



# DY2M5Z0C0L1

For bidirectional ESD protection and transient voltage suppressor

### ■ Features

- IEC 61000-4-2 (ESD) ±15 kV (Contact and Air)
- IEC 61000-4-5 (Lightning) 1.9 A (8/20 μs)
- Low leak current
- Halogen-free / RoHS compliant  
(EU RoHS / UL-94 V-0 / MSL: Level 1 compliant)

■ Marking Symbol:

### ■ Packaging

Embossed type (Thermo-compression sealing) : 20 000 pcs / reel (standard)

### ■ Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Total Power Dissipation <sup>*1, 2</sup>	PT	-	150	mW
Electrostatic Discharge <sup>*1, 3</sup>	ESD	-	±15	kV
Peak Pulse Power <sup>*1, 4</sup>	Ppp	-	20	W
Peak Pulse Current <sup>*1, 4</sup>	Ipp	-	1.9	A
Operating Junction Temperature <sup>*5</sup>	Tj	-	150	°C
Ambient Temperature	Ta	-40	150	°C
Storage Temperature	Tstg	-55	150	°C

Note) \*1: Ta = Tj = 25°C

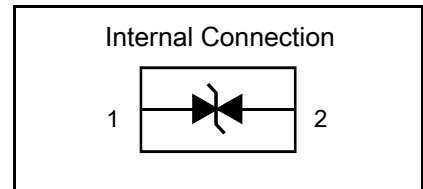
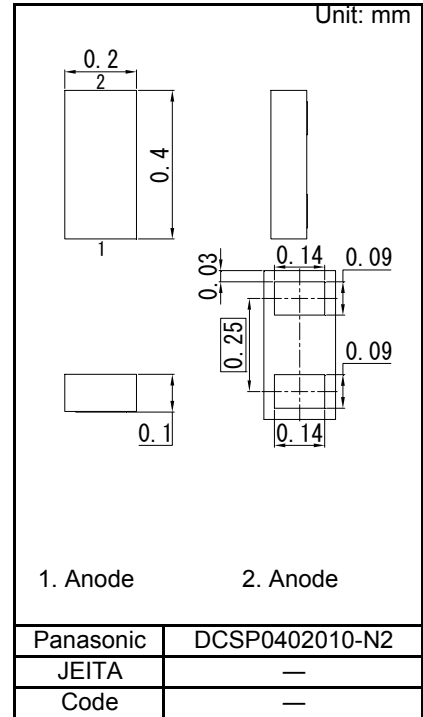
\*2: Device mounted on a FR4 PCB (25.4mm×25.4mm , 1mm thick), copper wiring (27.6mm<sup>2</sup> area , 36μm thick).

\*3: Test method: IEC61000-4-2

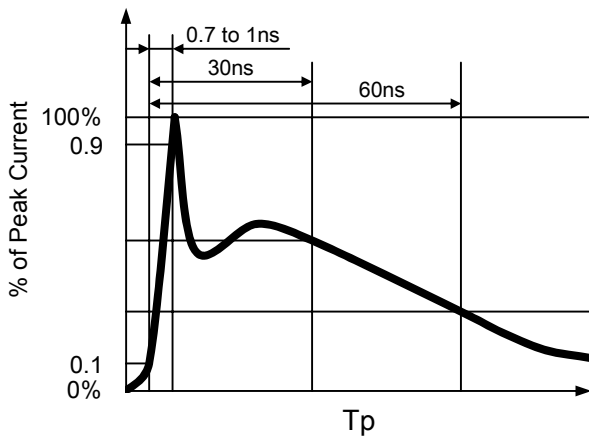
(C = 150 pF , R = 330 Ω , Contact and Air discharge: 10 times)

\*4: Test method: IEC61000-4-5 (Tp = 8/20 μs , Unrepeated)

