



### FEATURES:

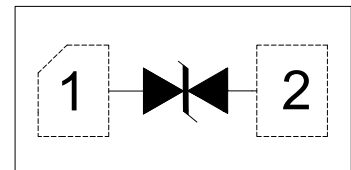
- ✧ Small body outline dimensions : 0.6mm×0.3mm
- ✧ Low clamping voltage
- ✧ Low operating voltage: 1.5V
- ✧ Low capacitance
- ✧ RoHS compliant



DFN0603-2L(Bottom view)

### MAIN APPLICATIONS

- ✧ Desktops, servers and notebooks
- ✧ USB3.x, USB type-C
- ✧ Display ports
- ✧ Thunderbolt



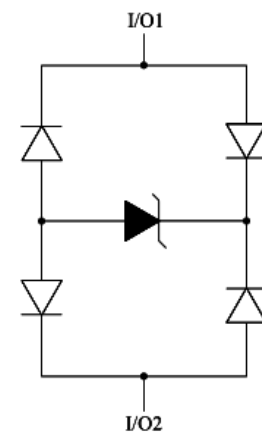
Pin Configuration(Top view)

### PROTECTION SOLUTION TO MEET

- ✧ IEC61000-4-2 (ESD) ±20kV (air), ±20kV (contact)
- ✧ IEC61000-4-4 (EFT) 40A (5/50ns)
- ✧ IEC61000-4-5(Lightning) 9A (8/20us)

### MECHANICAL CHARACTERISTICS

- ✧ DFN0603-2L package
- ✧ Molding compound flammability rating : UL 94V-0
- ✧ Quantity per reel : 10,000pcs
- ✧ Marking code: a



Circuit Diagram

### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Maximum Peak Pulse Current (8/20μs)	I <sub>PP</sub>	9	A
ESD per IEC 61000-4-2 (Air)	V <sub>ESD</sub>	+/-20	kV
ESD per IEC 61000-4-2 (Contact)		+/-20	
Lead soldering temperature	T <sub>L</sub>	260 (10 sec.)	°C
Operating junction temperature range	T <sub>J</sub>	-55 to +125	°C
Storage temperature range	T <sub>STG</sub>	-55 to +150	°C

**ELECTRICAL CHARACTERISTICS** (T<sub>A</sub>=25°C)

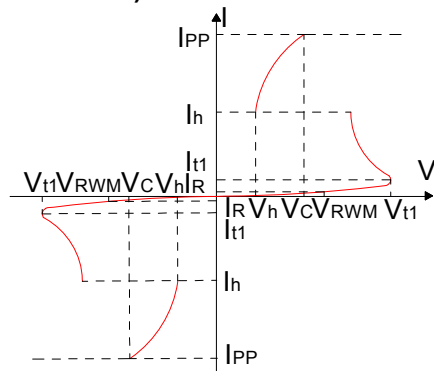
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse working voltage	V <sub>RWM</sub>				1.5	V
Reverse leakage current	I <sub>R</sub>	V <sub>RWM</sub> = 1.5V			3	μA
Reverse Triggering Voltage	V <sub>t1</sub>	I <sub>t1</sub> = 0.5mA	4			V
Holding Voltage	V <sub>h</sub> <sup>①</sup>	I <sub>h</sub> = 100mA	1.2			V
Clamping voltage	V <sub>C</sub> <sup>①</sup>	I <sub>PP</sub> = 16A, t <sub>P</sub> = 10/100ns		6		V
Clamping voltage	V <sub>C</sub> <sup>①</sup>	I <sub>PP</sub> = 9A, t <sub>P</sub> = 8/20μs		6		V
Dynamic resistance	R <sub>DYN</sub> <sup>①②</sup>	t <sub>P</sub> = 10/100ns		0.2		Ω
Parasitic Capacitance	C <sub>ESD</sub> <sup>①</sup>	V <sub>RWM</sub> = 1V, f = 1MHz		0.25		pF

Notes:

