

ESD Array

ESDP041206V12B0

Description

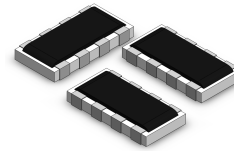
This specification is applied to electrostatic discharge (ESD) protection. It is designed to protect the high-speed data lines against ESD transients. It has very low capacitance and fast turn on times makes it ideal for data and transmission lines with high data rates. According to the special property of device, we recommend not to use on such application as DC/AC power line.

Features

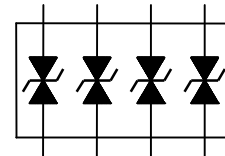
- u RoHS compliant, Lead-Free
- u Protection against ESD voltages and currents (IEC 61000-4-2 Level 4)
- u Extremely quick response time (<1ns) present ideal ESD protection
- u Extremely low capacitance (0.25pF typical)
- u Extremely low leakage current
- u Surface mount device
- u Zero signal distortion

Applications

- u Antenna circuit
- u USB2.0 / USB3.0
- u IEEE-1394
- u DVI
- u HMDI



Equivalent Circuits



Product Model

- u Digital Video Equipment
- u Mobil Phone
- u GPS Antenna
- u Bluetooth Communication Equipment

Electrical Characteristics

	Symbol	Unit	Min	Typical	Max.
Rate Voltage	V_{DC}	V			12
Leakage Current	I_L	μA		0.01	
Trigger Voltage	V_T	V		300	
Clamping Voltage	V_C	V		30	
Capacitance, @1MHz	C_P	pF		0.25	0.5
Response time		ns			1
ESD Voltage Capability, Contact Discharge Mode		KV		8	
ESD Voltage Capability, Air Discharge Mode		KV		15	
ESD Pulse Withstand		Pulses		1000	

V_T - Measurement by using Transmission Line Pulse (TLP)

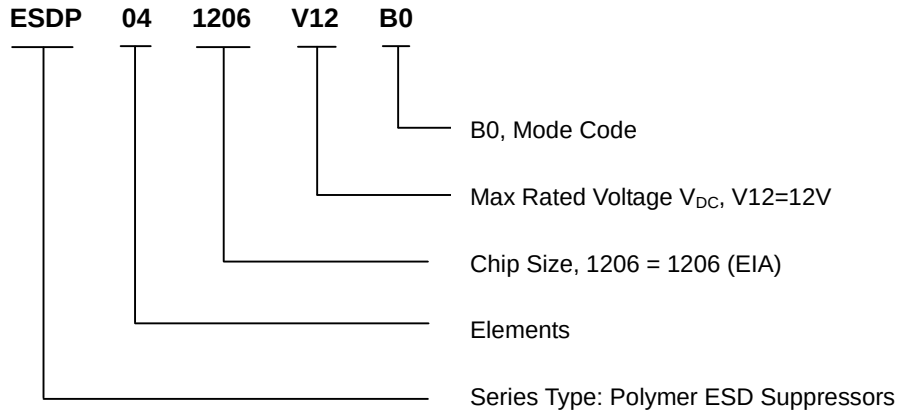
V_C - Measurement by using Transmission Line Pulse (TLP)

C_P - Device Capacitance measured with 1Vrms

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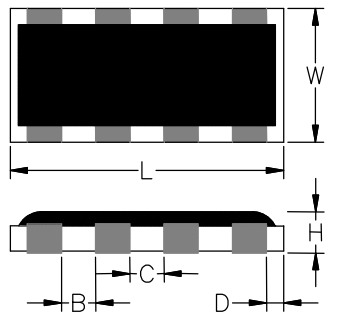
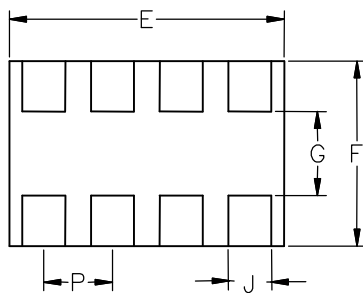
Explanation of Part Number



Construction & Dimensions Unit: mm

Substrate	Ceramic (Alumina)
Encapsulate	Polymer
End termination	Ag / Ni / Sn

Symbol	Spec.
L	3.20±0.10
W	1.60±0.10
H	0.50±0.10
B	0.40±0.20
C	0.40±0.20
D	0.20±0.10
E	3.2
F	2.2
G	1.0
J	0.5
P	0.8 Typ.



Recommended pad outline

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Environmental Specifications

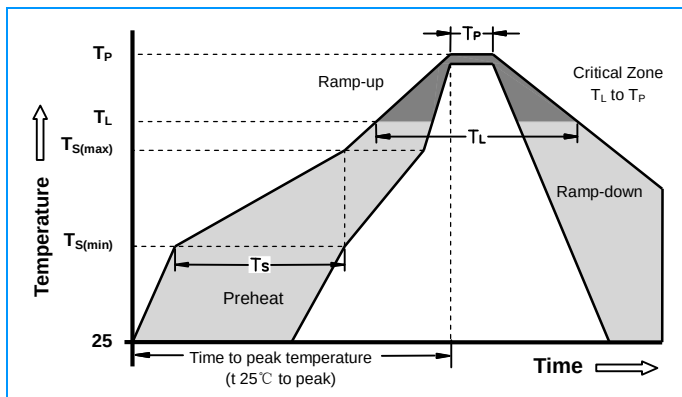
Item	Specifications	Test Condition	Reference
Bias Humidity	$I_L \leq 10\mu A$	90%RH, 40°C Rate Voltage 12VDC 1000hrs	MIL-STD-202 Method 103
Thermal Shock	$I_L \leq 10\mu A$	-40°C to +85°C, 30 min. cycle, 5 cycles	JIS C0025 (1998)Test Na
High Temperature	$I_L \leq 10\mu A$	Rated Voltage, 85°C, 1000hrs	MIL-STD-202G Method 108
Solder leach Resistance	$I_L \leq 10\mu A$	260°C, 10s	MIL-STD-202G Method 210F
Vibration	$I_L \leq 10\mu A$	The entire frequency range: 10-55Hz, 1.5mm amplitude, 2 hours for each of X,Y,Z directions	MIL-STD-202G Method 201A

I_L - Leakage current at rated voltage, the maximum leakage current was measured after reliability test.