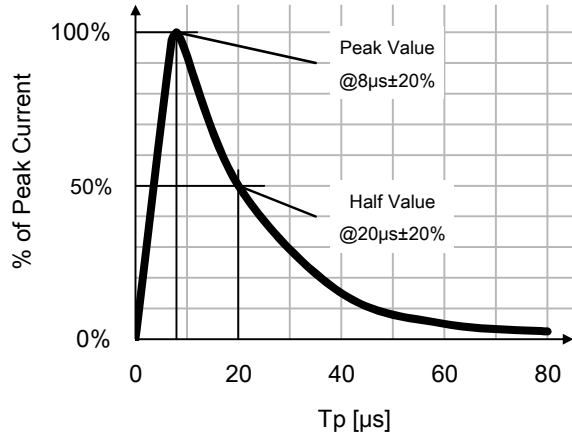
\*5: Power derating is necessary so that Tj < 150°C .



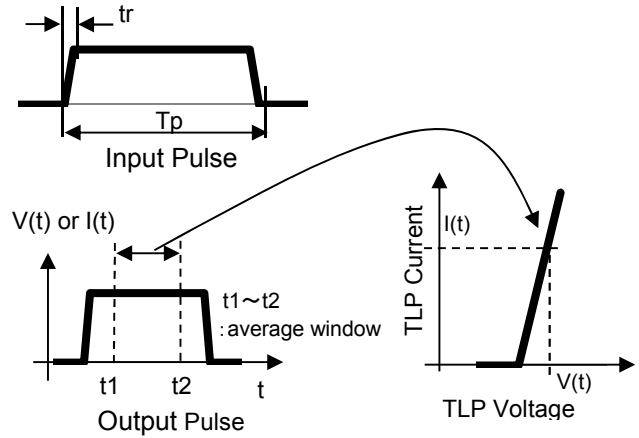
(IEC61000-4-2 Pulse)



(IEC61000-4-5 Pulse)



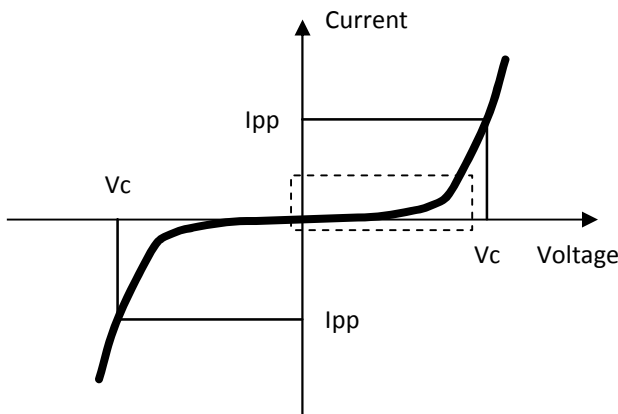
(TLP Pulse)



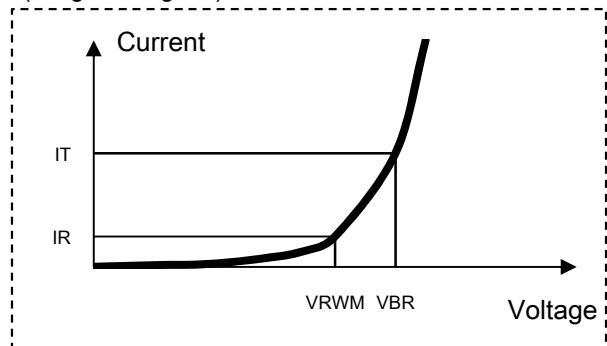
■ Electrical Characteristics Ta = 25°C ± 3°C

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse Stand-off Voltage	VRWM	-			5.0	V
Reverse Breakdown Voltage *1	VBR	IT = 0.1 mA	7.0	7.5	8.0	V
Reverse Breakdown Voltage *1	VBR	IT = 5 mA	7.0	7.6	8.0	V
Reverse Leakage Current	IR	VR = 5 V			50	nA
Clamping Voltage *2	Vc	Ipp = 1.9 A, Tp = 8/20 μs		10.6	12.7	V
Clamping Voltage *3	Vc-TLP	Ipp = 8 A		12.0		V
Clamping Voltage *3	Vc-TLP	Ipp = 16 A		16.0		V
Terminal Capacitance	Ct	VR = 0 V, f = 1 MHz		6.0		pF

- Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7031 measuring methods for diodes.  
 2. Absolute frequency of input and output is 5 MHz.  
 3. \*1: VBR guaranteed 20 ms after current flow.  
 \*2: conditions : 8/20 μs Pulse Waveform  
 \*3: conditions : TLP parameter Z = 50 Ω , Tp = 100 ns , tr = 0.2ns , average window t1 = 54.4ns , t2 = 94.4ns



(Magnified figure)

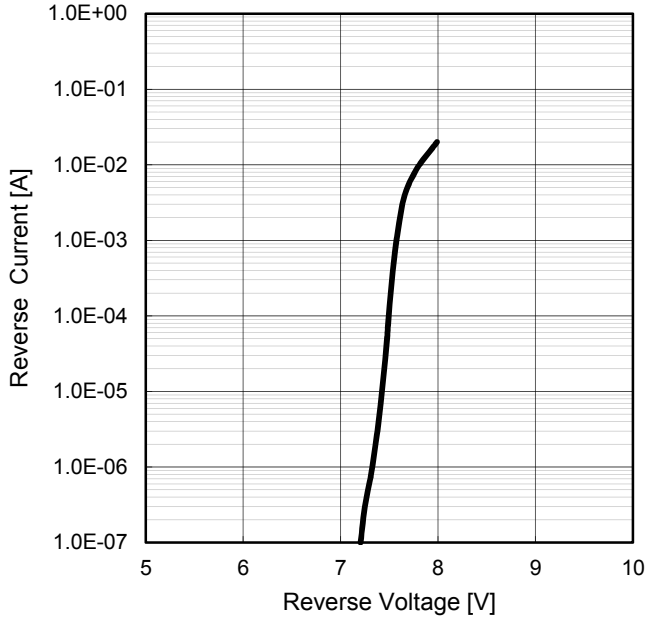


Symbol	Parameter
Ipp	Peak Pulse Current
Vc	Clamping Voltage @ Ipp
IR	Reverse Leakage Current @ VRWM
VRWM	Reverse Stand-off Voltage
IT	Test Current
VBR	Breakdown Voltage @ IT

