SGS-THOMSON MICROELECTRONICS

ITA6V1U1

MONOLITHIC TRANSIL® ARRAY FOR DATA LINE PROTECTION

FEATURES

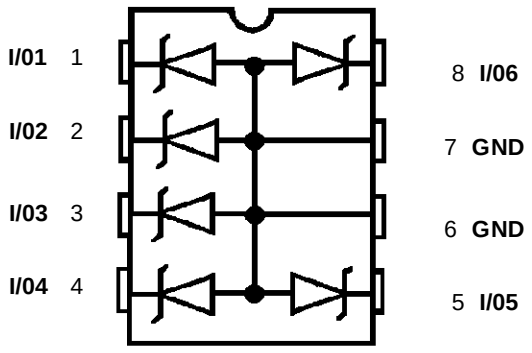
- HIGH SURGE CAPABILITY TRANSIL ARRAY I_{PP} = 40 A 8/20µs
- UP TO 6 UNIDIRECTIONAL TRANSIL FUNCTIONS
- BREAK DOWN VOLTAGE : V_{BR}= 6V1
- LOW CLAMPING FACTOR (V_{CL} / V_{BR}) AT HIGH CURRENT LEVEL
- LOW LEAKAGE CURRENT

SO8
(Plastic)

DESCRIPTION

This is a specific transil array for RS422, RS485 interface protection developed in monolithic chip form in order to provide a high surge capability and a low clamping voltage.

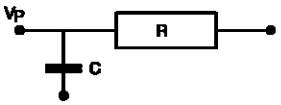
FUNCTIONAL DIAGRAM



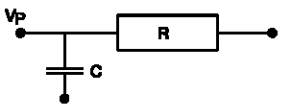
EQUIVALENT TO 6 UNIDIRECTIONAL TRANSILS

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 - Methode 3015-2
  V_P = 25kV
  C = 150pF
  R = 150Ω
  5 s duration



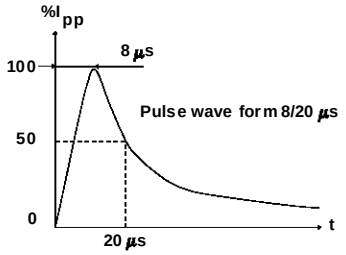
- Human body test :
  V_P = 4kV
  C = 150pF
  R = 150Ω



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

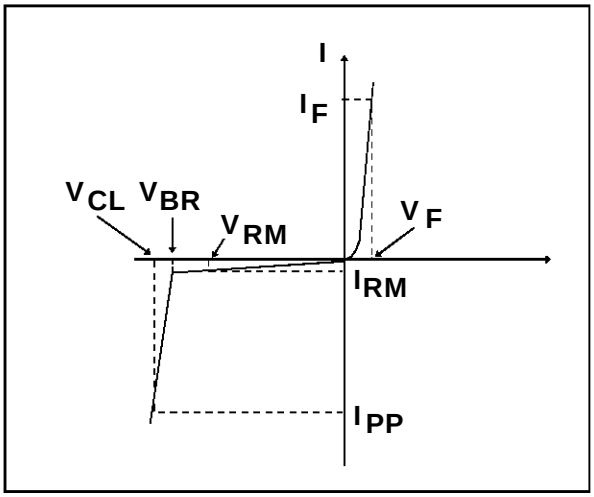
Symbol	Parameter		Value	Unit
I_{PP}	Peak pulse current 8/20µs	See note	40	A
I_{FSM}	Non repetitive surge peak forward current	T_p= 10 ms	8	A
I^2t	Wire I^2t value	See note	0.6	A^2s
T_{stg} T_j	Storage and Junction Temperature Range		- 55 to + 150 125	°C °C

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
V_{RM}	Stand-off Voltage
V_{BR}	Breakdown Voltage
V_{CL}	Clamping Voltage
I_{RM}	Leakage Current @ VRM
I_{PP}	Surge Current
C	Input Capacitance
I_F	Forward Current
V_F	Forward Voltage Drop



