



ITAxxU1

ASD™

TRANSIL™ ARRAY FOR DATALINE PROTECTION

MAIN APPLICATIONS

Data transmission lines protection, such as :

- Unipolar signal up to 5.5 V
- Bipolar signal in the ± 2.5 V range

FEATURES

- High surge capability Transil array:
 $I_{PP} = 40$ A (8/20 μ s)
- Peak pulse power : 300 W (8/20 μ s)
- Up to 6 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 allies 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)

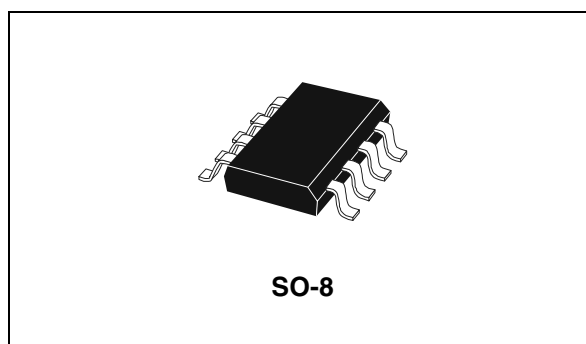


Table 1: Order Codes

Part Number	Marking
ITA6V1U1	6V1U1
ITA6V1U1RL	6V1U1

Figure 1: Functional Diagram

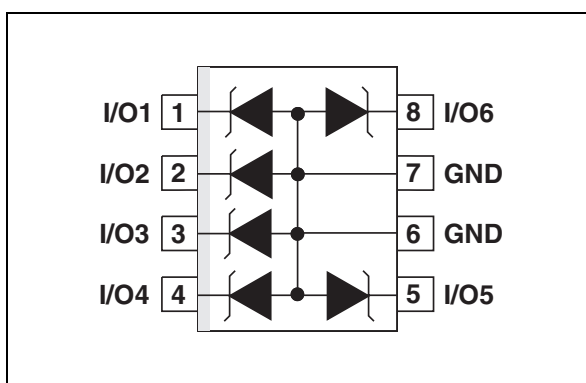


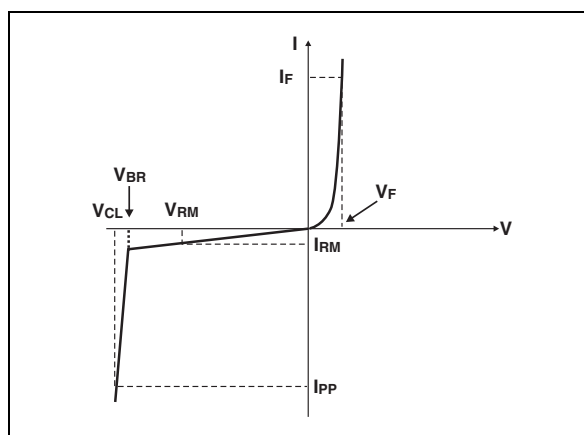
Table 2: Absolute Ratings ($T_{amb} = 25^{\circ}\text{C}$)

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

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 ($T_{amb} = 25^{\circ}\text{C}$)

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	$V_{BR} @ I_R$		$I_{RM} @ V_{RM}$		$V_{CL} @ I_{PP}$		$V_{CL} @ I_{PP}$		αT	C	$V_F @ I_F$	
	min.		max.		max. 8/20 μs		max. 8/20 μs		max.	max.	max.	
	note 2				note 2		note 2			note 3		
	V	mA	μA	V	V	A	V	A	$10^{-4}/^{\circ}\text{C}$	pF	V	A
ITA6V1U1	6.51	1	10	5	10	10	12	25	4	1500	1.3	1

Note 2: Between I/O pin and ground.

Note 3: Between two input pins at 0V Bias, $F = 1 \text{ MHz}$.

