



◆ Feature

1. Protection against high ESD voltage and current
2. Compact size for EIA 0402 and 0603
3. Extremely quick response time (<1ns)
4. Extremely low capacitance(<0.5pF)
5. Extremely low leakage current
6. Zero signal distortion
7. Bi-directional



◆ Application

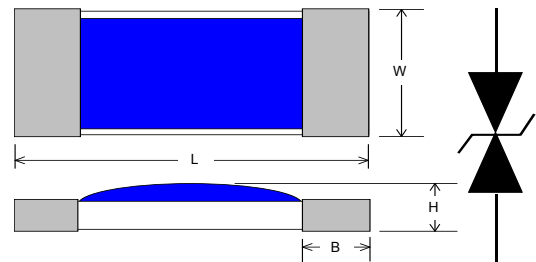
1. ESD0402 Series 、ESD0603 Series

are applied to RF module, Antenna circuit, IEEE-1394, USB2.0, DVI, and HDMI, DisplayPort...etc. high speed signal interface.

◆ Dimension

Unit: mm

Size EIA (EIAJ)	0402 (1005)	0603 (1608)
L	1.00±0.1	1.60±0.1
W	0.50±0.1	0.85±0.15
H	0.34±0.1	0.51±0.05
B	0.20±0.1	0.30±0.2





◆ Specification

Part Number	ESD0402M05V	ESD0402M12V
Maximum Operating Voltage (V_{DC})	5V	12V
Leakage Current ² (I_L)	0.05 μ A	0.05 μ A
Capacitance ³ , @1MHz(C_p)	0.2pF	0.2 pF
Trigger Voltage (V_t)	150V	300V
Clamping Voltage ⁴ (V_c)	30V	30V
ESD Voltage Capability, Contact Discharge Mode(KV)	8KV	8KV
ESD Voltage Capability, Air Discharge Mode(KV)	15KV	15KV
Minimum ESD Pulse Withstand	100	100

Part Number	ESD0603M05V	ESD0603M12V	ESD0603M24V
Maximum Operating Voltage (V_{DC})	5V	12V	24V
Leakage Current ² (I_L)	0.01 μ A	0.01 μ A	0.01 μ A
Capacitance ³ , @1MHz(C_p)	0.2pF	0.2pF	0.2pF
Trigger Voltage (V_t)	150V	150V	300V
Clamping Voltage ⁴ (V_c)	30V	30V	30V
ESD Voltage Capability, Contact Discharge Mode(KV)	8KV	8KV	8KV
ESD Voltage Capability, Air Discharge Mode(KV)	15KV	15KV	15KV
Minimum ESD Pulse Withstand	100	100	500

Note:

1. Leakage current at maximum operating voltage.
2. Capacitance is measured with 1Vrms.
3. Per IEC 61000-4-2, 30A@8KV, level 4, clamp measurement made 30 ns after initiation of pulse, all test in contact discharge mode.



◆ General Technical Data

Operating Temperature	-40 ~+85°C
Storage Temperature	-55 ~ +125°C
Response Time	<1 ns
Solderability	245±5°C, 3±1sec.

◆ Environmental Performance

Item	Specifications	Test Condition
Bias Humidity	$I_L \leq 10 \mu A$	90%RH, 40°C, Rated Voltage, 1000 hrs
Thermal Shock		-40°C to 85°C, 30 min. cycle, 5 cycles
Full Load Voltage		Rated Voltage, 85°C, 1000 hrs
Solder Leach Resistance		260±5°C, 10±1 sec.

