## / Descriptions

DFN0603 ESD

DFN0603 Plastic Package 1-Line,Bi-directional , ESD Protection Diode.

## / Features

Stand-off voltage: ±12V Max;

Transient protection for each line according to:

IEC61000-4-2(ESD): ±30kV (contact);

IEC61000-4-4 (EFT): 40A (5/50ns);

IEC61000-4-5(surge): 6A (8/20μs);

Ultra-low capacitance: CJ = 5pF typ;

Low leakage current;

Low clamping voltage: VCL =21.0V typ. @ IPP = 16A (TLP);

Solid-state silicon technology;

HF Product.

## / Applications

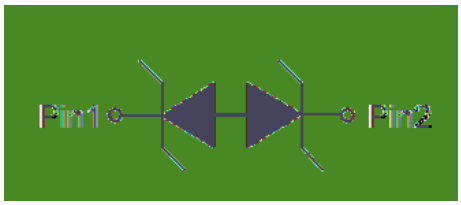
Computers and peripherals;

Audio and video equipment;

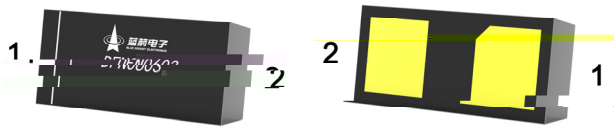
Communication systems;

Portable electronics.

## / Equivalent Circuit




## / Pinning




## / Marking

See Marking Instructions.

## / Absolute Maximum Ratings

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Peak Pulse Power($t_p$ = 8/20μs) | $P_{PK}$ | 120 | W |
| Peak Pulse Current($t_p$ = 8/20μs) | $I_{PP}$ | 6 | A |
| ESD according to IEC61000-4-2 air discharge | $V_{ESD}$ | 30 | KV |
| ESD according to IEC61000-4-2 contact discharge | | 30 | |
| Junction temperature | $T_J$ | 125 | |
| Operating temperature | $T_{OP}$ | -40~85 | |
| Lead temperature | $T_L$ | 260 | |
| Storage Temperature | $T_{STG}$ | -55~+150 | |

## / Electrical Characteristics(Ta=25 )




### Definitions of electrical characteristics

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Reverse maximum working voltage | $V_{RWM}$ | | | | 12 | V |
| Reverse leakage current | $I_R$ | $V_{RWM}$ = 12V | | | 100 | nA |
| Reverse breakdown voltage | $V_{BR}$ | $I_{BR}$=1mA | 13 | 14 | | V |
| Reverse holding voltage | $V_{HOLD}$ | $I_{HOLD}$=50mA | 13 | 14 | | V |
| Clamping voltage 1) | $V_{CL}$ | $I_{PP}$=16A $t_p$=100ns | | 21.0 | | V |
| Dynamic resistance 1) | $R_{DYN}$ | | | 0.35 | | Ω |
| Clamping voltage 2) | $V_{CL}$ | $V_{ESD}$= 8kV | | 21.0 | | V |
| Clamping voltage 3) | $V_{CL}$ | $I_{PP}$ = 1A $t_p$ = 8/20μs | | 14 | 16 | V |
| | | $I_{PP}$ = 6A $t_p$ = 8/20μs | | 18.5 | 20 | V |
| Junction Capacitance | $C_J$ | $V_R$ = 0V f = 1MHz | | 5 | 7 | pF |
| | $C_J$ | $V_R$ = 2.5V f = 1MHz | | 4 | 6 | pF |

