

BRESD5V0M1B2ZA

Rev.A Aug.-2024

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.

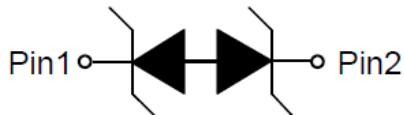
特征 / Features

- ◆ Stand-off voltage: $\pm 5V$ Max.
- ◆ Transient protection for each line according to
 - IEC61000-4-2(ESD): $\pm 30kV$ (contact)
 - IEC61000-4-4 (EFT): 80A (5/50ns)
 - IEC61000-4-5(surge): 20A (8/20 μs)
- ◆ Ultra-low capacitance: $C_J = 35pF$ typ.
- ◆ Low leakage current:
- ◆ Low clamping voltage: $V_{CL} = 7.8V$ typ. @ $I_{PP} = 16A$ (TLP)
- ◆ Solid-state silicon technology
- ◆ HF Product

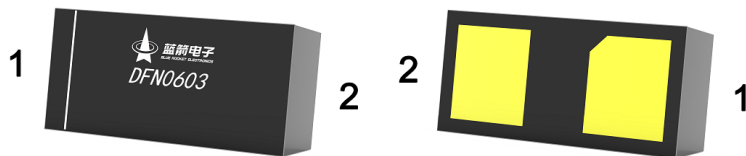
用途 / Applications

- ◆ Battery Line Protection
- ◆ Audio Line Protection
- ◆ Microphone Line Protection
- ◆ GPIO Protection

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.

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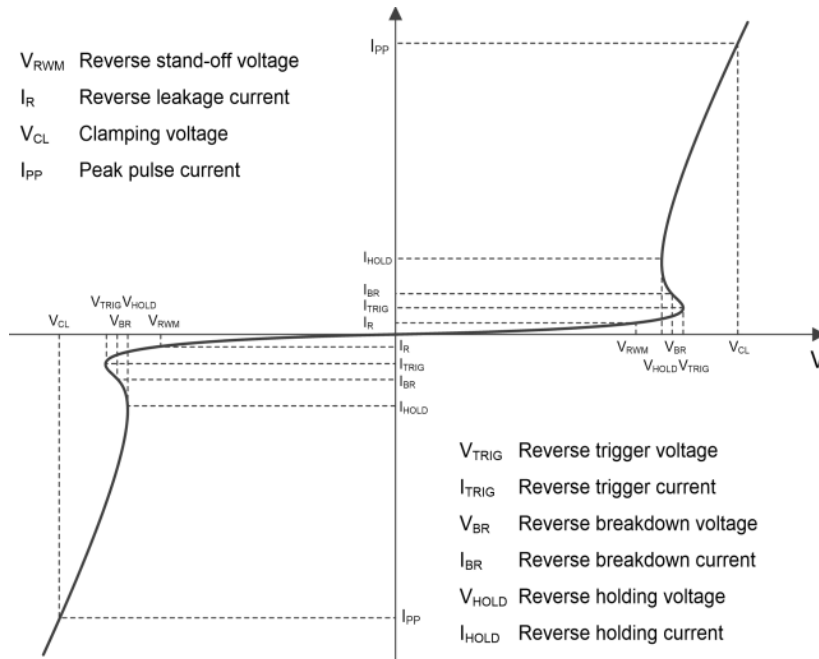


DATA SHEET

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}	230	W
Peak Pulse Current($t_p = 8/20\mu s$)	I_{PP}	20	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	$^{\circ}C$
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}	$I_{BR}=1mA$	5.1			V
Reverse holding voltage	V_{HOLD}	$I_{HOLD}=50mA$	5.1			V
Clamping voltage ¹⁾	V_{CL}	$I_{PP}=16A$ $t_p=100ns$		7.8		V
Dynamic resistance ¹⁾	R_{DYN}			0.1		Ω
Clamping voltage ²⁾	V_{CL}	$V_{ESD}= 8kV$		8.0		V
Clamping voltage ³⁾	V_{CL}	$I_{PP} = 1A$ $t_p = 8/20\mu s$		6.2	8	V
		$I_{PP} = 20A$ $t_p = 8/20\mu s$		9.5	11.5	V
Junction Capacitance	C_J	$V_R = 0V$ $f = 1MHz$		35	45	pF
	C_J	$V_R = 5V$ $f = 1MHz$		25	35	pF

