

BRES12VP1B2ZA

Rev.B Jul.-2022

/ Descriptions

DFN0603

ESD

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

/ Features

Stand-off voltage: $\pm 12V$ Max;

Transient protection for each line according to:

IEC61000-4-2(ESD): $\pm 30kV$ (contact);

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

IEC61000-4-5(surge): 6A (8/20 μs);

Ultra-low capacitance: $C_J = 5pF$ typ;

Low leakage current;

Low clamping voltage: $V_{CL} = 21.0V$ typ. @ $I_{PP} = 16A$ (TLP);

Solid-state silicon technology;

HF Product.

/ Applications

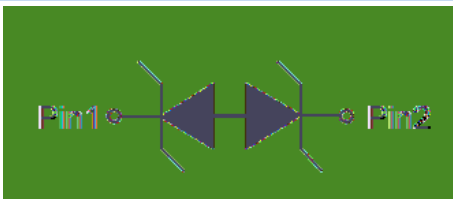
Computers and peripherals;

Audio and video equipment;

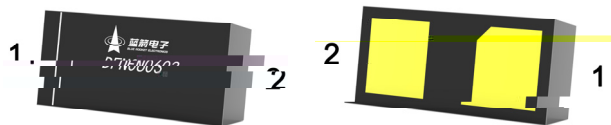
Communication systems;

Portable electronics.

/ Equivalent Circuit



/ Pinning



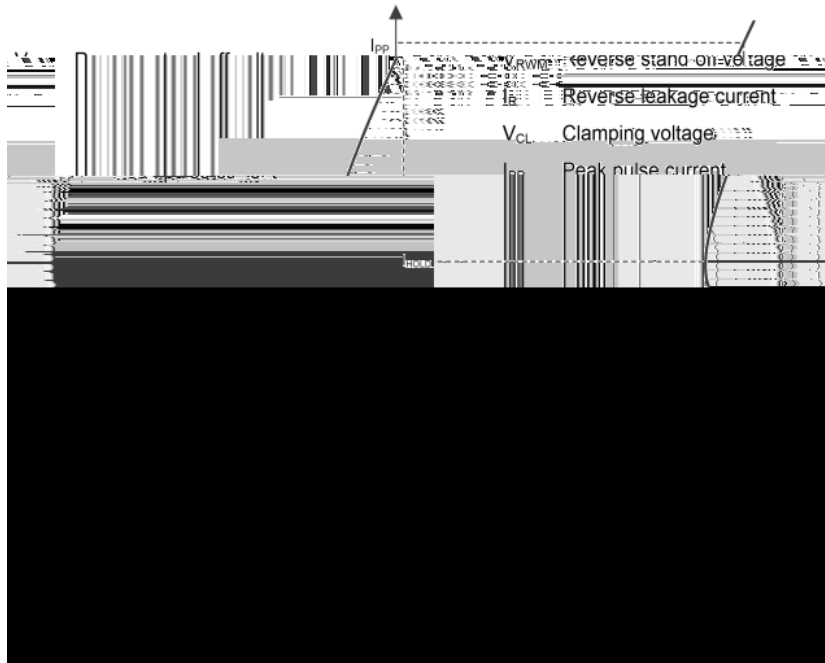
/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Peak Pulse Power($t_p = 8/20\mu s$)	P_{PK}	120	W
Peak Pulse Current($t_p = 8/20\mu s$)	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}	$I_{PP}=16A \quad t_p=100ns$		21.0		V
Dynamic resistance ¹⁾	R_{DYN}			0.35		
Clamping voltage ²⁾	V_{CL}	$V_{ESD}= 8kV$		21.0		V
Clamping voltage ³⁾	V_{CL}	$I_{PP} = 1A \quad t_p = 8/20\mu s$		14	16	V
		$I_{PP} = 6A \quad t_p = 8/20\mu s$		18.5	20	V
Junction Capacitance	C_J	$V_R = 0V \quad f = 1MHz$		5	7	pF
	C_J	$V_R = 2.5V \quad f = 1MHz$		4	6	pF

