

# BRES5V0L1B2ZA

Rev.C Oct.-2023

## 描述 / Descriptions

DFN0603 塑封封装单线程双向 ESD 保护二极管。

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

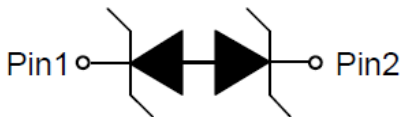
## 特征 / Features

- ◆ Stand-off voltage:  $\pm 5V$  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): 8A (8/20 $\mu s$ ).
- ◆ Ultra-low capacitance:  $C_J = 10pF$  typ.
- ◆ Low leakage current.
- ◆ Low clamping voltage:  $V_{CL} = 10.0V$  typ. @  $I_{PP} = 16A$  (TLP).
- ◆ Solid-state silicon technology.
- ◆ HF Product.

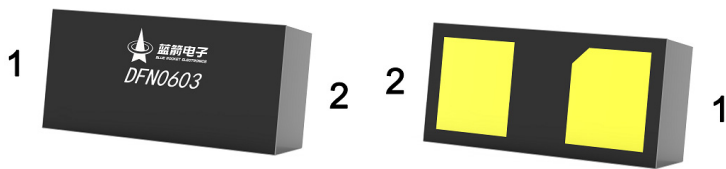
## 用途 / Applications

- ◆ Cellular handsets.
- ◆ Tablets.
- ◆ Laptops.
- ◆ Other portable devices.
- ◆ Network communication devices.

## 内部等效电路 / Equivalent Circuit



## 引脚排列 / Pinning



## 印章代码 / Marking

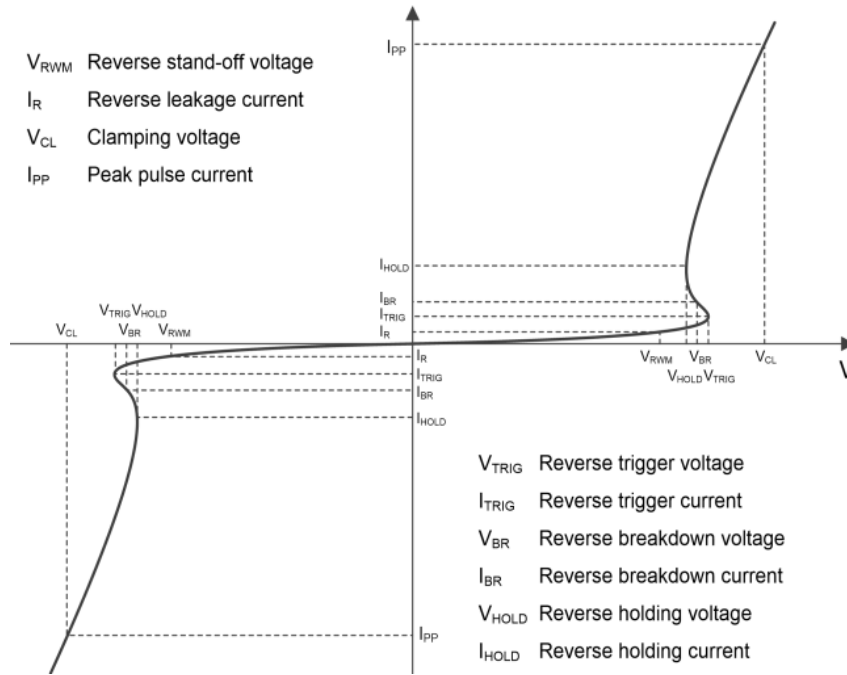
见印章说明。

See Marking Instructions.

**极限参数 / Absolute Maximum Ratings**

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Peak Pulse Power( $t_p = 8/20\mu s$ )	$P_{PK}$	35	W
Peak Pulse Current( $t_p = 8/20\mu s$ )	IPP	8	A
ESD according to IEC61000-4-2 air discharge	$V_{ESD}$	$\pm 30$	KV
ESD according to IEC61000-4-2 contact discharge		$\pm 30$	
Junction temperature	$T_J$	125	$^{\circ}C$
Operating temperature	$T_{OP}$	-40~85	$^{\circ}C$
Lead temperature	$T_L$	260	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55~+150	$^{\circ}C$

电性能参数 / Electrical Characteristics(Ta=25°C)



