SGS-THOMSON MICROELECTRONICS

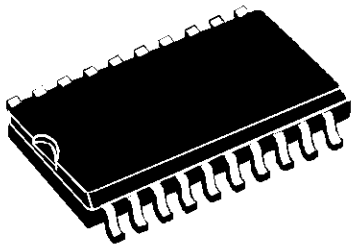
ESDA6V1S3

Application Specific Discretes
A.S.D.™

ESD PROTECTION MONOLITHIC TRANSIL™ ARRAY

FEATURES

- PROTECTS SINGLE-ENDED SIGNAL INTERFACES
- UP TO 18 UNIDIRECTIONAL TRANSIL FUNCTIONS
- MINIMUM BREAKDOWN VOLTAGE = 6.1V
  MAXIMUM BREAKDOWN VOLTAGE = 7.2V
- LOW CAPACITANCE : C = 60pF @ V_{RM}



SO20
(Plastic)

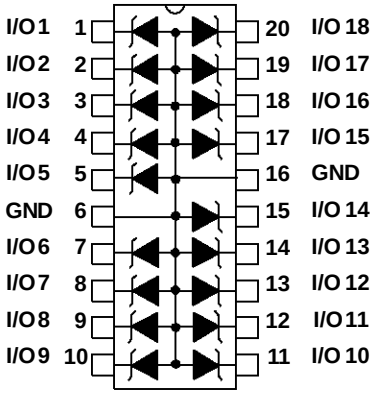
DESCRIPTION

Dedicated to "ESD" PROTECTION, this TRANSIL array protects against ESD surges of up to 25kV.

It is particularly recommended for Centronics port protection where the line interfaces usually only withstand 2 kV ESD surges.

It clamps the voltage just above the logic level supply for positive transients, and to a diode drop below ground for negative transients.

FUNCTIONAL DIAGRAM



Equivalent to 18 unidirectional TRANSIL

COMPLIES WITH THE FOLLOWING STANDARDS :

- ESD standard :
  . IEC 801-2 15kV (air discharge)
  8kV (contact discharge)
  . IEC 801-4 40A 5 / 50ns (repetitive 2.5 kHz)

- VDE 0875 4kV 5 / 30ns (repetitive 10Hz)

- MIL STD 883C - Method 3015-6
  V_P = 25kV C = 100pF R = 1500Ω
  3 positive strikes and 3 negative strikes (F = 1 Hz)

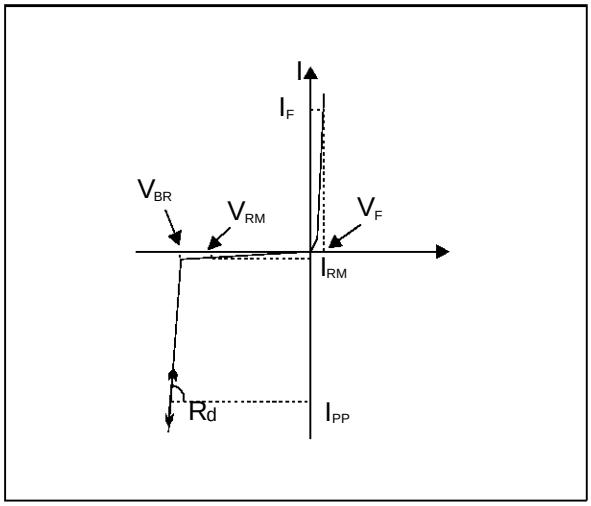
- Human body test :
  V_P = 4kV C = 150pF R = 150Ω

ABSOLUTE MAXIMUM RATINGS ($0°C \le T_{amb} \le 70°C$)

Symbol	Parameter	Value	Unit
V_{PP}	Maximum electrostatic discharge MIL STD 883C - METHOD 3015-6	25	kV
T_{stg} T_j	Storage temperature range Maximum junction temperature	- 55 to + 150 125	°C °C

ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C)