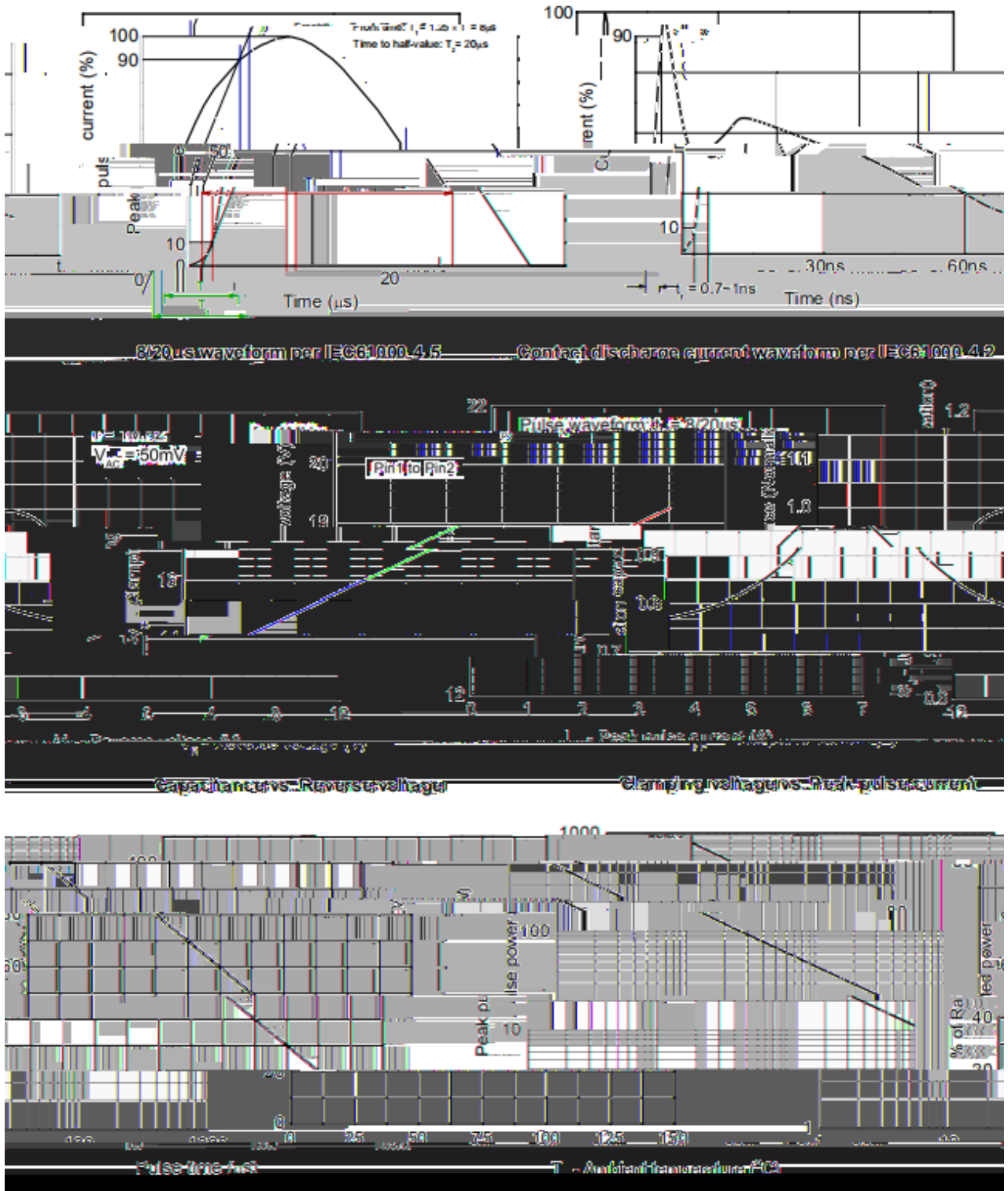
Notes:

1) TLP parameter: $Z_0 = 50 \Omega$, $t_p = 100ns$, $t_r = 2ns$, averaging window from 60ns to 80ns. R_{DYN} is calculated from 4A to 16A.

