



Application Specific Discretes  
A.S.D.™

## ESDA25W5 QUAL TRANSIL™ ARRAY FOR ESD PROTECTION

### MAIN APPLICATIONS

Where transient overvoltage protection in ESD sensitive equipment is required, such as :

- Computers
- Printers
- Communication systems
- Cellular phones handsets and accessories
- Other telephone sets
- Set top boxes

### FEATURES

- 4 unidirectional TRANSIL™ functions.
- 150W peak pulse power (8/20μs)
- Breakdown voltage :  $V_{BR} = 25V$  min.
- Low leakage current :  $< 1\mu A$ .
- Very low PCB space consuming :  $4.2 \text{ mm}^2$  typically.

### DESCRIPTION

The ESDA25W5 is a 4-bit wide monolithic suppressor designed to protect components which are connected to data and transmission lines against ESD.

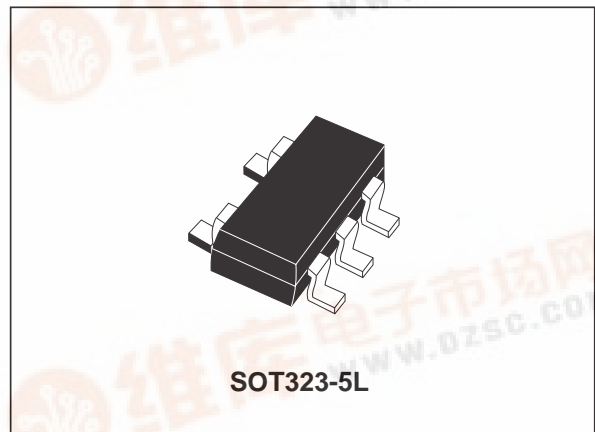
It clamps the voltage just above the logic level supply for positive transients, and to a diode drop below ground for negative transients.

### BENEFITS

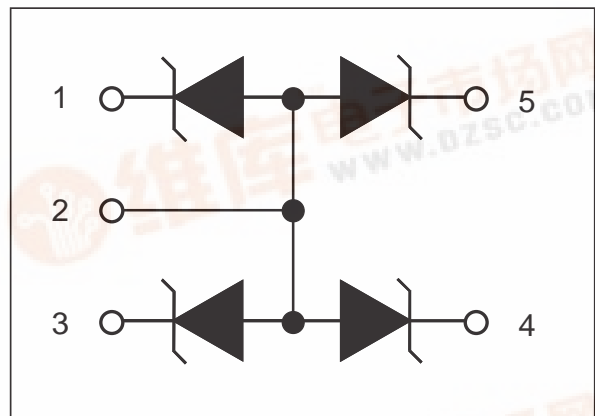
- High ESD protection level : up to 25 kV.
- High integration.
- Suitable for high density boards.

### COMPLIES WITH THE FOLLOWING STANDARDS :

- IEC61000-4-2 level 4
- MIL STD 883C-Method 3015-6 : class 3.  
(human body model)



### FUNCTIONAL DIAGRAM



## ESDA25W5

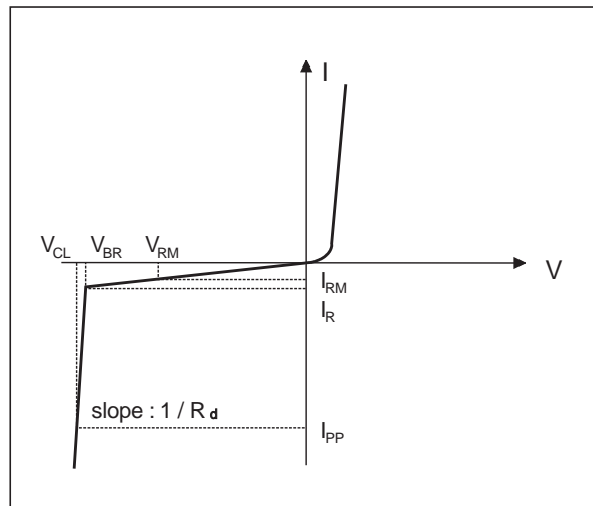
### ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25^{\circ}\text{C}$ )