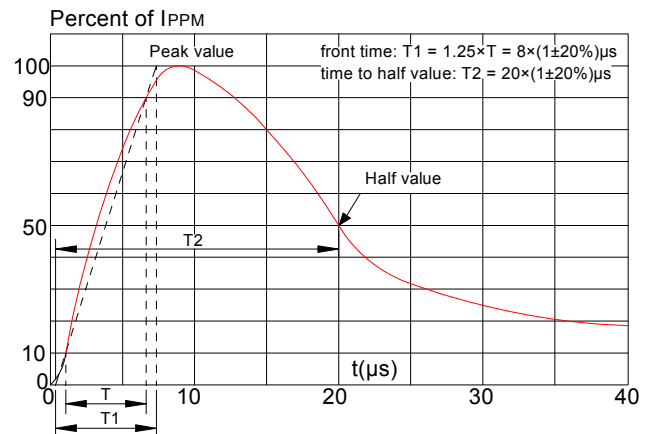
- ① Guaranteed by design and not subject to production test..
- ② R<sub>DYN</sub> calculated based on I<sub>PP</sub> = 8A to I<sub>PP</sub> = 16A, t<sub>P</sub> = 10/100ns.

**RATINGS AND V-I CHARACTERISTICS CURVES** (T<sub>A</sub>=25°C, unless otherwise noted)

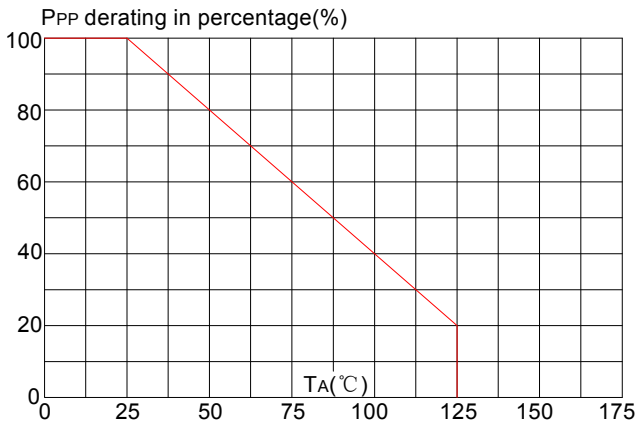
**FIG.1: V- I curve characteristics (Bi-directional)**



