



FEATURES:

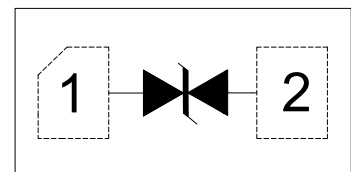
- ✧ Small body outline dimensions : 0.6mm×0.3mm
- ✧ Low clamping voltage
- ✧ Low operating voltage: 1.5V
- ✧ Low capacitance
- ✧ RoHS compliant



DFN0603-2L(Bottom view)

MAIN APPLICATIONS

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



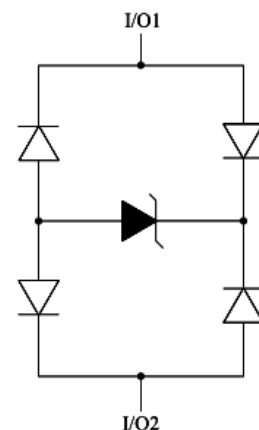
Pin Configuration(Top view)

PROTECTION SOLUTION TO MEET

- ✧ IEC61000-4-2 (ESD) $\pm 20\text{kV}$ (air), $\pm 20\text{kV}$ (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 ($T_A=25^\circ\text{C}$, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Maximum Peak Pulse Current (8/20 μs)	I_{PP}	9	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	+/-20	kV
ESD per IEC 61000-4-2 (Contact)		+/-20	
Lead soldering temperature	T_L	260 (10 sec.)	$^\circ\text{C}$
Operating junction temperature range	T_J	-55 to +125	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse working voltage	V_{RWM}				1.5	V
Reverse leakage current	I_R	$V_{RWM}=1.5\text{V}$			3	μA
Reverse Triggering Voltage	V_{t1}	$I_{t1}=0.5\text{mA}$	4			V
Holding Voltage	V_h ^①	$I_h=100\text{mA}$	1.2			V
Clamping voltage	V_C ^①	$I_{PP}=16\text{A}$, $t_P=10/100\text{ns}$		6		V
Clamping voltage	V_C ^①	$I_{PP}=9\text{A}$, $t_P=8/20\mu\text{s}$		6		V
Dynamic resistance	R_{DYN} ^{①②}	$t_P=10/100\text{ns}$		0.2		Ω
Parasitic Capacitance	C_{ESD} ^①	$V_{RWM}=1\text{V}$, $f=1\text{MHz}$		0.25		pF

Notes:

- ① Guaranteed by design and not subject to production test..
 ② R_{DYN} calculated based on $I_{PP}=8\text{A}$ to $I_{PP}=16\text{A}$, $t_P = 10/100\text{ns}$.

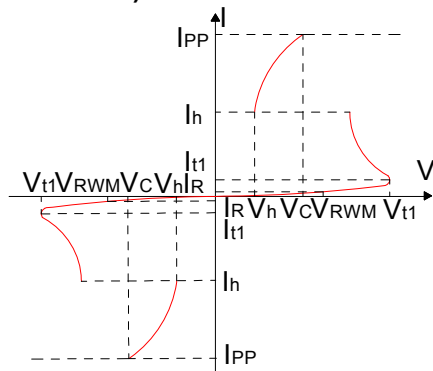
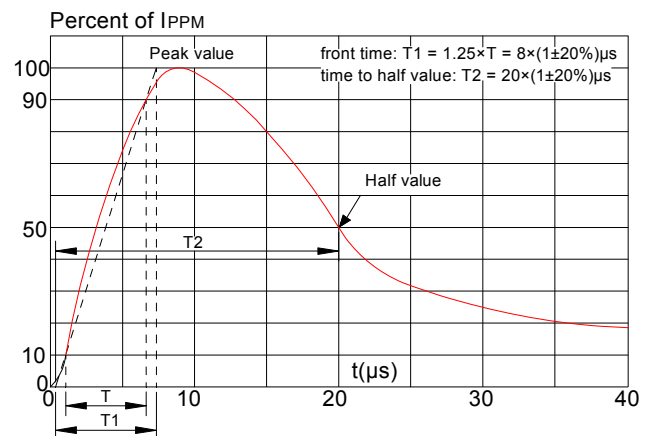
RATINGS AND V-I CHARACTERISTICS CURVES ($T_A=25^\circ\text{C}$, unless otherwise noted)**FIG.1: V- I curve characteristics (Bi-directional)****FIG.2: Pulse waveform (8/20 μs)**