Figure 2: Pulse waveform

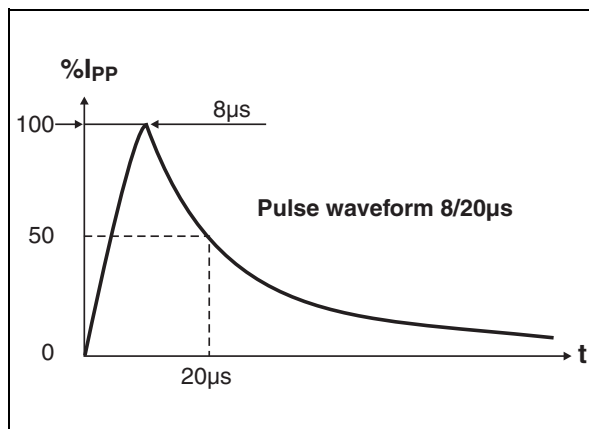
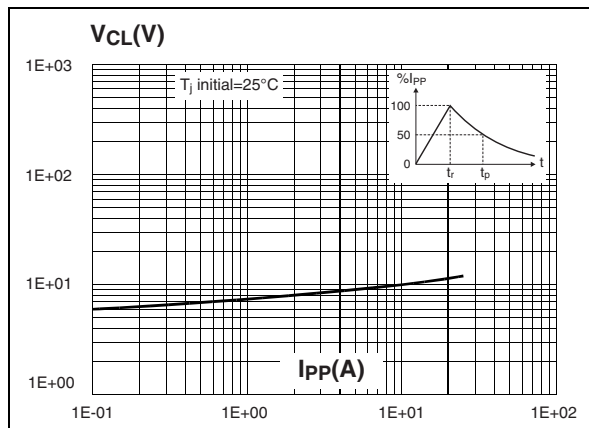
Figure 4: Clamping voltage versus peak pulse current (exponential waveform 8/20 μs)