Types	I_{RM} @ V_{RM} max		V_{BR} @ I_R min Note 1		V_{CL} @ I_{PP} max 8/20µs Note 1		VCL @ I_{PP} max 8/20µs Note 1	
	µA	V	V	mA	V	A	V	A
ITA6V1U1	50	5	6.1	1	10	10	12	25

Types	V_F @ I_F max		C 1 max Note 2	C 2 max Note 3	α_T max
	V	A	pF	pF	10^{-4}/°C
ITA6V1U1	1.3	1	1500	1000	4

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

Figure 1 : Peak pulse power versus exponential pulse duration.

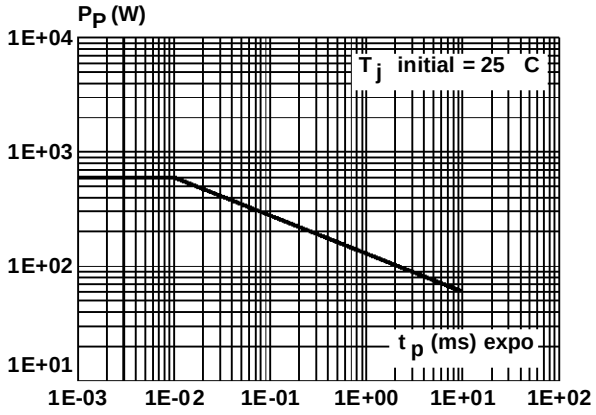


Figure 2 : Clamping voltage versus peak pulse current exponential waveform 8/20 µs.

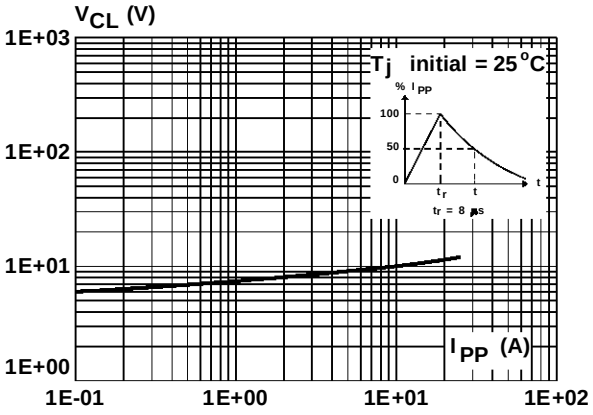


Figure 3 : Peak current I_{DC} inducing open circuit of the wire for one input/output versus pulse duration (typical values).

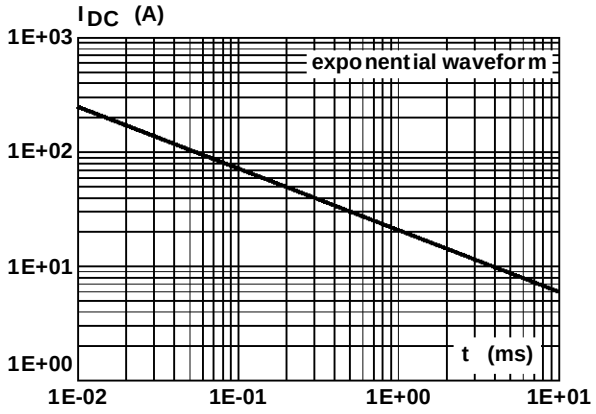
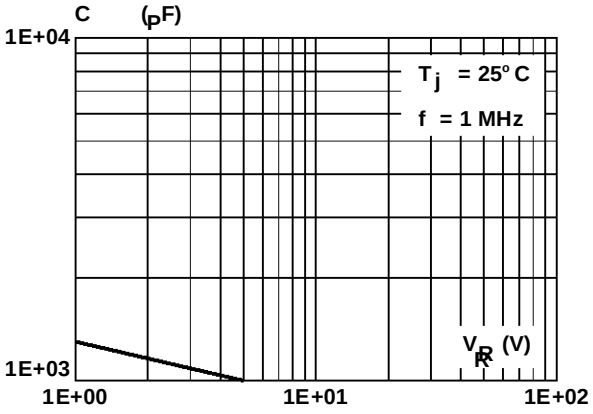


