

BRES5V0L1B2ZA

Rev.C Oct.-2023

/ Descriptions

DFN0603

ESD

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

/ 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 μs).

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.

/ Applications

Cellular handsets.

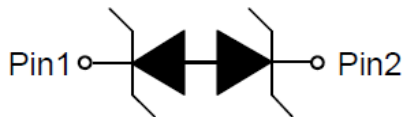
Tablets.

Laptops.

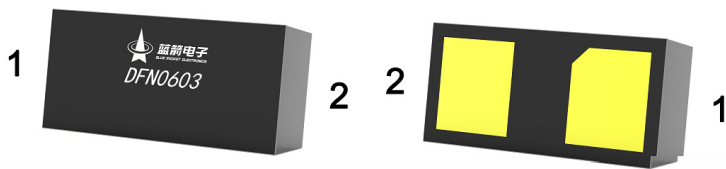
Other portable devices.

Network communication devices.

/ Equivalent Circuit



/ Pinning



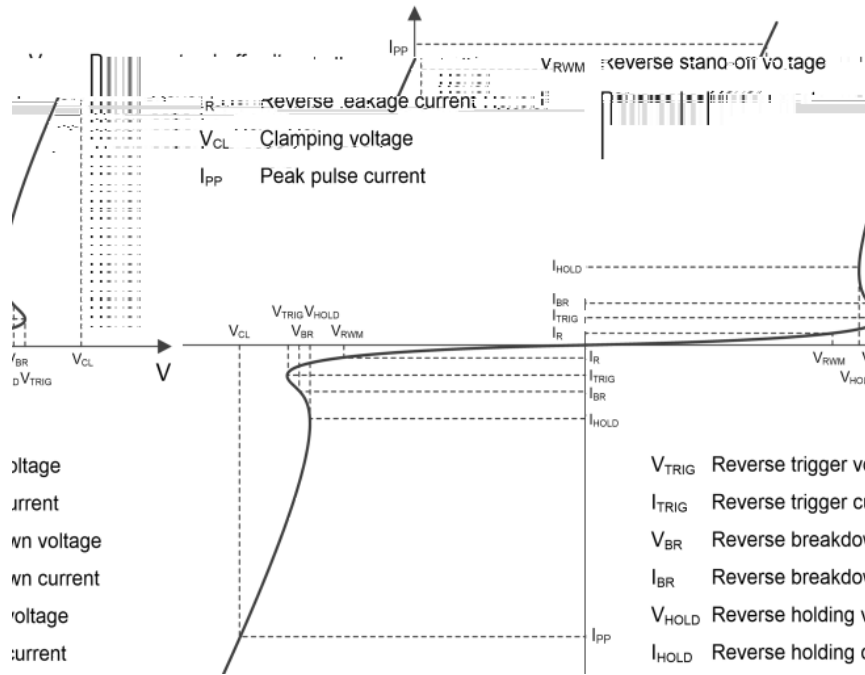
/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Peak Pulse Power($t_p = 8/20\mu s$)	P_{PK}	35	W
Peak Pulse Current($t_p = 8/20\mu s$)	IPP	8	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)