FIG.3: Pulse derating curve

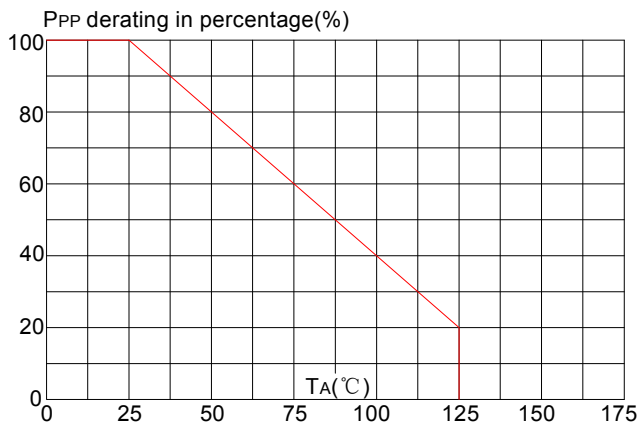


FIG.4: ESD clamping (20kV contact)

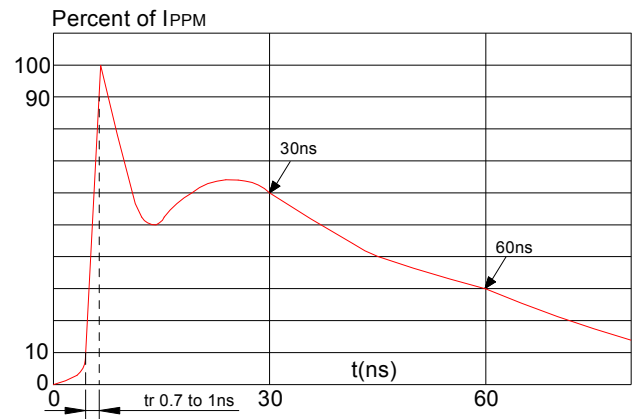


FIG.5: TLP testing of I/O to I/O

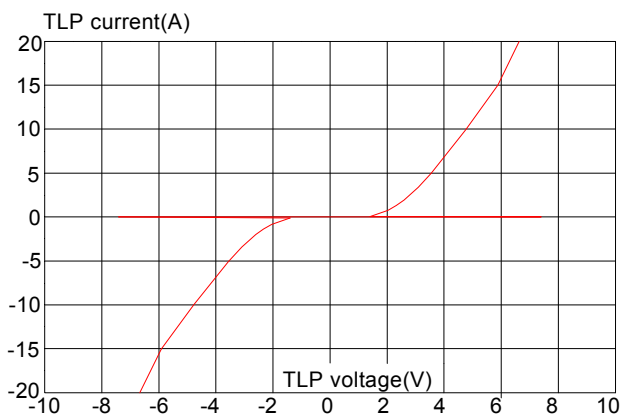


FIG.6: Insertion Loss S21 of I/O to I/O

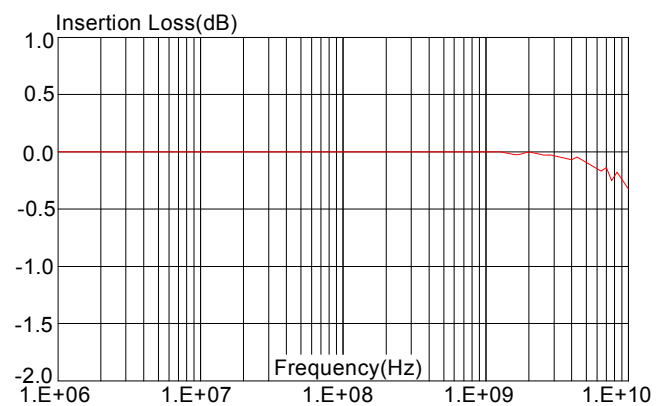


FIG.7: Capacitance vs. voltage of I/O to I/O

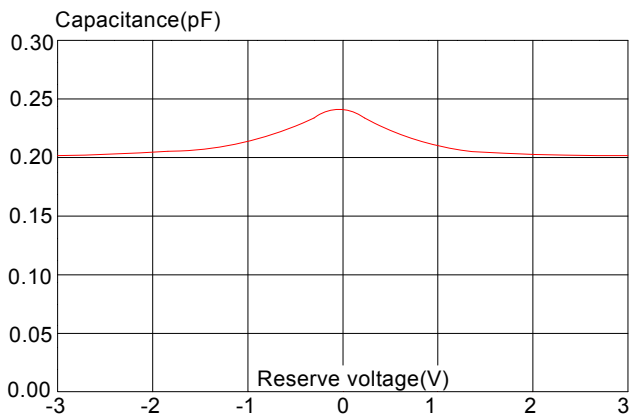


FIG.8: Clamping voltage vs. peak pulse current(8/20μs)

