	Leakage current
I_{PP}	Peak pulse current
αT	Voltage temperature coefficient
V_F	Forward voltage drop
C	Capacitance



Part Number	V_{BR} @ I_R min. note 2		I_{RM} @ V_{RM} max.		V_{CL} @ I_{PP} 8/20µs note 2		V_{CL} @ I_{PP} max. 8/20µs note 2		αT max.	C max. note 3
	V	mA	µA	V	V	A	V	A	10^{-4}/°C	pF
ITA6V5B1	6.5	1	10	5	10	10	12	25	4	750
ITA10B1	10	1	4	8	15	10	19	25	8	570
ITA18B1	18	1	4	15	25	10	28	25	9	350
ITA25B1	25	1	4	24	33	10	38	25	12	300

Note 2: Between I/O pin and ground.
Note 3: Between two input pins at 0V Bias, F = 1 MHz.

Figure 2: Pulse waveform

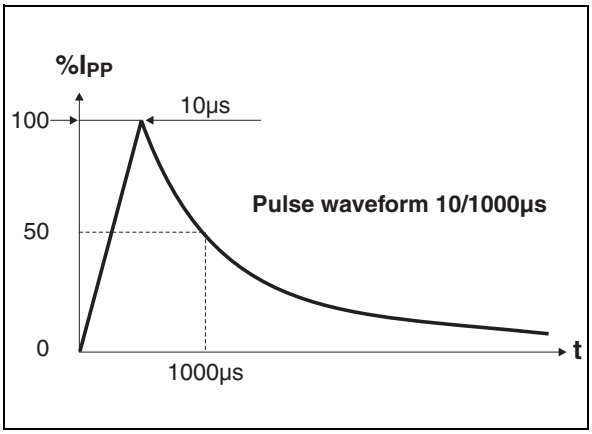


Figure 3: Typical peak pulse power versus exponential pulse duration

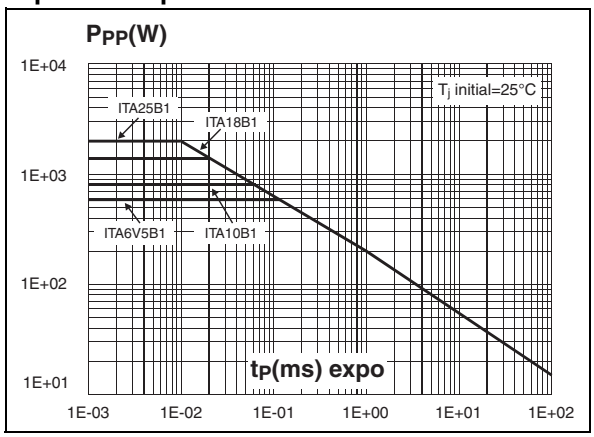


Figure 4: Clamping voltage versus peak pulse current (exponential waveform 8/20µs)

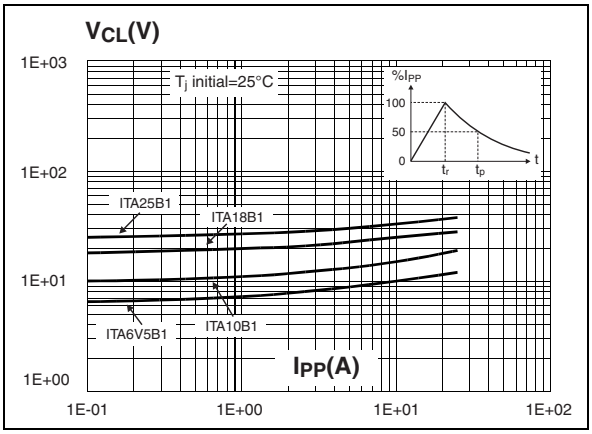


Figure 5: Peak current I_{DC} inducing open circuit of the wire for one input/output versus pulse duration (typical values)

