ITA6V1U1

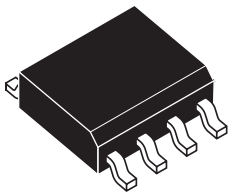
Application Specific Discretes
A.S.D.™

TRANSIL™ ARRAY FOR DATALINE PROTECTION

APPLICATIONS

Data transmission lines protection :

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

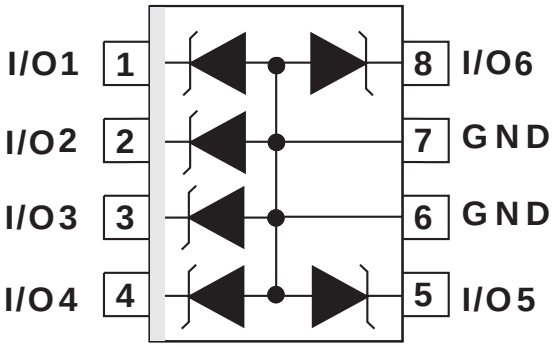


SO-8

FEATURES

- HIGH SURGE CAPABILITY TRANSIL ARRAY I_{PP} = 40 A (8/20µs)
- PEAK PULSE POWER : 300 W (8/20µs)
- UP TO 6 UNIDIRECTIONAL TRANSIL FUNCTIONS
- LOW CLAMPING FACTOR (V_{CL} / V_{BR}) AT HIGH CURRENT LEVEL
- LOW LEAKAGE CURRENT
- ESD PROTECTION UP TO 15kV

FUNCTIONAL DIAGRAM



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 :

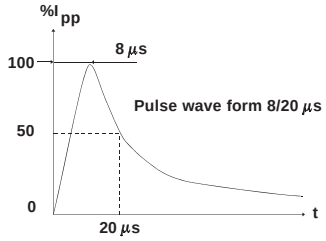
IEC 1000-4-2 : level 4
IEC 1000-4-4 : level 4
IEC 1000-4-5 : level 2

MIL STD 883C - Method 3015-6 : class 3
(human body model)

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25°C)

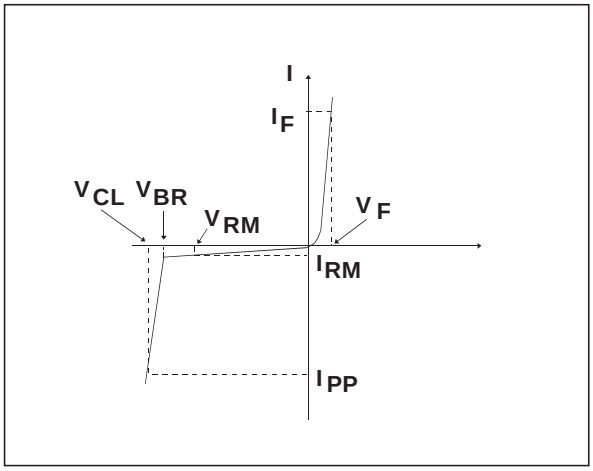
Symbol	Parameter		Value	Unit
P_{PP}	Peak pulse power dissipation (8/20µs) (see note 1)	Tj initial = T_{amb}	300	W
I_{PP}	Peak pulse current (8/20µs) (see note 1)	Tj initial = T_{amb}	40	A
I^2t	Wire I^2t value (see note 1)		0.6	A^2s
T_{stg} T_j	Storage temperature range Maximum operating junction temperature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



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 @ V_{RM}
I_{PP}	Peak pulse current
αT	Voltage temperature coefficient
C	Junction capacitance
V_F	Forward voltage drop



Types	I_{RM} @ V_{RM}		V_{BR} @ I_R		V_{CL} @ I_{PP}		V_{CL} @ I_{PP}		αT	C	V_F @ I_F	
	max.		min.		max.	8/20µs	max.	8/20µs	max.	max.	max.	
			note 2		note 2		note 2			note 3		
	µA	V	V	mA	V	A	V	A	10^{-4}/°C	pF	V	A
ITA6V1U1	10	5	6.1	1	10	10	12	25	4	1500	1.3	1