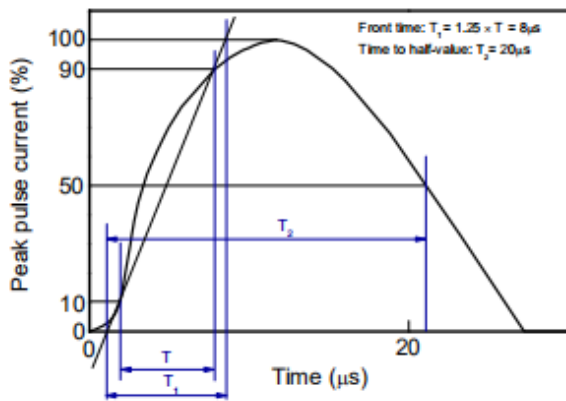
Notes:

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.

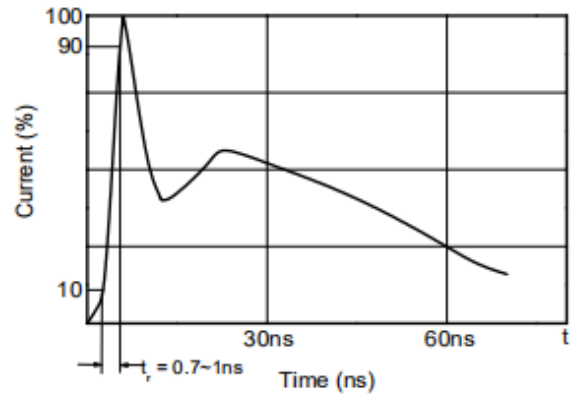
2) Contact discharge mode, according to IEC61000-4-2.

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

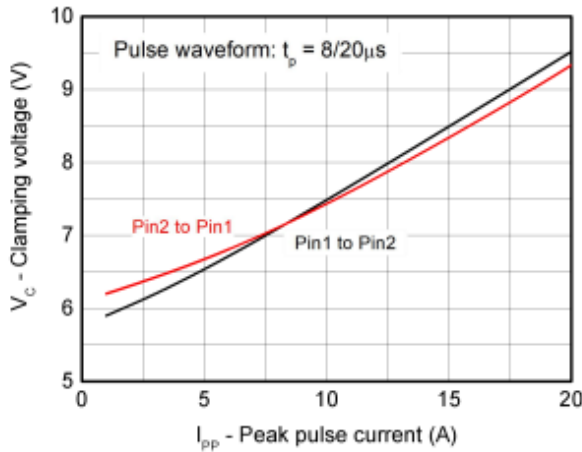
电参数曲线图 / Electrical Characteristic Curve(Ta=25°C)



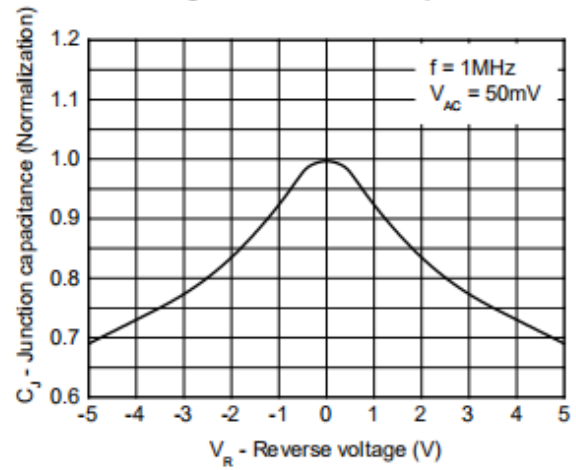
8/20μs waveform per IEC61000-4-5



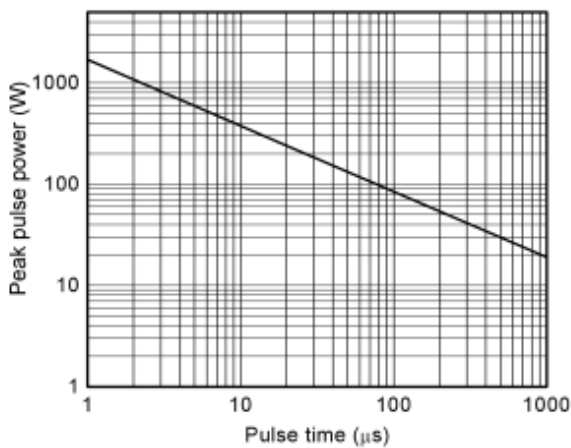
Contact discharge current waveform per IEC61000-4-2