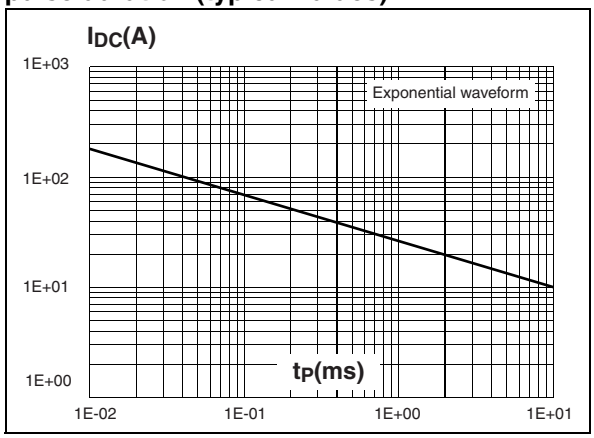


Figure 6: Junction capacitance versus reverse applied voltage for one input/output (typical values)

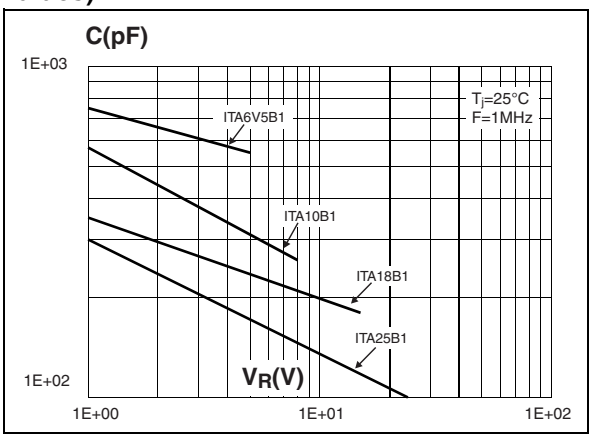
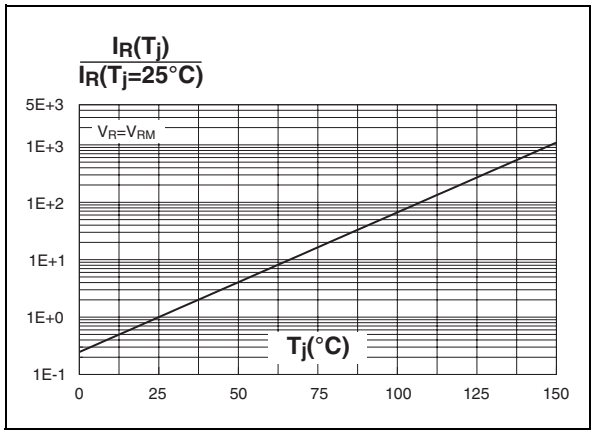


Figure 7: Relative variation of leakage current versus junction temperature



This monolithic Transil Array is based on 6 unidirectional Transils with a common cathode and can be configurated to offer up to 5 bidirectional functions. This imposes a maximum differential voltage between 2 input pins (see table 4).

Table 4: Application information

Types	Maximum differential voltage between two input pins at 25°C
ITA6V5B1	+ / - 3.5 v
ITA10B1	+ / - 5.0 v
ITA18B1	+ / - 9.0 v
ITA25B1	+ / - 12.5 v

Figure 8: RS-232 junction (typical application)