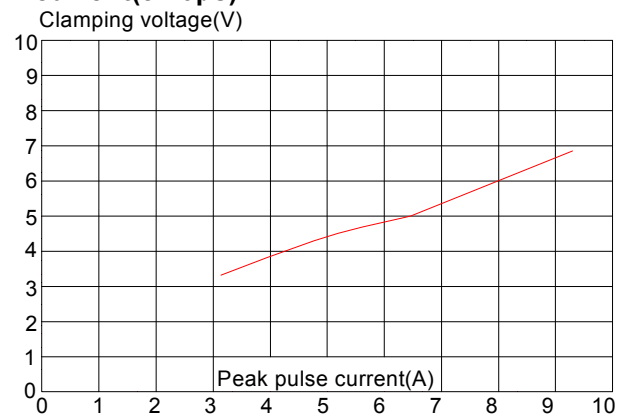


FIG.9: ESD clamping of I/O to I/O
 (+8kV contact per IEC 61000-4-2)

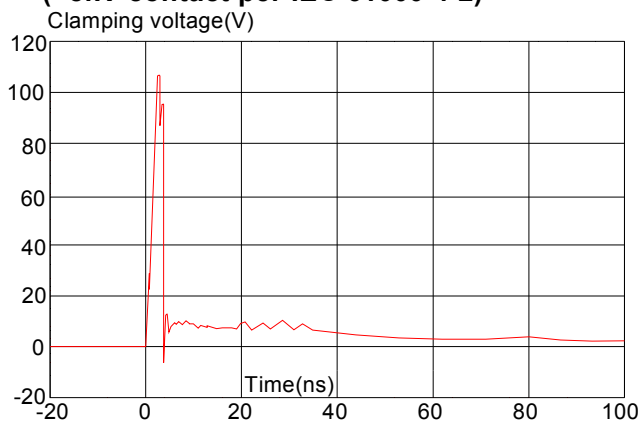
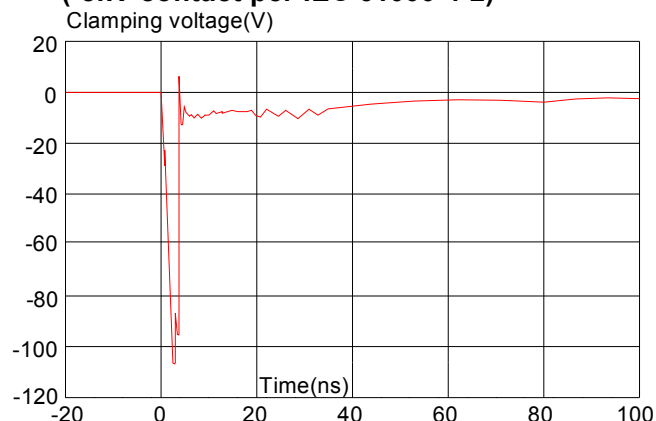
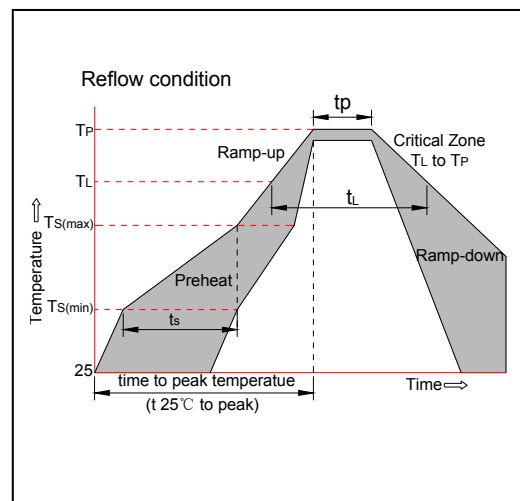


FIG.10: ESD clamping of I/O to I/O
 (-8kV contact per IEC 61000-4-2)