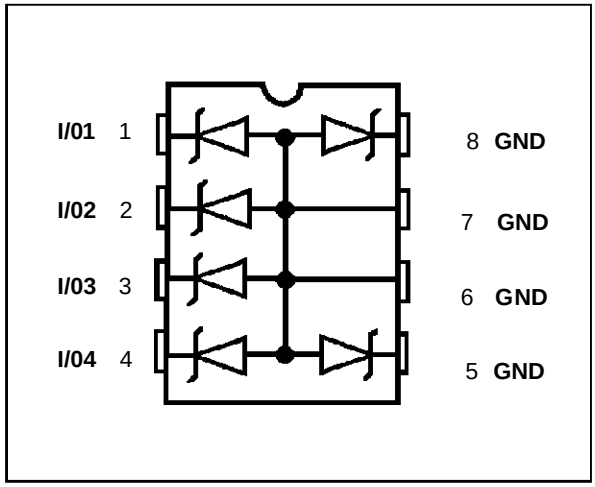
Figure 4 : Junction capacitance versus reverse applied voltage for one input/output (typical values) .



INSTRUCTION GUIDE

This monolithic Transil Array is based on 6 Unidirectional Transils with a common anode and can be configured to offer 4 or 6 monodirectional functions following the customer application.

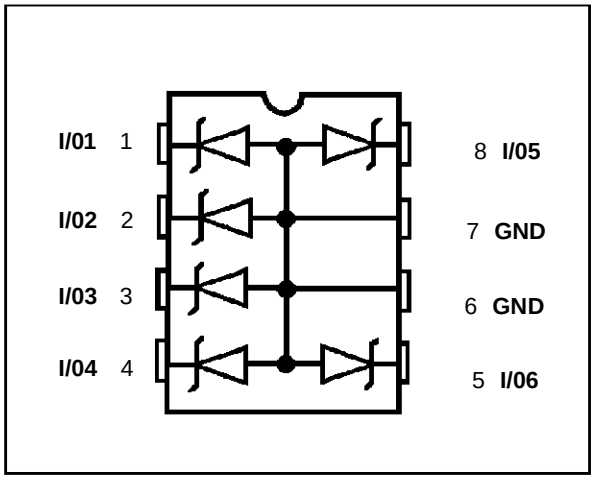
Figure 5 : Equivalent to 4 Unidirectional Transils



UTILIZATION AS 4 I/Os UNIDIRECTIONAL TRANSIL ARRAY.

When a common ground is connected to pins 5 to 8, the ITA6V1U1 can be used as a 4 unidirectional Transil Array.

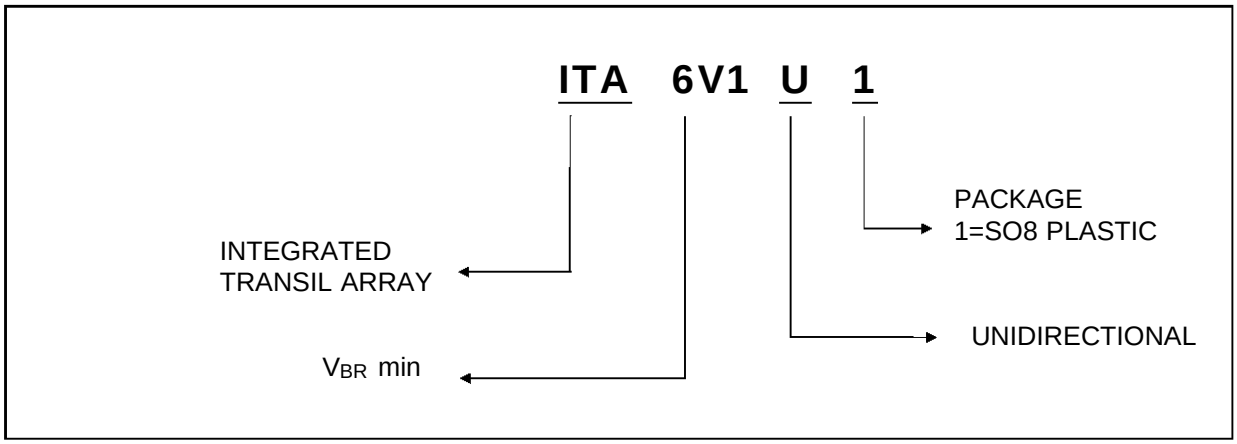
Figure 6 : Equivalent to 6 Unidirectional Transils