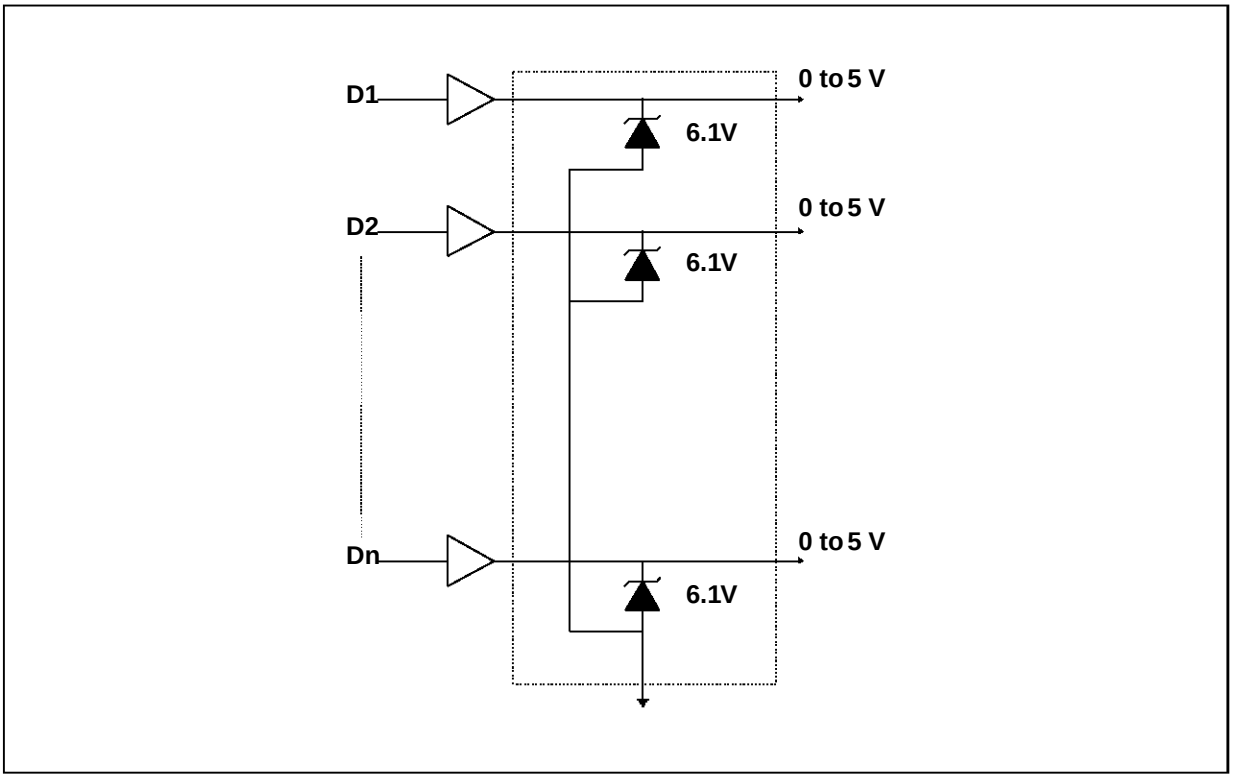
Symbol	Parameter
V_{RM}	Stand-off voltage
V_{BR}	Breakdown voltage
V_F	Forward voltage drop
C	Capacitance
Rd	Dynamic impedance
I_{RM}	Leakage current
I_{PP}	Peak pulse current



