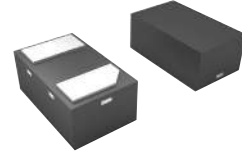


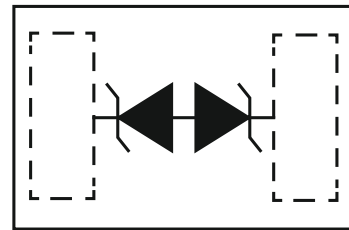
1. General description

The ESDHDxxBF series are designed to protect voltage sensitive components which are connected to data and transmission lines from overvoltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients). Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium.



2. Features and benefits

- ESD and surge protection for interface lines
- IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact)
- Protects Bi-directional I/O line
- Low clamping voltage
- Low leakage current
- Meet MSL level1
- Halogen free and RoHS compliant



3. Applications

- Computer Interfaces Protection
- Microprocessors Protection
- Serial and Parallel Ports Protection
- Control Signal Lines Protection
- Power lines on PCB Protection
- Portable instrumentation
- Peripherals



4. Ordering information

Type number	Package name	Orderable part number	Packing method	Small packing quantity	Package version	Package issue date
ESDHDxxBF	DFN1006	ESDHDxxBFX	Tape and reel	10000	DFN1006Q	12-Oct-2020
ESDHD03BF	DFN1006	ESDHD03BFX	Tape and reel	10000	DFN1006Q	12-Oct-2020

5. Absolute maximum ratings

In accordance with the Absolute Maximum Rating System (IEC 60134).

$T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified.

Symbol	Parameter	Conditions	Values	Unit
Absolute maximum rating				
V_{ESD}	ESD per IEC 61000-4-2 (air) ESD per IEC 61000-4-2 (contact)		± 30 ± 30	kV kV
T_{stg}	storage temperature range		-55 to 150	$^\circ\text{C}$
T_j	operating temperature range		-55 to 150	$^\circ\text{C}$

6. Characteristics

$T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified.

Product type	Max. Reverse Working Voltage V_{RWM} (V)	Min. Breakdown Voltage V_{BR} @ $I_T = 1\text{ mA}$ (V)	Max. Clamping Voltage V_C @ $I_{pp} = 1\text{ A}$ (V)	Max. Clamping Voltage V_C @ Max I_{pp} (V)	Max. Peak Pulse current I_{pp} @ 8/20 μs (A)	Maximum Reverse Leakage I_R @ V_R (μA)	Typ. C_j (pF) @ 0 V, 1 MHz	Marking
ESDHD03BF	3.3	3.6	7	10	8	1	15	T
ESDHD05BF	5.0	5.5	8	11	7	1	15	PB
ESDHD12BF	12	13	18	25	6	1	7	2C
ESDHD15BF	15	16.5	24	35	7	1	20	E
ESDHD24BF	24	26	36	48	5	1	20	DH

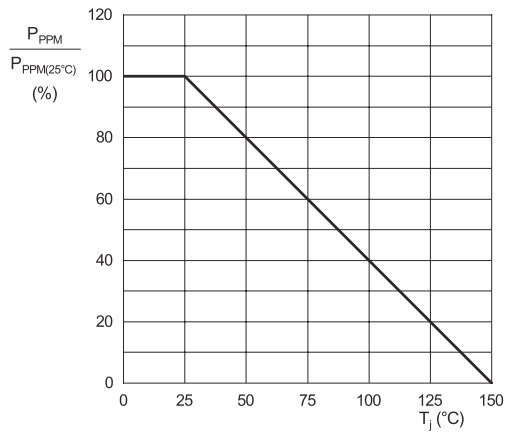


Fig. 1. Peak pulse power derating curve

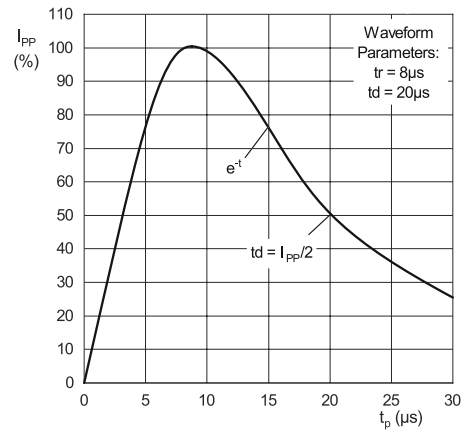


Fig. 2. Pulse waveform

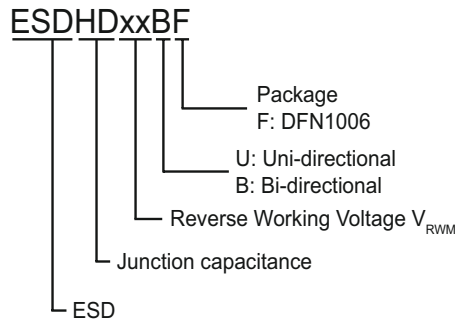


Fig. 3. Part numbering

7. Package outline

DFN1006

Top view

Bottom view

Side view

PIN 1 ID
0.125X45°

PIN 1.
hX45°

COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	0.350	0.450	0.550
A1	0.000	0.020	0.050
D	0.500	0.60	0.700
D1	0.400	0.500	0.600
D2	0.200	0.300	0.400
E	0.900	1.000	1.100
E1	0.150	0.250	0.350
k	0.300	0.400	0.500

0.50

0.25

0.40

0.25

0.375

Pad Layout

Note:

- Controlling dimension : in millimeters.
- General tolerance: +/-0.05mm.
- The pad layout is for reference purposes only.

8. Legal information

Data sheet status

Document status [1][2]	Product status [3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

- [1] Please consult the most recently issued document before initiating or completing a design.
- [2] The term 'short data sheet' is explained in section "Definitions".
- [3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.ween-semi.com>.

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