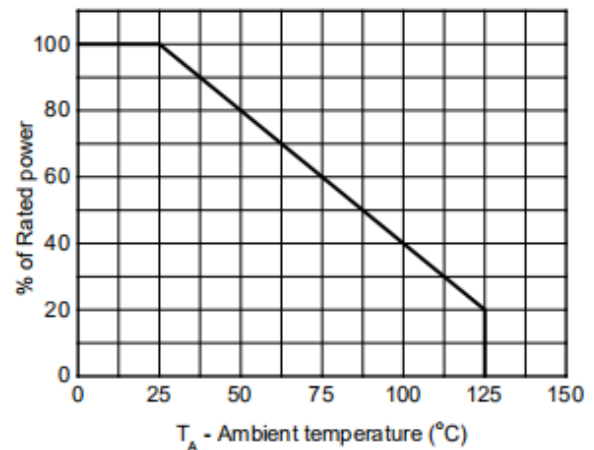
Clamping voltage vs. Peak pulse current



Capacitance vs. Reverse voltage

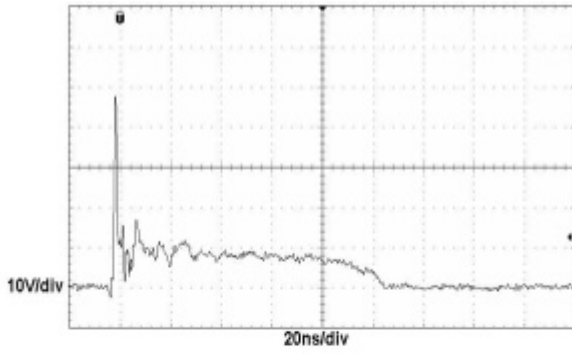


Non-repetitive peak pulse power vs. Pulse time

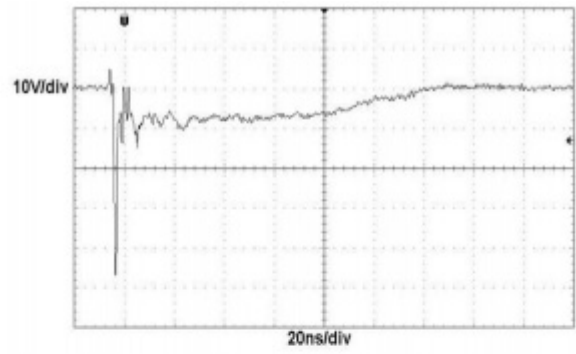


Power derating vs. Ambient temperature

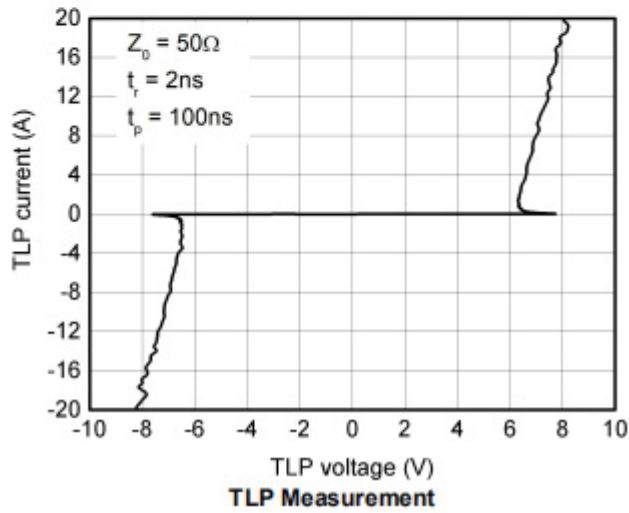
电参数曲线图 / Electrical Characteristic Curve(Ta=25°C)