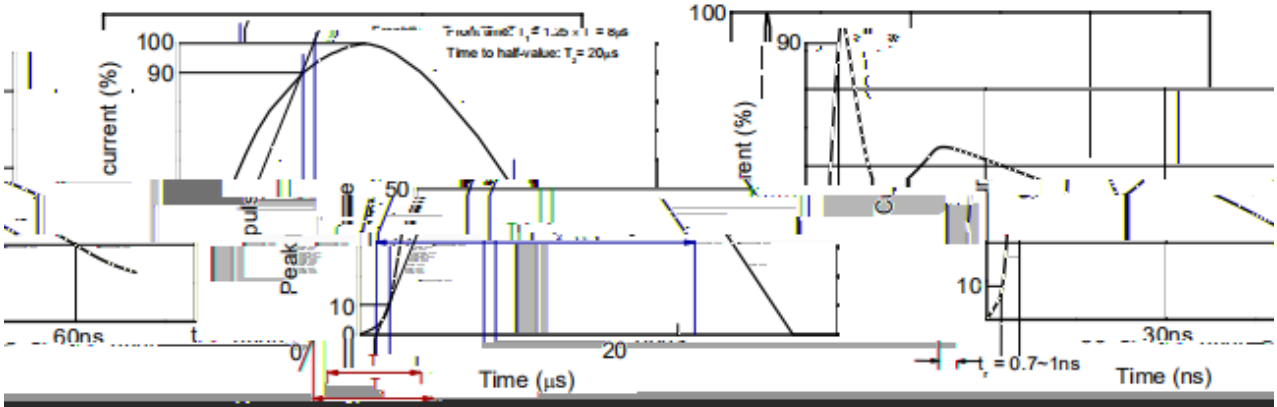
*Notes:*

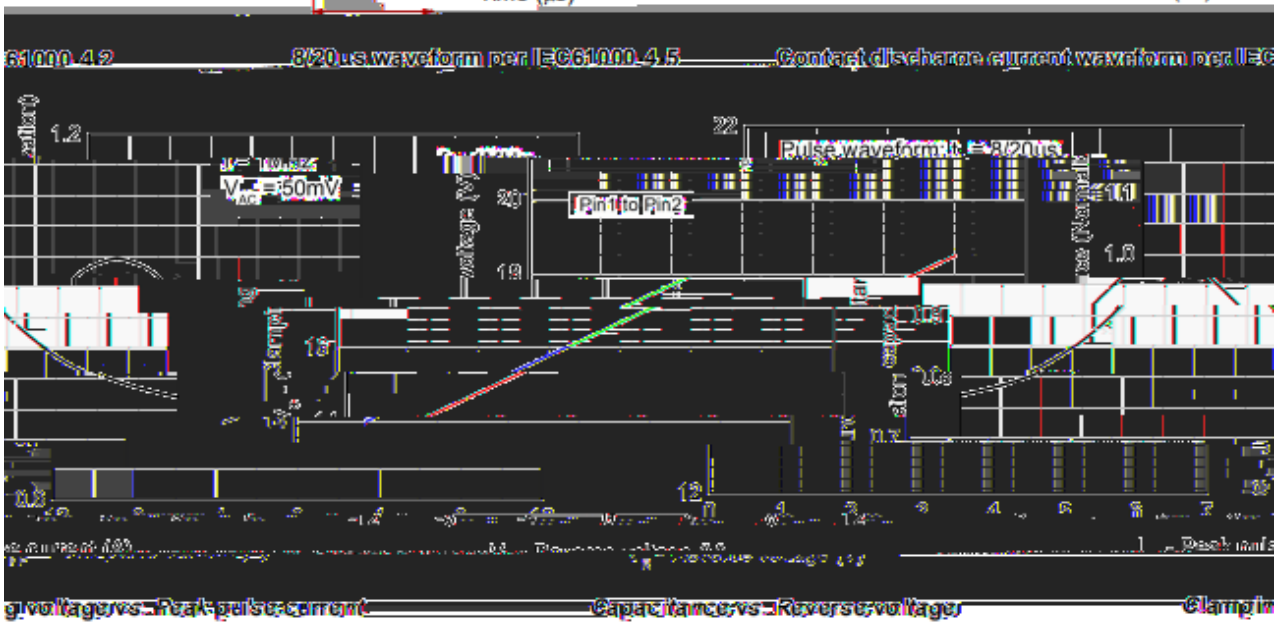
*1) TLP parameter: Z0 = 50Ω, tp = 100ns, tr = 2ns, averaging window from 60ns to 80ns. RDYN is calculated from 4A to 16A.*