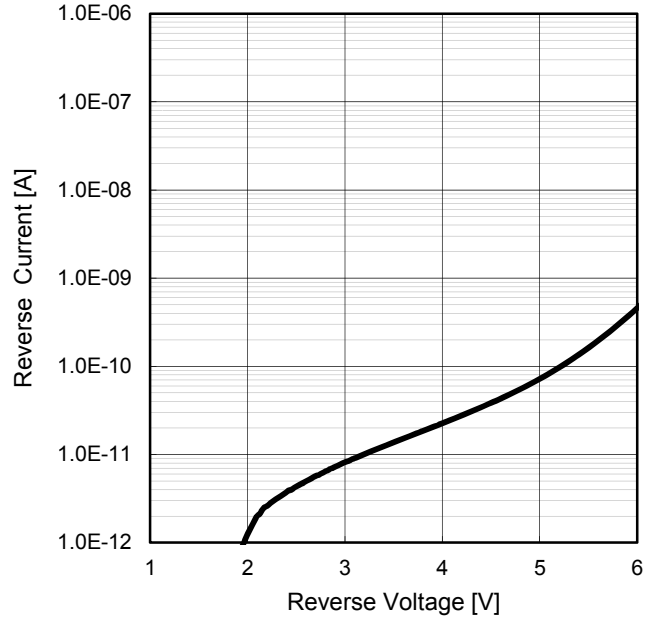


Typical Characteristics at Ta = 25°C, unless otherwise specified

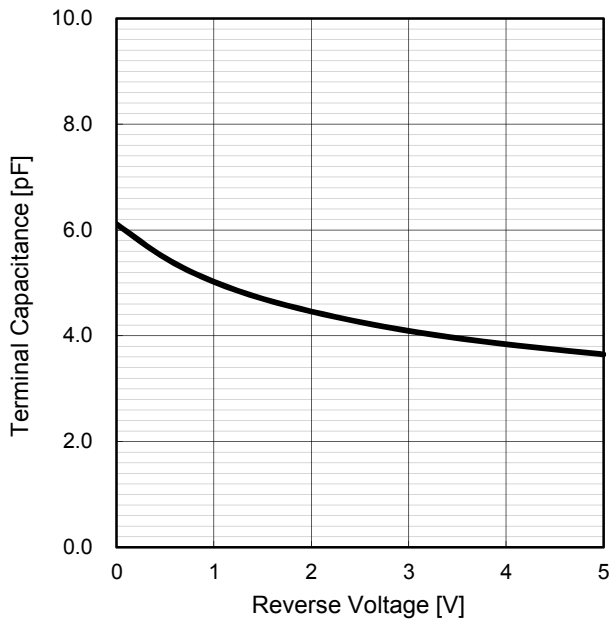
Reverse Breakdown Voltage



Reverse Leakage Current



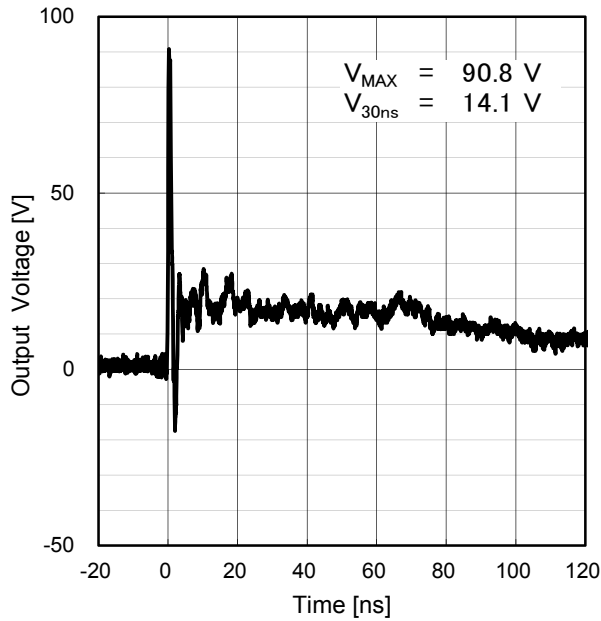
Terminal Capacitance \*1



Note) \*1: Test Condition : f = 1 MHz

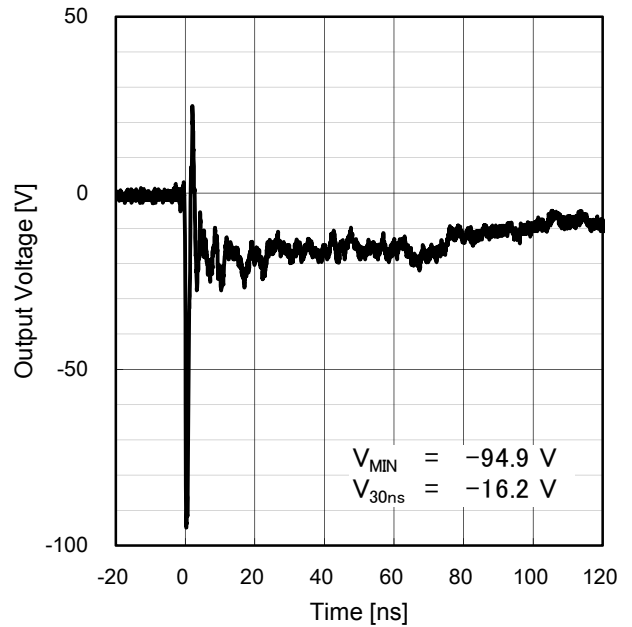
Typical Characteristics at Ta = 25°C, unless otherwise specified

