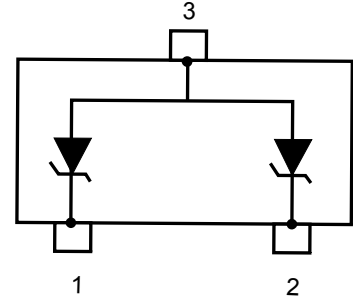


**Description**

This device is a diode array designed to protect 1 line or 2 lines against ESD transients.

The device is ideal for applications where both reduced line capacitance and board space saving are required.

It can also be used as bidirectional suppressor by connecting only pin 1 and 2.



**Features**

- Unidirectional device
- Low leakage current ( $I_R$  max. < 20  $\mu$ A at  $V_{BR}$ )
- 300 W peak pulse power (8/20  $\mu$ s)

**Benefits**

- High ESD protection level: up to 30 kV
- High integration
- Suitable for high density boards

**Applications**

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

- Entertainment
- Signal communications
- Connectivity
- Comfort and convenience

**Characteristics Absolute maximum ratings (T<sub>amb</sub> = 25 °C)**

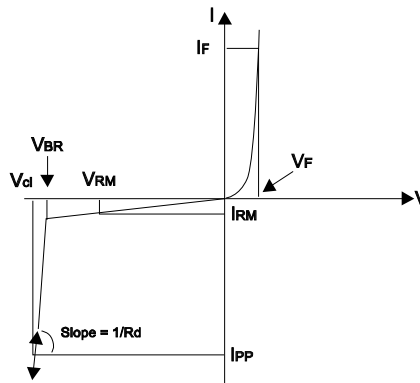
Symbol	Parameter	Value	Unit	
V <sub>pp</sub>	Peak pulse voltage <sup>(1)</sup>	IEC 61000-4-2: Contact discharge Air discharge	30 30	kV
P <sub>pp</sub>	Peak pulse power (8/20 μs)		300	W
I <sub>pp</sub>	Peak pulse current (8/20 μs)	ESDA37L	6.3	A
T <sub>j</sub>	Operating junction temperature range		-40 to 150	°C
T <sub>stg</sub>	Storage junction temperature range		-65 to 150	°C
T <sub>L</sub>	Maximum lead temperature for soldering during 10 s at 5 mm from case		260	°C

**Notes:**

<sup>(1)</sup>For a surge greater than the maximum values, the diode will fail in short-circuit.

**Electrical characteristics (definitions)**

Symbol	=	Parameter
V <sub>BR</sub>	=	Breakdown voltage
V <sub>CL</sub>	=	Clamping voltage
V <sub>RM</sub>	=	Stand-off voltage
I <sub>RM</sub>	=	Leakage current
I <sub>F</sub>	=	Forward current
I <sub>PP</sub>	=	Peak pulse current
I <sub>R</sub>	=	Breakdown current
V <sub>F</sub>	=	Forward voltage drop
C	=	Capacitance
R <sub>d</sub>	=	Dynamic impedance
αT	=	Voltage temperature



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

Order code	V <sub>BR</sub> at I <sub>R</sub>			I <sub>RM</sub> at V <sub>RM</sub>		R <sub>d</sub> <sup>(1)</sup>	$\alpha T$ <sup>(2)</sup>	C <sub>line</sub>	V <sub>F</sub> at I <sub>F</sub>	
	Min.	Max.		Max.		Typ.	Max.	Typ. at 0 V bias	Max.	
	V	V	mA	$\mu\text{A}$	V	m $\Omega$	10 <sup>-4</sup> / $^{\circ}\text{C}$	pF	V	mA
ESDA37L	36	43.3	1	1	36	2400	10	48	0.9	10

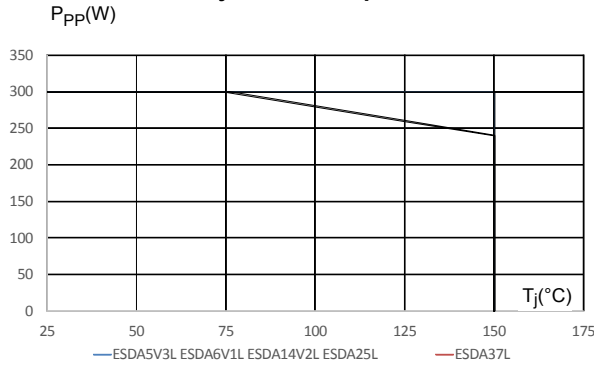
**Notes:**

<sup>(1)</sup>Square pulse I<sub>pp</sub> = 15 A, t<sub>p</sub> = 2.5  $\mu\text{s}$