UTILIZATION AS 6 I/Os UNIDIRECTIONAL TRANSIL ARRAY.

The ITA6V1U1 can be also used as a 6 unidirectional Transil Array with Ground connected to Pins 6 and 7 (see Fig 6).

ORDER CODE

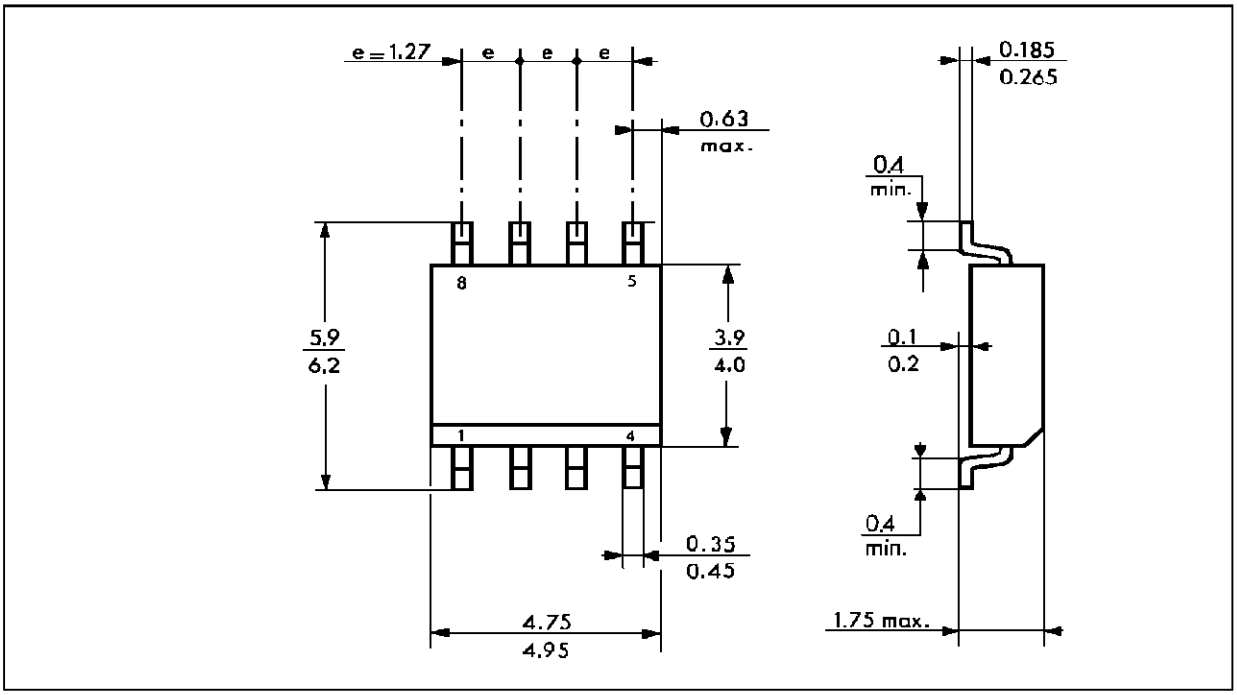


MARKING

TYPE	MARKING
ITA6V1U1	6V1U1

PACKAGE MECHANICAL DATA (in millimeters)

SO8 Plastic



Packaging : Products are supplied in antistatic tubes.

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