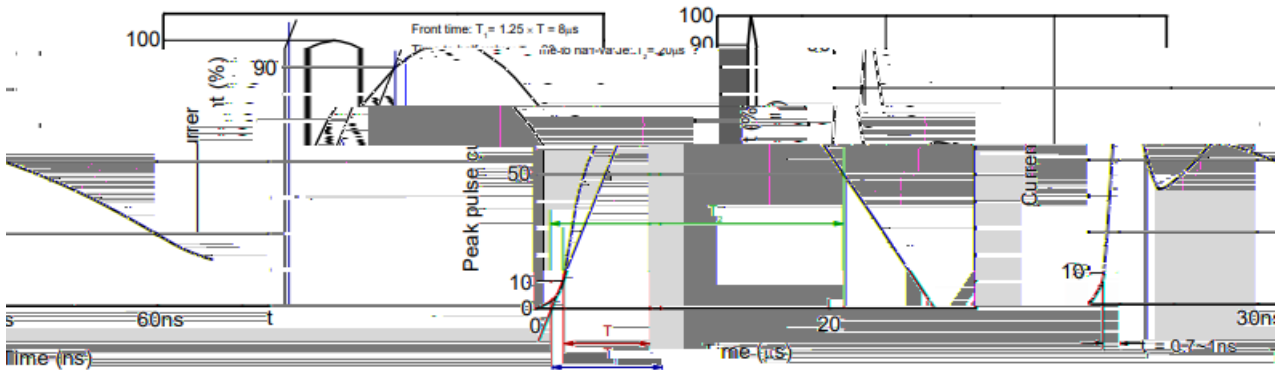
Definitions of electrical characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse maximum working voltage	V_{RWM}				± 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 ¹⁾	V_{CL}	$I_{PP}=16A \quad t_p=100ns$		10.0		V
Dynamic resistance ¹⁾	R_{DYN}			0.2		Ω
Clamping voltage ²⁾	V_{CL}	$VESD= 8kV$		10.0		V
Clamping voltage ³⁾	V_{CL}	$I_{PP} = 1A \quad t_p = 8/20\mu s$			8	V
		$I_{PP} = 8A \quad t_p = 8/20\mu s$			12	V
Junction Capacitance	C_J	$V_R = 0V \quad f = 1MHz$		10	13	pF
	C_J	$V_R = 2.5V \quad f = 1MHz$		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.

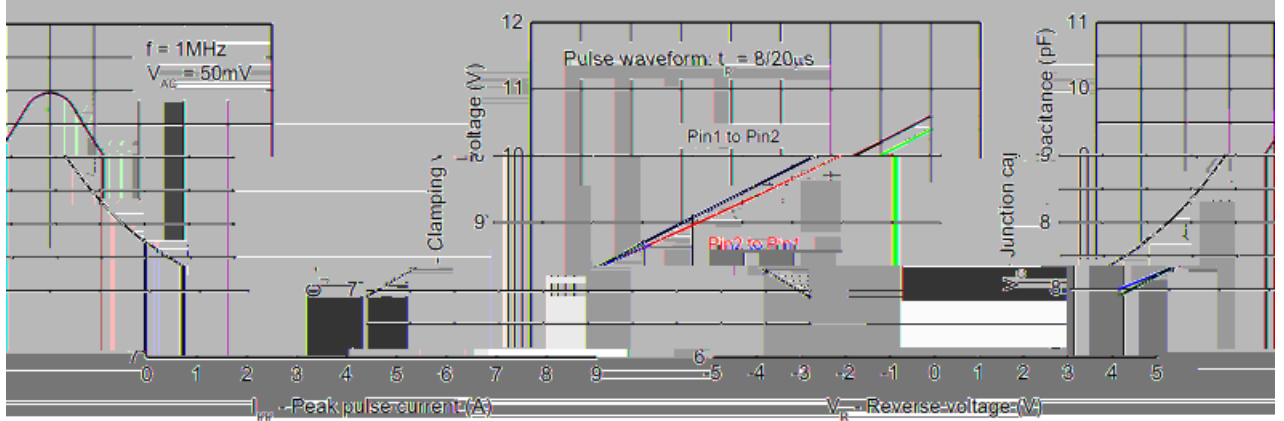
/ Electrical Characteristic Curve(Ta=25)