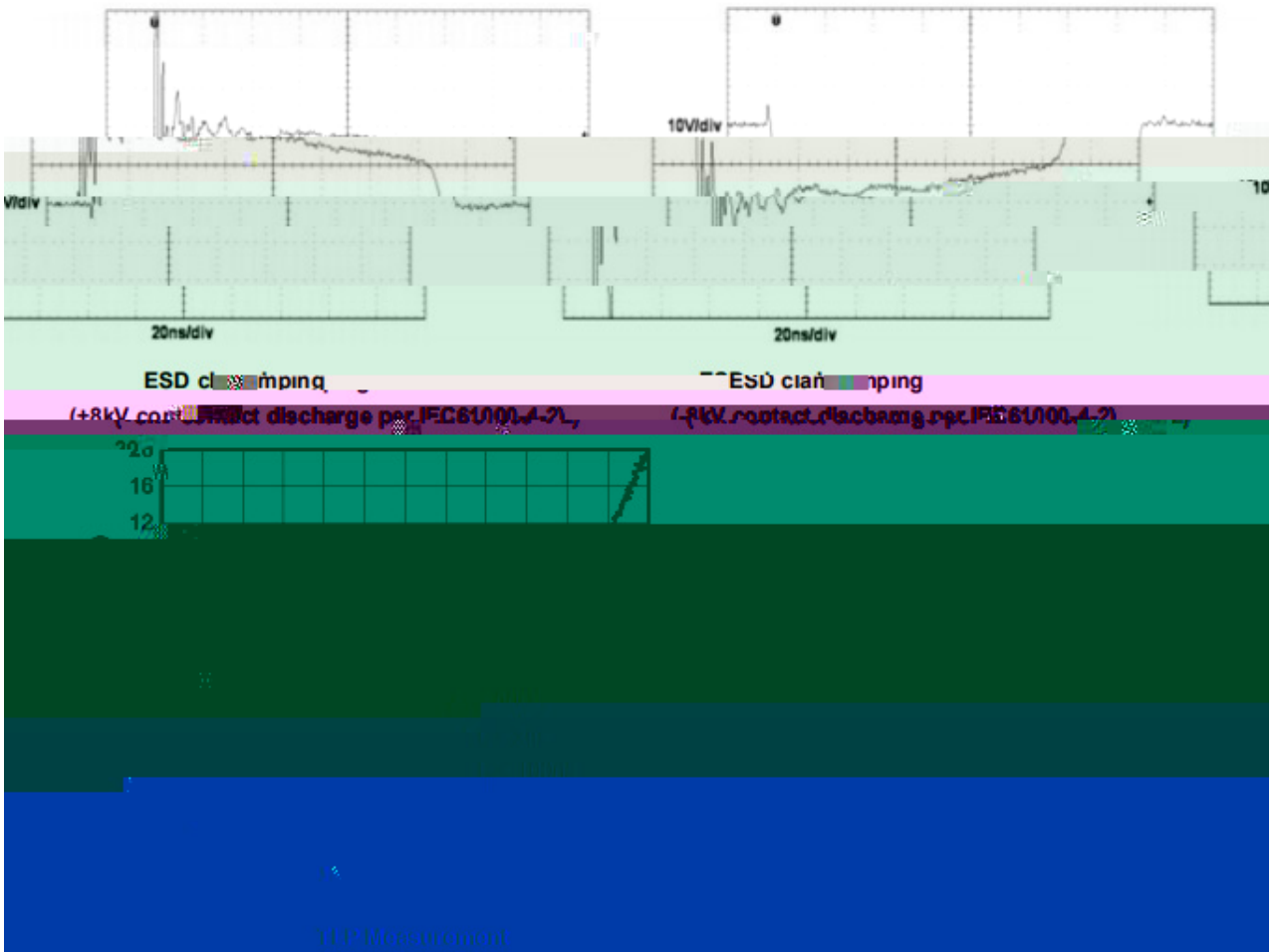
2) Contact discharge mode, according to IEC61000-4-2.

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

/ Electrical Characteristic Curve(Ta=25)



/ Electrical Characteristic Curve(Ta=25)



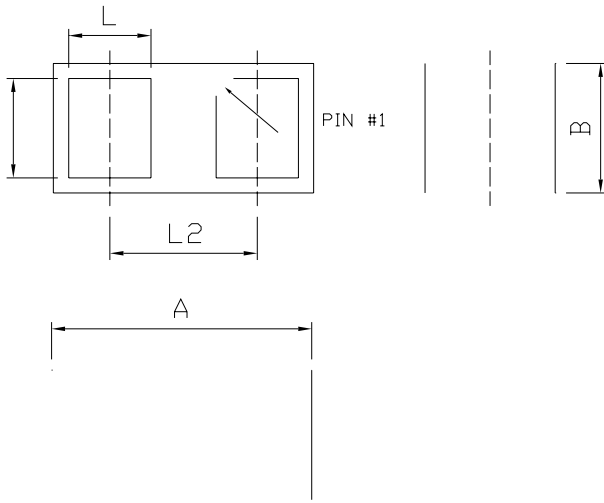
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/ Package Dimensions

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

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/ 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							