

BRESD3V3X1C2ZA

Rev.B Oct.-2021

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.

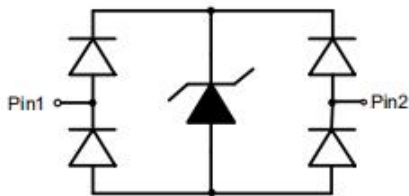
特征 / Features

- ◆ Stand-off voltage: 5V Max.
- ◆ Transient protection for each line according to IEC61000-4-2(ESD): $\pm 15\text{kV}$ (contact)
IEC61000-4-5(surge): 4A (8/20 μs)
- ◆ Ultra-low capacitance: $C_J = 0.4\text{pF}$ typ.
- ◆ Ultra-low leakage current: $I_R < 1\text{nA}$ typ.
- ◆ Low clamping voltage: $V_{CL} = 8.0\text{V}$ typ. @ $I_{PP} = 16\text{A}$ (TLP)
- ◆ Solid-state silicon technology
- ◆ HF Product

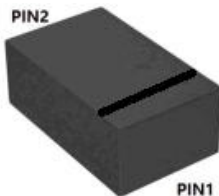
用途 / Applications

- ◆ USB 2.0 and USB 3.0
- ◆ HDMI 1.3, HDMI 1.4 and HDMI 2.0
- ◆ SATA and eSATA interface
- ◆ DVI
- ◆ IEEE 1394
- ◆ Portable Electronics and Notebooks

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



放大及印章代码 / h_{FE} Classifications & Marking

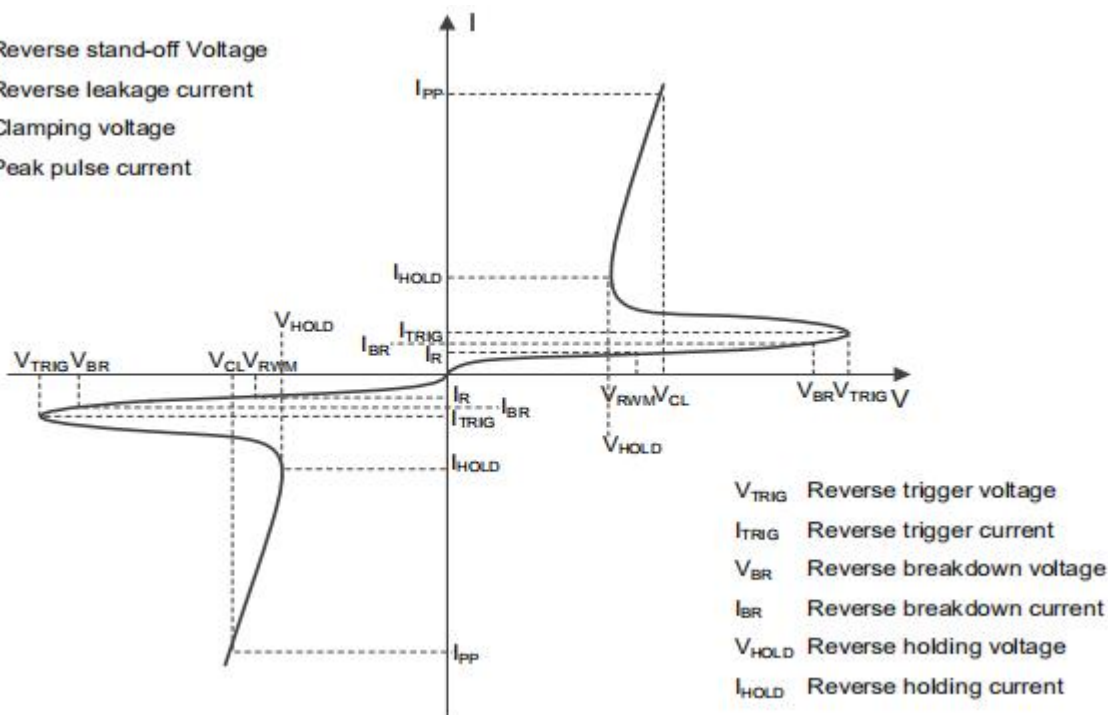
见印章说明。 See Marking Instructions.