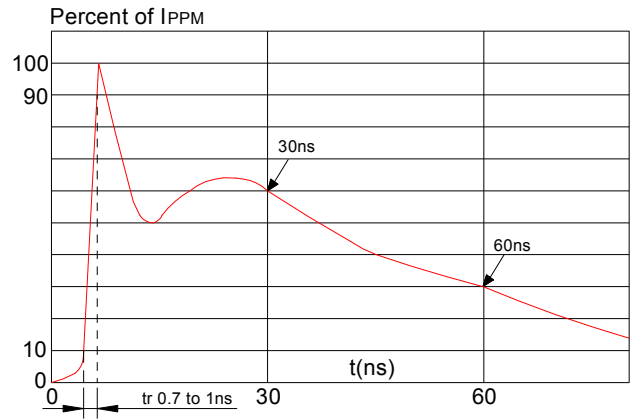
**FIG.2: Pulse waveform (8/20μs)**



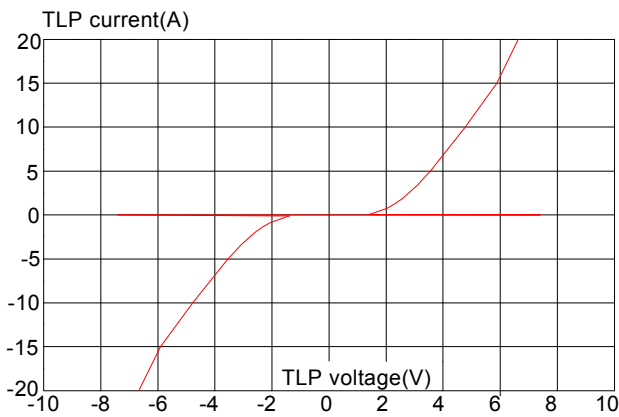
**FIG.3: Pulse derating curve**



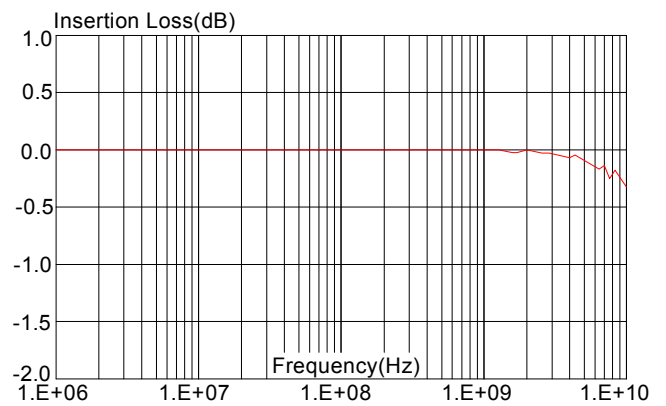
**FIG.4: ESD clamping (20kV contact)**



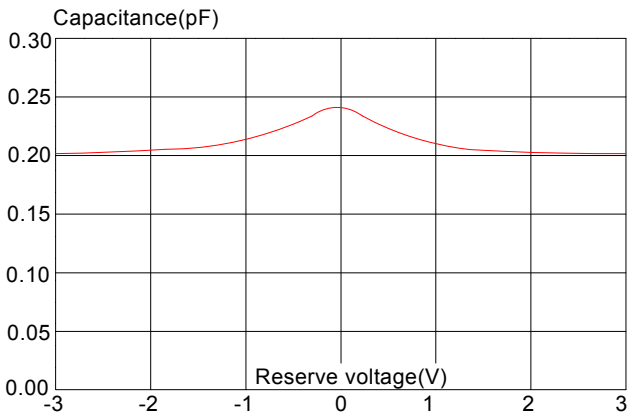
**FIG.5: TLP testing of I/O to I/O**



**FIG.6: Insertion Loss S21 of I/O to I/O**



**FIG.7: Capacitance vs. voltage of I/O to I/O**



**FIG.8: Clamping voltage vs. peak pulse current(8/20μs)**

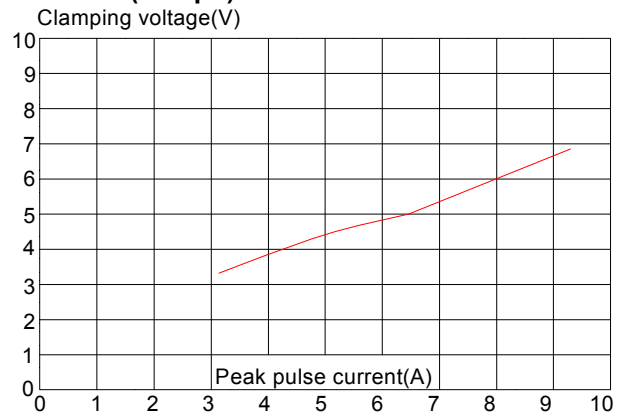


FIG.9: ESD clamping of I/O to I/O  
(+8kV contact per IEC 61000-4-2)

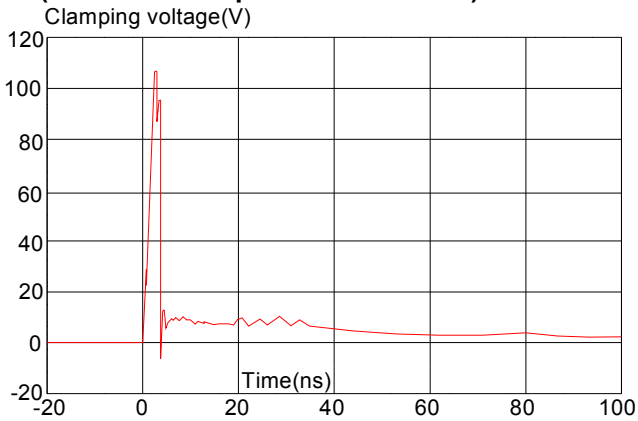
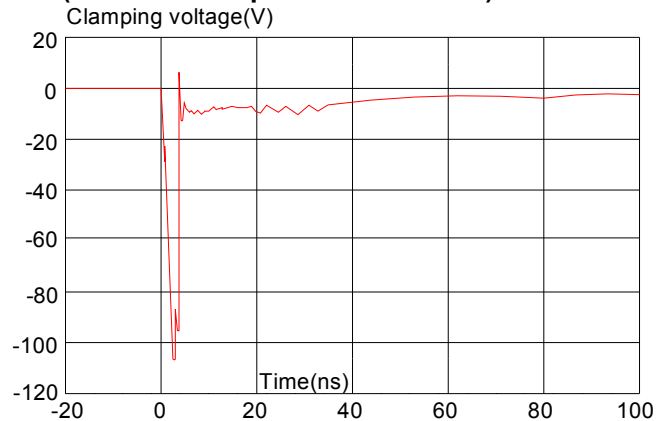
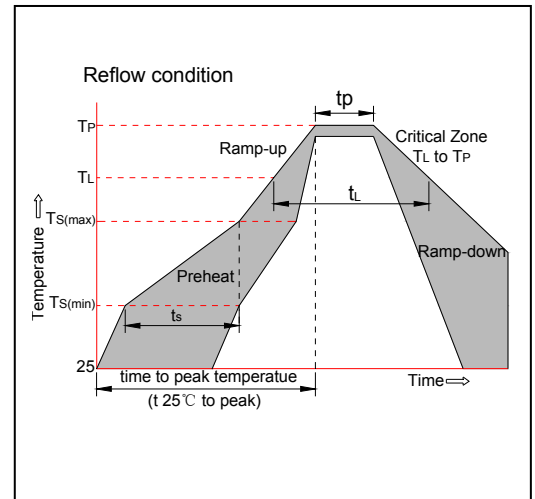