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

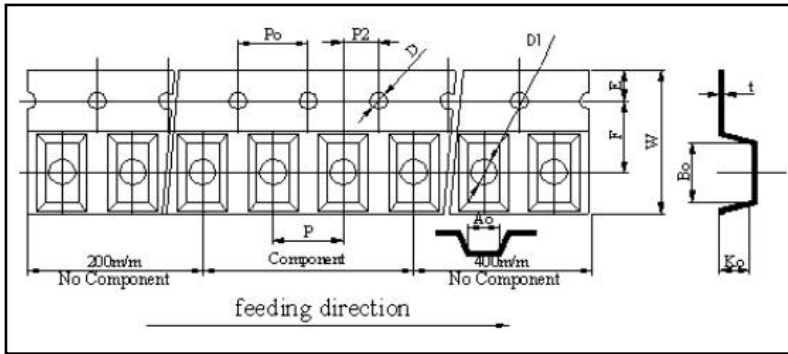
◆ Package

Size EIA (EIAJ)	0402 (1005)	0603 (1608)
Standard Packing Quantity (pcs / reel)	10,000	5,000

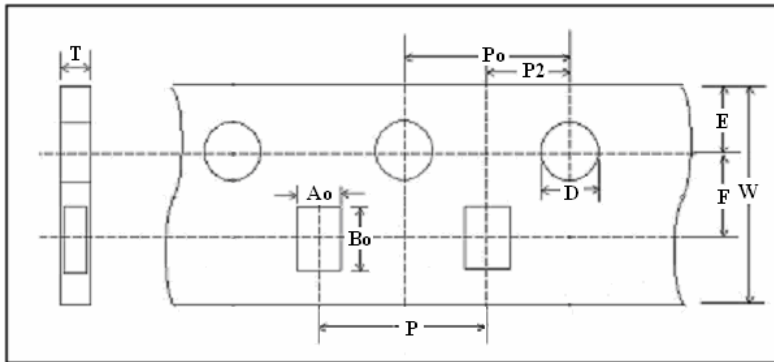


■ TAPE AND REEL SPECIFICATIONS

PLASTIC CARRIER



PAPER CARRIER



■ TAPING DIMENSIONS

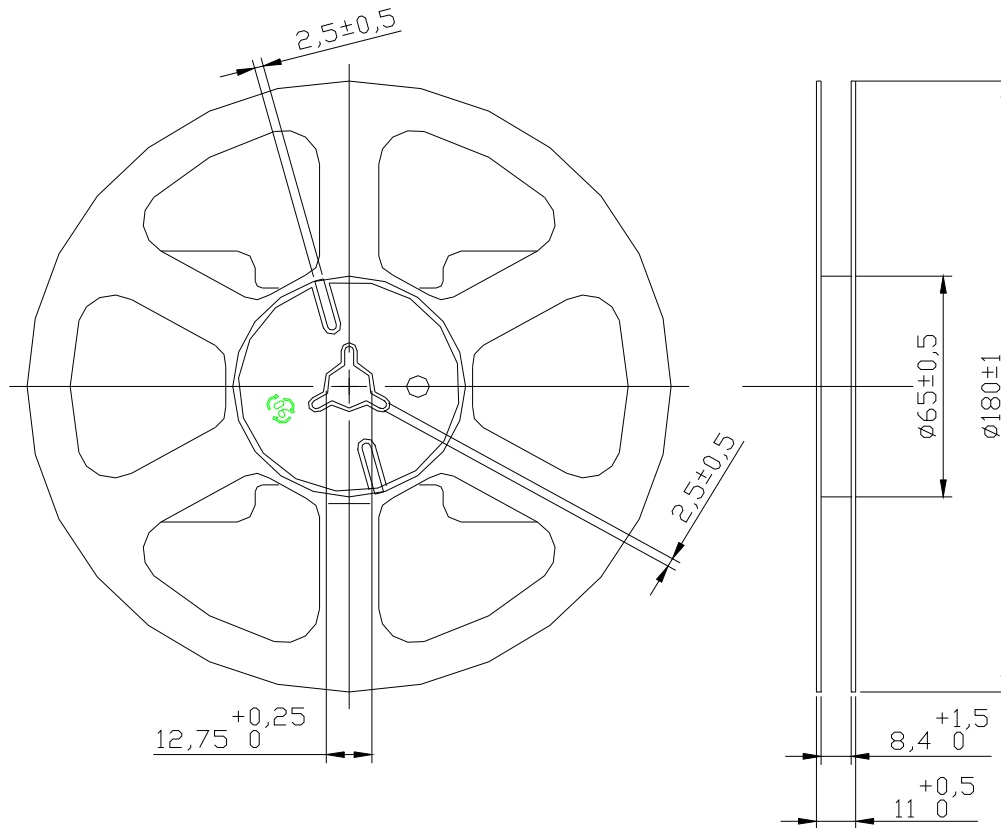
Unit: mm

	453215	451616	322513	321611	201212	201209	201209	160808	100505
Symbol	PLASTIC	PLASTIC	PLASTIC	PLASTIC	PLASTIC	PLASTIC	PAPER	PAPER	PAPER
W	12 ±0.1	11.7~12.3	7.7~8.3	7.9~8.3	7.9~8.3	7.9~8.3	8.0 ±0.1	8.0 ±0.1	8.0 ±0.1
P	8.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	2.0 ±0.05
E	1.75 ±0.1	1.75 ±0.1	1.75 ±0.1	1.75 ±0.1	1.75 ±0.1	1.75 ±0.1	1.75 ±0.1	1.75 ±0.10	1.75 ±0.05
F	5.5 ±0.05	5.5 ±0.05	3.5 ±0.05	3.5 ±0.05	3.5 ±0.05	3.5 ±0.05	3.5 ±0.1	3.5 ±0.1	3.5 ±0.05
D	1.55 ±0.05	1.55 ±0.05	1.55 ±0.05	1.55 ±0.05	1.50 ±0.05	1.50 ±0.10	1.56 ±0.10	1.56 ±0.10	1.55 ±0.05
D1	1.5~1.75	1.5~1.75	0.95~1.20	0.95~1.20	0.95~1.20	1.0~1.25	NA	NA	NA
Po	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1	4.0 ±0.1