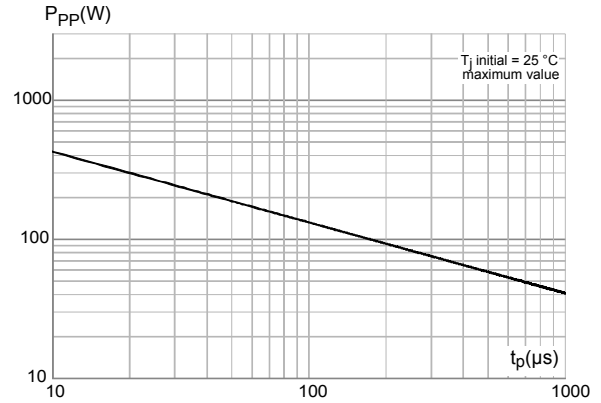
<sup>(2)</sup> $\Delta V_{BR} = \alpha T \times (T_{amb} - 25\text{ }^{\circ}\text{C}) \times V_{BR}(25\text{ }^{\circ}\text{C})$

**Characteristics (curves)**

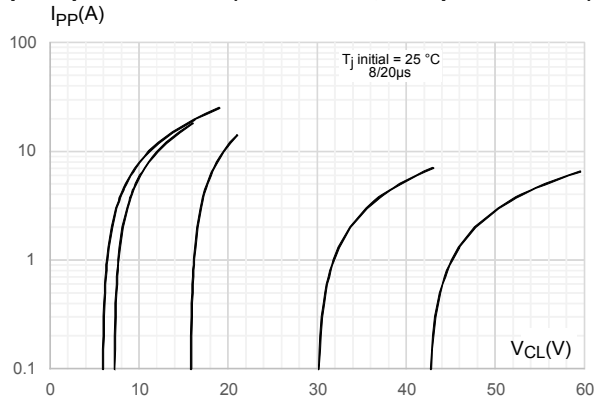
**Figure 3: Variation of peak pulse power versus initial junction temperature**



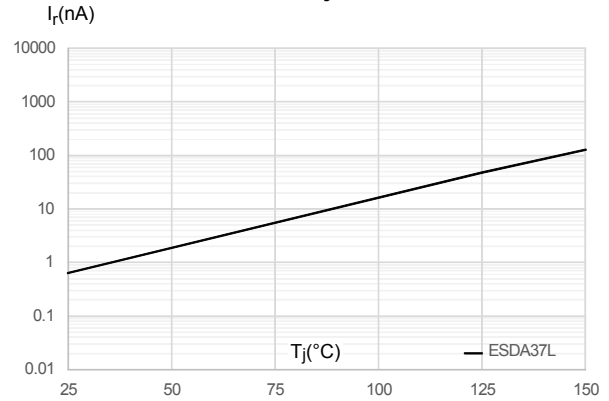
**Figure 4: Peak pulse power versus exponential pulse duration**



**Figure 5: Variation of clamping voltage versus peak pulse current (max. values, 8/20 μs waveform)**

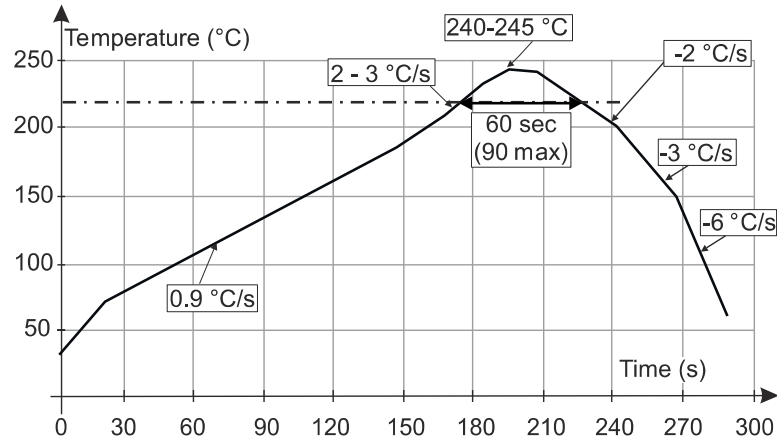


**Figure 6: Relative variation of leakage current at  $V_R = V_{RM}$  versus junction values**



**Reflow profile**

**Figure 9: ST ECOPACK<sup>®</sup> recommended soldering reflow profile for PCB mounting**



## Marking

### Ordering information

Order code	Package	Baseqty	Deliverymode
UMW ESDA37L	SOT-23	3000	Tape and reel

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