Symbol	Parameter	Test conditions	Value	Unit
$V_{PP}$	ESD discharge	MIL STD 883C - Method 3015-6 IEC61000-4-2, air discharge IEC61000-4-2, contact discharge	25 16 9	kV
$P_{PP}$	Peak pulse power (8/20 $\mu\text{s}$ )		150	W
$T_{op}$	Operating temperature range	Note 1	- 40 to + 85	$^{\circ}\text{C}$
$T_j$	Junction temperature		150	$^{\circ}\text{C}$
$T_{stg}$	Storage temperature range		- 55 to + 150	$^{\circ}\text{C}$
$T_L$	Lead solder temperature (10 secondes duration)		260	$^{\circ}\text{C}$

**Note 1:** The evolution of the operating parameters versus temperature is given trough curves and  $\alpha T$  parameter

### 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
$\alpha T$	Voltage temperature coefficient
C	Capacitance per line
$R_d$	Dynamic resistance
$V_F$	Forward voltage drop

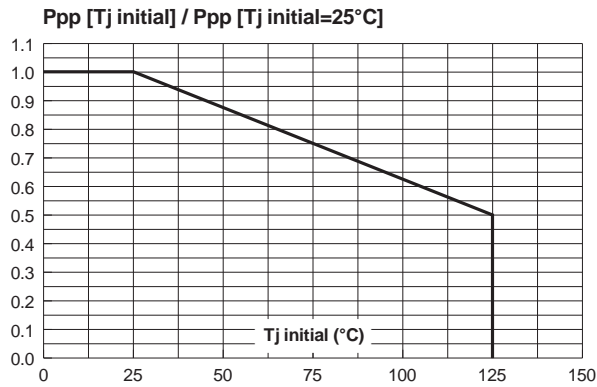


Types	$V_{BR}$ @ $I_R$		$I_{RM}$ @ $V_{RM}$		$R_d$ typ. note 2	$\alpha T$ max. note 3	C typ. 0V bias	$V_F$ @ $I_F$		
	min. V	max. V	max. $\mu\text{A}$	V				max. V	mA	
ESDA25W5	25	30	1	1	24	1.9	10	30	1.2	10

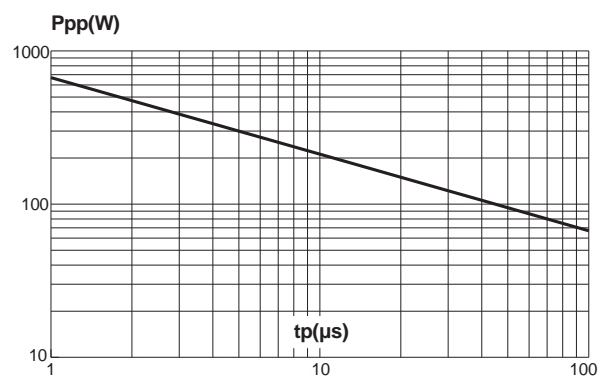
**note 2 :** Square pulse  $I_{pp} = 15\text{A}$ ,  $t_p = 2.5\mu\text{s}$ .