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}	34	W
Peak Pulse Current($t_p = 8/20\mu s$)	I_{PP}	4	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	± 15	KV
ESD according to IEC61000-4-2 contact discharge		± 15	
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)

V_{RWM} Reverse stand-off Voltage
 I_R Reverse leakage current
 V_{CL} Clamping voltage
 I_{PP} Peak pulse current



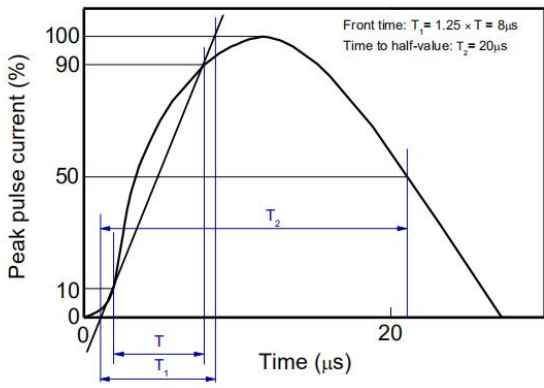
Definitions of electrical characteristics

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}				3.3	V
Reverse leakage current	I_R	$V_{RWM} = 3.3V$		<1	50	nA
Reverse breakdown voltage	V_{BR}	$I_T = 1mA$	7.0	10.0		V
Clamping voltage ¹⁾	V_{CL}	$I_{PP} = 16A$ $t_p = 100ns$		8		V
Dynamic resistance ¹⁾	R_{DYN}			0.25		Ω
Clamping voltage ²⁾	V_{CL}	$V_{ESD} = 8kV$		8.0		V
Clamping voltage ³⁾	V_{CL}	$I_{PP} = 1A$ $t_p = 8/20\mu s$		4.5	5.5	V
		$I_{PP} = 4A$ $t_p = 8/20\mu s$		7	8.5	V
Junction Capacitance	C_J	$V_R = 0V$ $f = 1MHz$		0.4	0.55	pF

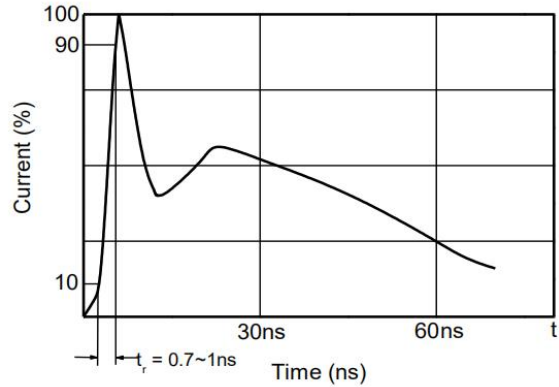
Notes:

- 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.

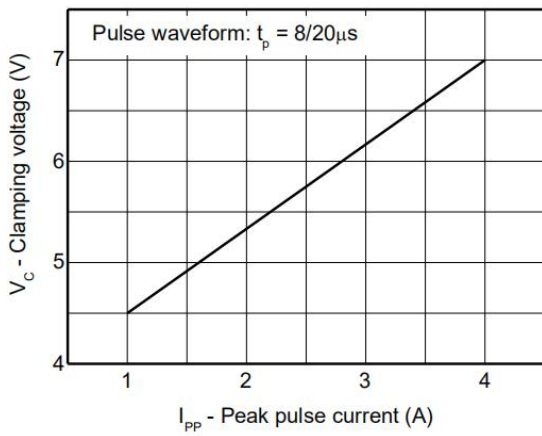
电参数曲线图 / Electrical Characteristic Curve(Ta=25°C)



