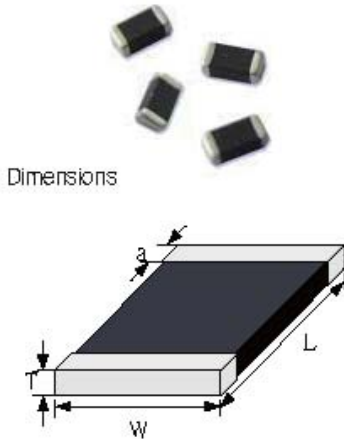


MTC

Transient Voltage Suppressor

ESD , EFT , Surge Suppressor & EMI / RFI Filter

0402 DM Series



- ※ Excellent surge sur
- ※ Bidirectional clamping device
- ※ Low leakage current
- ※ No derating of maximum current
- ※ Adequate to replace diode+EMC capacitor for save board space and cost

Applications:

- ※ Desktop and Note
- ※ Audio input-output
- ※ GPS systems
- ※ Cellular phone
- ※ CD/MD/MP3 play
- ※ Portable devices (PDA , DSC , Blue

Specifications

- ※ Packaging Tape and Reel T 7 inch reel (10,000 pcs.)
- ※ Material Body:Semiconducting Ceramic Terminals: Ni/Sn plated (code“P”)
- ※ Operating Temperature -40 to +85℃ (without derating)
- ※ Solderability 260℃ 2 sec (IEC 60068-2-58)
- ※ Soldering Heat Resistance 260℃ 5 sec (IEC 60068-2-58)
- ※ Response Time <0.5ns
- ※ Temperature coefficient(αV) of clamping voltage (Vc) @ specified test current <0.01%/℃
- ※ Power dissipation 0.05W max
- ※ Withstand ESD durability test severity of IEC 61000-4-2 Level 4 : Contact discharge mode ; typical 8KV,max 20KV Air discharge mode ; typical 15KV,max 30KV Standards

SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
Tmax.	-	0.024	-	0.60
a	0.004	0.016	0.10	0.40
L	0.035	0.043	0.90	1.10
W	0.016	0.024	0.40	0.60

- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5

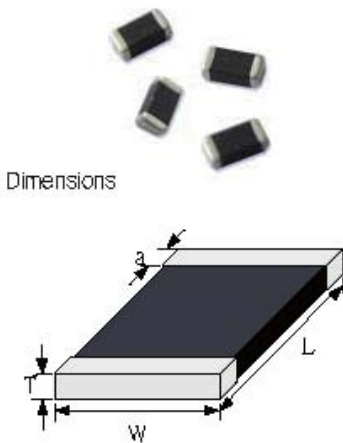
Type	Allowable continuous working voltage V _{M(DC)} (V)	Breakdown voltage at 1mA(DC) test current V _{N(DC)} (V)	Max. clamping voltage at spec. current (8/20μs) VC (V@A)	Typ. Capacitance 1MHz C _{typ.} (pF)	Typical Inductance L _{typ.} (nH)
EPD02S3R3DM271PT	3.3	4.5 ~ 6.0	9.5@ 1	250 ~ 300	0.8
EPD02S5R5DM301PT	5.5	7.8 ~ 9.8	15.0@ 1	280 ~ 330	0.8
EPD02S120DM191PT	12.0	15.0 ~ 18.0	25.5@ 1	170 ~ 210	0.8

How to order

PD	02	S	3R3	DM	271	P	T
<u>Type code</u> PolyDiode	Chip Size 02 = EIA0402	<u>Single Chip</u>	<u>Allowable Working voltage</u> 3R3 = 3.3VDC	<u>Diode-mode</u> application	<u>Capacitance Code</u> 271= 27×10 ¹ 201= 20×10 ¹	<u>Termination Code</u> P: Electroplating by Ni/Sn	<u>Packing Code</u> T: Tape&Reel B: Bulk

ESD Protection of High Speed Signal Lines

0402 H Series



SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
Tmax.	-	0.024	-	0.60
a	0.004	0.016	0.10	0.40
L	0.035	0.043	0.90	1.10
W	0.016	0.024	0.40	0.60