Definitions of electrical characteristics

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Reverse maximum working voltage	$V_{RWM}$				±5.0	V
Reverse leakage current	$I_R$	$V_{RWM} = 5.0V$			100	nA
Reverse breakdown voltage	$V_{BR}$	$I_{BR}=1mA$	5.3	6		V
Reverse holding voltage	$V_{HOLD}$	$I_{HOLD}=50mA$	5.3	6		V
Clamping voltage <sup>1)</sup>	$V_{CL}$	$I_{PP}=16A$ $t_p=100ns$		10.0		V
Dynamic resistance <sup>1)</sup>	$R_{DYN}$			0.2		Ω
Clamping voltage <sup>2)</sup>	$V_{CL}$	$VESD= 8kV$		10.0		V
Clamping voltage <sup>3)</sup>	$V_{CL}$	$I_{PP} = 1A$ $t_p = 8/20\mu s$			8	V
		$I_{PP} = 8A$ $t_p = 8/20\mu s$			12	V
Junction Capacitance	$C_J$	$V_R = 0V$ $f = 1MHz$		10	13	pF
	$C_J$	$V_R = 2.5V$ $f = 1MHz$		8	11	pF

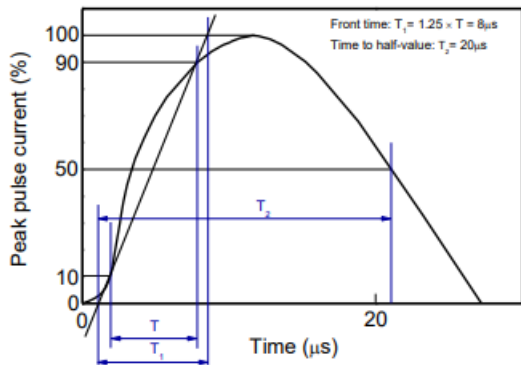
Notes:

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.

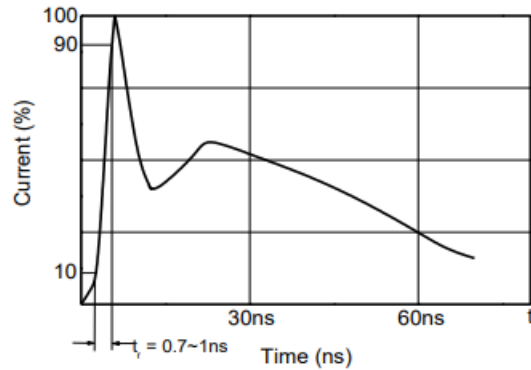
2) Contact discharge mode, according to IEC61000-4-2.

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

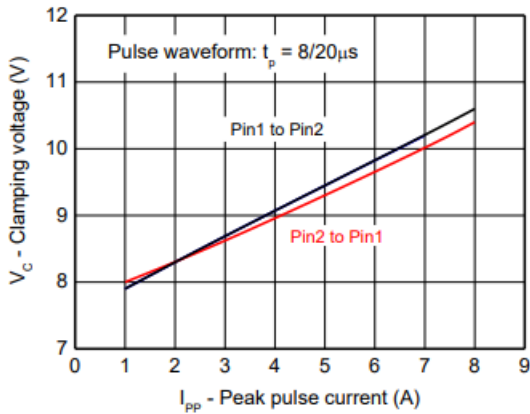
电参数曲线图 / Electrical Characteristic Curve(Ta=25°C)



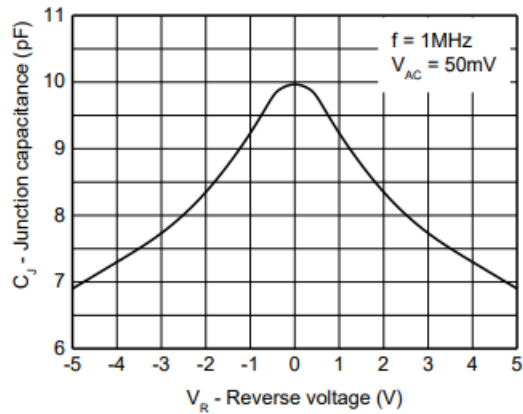
8/20μs waveform per IEC61000-4-5



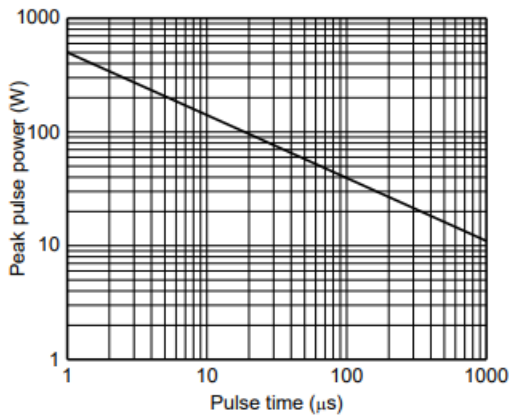
Contact discharge current waveform per IEC61000-4-2