100ns waveform per IEC61000-4-2

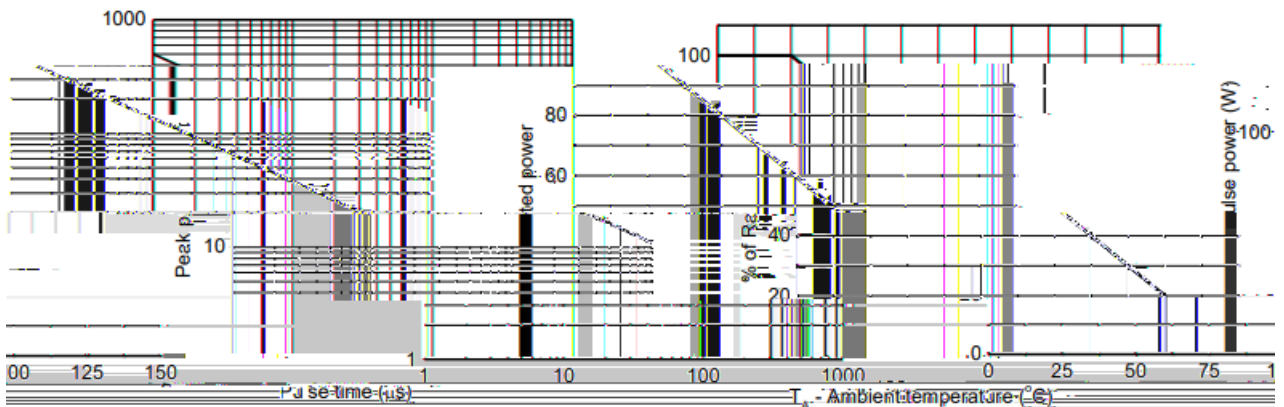
8/20µs waveform per IEC61000-4-5

Contact discharge current



Clamping voltage vs. Peak pulse current

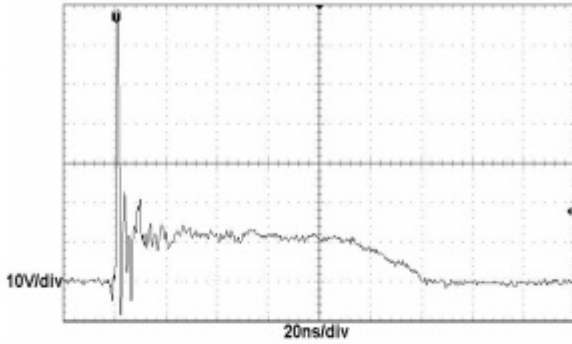
Capacitance vs. Reverse voltage



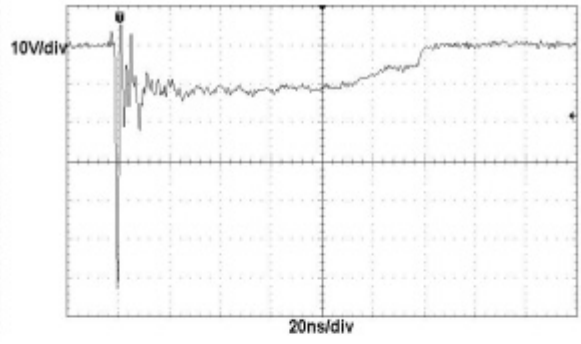
Non-repetitive peak pulse power vs. Pulse time

Power derating vs. Ambient temperature

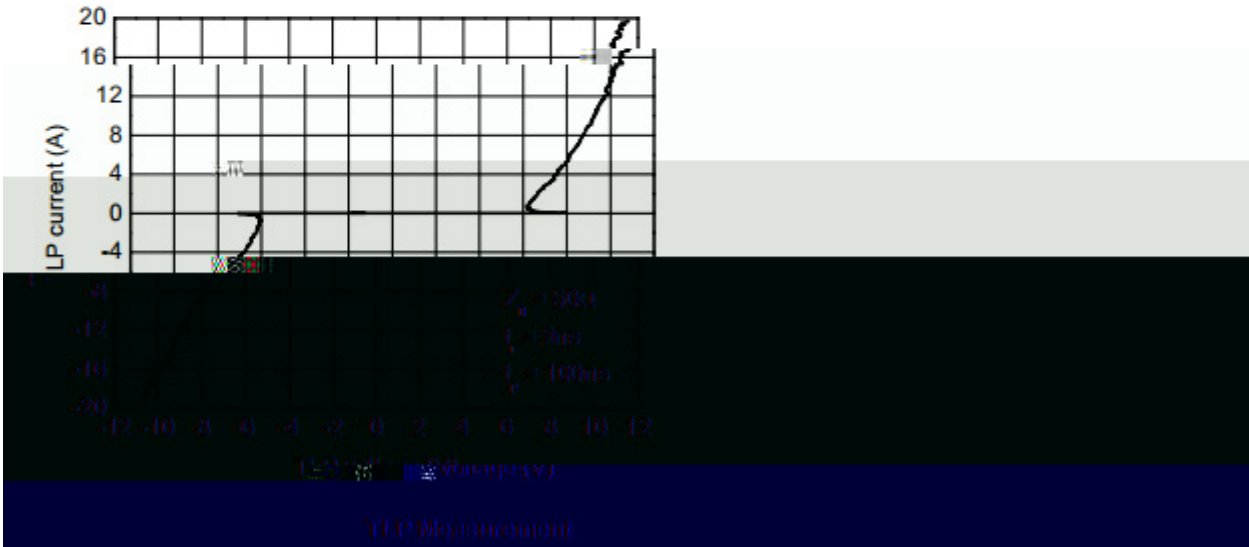
/ Electrical Characteristic Curve(Ta=25)