Po10	40 ±0.2	40 ±0.2	40 ±0.2	40 ±0.2	40 ±0.2	40 ±0.2	40 ±0.2	NA	NA
P2	2.0 ±0.05	2.0 ±0.05	2.0 ±0.05	2.0 ±0.05	2.0 ±0.05	2.0 ±0.05	2.0 ±0.1	2.0 ±0.1	2.0 ±0.05
Ao	3.66 ±0.1	1.83 ±0.1	2.57 ±0.1	1.85 ±0.1	1.42 ±0.1	1.42 ±0.1	1.50 ±0.05	1.05 ±0.05	0.62 ±0.03
Bo	4.95 ±0.1	4.85 ±0.1	3.4 ±0.1	3.43 ±0.1	2.26 ±0.1	2.24 ±0.1	2.30 ±0.05	1.85 ±0.05	1.12 ±0.03
Ko(T)	1.83 ±0.1	1.83 ±0.1	1.32 ±0.1	1.22 ±0.1	1.30 ±0.1	1.04 ±0.10	0.95 ±0.05	0.95 ±0.05	0.60 ±0.03
t	0.23 ±0.1	0.29 ±0.1	0.25 ±0.1	0.25 ±0.1	0.23 ±0.1	0.25 ±0.1	NA	NA	NA



■ REEL DIMENSIONS

Unit: mm



Reel Packaging Quantity									
PART SIZE (EIA SIZE)		1005 (0402)	1608 (0603)	201209 (0805)	201212 (0805)	321611 (1206)	3225 (1210)	4516 (1806)	4532 (1812)
7" REEL	Qty. (pcs)	10,000	4,000	4,000	3,000	3,000	2,000	2,000	1,000

The Contents of a box :

- 4532 (1812): 4 reels / inner box ;
- 4516(1806): 4 reels / inner box ;
- 3225 (1210): 5 reels / inner box ;
- 3216 (1206): 5 reels / inner box ;
- 2012(0805): 5 reels / inner box ;
- 1608 (0603): 5 reels / inner box ;
- 1005(0402): 5 reels / inner box .