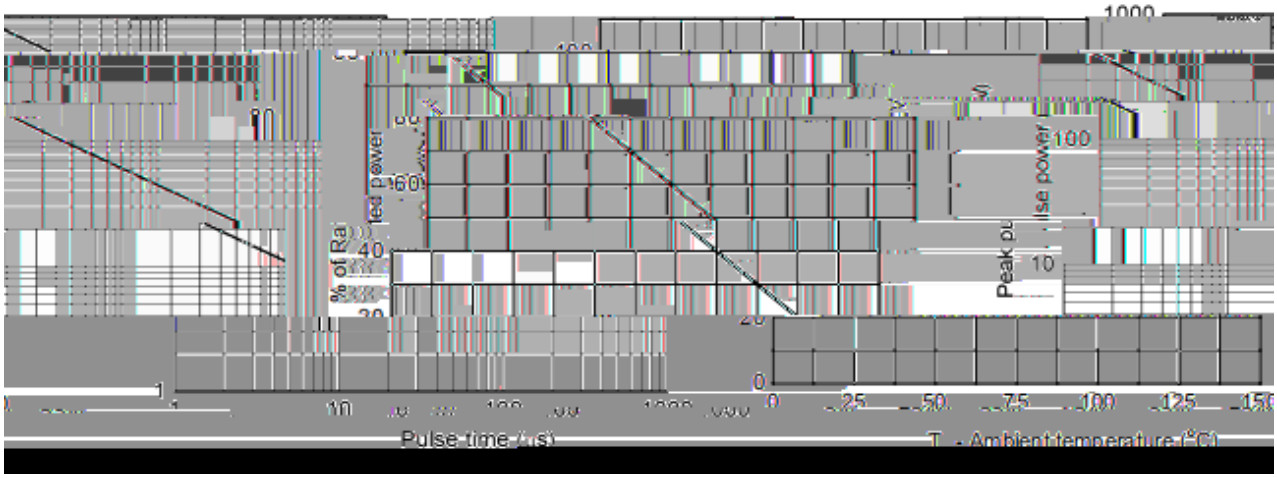
*2) Contact discharge mode, according to IEC61000-4-2.*

*3) Non-repetitive current pulse, according to IEC61000-4-5.*

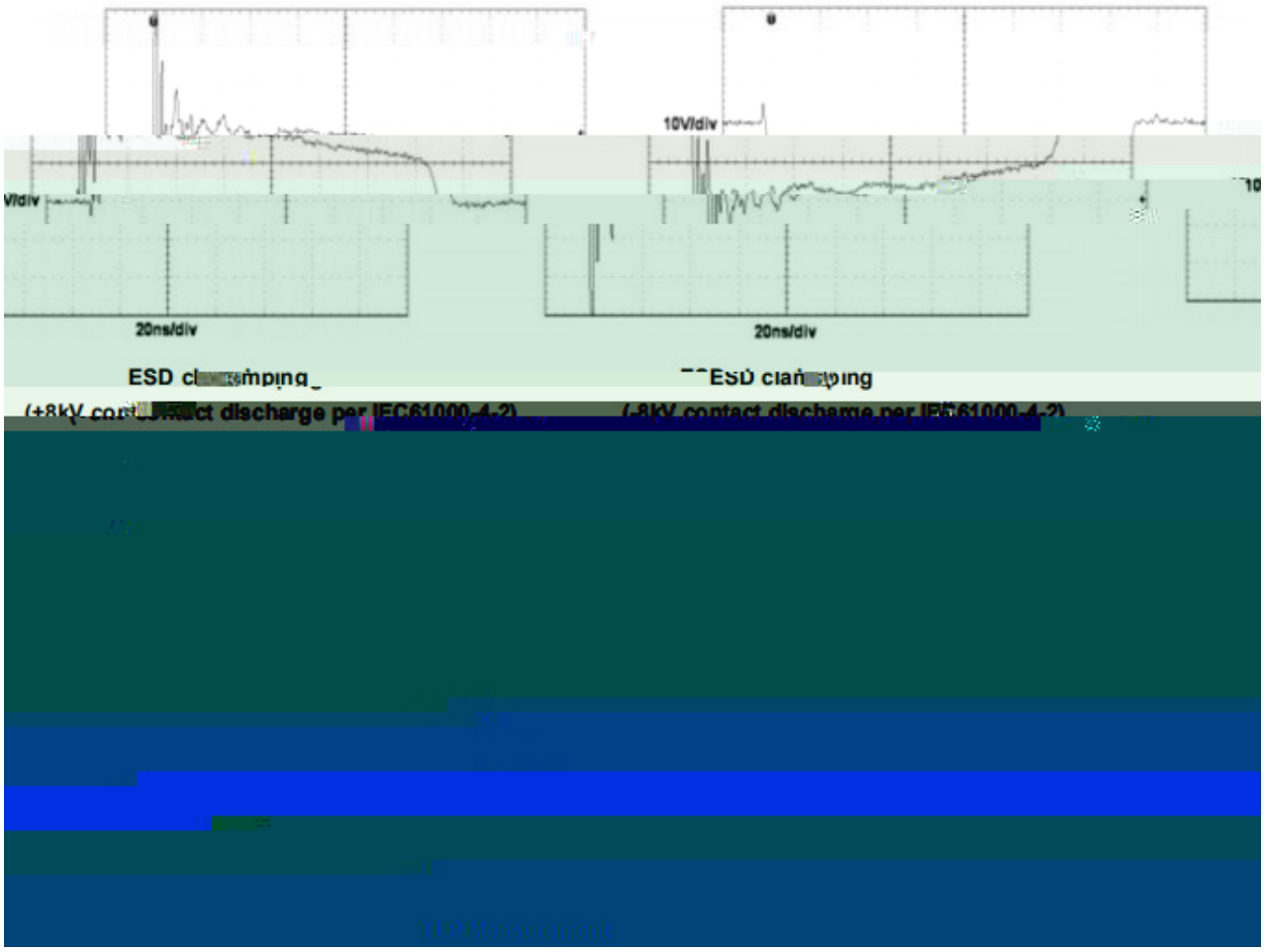
## / Electrical Characteristic Curve(Ta=25 )