FIG.10: ESD clamping of I/O to I/O  
(-8kV contact per IEC 61000-4-2)

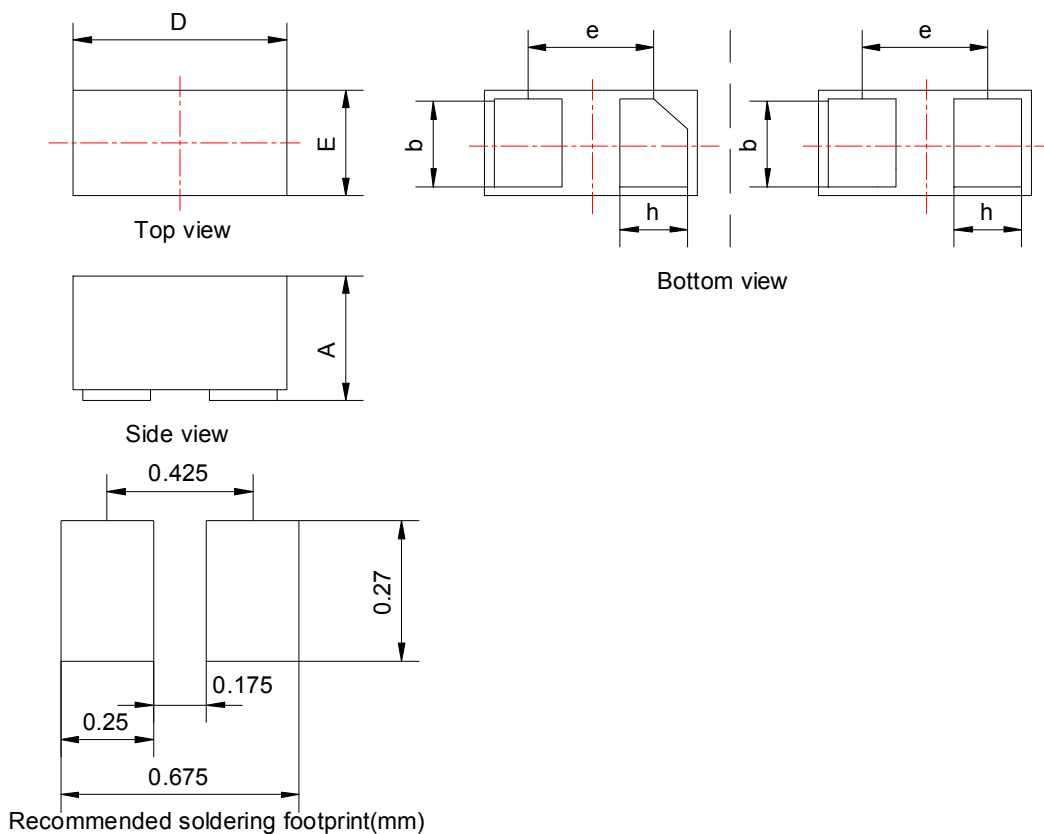


SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150°C
	-Temperature Max( $T_{s(max)}$ )	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		3°C/sec. Max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature( $T_L$ )(Liquidus)	+217°C
	-Temperature( $t_L$ )	60-150 secs.
Peak Temp ( $T_p$ )		+260(+0/-5)°C
Time within 5°C of actual Peak Temp ( $t_p$ )		20-40secs.
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp ( $T_p$ )		8 min. Max
Do not exceed		+260°C