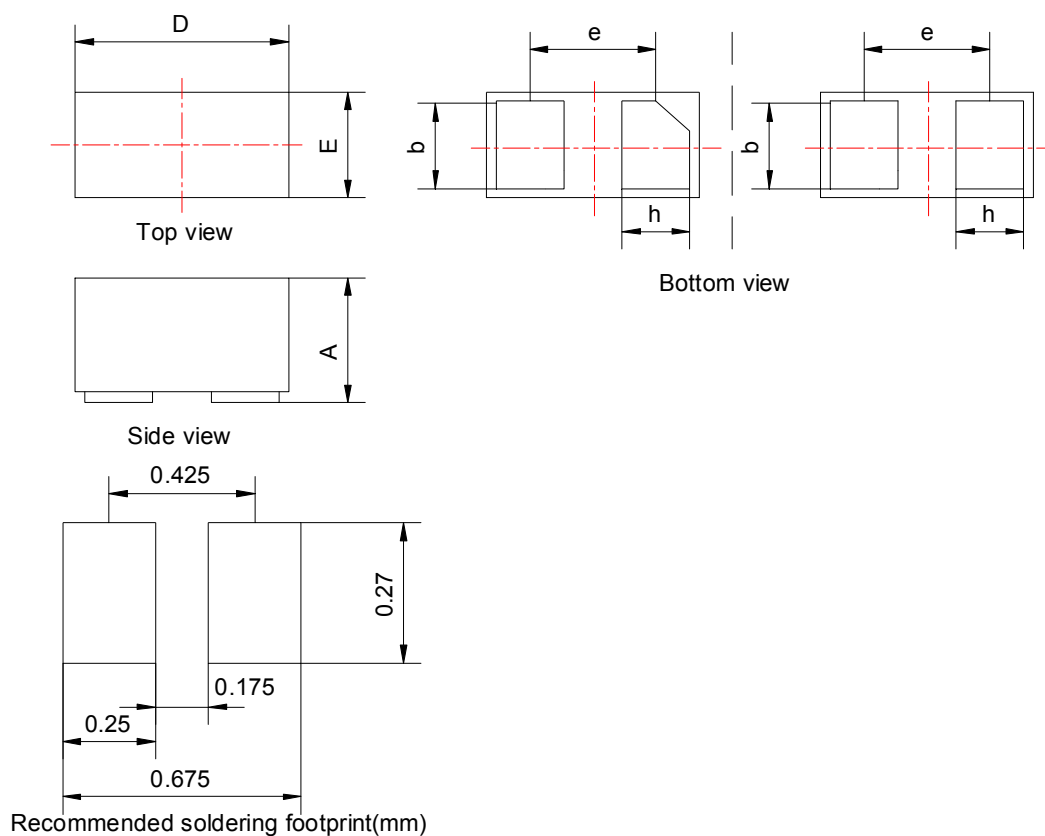


SOLDERING PARAMETERS

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) (t_s)	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

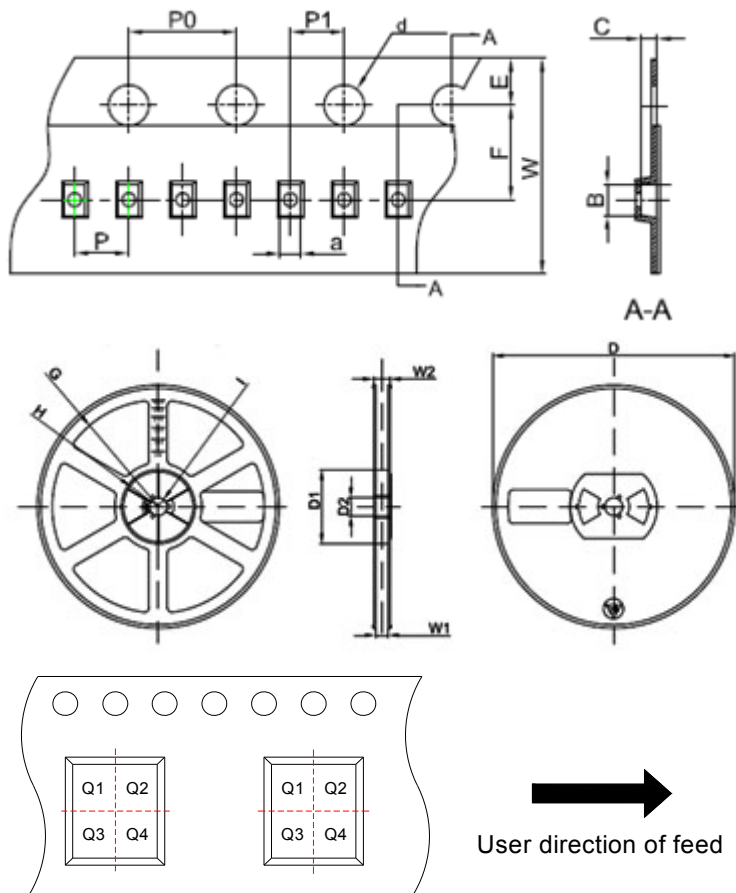


PACKAGE MECHANICAL DATA



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:

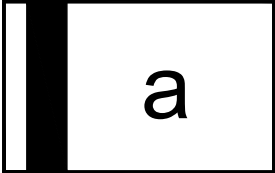
DFN0603-2L parts are shipped in tape. The carrier tape is made from a dissipative(carbon filled) polycarbonate resin. The cover tape is a multilayer film(heat activated adhesive in nature)primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts 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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