ESD Clamping (Positive Pulse)<sup>\*1</sup>



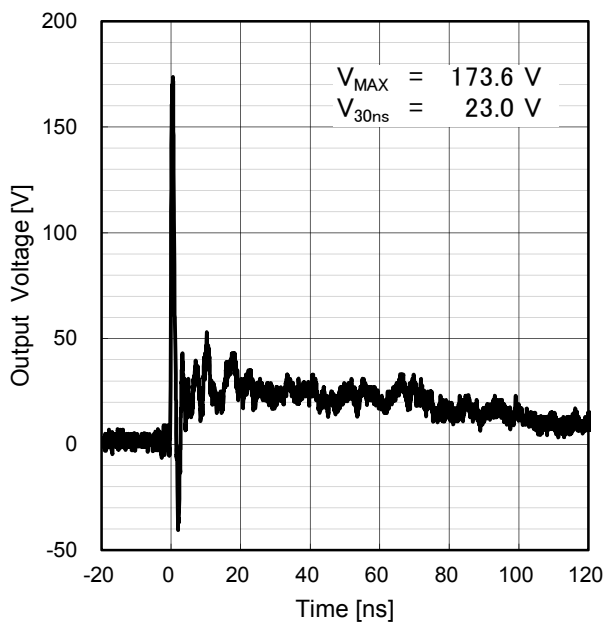
Note) \*1: Input Pulse :  
IEC61000-4-2 / Contact / + 8 kV

ESD Clamping (Negative Pulse)<sup>\*2</sup>



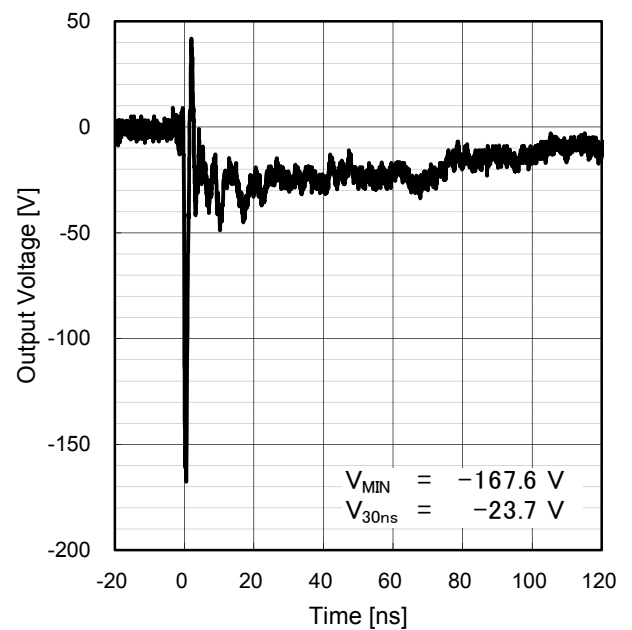
Note) \*2: Input Pulse :  
IEC61000-4-2 / Contact / - 8 kV

ESD Clamping (Positive Pulse)<sup>\*3</sup>



Note) \*3: Input Pulse :  
IEC61000-4-2 / Contact / + 15 kV

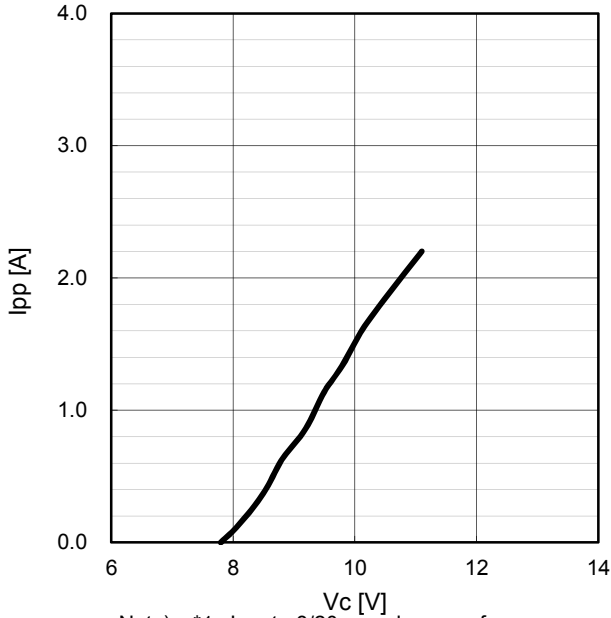
ESD Clamping (Negative Pulse)<sup>\*4</sup>