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



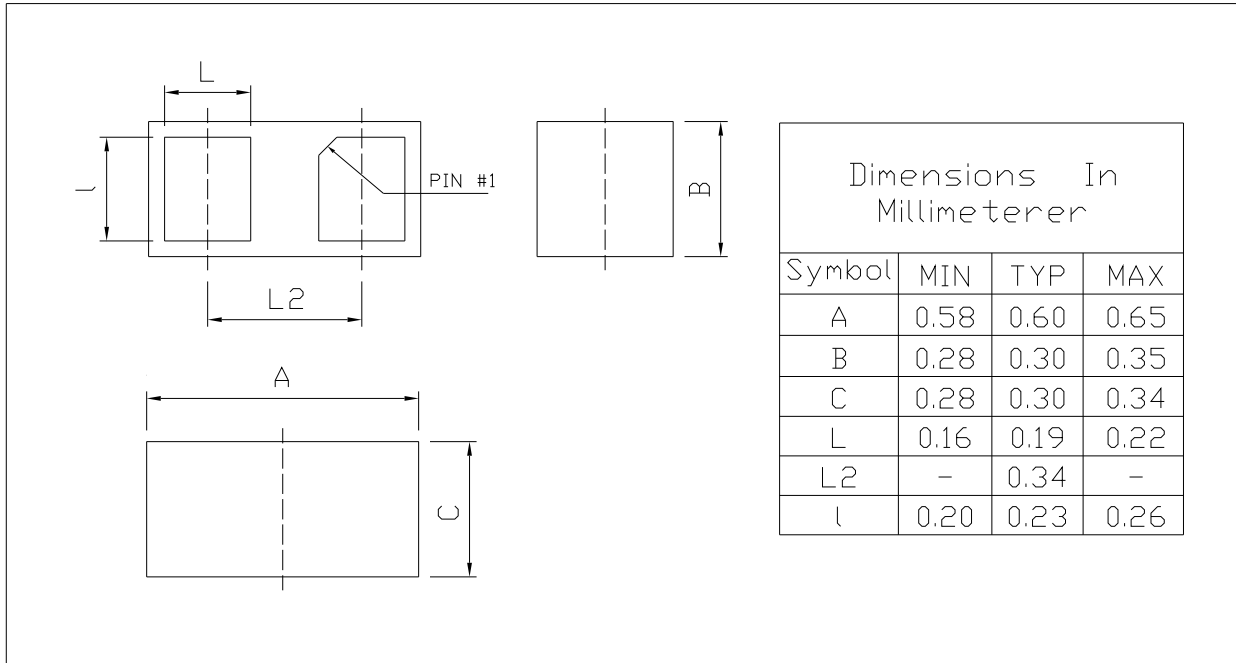
ESD clamping
(-8kV contact discharge per IEC61000-4-2)



外形尺寸图 / Package Dimensions

DFN0603

Unit:mm



Rev.02 202102

印章说明 / Marking Instructions



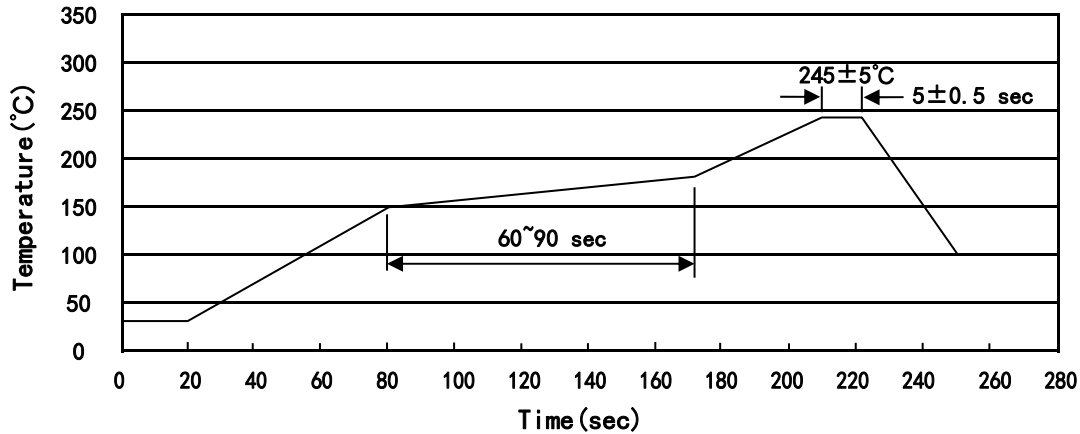
说明：

5B： 为型号代码

Note：

5B： 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 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	15,000	10	150,000	4	600,000	7" ×8	210×205×205	445×435×230

使用说明 / Notices