

## ESD4V5DH-HF

RoHS Device  
Halogen Free



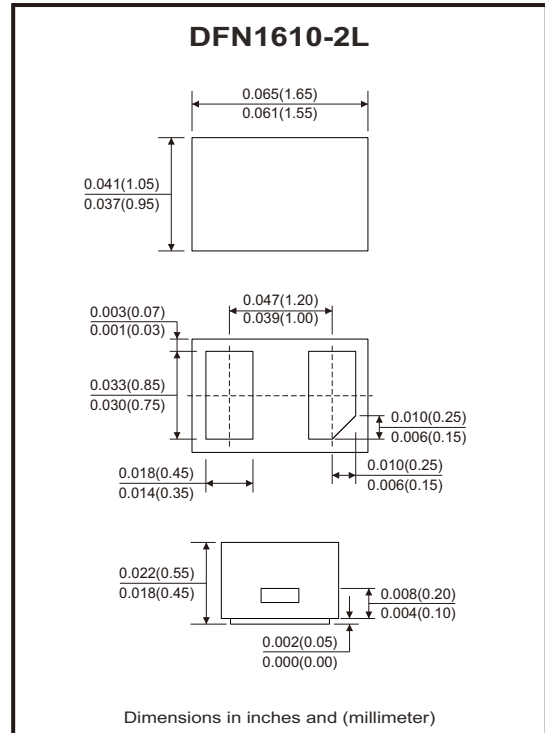
### Features

- ESD/ transient protection of high speed data lines.  
IEC 61000-4-2 (ESD):  $\pm 30\text{kV}$  (air),  $\pm 30\text{kV}$  (contact).  
IEC 61000-4-4 (EFT): 40A (5/50ns).  
IEC 61000-4-5 (Lightning): 50A (8/20 $\mu\text{s}$ ).
- Low reverse stand-off voltage.
- Protects one I/O or power line.
- Low clamping voltage.
- Low leakage current.

### Mechanical data

- Case: DFN1610-2L, molded plastic.
- Terminals: Matte tin-plated leads, solderability per MIL-STD-202, method 208.
- Molding compound: UL flammability classification rating 94V-0.
- Polarity: Indicated by cathode band.
- Mounting position: Any.

### Circuit Diagram



### Maximum Rating (at TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
IEC 61000-4-2; ESD (air)	V <sub>ESD-A</sub>	$\pm 30$	kV
IEC 61000-4-2; ESD (contact)	V <sub>ESD-C</sub>	$\pm 30$	kV
Peak pulse power (tp = 8/20 $\mu\text{s}$ )	P <sub>PP</sub>	1000	W
Peak pulse current (tp = 8/20 $\mu\text{s}$ )	I <sub>PP</sub>	105	A
Junction temperature range	T <sub>j</sub>	-55 to +125	°C
Storage temperature range	T <sub>STG</sub>	-55 to +150	°C

## Electrical Characteristics (at TA=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Reverse stand-off voltage		$V_{RWM}$			4.5	V
Reverse breakdown voltage	$I_T = 1\text{mA}$	$V_{(BR)}$	5.5		7.5	V
Reverse leakage current	$V_{RWM} = 4.5\text{V}$	$I_R$			0.5	$\mu\text{A}$
Clamping voltage	$I_{PP} = 50\text{A}, t_p = 8/20\mu\text{s}$	$V_C$			8	V
	$I_{PP} = 105\text{A}, t_p = 8/20\mu\text{s}$	$V_C$			10	
Junction capacitance	$V_R = 0\text{V}, f = 1\text{MHz}$	$C_J$		330		pF