Note) \*4: Input Pulse :  
IEC61000-4-2 / Contact / - 15 kV

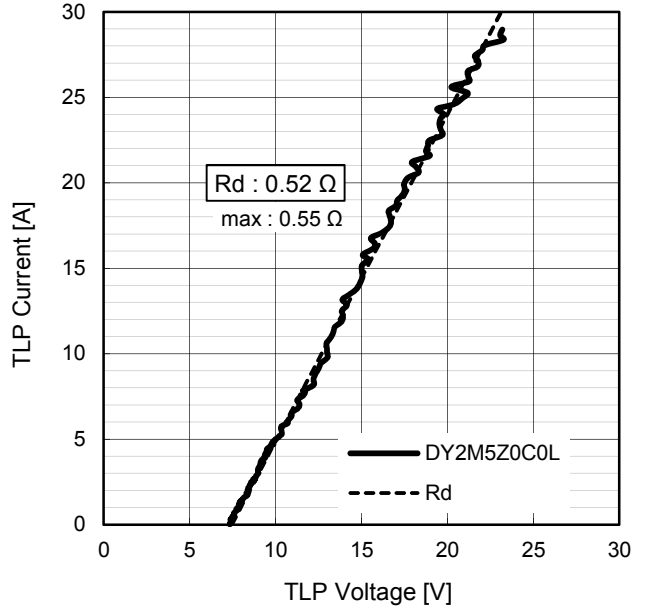
Typical Characteristics at Ta = 25°C, unless otherwise specified

Clamping Voltage<sup>\*1</sup>



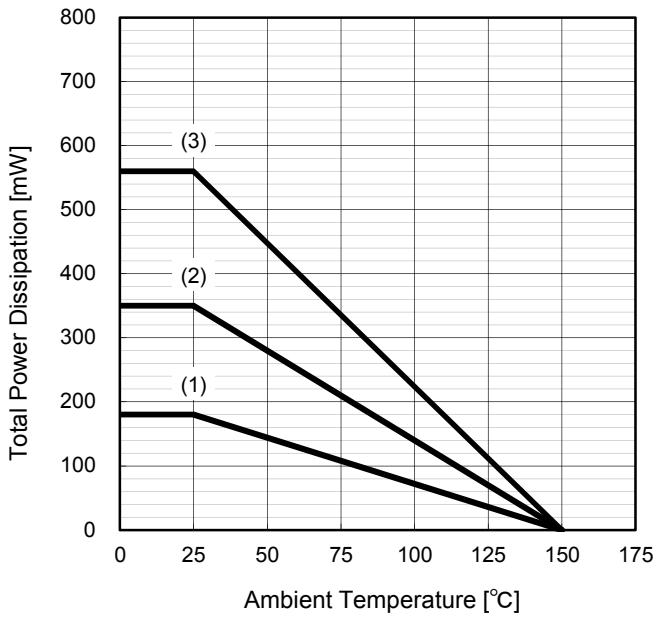
Note) \*1: Input : 8/20 μs pulse waveform

TLP Characteristic<sup>\*2</sup>



Note) \*2: Input Pulse : Tp = 100ns , tr = 0.2ns , average window t1 = 54.4ns , t2 = 94.4ns  
Extraction of Rd using least squares fit of TLP characteristic between Ipp = 10 A and Ipp = 25 A .  
Rd : Dynamic resistance

Total Power Dissipation

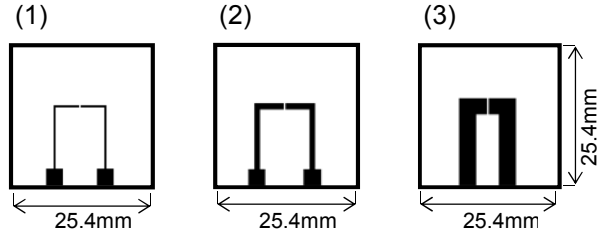


(Evaluation Board Condition<sup>3)</sup>)