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

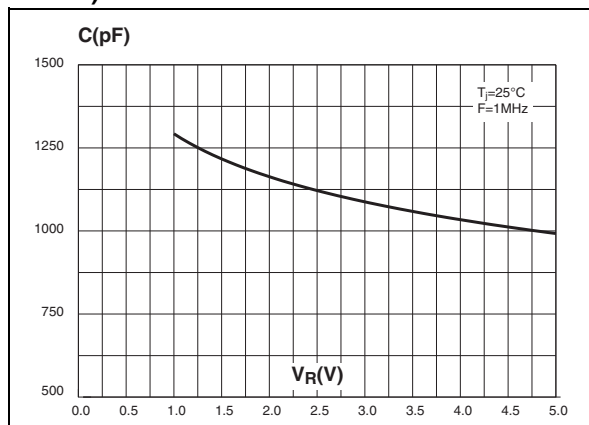


Figure 3: Typical peak pulse power versus exponential pulse duration

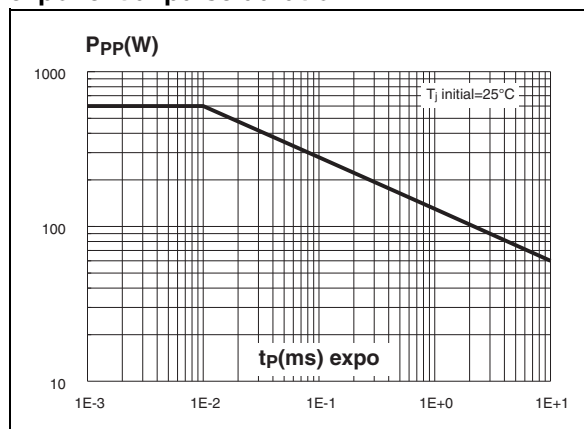
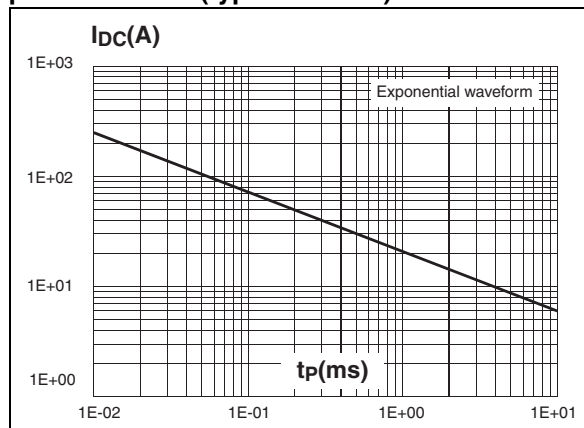
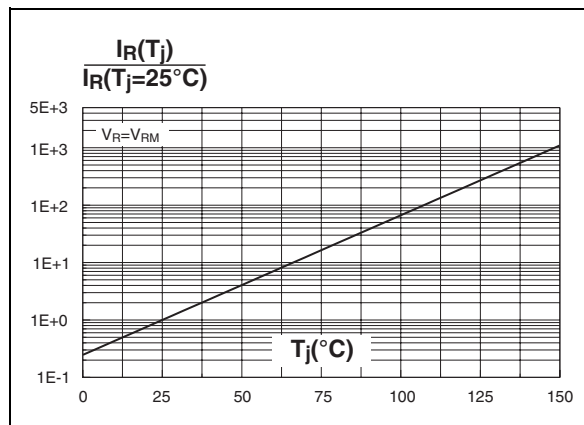
Figure 5: Peak current I_{DC} inducing open circuit of the wire for one input/output versus pulse duration (typical values)