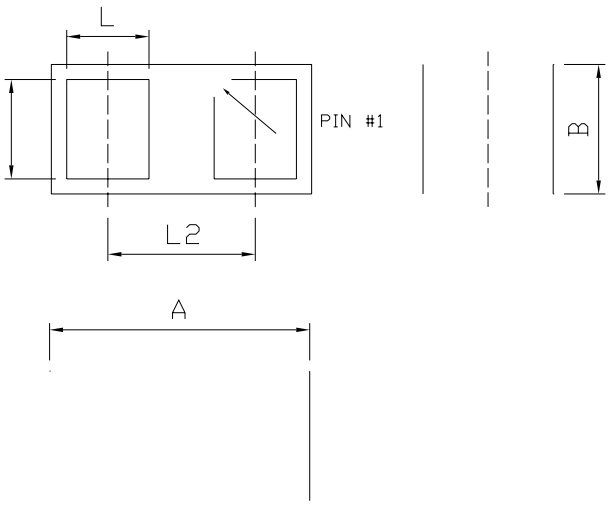



## / Electrical Characteristic Curve(Ta=25 )



## / Package Dimensions

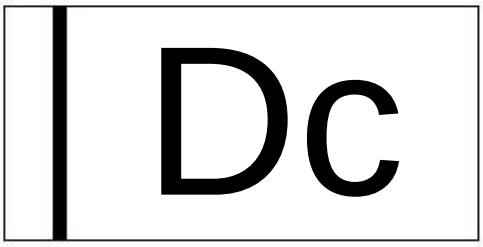
DFN0603 Unit:mm




| Dimensions In Millimeterer | | | |
|---|---|---|---|
| Symbol | MIN | TYP | MAX |
| A | 0.58 | 0.60 | 0.65 |
| B | 0.28 | 0.30 | 0.35 |
| C | 0.28 | 0.30 | 0.34 |
| L | 0.16 | 0.19 | 0.22 |
| L2 | - | 0.34 | - |
| l | 0.20 | 0.23 | 0.26 |

Rev.02 202102

## / Marking Instructions




Dc

Note

Dc Product Type

## ( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



| | | | | | |
|---|---|---|---|---|---|
| | | | | | Note: |
| 1 | 150 | 180 | | 60 90sec; | 1.Preheating:150~180 , Time:60~90sec. |
| 2 | 245±5 | | | 5±0.5sec; | 2.Peak Temp.:245±5 , Duration:5±0.5sec. |
| 3 | | | 2 10 | /sec. | 3. Cooling Speed: 2~10 /sec. |

## / Resistance to Soldering Heat Test Conditions

| | | | |
|---|---|---|---|
| 260±5 | 10±1 sec. | Temp.:260±5 | Time:10±1 sec |

## / Packaging SPEC.

/ REEL

| Package Type 封装形式 | Units 包装数量 | | | | | Dimension 包装尺寸 (unit: $mm^3$) | | |
|---|---|---|---|---|---|---|---|---|
| | Units/Reel 只/卷盘 | Reels/Inner Box 卷盘/盒 | Units/Inner Box 只/盒 | Inner Boxes/Outer Box 盒/箱 | Units/Outer Box 只/箱 | Reel | Inner Box 盒 | Outer Box 箱 |
| DFN0603 | 10,000 | | | | | | | |