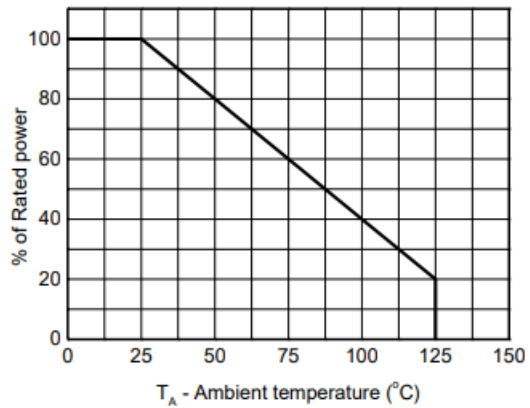
Clamping voltage vs. Peak pulse current



Capacitance vs. Reverse voltage

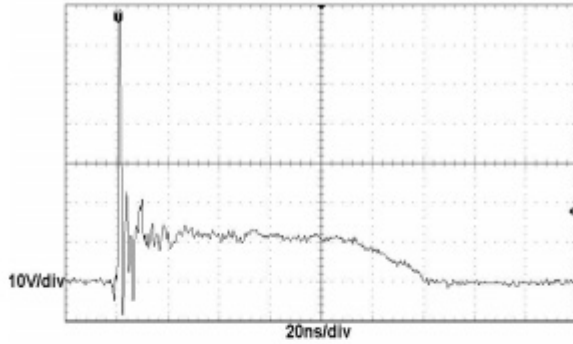


Non-repetitive peak pulse power vs. Pulse time

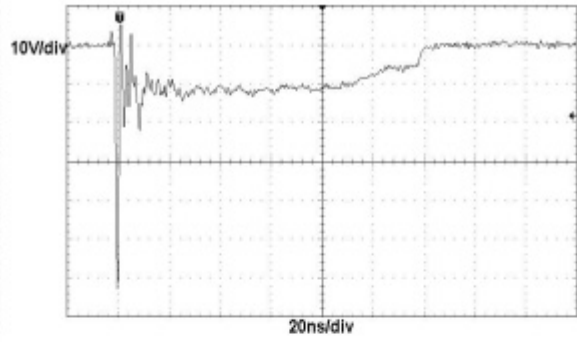


Power derating vs. Ambient temperature

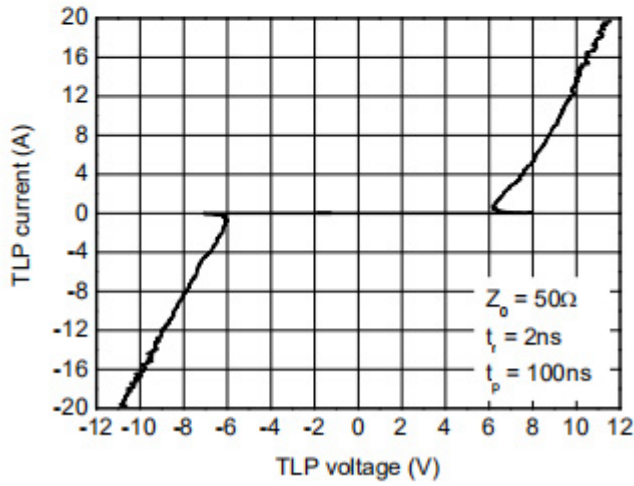
电参数曲线图 / Electrical Characteristic Curve(Ta=25°C)



ESD clamping  
(+8kV contact discharge per IEC61000-4-2)



ESD clamping  
(-8kV contact discharge per IEC61000-4-2)