- 2005.12.22
- ※ Bidirectional clam device
 - ※ No polarity, suitable for bidirectional lines
 - ※ Low capacitance
 - ※ Low clamping voltage typical MLV ESD
 - ※ Capable of withstanding ESD strikes
 - ※ RoHS compliant

Specifications

- ※ Packaging Tape and Reel T 7 inch reel (10,000 pcs.)
- ※ Material Body: Semiconducting Ceramic Terminals: Ni/Sn plated (code "P")
- ※ Operating Temperature -40 to +85°C (without derating)
- ※ Solderability 260°C 2 sec (IEC 60068-2-58)
- ※ Soldering Heat Resistance 260°C 5 sec (IEC 60068-2-58)
- ※ Response Time <0.5ns
- ※ Temperature coefficient(αV) of clamping voltage (Vc) @ specified test current <0.01%/°C
- ※ Power dissipation 0.05W max
- ※ Withstand ESD durability test severity of IEC 61000-4-2 Level 4 : Contact discharge mode ; typical 8KV,max 20KV Air discharge mode ; typical 15KV,max 30KV Standards

Application examples

- ※ USB 2.0 and IEEE
- ※ DVI and HDMI interface
- ※ HDTV
- ※ High speed Ethernet
- ※ PHS
- ※ GPS
- ※ Blue Tooth, PDA, etc
- ※ Antennas
- ※ Printer ports
- ※ Cellular phones

- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4

Type	Allowable continuous working voltage V _(MDC) (V)	Breakdown voltage at 1mA(DC) test current V _(NDC) (V)	Max. clamping voltage at spec. current (8/20μs) VC (V@A)	Typ. Capacitance 1MHz C _{typ.} (pF)	Typical Inductance L _{typ.} (nH)
EPD02S180H300PT	2~18	22 ~ 32	50@ 1	30	0.8
EPD02S180H200PT	2~18	22 ~ 32	50@ 1	20	0.8
EPD02S180H100PT	2~18	22 ~ 32	55@ 1	10	0.8
EPD02S180H050PT	2~18	45 ~ 60	100@ 1	5	0.8
EPD02S180H020CT	2~18	320 ~ 360	520@ 1	2	0.8

How to order

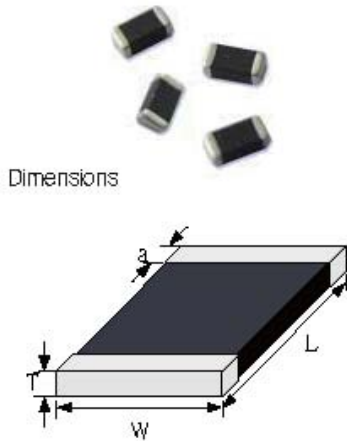
PD	02	S	180	H	300	P	T
Type code PolyDiode	Chip Size 02 = EIA0402	Single Chip	Allowable Working voltage 180 = 2~18VDC	High-speed signal line application	Capacitance Code 300= 30×10 ⁰ 050= 5×10 ⁰	Termination Code P: Electroplating by Ni/Sn	Packing Code T: Tape&Reel B: Bulk

MTC

Transient Voltage Suppressor

ESD 、 EFT 、 Surge Suppressor & EMI/RFI Filter

0402 N Series



Dimensions

- ※ Excellent surge
- ※ Bidirectional clamping device
- ※ Low leakage current
- ※ No derating of maximum current
- ※ Adequate to replace diode+EMC capacitor for save board area and cost

Applications

- ※ Desktop and Notebook computers
- ※ Audio input-output devices
- ※ GPS systems
- ※ Cellular phone
- ※ CD/MD/MP3 players
- ※ Portable devices (PDA, DSC, Blu-ray)