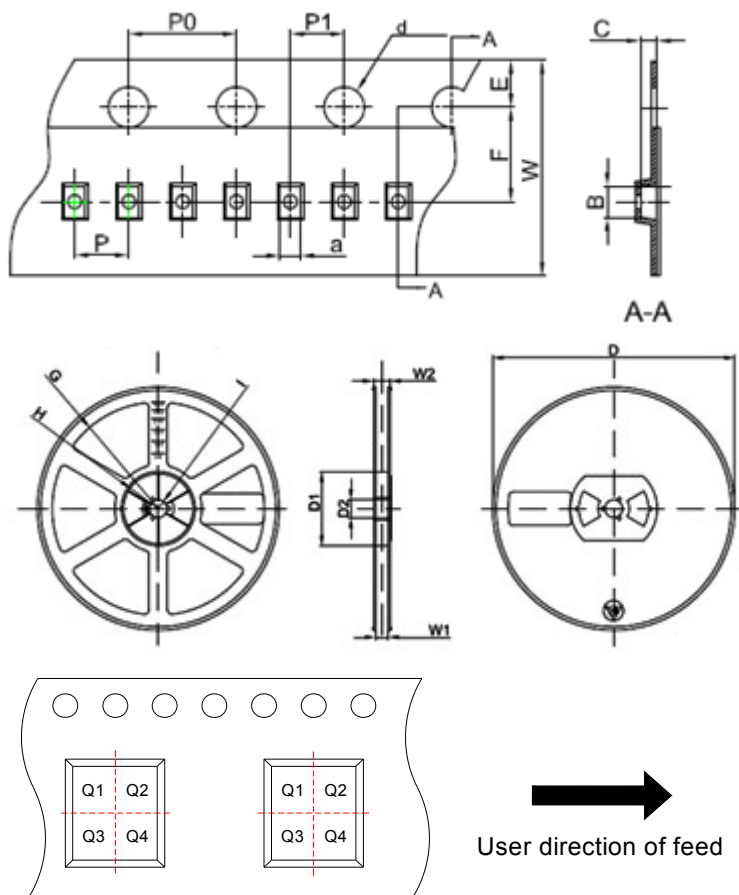


**PACKAGE MECHANICAL DATA**



Symbol	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.25	0.30	0.34	0.010	0.012	0.013
D	0.55	0.60	0.65	0.022	0.024	0.026
E	0.25	0.30	0.35	0.010	0.012	0.014
b	0.2	0.23	0.3	0.008	0.009	0.012
e	0.4			0.016		
h	0.13	0.17	0.24	0.005	0.007	0.009

**TAPE AND REEL INFORMATION-DFN0603-2L**



Pin 1 quadrant: Q1&Q2

**Packaging Description:**

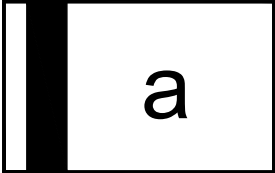
DFN0603-2L parts are shipped in tape. The carrier tape is made from a dissipative(carbon filled) polycarbonate resin. The cover tape is a multilayer film(heat activated adhesive in nature)primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 10,000units per 7" or 17.8cm diameter reel. The reels are clear in color and made of polystyrene plastic(anti-static coated).

Symbol	Millimeters	Inches
	Typ.	Typ.
a	0.41	0.016
B	0.70	0.028
C	0.38	0.015
d	Φ1.50	Φ0.059
E	1.75	0.069
F	3.50	0.138
P0	4.00	0.157
P	2.00	0.079
P1	2.00	0.079
W	8.00	0.315
D	Φ178	Φ7.008
D1	54.40	2.142
D2	13.00	0.512
G	R78.00	R3.071
H	R25.60	R1.008
I	R6.50	R0.256
W1	9.50	0.374
W2	12.30	0.484

**ORDERING INFORMATION**

PART No.	PACKAGE TYPE	QUANTITY(PCS) REEL	DESCRIPTION
JEB01SCDS-A	DFN0603-2L	10,000	7 inch reel pack

**MARKING CODE**

Part Number	Marking Code
JEB01SCDS-A	PIN 1 

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