Figure 7: Relative variation of leakage current versus junction temperature



APPLICATION INFORMATION

Figure 8: μ P I/O lines

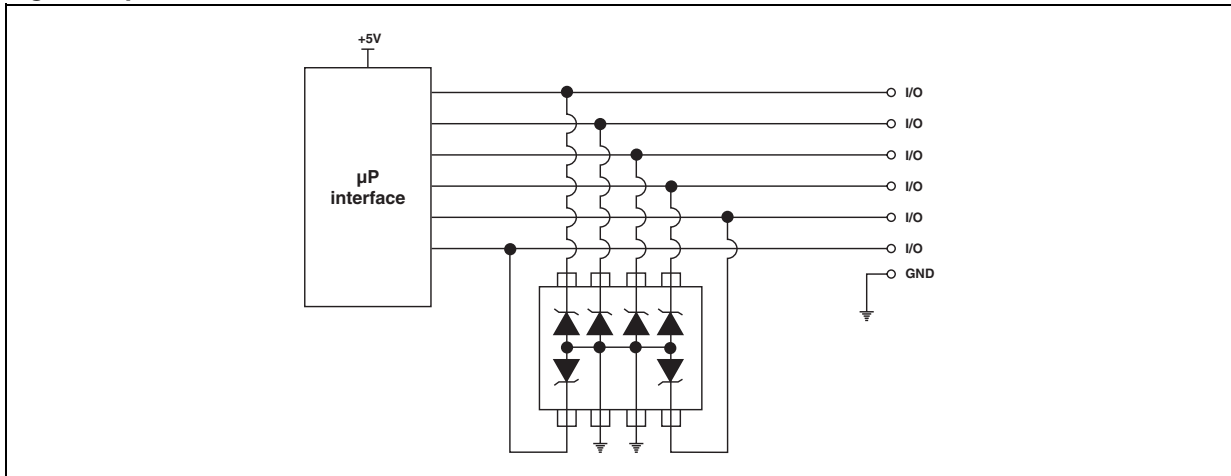


Figure 9: ± 2.5 V datalines

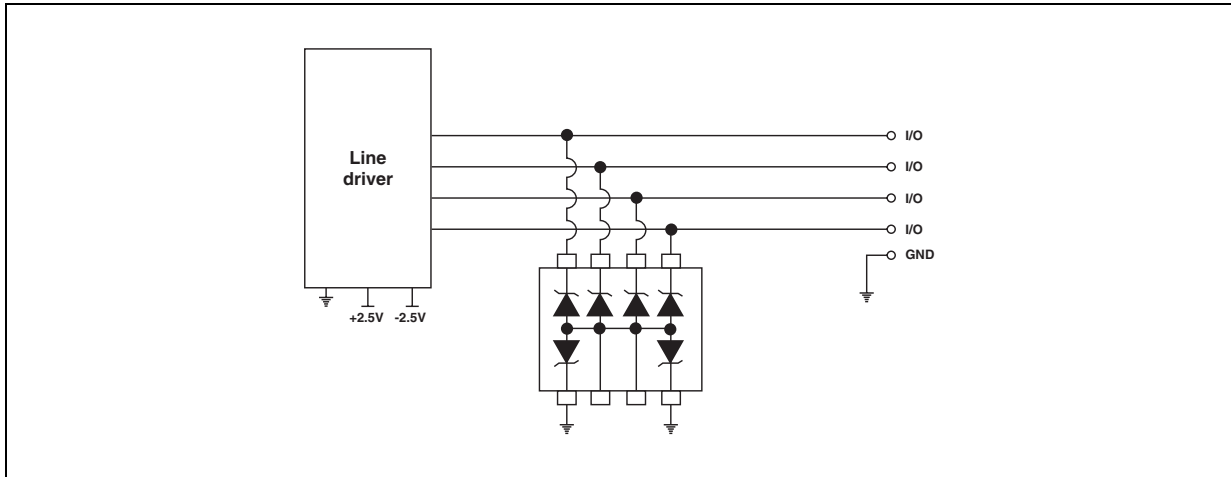


Figure 10: Ordering Information Scheme

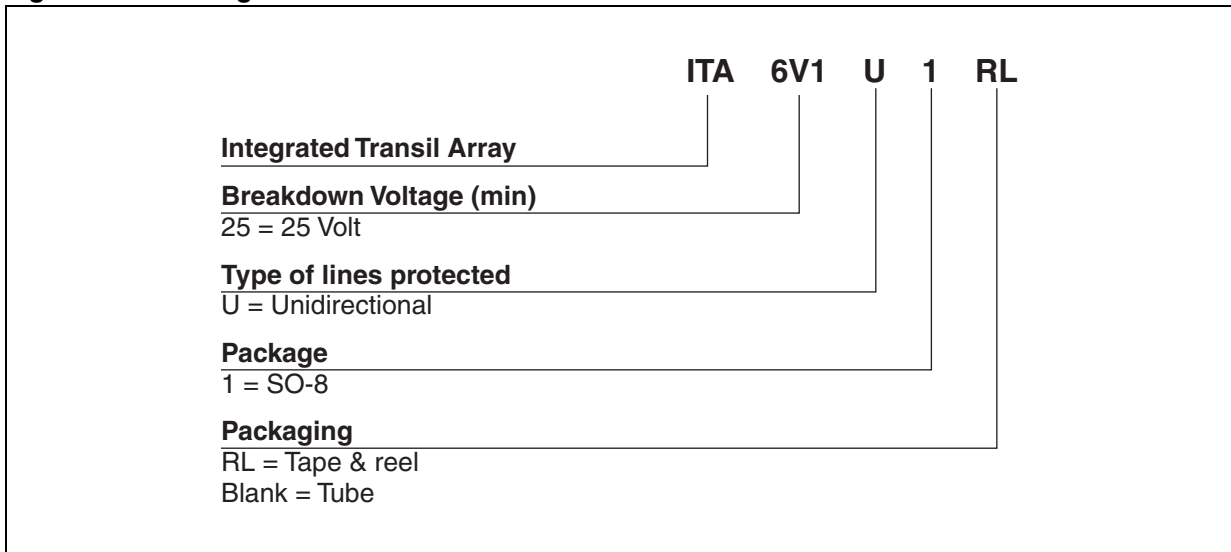


Figure 11: SO-8 Package Mechanical Data

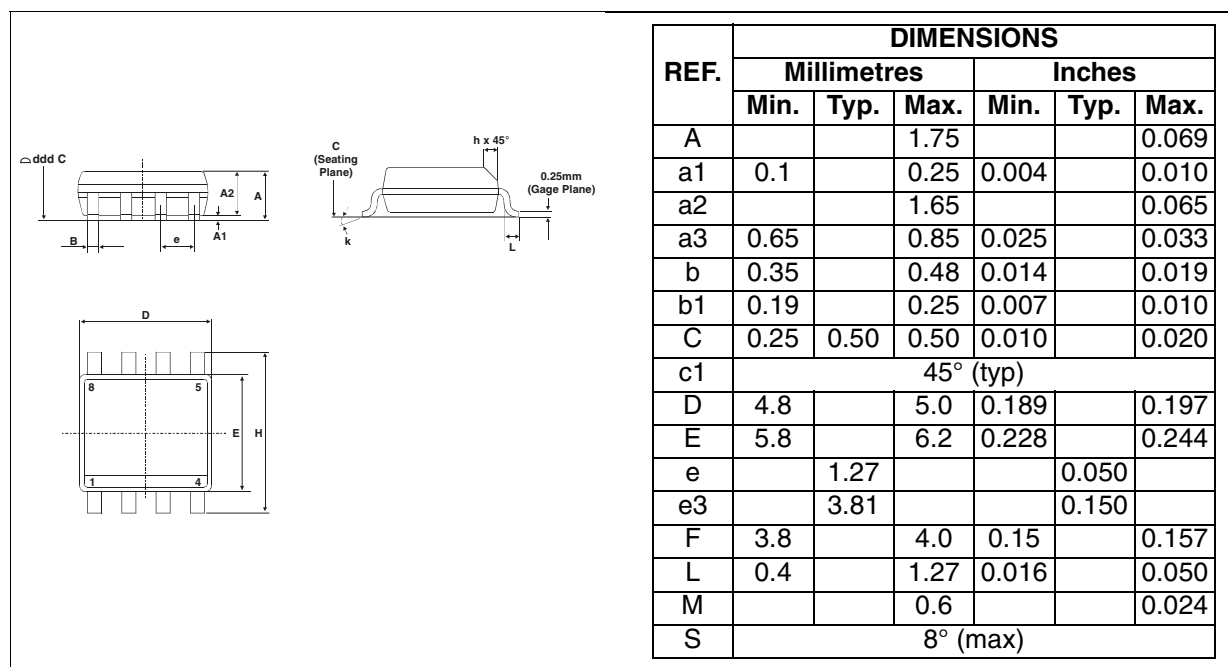


Figure 12: Foot Print Dimensions (in millimeters)

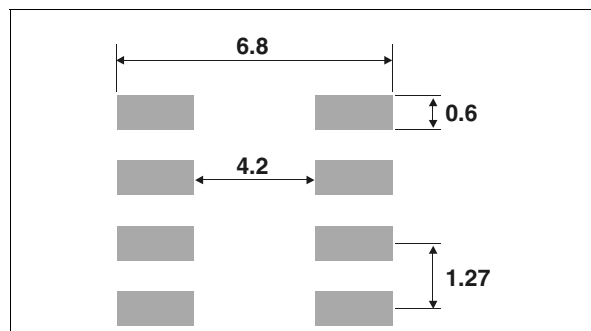


Table 4: Ordering Information

Part Number	Marking	Package	Weight	Base qty	Delivery mode
ITA6V1U1	6V1U1	SO-8	0.08 g	2000	Tube
ITA6V1U1RL	6V1U1			2500	Tape & reel

Table 5: Revision History

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

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