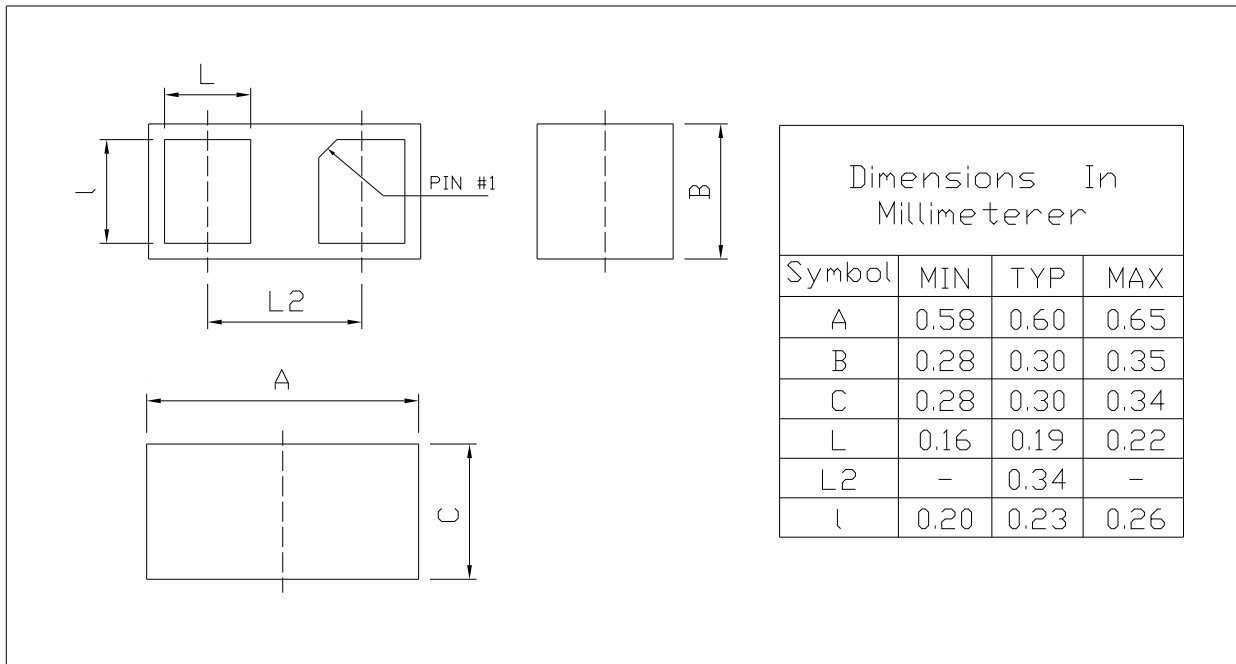


TLP Measurement

**外形尺寸图 / Package Dimensions**

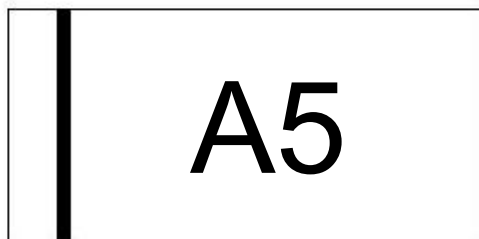
DFN0603

Unit:mm



Rev.02 202102

**印章说明 / Marking Instructions**



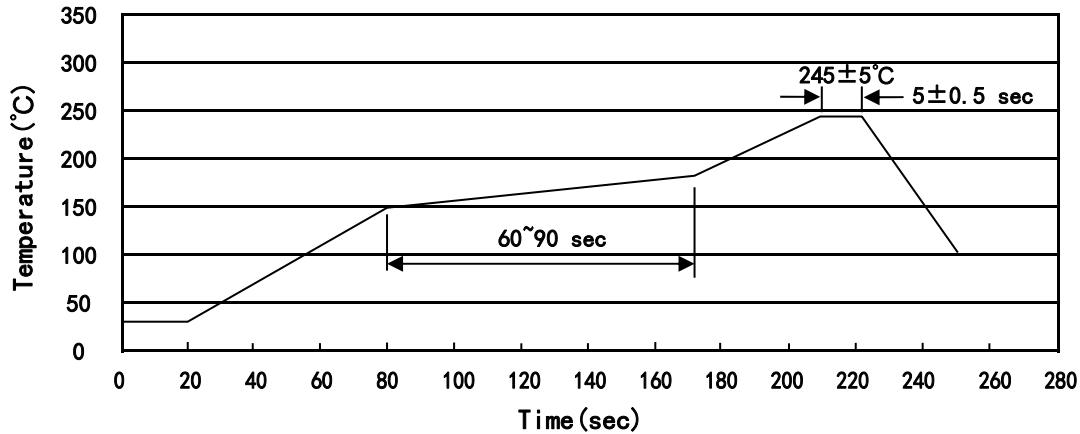
说明：

A5： 为型号代码

Note：

A5： Product Type Code

回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)



说明：

- 1、预热温度 150~180°C，时间 60~90sec;
- 2、峰值温度 245±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2~10°C/sec.

Note:

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

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：260±5°C

时间：10±1 sec.

Temp.:260±5°C

Time:10±1 sec

包装规格 / Packaging SPEC.

卷盘包装 / REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	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	15,000	10	150,000	4	600,000	7" ×8	210×205×205	445×435×230

使用说明 / Notices