**note 3 :**  $\Delta V_{BR} = \alpha T * (T_{amb} - 25^{\circ}\text{C}) * V_{BR}(25^{\circ}\text{C})$

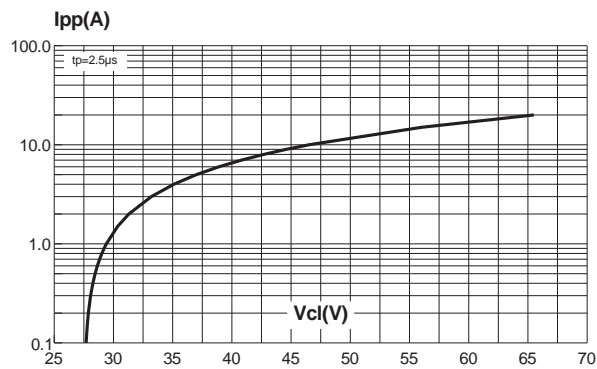
**Fig. 1:** Peak pulse power dissipation versus initial junction temperature



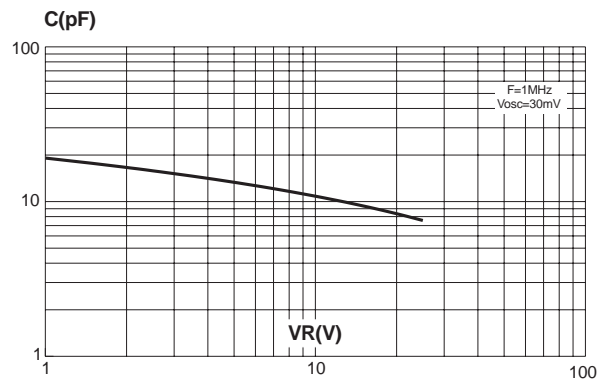
**Fig. 2:** Peak pulse power versus exponential pulse duration (Tj initial = 25 °C)



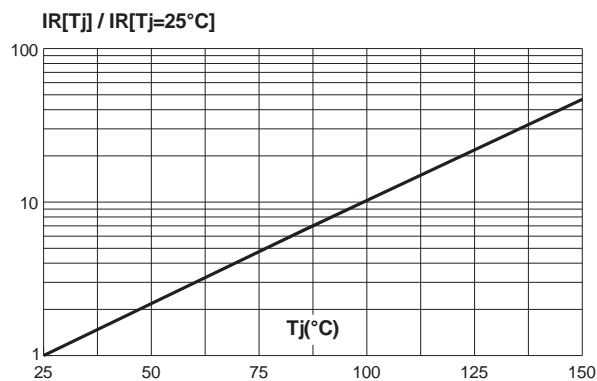
**Fig. 3:** Clamping voltage versus peak pulse current (Tj initial = 25 °C). Rectangular waveform tp = 2.5 µs.



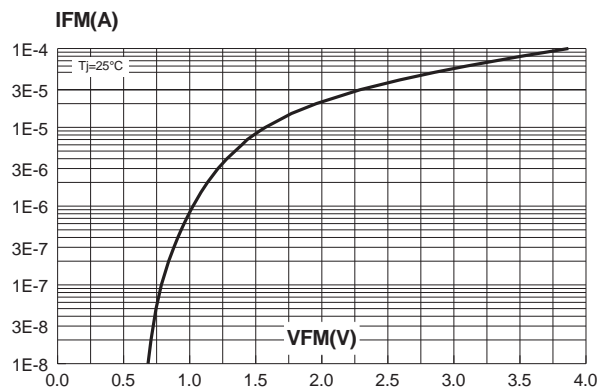
**Fig. 4:** Capacitance versus reverse applied voltage (typical values).