	PCB Size PCB Thickness	Copper Wiring	
		Thickness	Area
(1)	25.4 mm × 25.4 mm 1 mm thick	36 μm thick	27.6 mm <sup>2</sup>
(2)			50.7 mm <sup>2</sup>
(3)			108.0 mm <sup>2</sup>

Note) \*3: FR4 PCB

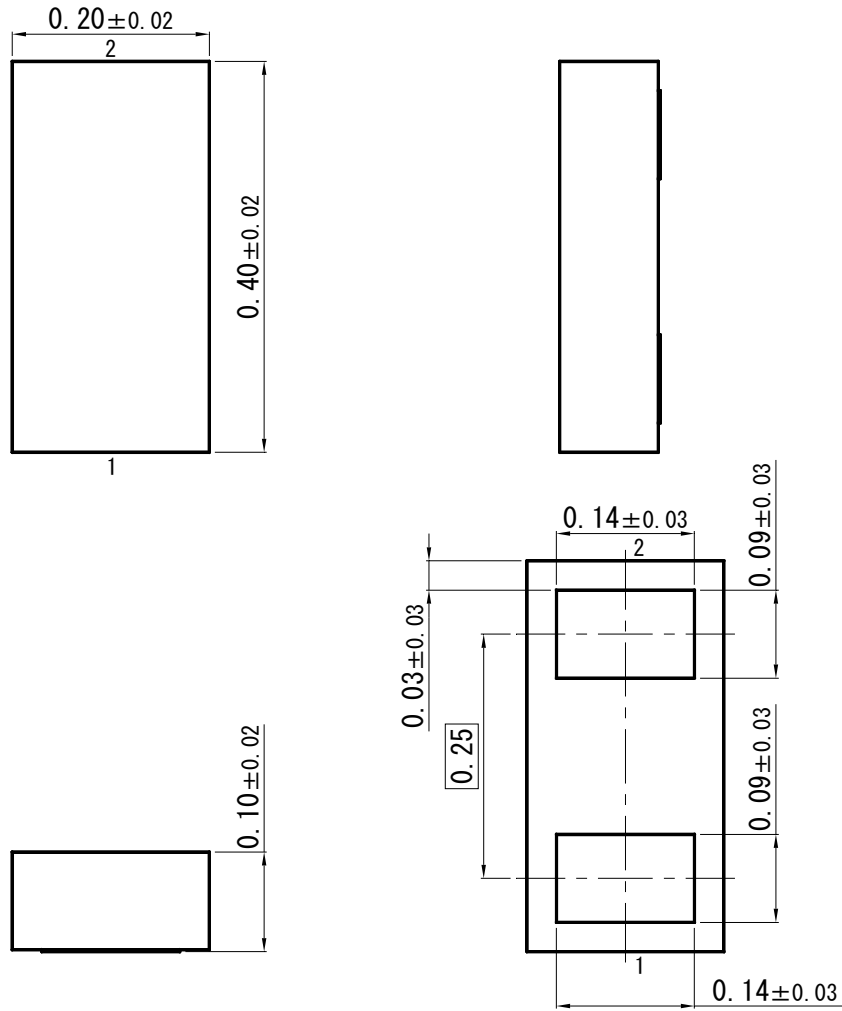
(Evaluation Board Outline)



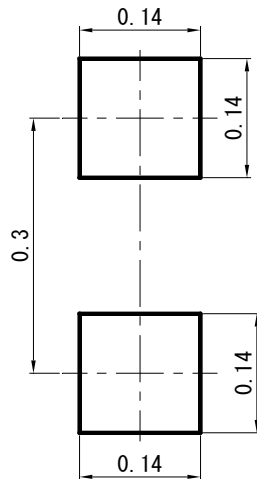


DCSP0402010-N2

Unit: mm



■ Land Pattern (Reference) (Unit: mm)



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