Specifications

- ※ Packaging Tape and Reel T 7 inch reel (10,000 pcs.)
- ※ Material Body:Semiconducting Ceramic Terminals: Ni/Sn plated (code"P")
- ※ Operating Temperature -40 to +85°C (without derating)
- ※ Solderability 260°C 2 sec (IEC 60068-2-58)
- ※ Soldering Heat Resistance 260°C 5 sec (IEC 60068-2-58)
- ※ Response Time <0.5ns
- ※ Temperature coefficient(αV) of clamping voltage (V_C) @ specified test current <0.01%/°C
- ※ Power dissipation 0.05W max
- ※ Withstand ESD durability test severity of IEC 61000-4-2 Level 4 : Contact discharge mode ; typical 8KV,max 20KV Air discharge mode ; typical 15KV,max 30KV Standards

SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
Tmax.	-	0.024	-	0.60
a	0.004	0.016	0.10	0.40
L	0.035	0.043	0.90	1.10
W	0.016	0.024	0.40	0.60

- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5

Type	Allowable continuous working voltage $V_{M(DC)}$ (V)	Breakdown voltage at 1mA(DC) test current $V_{M(DC)}$ (V)	Max. clamping voltage at spec. current (8/20 μ s) V_C (V@A)	Typ. Capacitance 1MHz C_{typ} (pF)	Typical Inductance L_{typ} (nH)
EPD02S030N271PT	3.3	4.5 ~ 6.0	10.5@ 1	250 ~ 300	0.8
EPD02S050N161PT	5.5	8.0 ~ 11.0	18.5@ 1	140 ~ 180	0.8
EPD02S120N121PT	12.0	16.0 ~ 19.0	27.5@ 1	100 ~ 140	0.8
EPD02S180N850PT	18.0	23.0 ~ 28.0	40.5@ 1	80 ~ 120	0.8

How to order

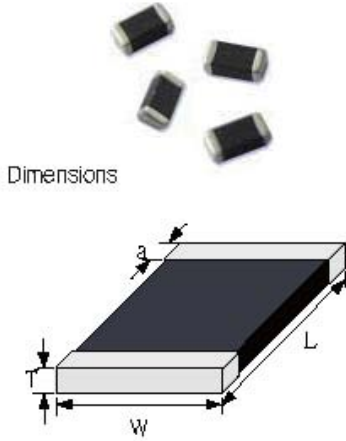
PD	02	S	030	N	271	P	T
<u>Type code</u> PolyDiode	<u>Chip Size</u> 02 = EIA0402	<u>Single Chip</u>	<u>Allowable Working voltage</u> 030 = 3.3VDC	<u>Normal</u> application	<u>Capacitance Code</u> 271= 27 \times 10 ¹ 161=16 \times 10 ¹	<u>Termination Code</u> P: Electroplating by Ni/Sn	<u>Packing Code</u> T: Tape&Reel B: Bulk

MTC

Transient Voltage Suppressor

ESD 、 EFT 、 Surge Suppressor & EMI/RFI Filter

0603 DM Series



Dimensions

- ※ Excellent surge
- ※ Bidirectional clamp device
- ※ Low leakage current
- ※ No derating of m
- ※ Adequate to repli diode+EMC cap for save board s cost

Applications

- ※ Desktop and Not
- ※ Audio input-output
- ※ GPS systems
- ※ Cellular phone
- ※ CD/MD/MP3 ple
- ※ Portable devices (PDA , DSC , Blu

Specifications

- ※ Packaging Tape and Reel T 7 inch reel (4,000 pcs.)
- ※ Material Body: Semiconducting Ceramic Terminals: Ni/Sn plated (code"P")
- ※ Operating Temperature -40 to +85°C (without derating)
- ※ Solderability 260°C 2 sec (IEC 60068-2-58)
- ※ Soldering Heat Resistance 260°C 5 sec. (IEC 60068-2-58)
- ※ Response Time <0.5ns
- ※ Temperature coefficient(αV) of clamping voltage (V_c) @ specified test current <0.01%/ °C
- ※ Power dissipation 0.05W max.
- ※ Power dissipation 0.05W max
- ※ Withstand ESD durability test severity of IEC 61000-4-2 Level 4 : Contact discharge mode ; typical 8KV,max 20KV Air discharge mode ; typical 15KV,max 30KV Standards

SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
Tmax.	-	0.035	-	0.90
a	0.008	0.020	0.20	0.50
L	0.057	0.069	1.45	1.75
W	0.026	0.037	0.65	0.95

- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5

Type	Allowable continuous working voltage $V_{M(DC)}$ (V)	Breakdown voltage at 1mA(DC) test current $V_{N(DC)}$ (V)	Max. clamping voltage at spec. current (8/20 μ s) VC (V@A)	Typ. Capacitance 1MHz C_{typ} (pF)	Typical Inductance L_{typ} (nH)
EPD03S5R5DM651PT	5.5	7.8 ~ 9.8	15.0@ 1	570 ~ 710	1.0
EPD03S120DM311PT	12.0	15.0 ~ 18.0	25.5 @ 1	270 ~ 330	1.0

How to order

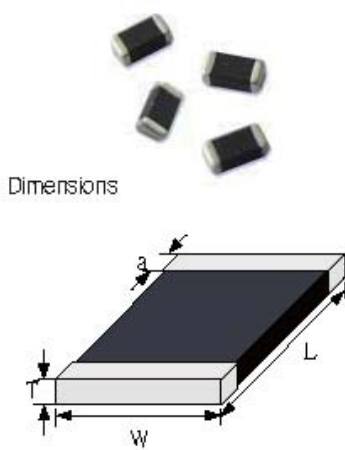
PD	03	S	5R5	DM	651	P	T
<u>Type code</u> PolyDiode	<u>Chip Size</u> 03 = EIA0603	<u>Single Chip</u>	<u>Allowable Working voltage</u> 5R5 = 5.5VDC	<u>Diode-mode application</u>	<u>Capacitance Code</u> 651= 65×10 ¹	<u>Termination Code</u> P: Electroplating by Ni/Sn	<u>Packing Code</u> T: Tape&Reel B: Bulk

MTC

Transient Voltage Suppressor

ESD Protection of High Speed Signal Lines

0603 H Series



SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
Tmax.	-	0.035	-	0.90
a	0.008	0.020	0.20	0.50
L	0.057	0.069	1.45	1.75
W	0.026	0.037	0.65	0.95

- 2005.12.22
- ※ Bidirectional clam device
 - ※ No polarity, suitable for bidirectional lines
 - ※ Low capacitance
 - ※ Low clamping voltage typical MLV ESD
 - ※ Capable of withstanding ESD strikes
 - ※ RoHS compliant

Application examples

- ※ USB 2.0 and IEEE
- ※ DVI and HDMI interface
- ※ HDTV
- ※ High speed Ethernet
- ※ PHS
- ※ GPS
- ※ Blue Tooth, PDA, etc
- ※ Antennas
- ※ Printer ports
- ※ Cellular phones

Specifications

- ※ Packaging Tape and Reel T 7 inch reel (4,000 pcs.)
- ※ Material Body: Semiconducting Ceramic Terminals: Ni/Sn plated (code "P")
- ※ Operating Temperature -40 to +85°C (without derating)
- ※ Solderability 260°C 2 sec (IEC 60068-2-58)
- ※ Soldering Heat Resistance 260°C 5 sec. (IEC 60068-2-58)
- ※ Response Time <0.5ns
- ※ Temperature coefficient (αV) of clamping voltage (Vc) @ specified test current <0.01%/°C
- ※ Power dissipation 0.05W max.
- ※ Power dissipation 0.05W max
- ※ Withstand ESD durability test severity of IEC 61000-4-2 Level 4 : Contact discharge mode ; typical 8KV, max 20KV Air discharge mode ; typical 15KV, max 30KV Standards

- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4

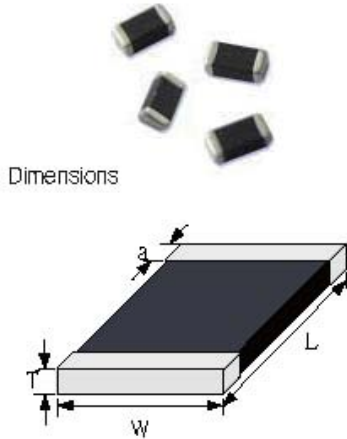
Type	Allowable continuous working voltage $V_{M(DC)}$ (V)	Breakdown voltage at 1mA(DC) test current $V_{N(DC)}$ (V)	Max. clamping voltage at spec. current (8/20μs) VC (V@A)	Typ. Capacitance 1MHz C_{typ} (pF)	Typical Inductance L_{typ} (nH)
EPD03S180H300PT	2~18	22 ~ 32	50@ 1	30	1.0
EPD03S180H200PT	2~18	22 ~ 32	50@ 1	20	1.0
EPD03S180H100PT	2~18	22 ~ 32	55@ 1	10	1.0
EPD03S180H050PT	2~18	45 ~ 60	100@ 1	5	1.0
EPD03S180H020PT	2~18	360 ~ 400	580@ 1	2	1.0

How to order

PD	03	S	180	H	300	P	T
<u>Type code</u> PolyDiode	<u>Chip Size</u> 03 = EIA0603	<u>Single Chip</u>	<u>Allowable Working voltage</u> 180 = 2~18VDC	<u>High-speed Signal line application</u>	<u>Capacitance Code</u> 300= 30×10 ⁰ 050= 5×10 ⁰	<u>Termination Code</u> P: Electroplating by Ni/Sn	<u>Packing Code</u> T: Tape&Reel B: Bulk

ESD Protection of High Speed Signal Lines

0603 N Series



- ※ Excellent surge
- ※ Bidirectional clamping device
- ※ Low leakage current
- ※ No derating of maximum current
- ※ Adequate to replace diode+EMC capacitor for save board's cost

Applications

- ※ Desktop and Notebook
- ※ Audio input-output
- ※ GPS systems
- ※ Cellular phone
- ※ CD/MD/MP3 player
- ※ Portable devices (PDA, DSC, Blu-ray)

Specifications

- ※ Packaging Tape and Reel T 7 inch reel (4,000 pcs.)
- ※ Material Body: Semiconducting Ceramic Terminals: Ni/Sn plated (code "P")
- ※ Operating Temperature -40 to +85°C (without derating)
- ※ Solderability 260°C 2 sec (IEC 60068-2-58)
- ※ Soldering Heat Resistance 260°C 5 sec. (IEC 60068-2-58)
- ※ Response Time <0.5ns
- ※ Temperature coefficient(αV) of clamping voltage (Vc) @ specified test current <0.01%/ °C
- ※ Power dissipation 0.05W max.
- ※ Power dissipation 0.05W max
- ※ Withstand ESD durability test severity of IEC 61000-4-2 Level 4 : Contact discharge mode ; typical 8KV,max 20KV Air discharge mode ; typical 15KV,max 30KV Standards

SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
Tmax.	-	0.035	-	0.90
a	0.008	0.020	0.20	0.50
L	0.057	0.069	1.45	1.75
W	0.026	0.037	0.65	0.95

- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5

Type	Allowable continuous working voltage V _{M(DC)} (V)	Breakdown voltage at 1mA(DC) test current V _{N(DC)} (V)	Max. clamping voltage at spec. current (8/20μs) VC (V@A)	Typ. Capacitance 1MHz C _{typ} (pF)	Typical Inductance L _{typ} (nH)
EPD03S030N701PT	3.3	4.5 ~ 6.0	10.5@ 1	630 ~ 770	1.0
EPD03S050N651PT	5.5	8.0 ~ 11.0	18.5@ 1	570 ~ 710	1.0
EPD03S120N311PT	12.0	16.0 ~ 19.0	27.5@ 1	270 ~ 330	1.0
EPD03S180N231PT	18.0	23.0 ~ 28.0	40.5@ 1	200 ~ 250	1.0

How to order

PD	03	S	030	N	701	P	T
Type code PolyDiode	Chip Size 03 = EIA0603	Single Chip	Allowable Working voltage 030 = 3.3VDC	Normal application	Capacitance Code 701= 70×10 ¹ 231= 23×10 ¹	Termination Code P: Electroplating by Ni/Sn	Packing Code T: Tape&Reel B: Bulk