**Fig. 5:** Relative variation of leakage current versus junction temperature (typical values).

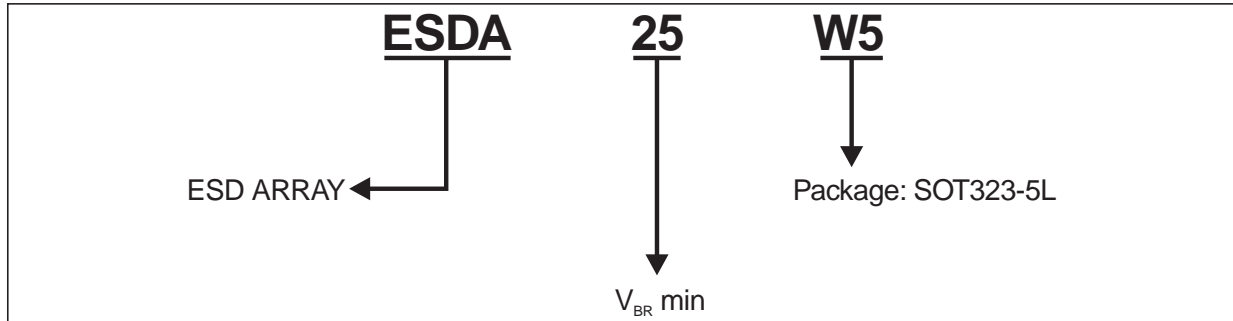


**Fig. 6:** Peak forward voltage drop versus peak forward current (typical values).



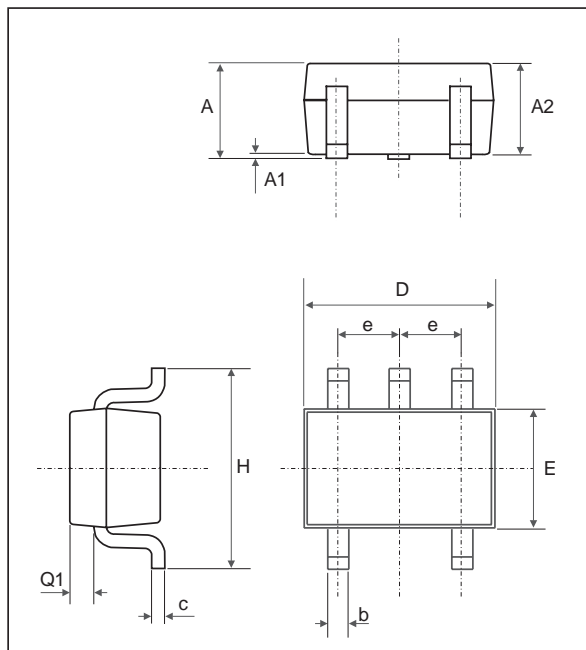
# ESDA25W5

## ORDER CODE



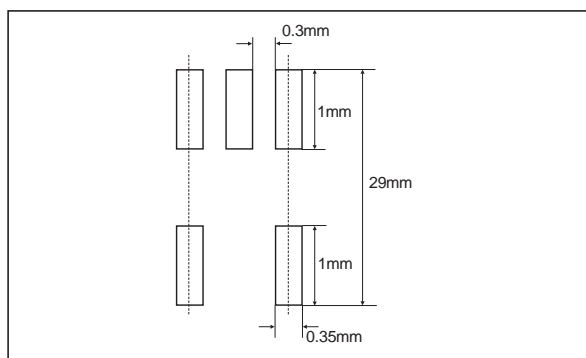
Ordering type	Marking	Package	Weight	Base qty	Delivery mode
ESDA25W5	E25	SOT323-5L	5.4 mg.	3000	Tape & reel

## PACKAGE MECHANICAL DATA SOT323-5L



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.8	1.1	0.031	0.043
A1	0	0.1	0	0.004
A2	0.8	1	0.031	0.039
b	0.15	0.3	0.006	0.012
c	0.1	0.18	0.004	0.007
D	1.8	2.2	0.071	0.086
E	1.15	1.35	0.045	0.053
e	0.65 Typ.		0.026 Typ.	
H	1.8	2.4	0.071	0.094
Q1	0.1	0.4	0.004	0.016

## FOOT PRINT (in millimeters)



Mechanical specifications	
Lead plating	Tin-lead
Lead plating thickness	5µm min. 25 µm max.
Lead material	Sn / Pb (70% to 90% Sn)
Lead coplanarity	10µm max.
Body material	Molded epoxy
Epoxy meets	UL94, V0

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