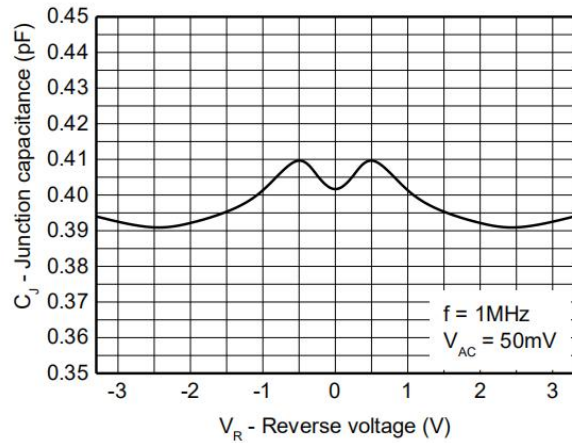
8/20 μs waveform per IEC61000-4-5



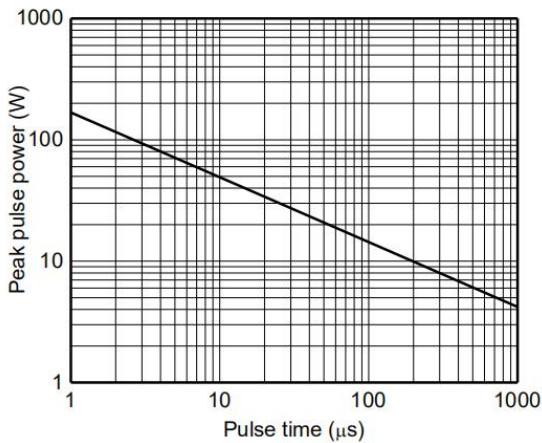
Contact discharge current waveform per IEC61000-4-2



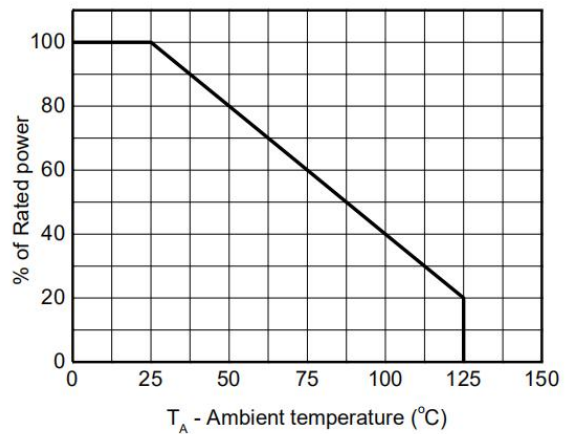
Clamping voltage vs. Peak pulse current



Capacitance vs. Reverse voltage

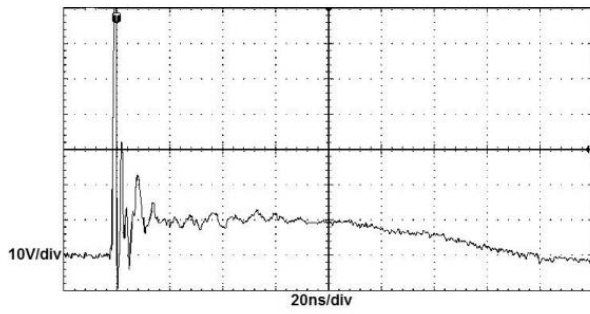


Non-repetitive peak pulse power vs. Pulse time

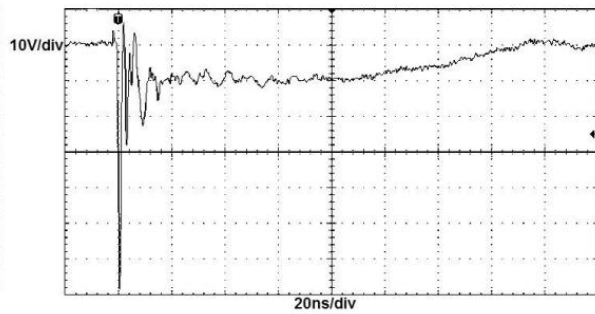


Power derating vs. Ambient temperature

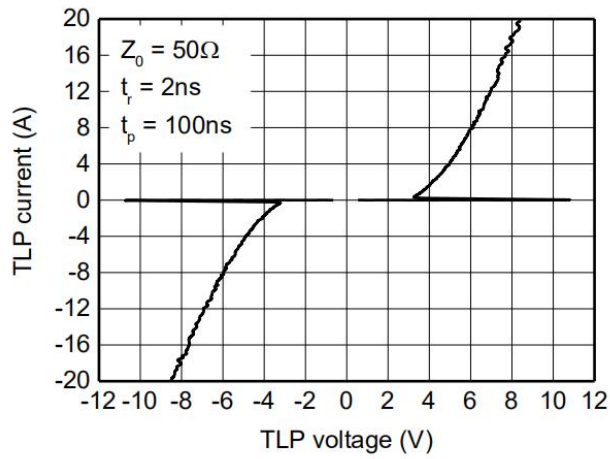
电参数曲线图 / Electrical Characteristic Curve(Ta=25°C)