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



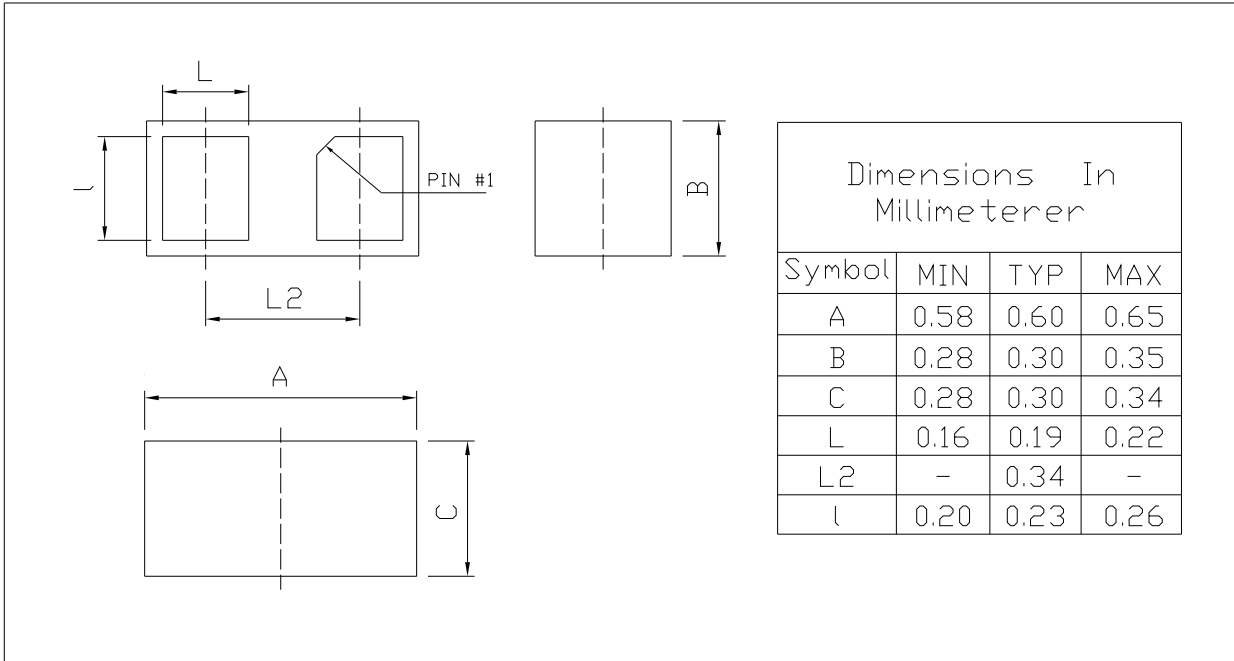
ESD clamping
(-8kV contact discharge per IEC61000-4-2)



/ Package Dimensions

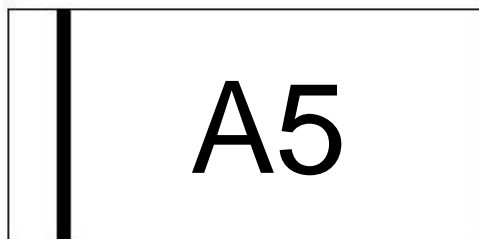
DFN0603

Unit:mm



Rev.02 202102

/ Marking Instructions



A5

Note

A5

Product Type Code

() / 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