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

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

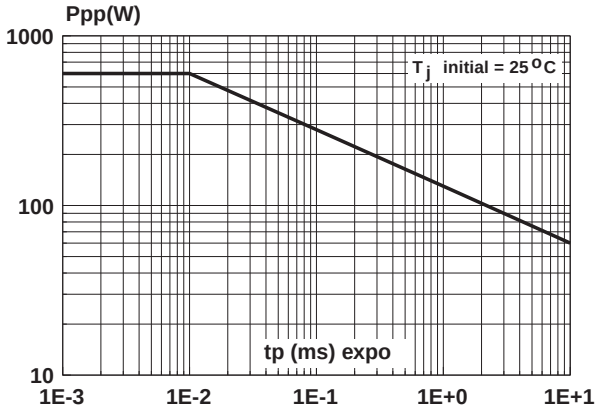


Fig. 2 : Clamping voltage versus peak pulse current (exponential waveform 8/20 µs).

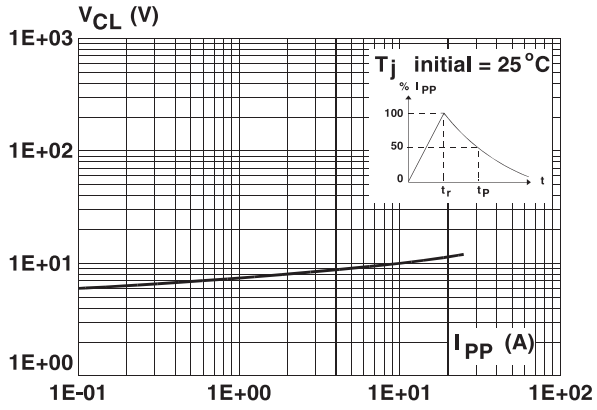


Fig. 3 : Peak current I_{DC} inducing open circuit of the wire for one input/output versus pulse duration (typical values).

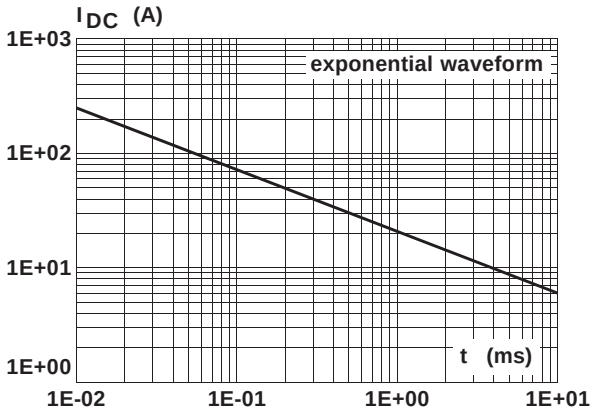


Fig. 4 : Junction capacitance versus reverse applied voltage for one input/output (typical values).