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



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

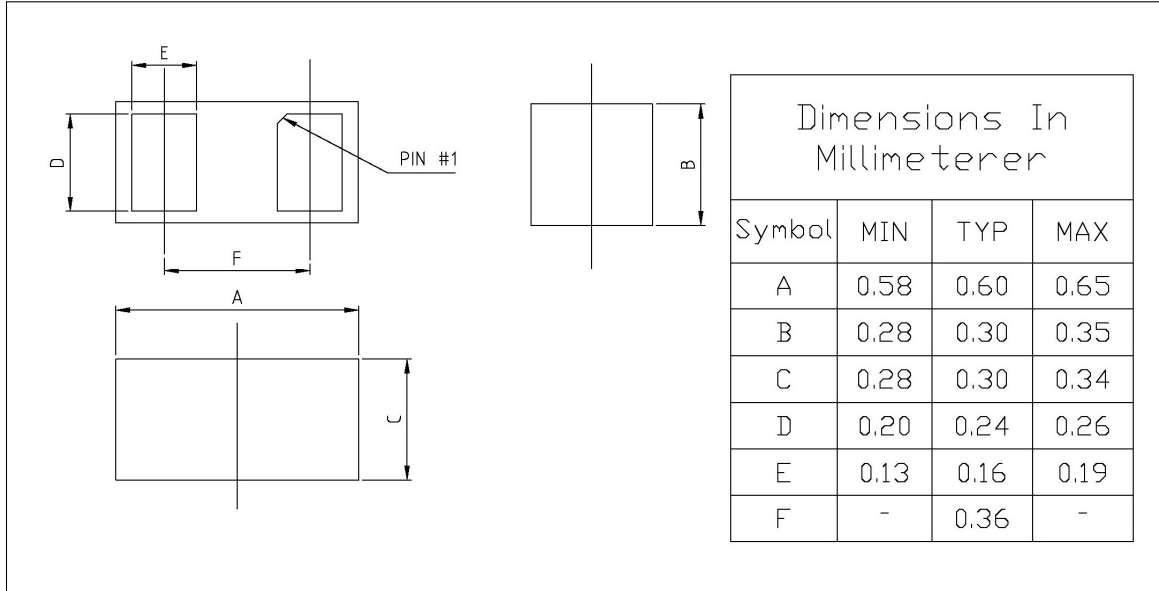


TLP Measurement

外形尺寸图 / Package Dimensions

DFN0603-2L

Unit:mm



印章说明 / Marking Instructions



说明：

U3： 为型号代码

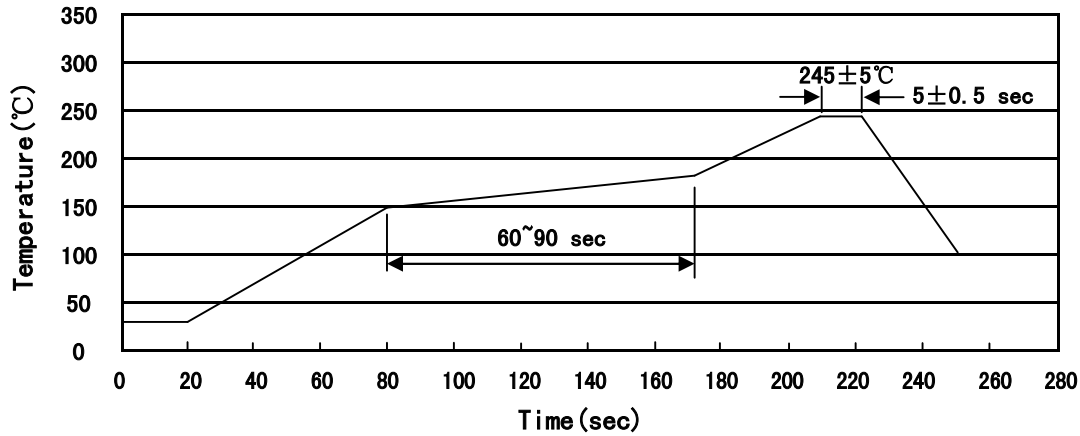
*： 为生产批号代码，随生产批号变化

Note：

U3： Product Type.

*： Lot No. Code,code change with Lot No.

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
DFN0603-2L	10,000	10	100,000	6	600,000	7" ×8	180×120×180	390×385×205

使用说明 / Notices