Temperature Specifications

Parameter		Value	Unit
Operating Temperature		-55 to +125	°C
Storage Temperature		-55 to +125	°C
Taping Package Storage Condition	Storage Temperature	5 to 40	°C
	Relative Humidity	<65	%RH
	Storage Time	12 Max	Month

Soldering Parameters



Precaution for soldering

Note that this product will be easily damaged by rapid heating, rapid cooling or local heating.
Do not give heat shock over 100°C in the process of soldering.
We recommend to take preheating and gradual cooling

Soldering gun procedure

Note the follows, in case of using solder gun for replacement.
1) The tip temperature must be less than 280 for the period within 3 seconds by using soldering gun under 30W
2) The soldering gun tip shall not touch this product directly.

Soldering volume

Note that excess of soldering volume will easily get crack the body of this product.

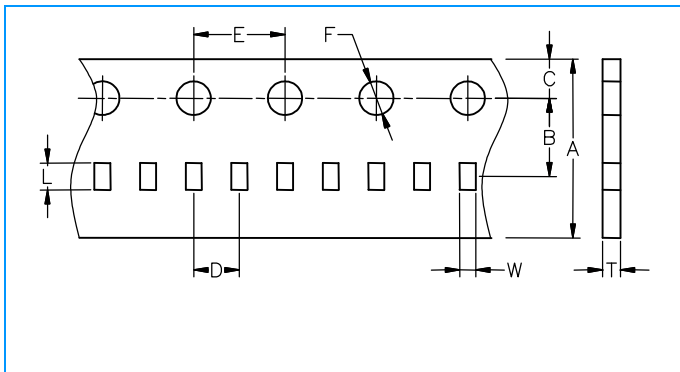
Reflow Condition		Pb free assembly
Pre Heat	-Temperature Min ($T_{S(min)}$)	+150°C
	-Temperature Max ($T_{S(max)}$)	+200°C
	-Time (min to max) (T_S)	60 -180 Seconds
Average ramp up rate (Liquidus Temp T_L) to peak		3°C/Second Max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/Second Max
Reflow	- Temperature (T_L) (Liquidus)	+217°C
	- Time (min to max) (T_L)	60 -150 Seconds
Peak Temperature (T_P)		260 +0/-5°C
Time within 5°C of actual peak Temperature (T_P)		20-40 Seconds
Ramp-down Rate		6°C/Second Max
Time 25°C to peak Temperature (T_P)		8 minutes Max

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Packaging Information

Carrier Tape Dimensions Unit: mm

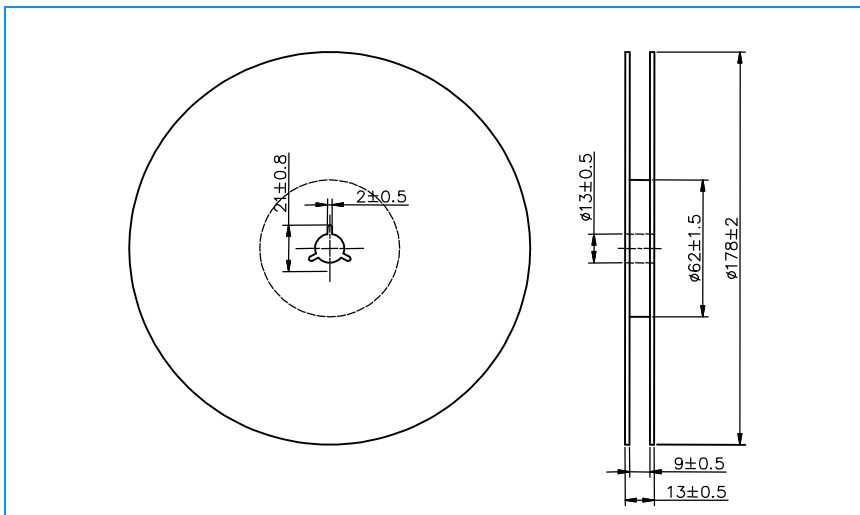


Symbol	Spec.
A	8.00±0.30
B	3.50±0.05
C	1.75±0.10
D	2.00±0.05
E	4.00±0.10
F	1.50±0.10
L	3.62±0.20
W	2.02±0.20
T	0.75±0.05

Packaging method

- Products shall be heat-sealed in the chip pocket, spacing pitch 2-mm of paper carrier tape with cover tape, and carrier tape shall be reeled to the reel.
- Tape material to be paper.
- Cover Tape adhesion to be 40±15 grams.

Taping Reel Dimensions Unit: mm



Taping Specifications

There Shall be the portion having no product in both the head and the end of taping, and there shall be the cover tape in the heat of taping.

Quantity of products in the taping package

Standard Quantity	5000PCS / Reel
Shipping quantity is a multiple of standard quantity	