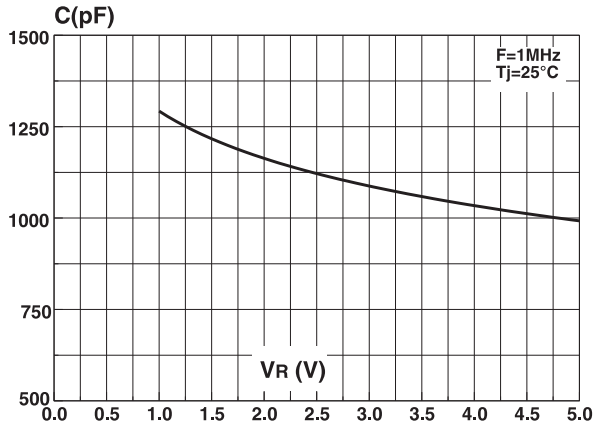
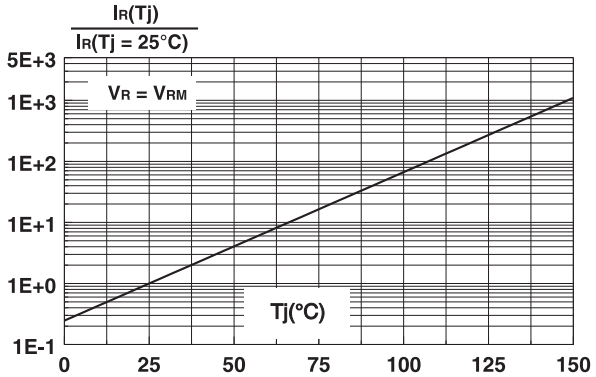
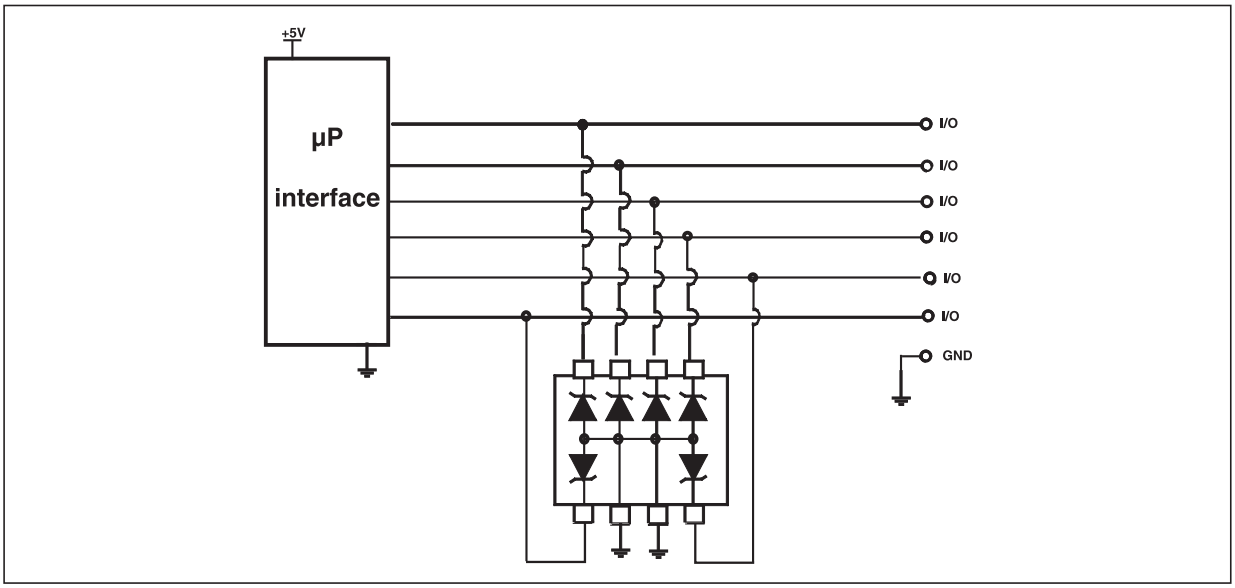