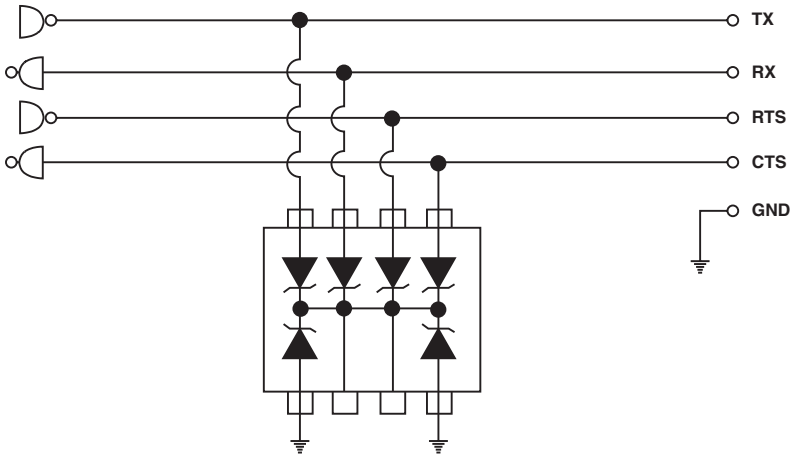


Figure 9: Ordering Information Scheme

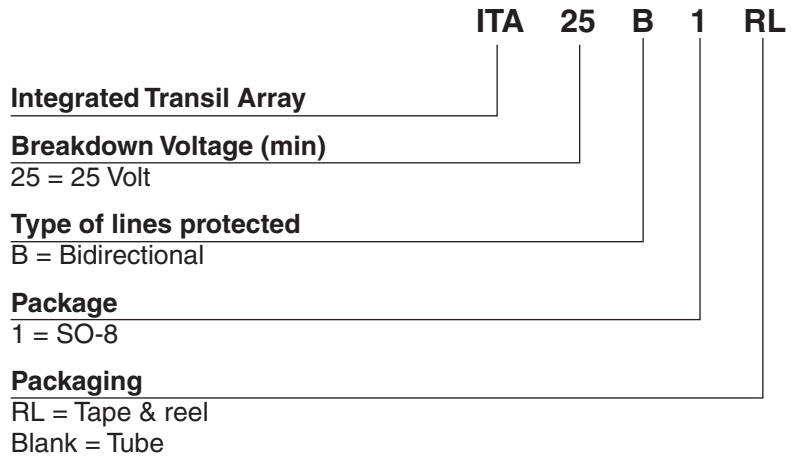
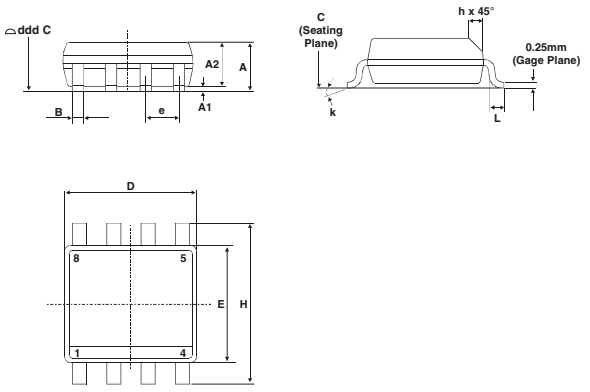


Figure 10: SO-8 Package Mechanical Data



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
a3	0.65		0.85	0.025		0.033
b	0.35		0.48	0.014		0.019
b1	0.19		0.25	0.007		0.010
C	0.25	0.50	0.50	0.010		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)					

Figure 11: Foot Print Dimensions (in millimeters)

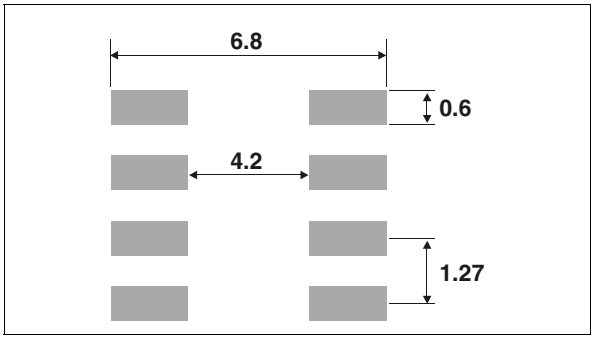


Table 5: Ordering Information

Part Number	Marking	Package	Weight	Base qty	Delivery mode
ITA6V5B1	6V5B1	SO-8	0.08 g	2000	Ammopack
ITA6V5B1RL	6V5B1			2500	Tape & reel
ITA10B1	10B1			2000	Ammopack
ITA18B1	18B1			2000	Ammopack
ITA18B1RL	18B1			2500	Tape & reel
ITA25B1	25B1			2000	Ammopack
ITA25B1RL	25B1			2500	Tape & reel

Table 6: Revision History

Date	Revision	Description of Changes
13-Dec-2004	1	First issue

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