## Rating and Characteristic Curves (ESD4V5DH-HF)

Fig.1 - 8/20 $\mu\text{s}$  Waveform per IEC 61000-4-5

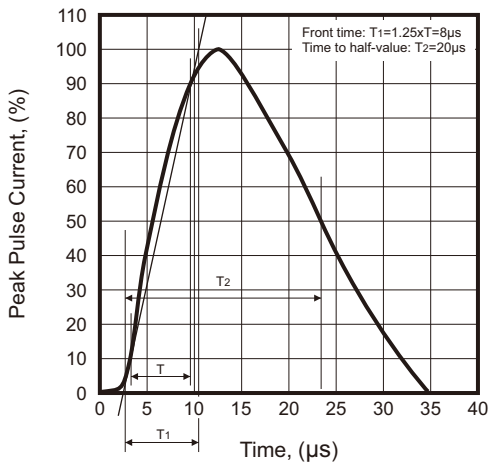


Fig.2 - ESD Pulse Waveform According to IEC 61000-4-2

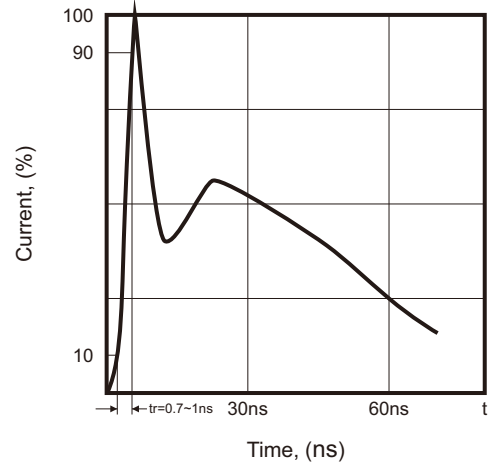
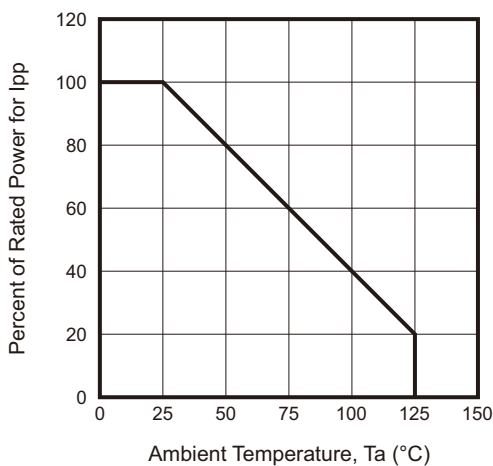
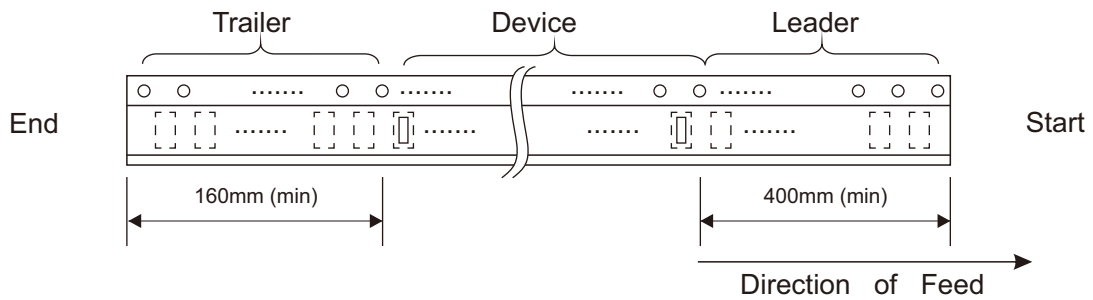
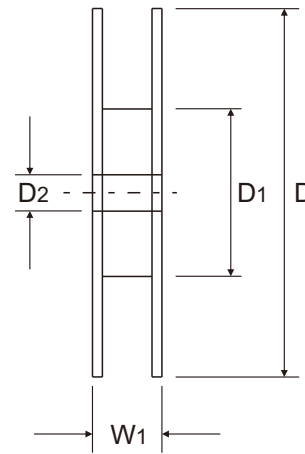
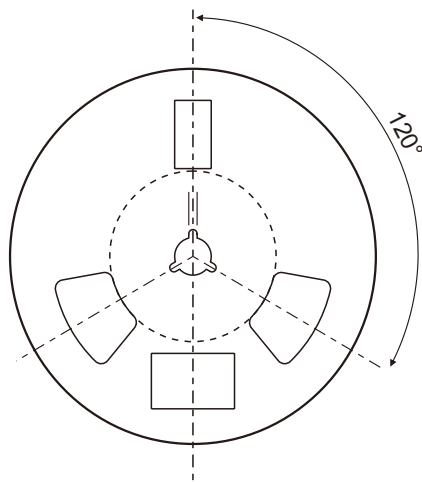
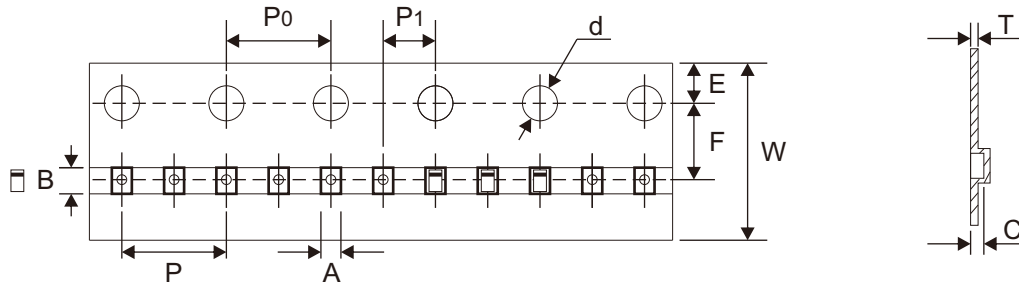


Fig.3 - Power Derating Curve



## Reel Taping Specification



DFN1610 -2L	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	1.15 ± 0.05	1.78 ± 0.05	0.63 ± 0.05	1.55 ± 0.01	178.00 ± 1.00	54.00 ± 0.50	13.00 + 0.50 - 0.20
	(inch)	0.045 ± 0.002	0.070 ± 0.002	0.025 ± 0.002	0.061 ± 0.0004	7.008 ± 0.039	2.126 ± 0.020	0.512 + 0.020 - 0.008

DFN1610 -2L	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.20 ± 0.03	8.00 + 0.30 - 0.10	12.50 ± 0.30
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.008 ± 0.001	0.315 + 0.012 - 0.004	0.492 ± 0.012

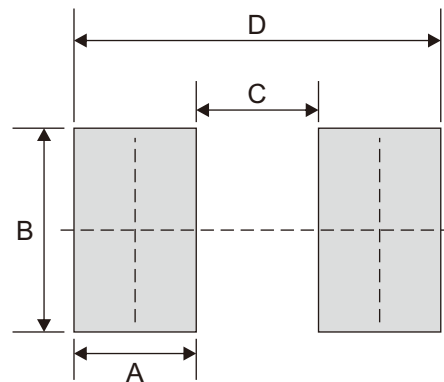
## Marking Code

Park Number	Marking Code
ESD4V5DH-HF	4V5D



## Suggested P.C.B. PAD Layout

SIZE	DFN1610-2L	
	(mm)	(inch)
A	0.60	0.024
B	1.00	0.039
C	0.60	0.024
D	1.80	0.071



## Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
DFN1610-2L	10,000	7