Fig. 5 : Relative variation of leakage current versus junction temperature

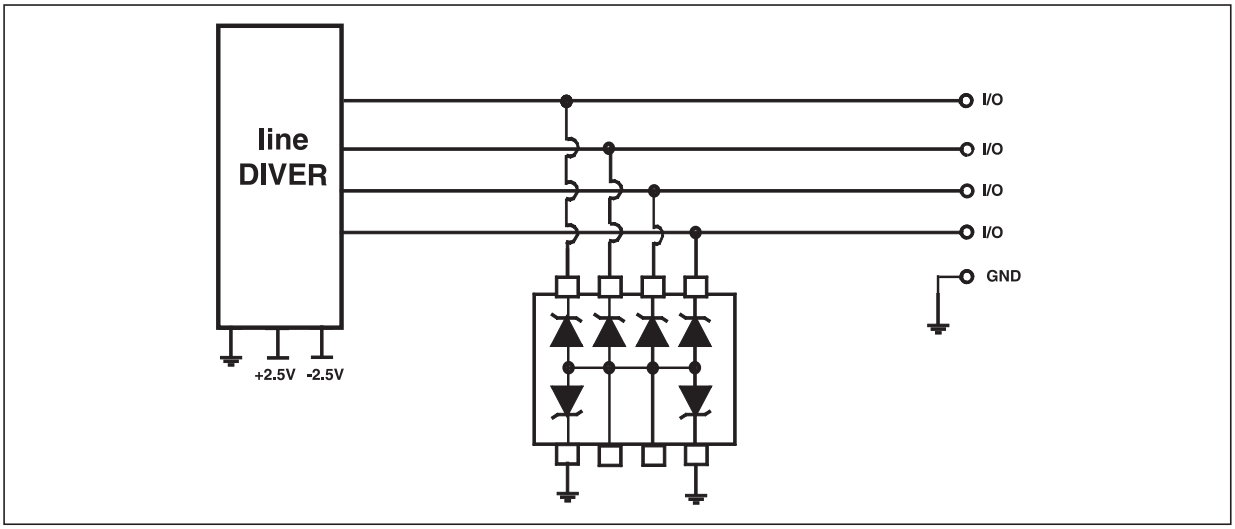


APPLICATION INFORMATION

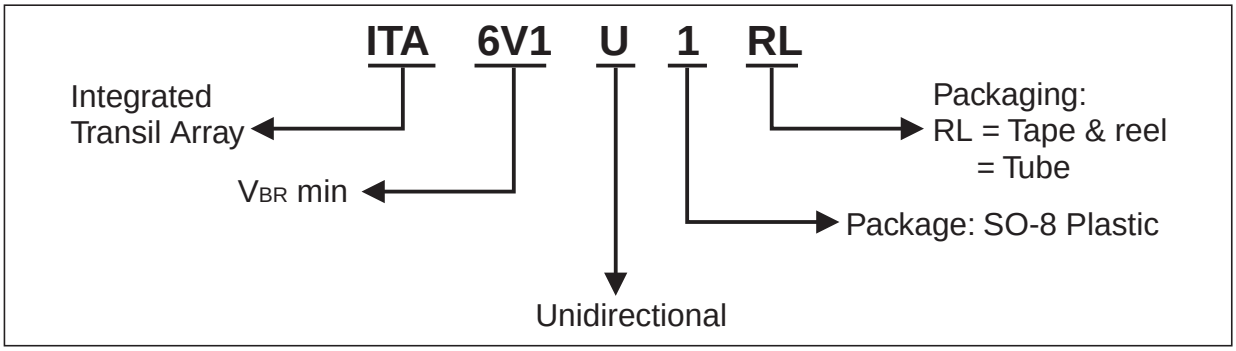
Typical application 1 : µP I/O lines



Typical application 2 : +/-2.5V Data lines



ORDER CODE



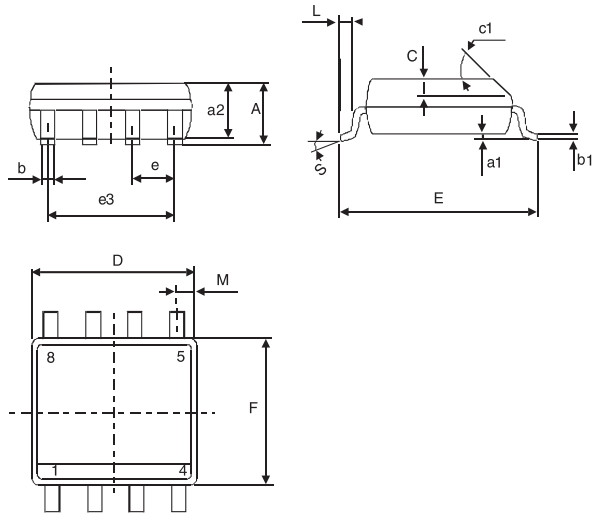
MARKING

TYPE	MARKING
ITA6V1U1	6V1U1

Packaging : Preferred packaging is tape and reel.
Weight : 0.08g.

PACKAGE MECHANICAL DATA

SO-8 (Plastic)



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)					