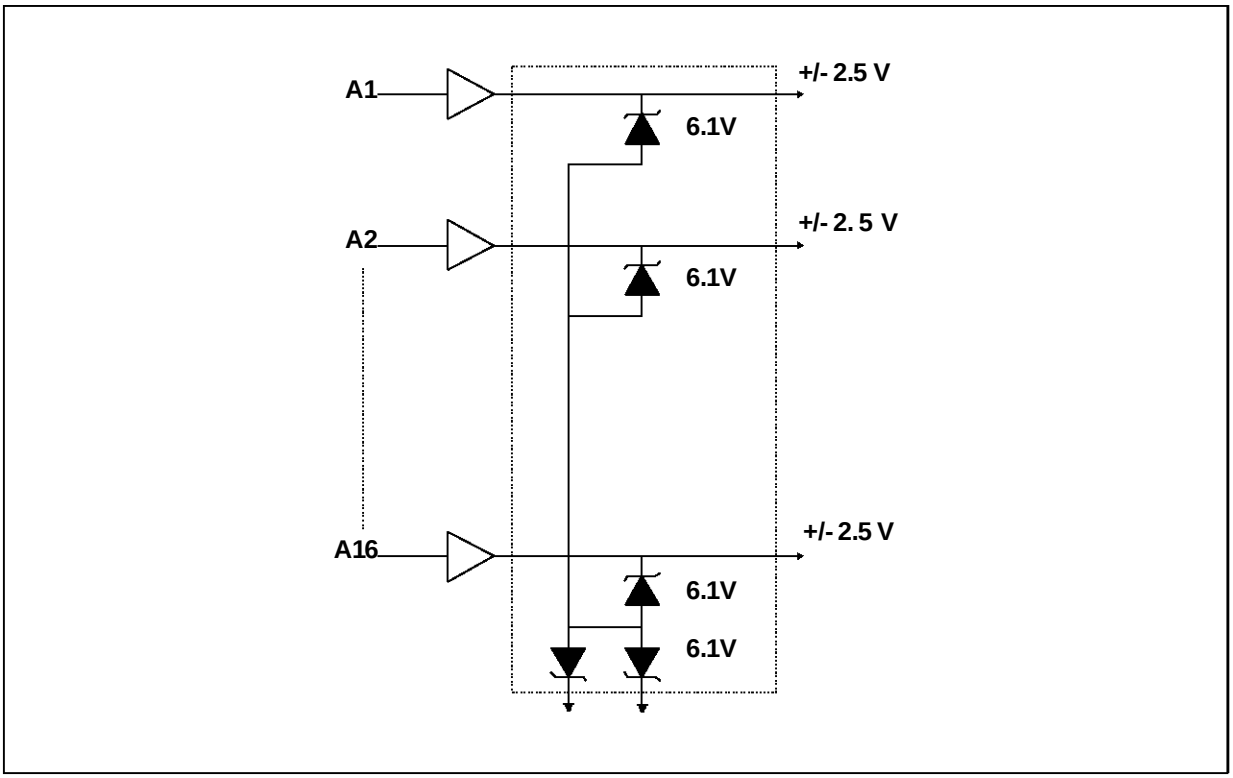
Type	I_{RM} @ V_{RM}		V_{BR} @ I_R			V_F @ I_F		Rd	C 1	C 2	αT
	max. note 1		note 1 min.	note 1 max.		max. note 1		typ. note 2	typ. note 3	typ. note 4	max. note 5
	µA	V	V	V	mA	V	mA	Ω	pF	pF	10^{-4}/°C
ESDA6V1S3	2	5	6.1	7.2	1	1.5	200	0.5	120	60	6

Note 1 : Between any I/O pin and Ground
Note 2 : I_{PP} = 25 A, t_p = 2.5µs
Note 3 : Capacitance value between any I/O pin and Ground at 0V bias
Note 4 : Capacitance value between any I/O pin and Ground at V_{RM}
Note 5 : $\Delta V_{BR} = \alpha T * [T_{amb}-25] * V_{BR}(25°C)$

APPLICATION EXAMPLE : Protection of logic-level signals.

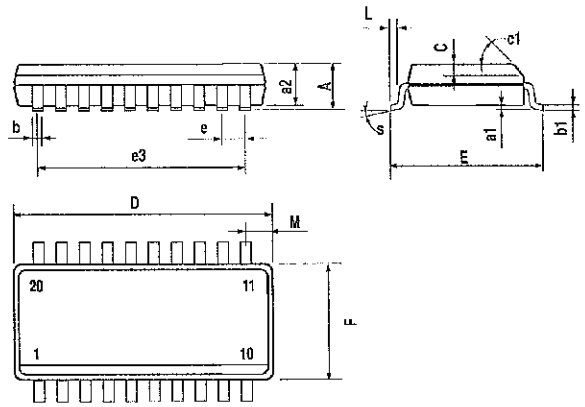


APPLICATION EXAMPLE : Protection of symmetrical signals.
Note : Capacitance value between any I/O pin and Ground is divided by 2.



PACKAGE MECHANICAL DATA

SO 20 (Plastic)



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			2.65			0.104
a1	0.1		0.2	0.004		0.008
a2			2.45			0.096
b	0.35		0.49	0.014		0.019
b1	0.23		0.32	0.009		0.013
C		0.5			0.020	
c1	45° (typ)					
D	12.6		13.0	0.496		0.510
E	10		1O.65	0.394		0.419
e		1.27			0.050	
e3		11.43			0.450	
F	7.4		7.6	0.291		0.300
G	8.8		9.15	0.346		0.360
L	0.5		1.27	0.020		0.050
M			0.75			0.030
S	8° (max)					

Packaging : Products are supplied in antistatic tubes.

MARKING : Logo, Date Code, E6V1S3