

Description

The PESD5V0X1BCAL,315-JSM is designed to protect voltage sensitive components from damage or latch-up due to ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD for board level. Because of its small size and bi-directional design, it is ideal for use in cellular phones, MP3 players, and portable applications that require audio line protection.



DFN1006-2

Features

- IEC 61000-4-2 Level 4 ESD Protection
 - $\pm 20\text{kV}$ Contact Discharge
 - $\pm 20\text{kV}$ Air Discharge
- 120W Peak pulse Power (8/20us)
- Low clamping voltage
- Working voltage: 5V
- Low leakage current
- RoHS compliant
- Protecting one bi-directional line
- Junction capacitance: 0.25pF Typ.

Applications

- Cellular handsets and accessories
- Portable Digital Assistants
- Notebooks & Handhelds
- Digital Cameras
- MP3 Players
- Peripherals

Absolute Maximum rating

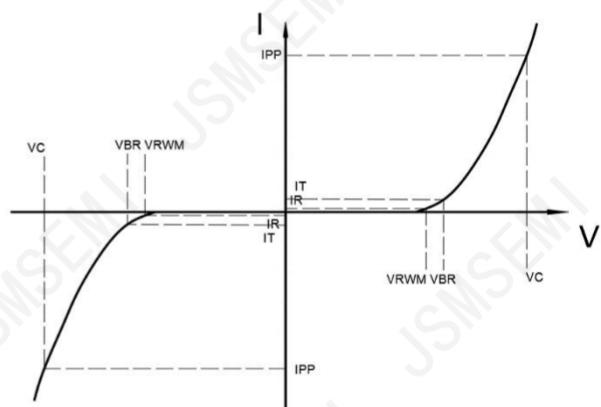
Over operating free-air temperature range (unless otherwise noted)

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)@25°C	P_{pk}	-	120	W
Peak pulse current (tp=8/20us)@25°C	I_{PP}		4.5	A
ESD (IEC61000-4-2 air discharge) @25°C	V_{ESD}	-	± 20	kV
ESD (IEC61000-4-2 contact discharge) @25°C	V_{ESD}	-	± 20	kV
Junction temperature	T_J	-	150	°C
Operating temperature	T_{OP}	-40	125	°C
Storage temperature	T_{STG}	-55	150	°C
Lead temperature	T_L	-	260	°C

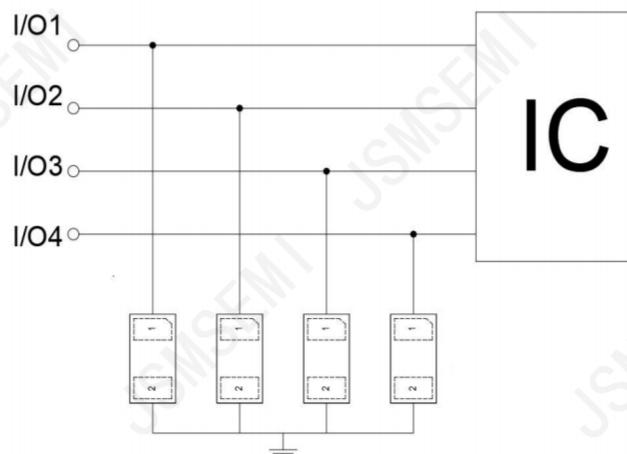
Electrical Characteristics At $TA = 25^\circ\text{C}$ unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	$IT=1\text{mA}$	6.5		9.0	V
Reverse Leakage Current	I_R	$V_{RWM}=5\text{V}$			1	μA
Clamping Voltage	V_C	$I_{PP}=1\text{A}; tp=8/20\mu\text{s}$		12	15	V
Clamping Voltage	V_C	$I_{PP}=3\text{A}; tp=8/20\mu\text{s}$		16	19	V
Clamping Voltage	V_C	$I_{PP}=4.5\text{A}; tp=8/20\mu\text{s}$		22	25	V
Junction Capacitance	C_J	$VR=0\text{V}; f=1\text{MHz}$		0.25	0.32	pF

Symbol	Parameters
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}



Typical Application



Typical Characteristic

Figure1: Clamping Voltage vs. Peak Pulse Current

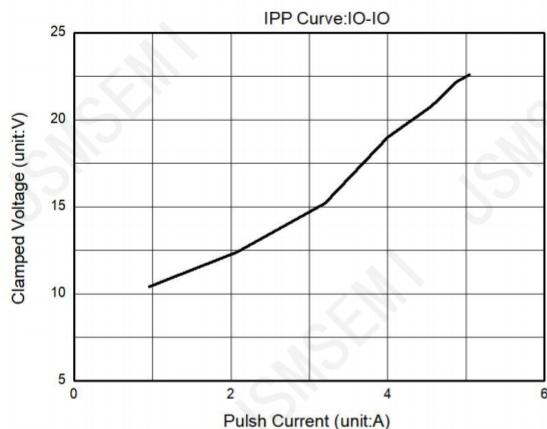


Figure2: Junction Capacitance vs. Reverse Voltage

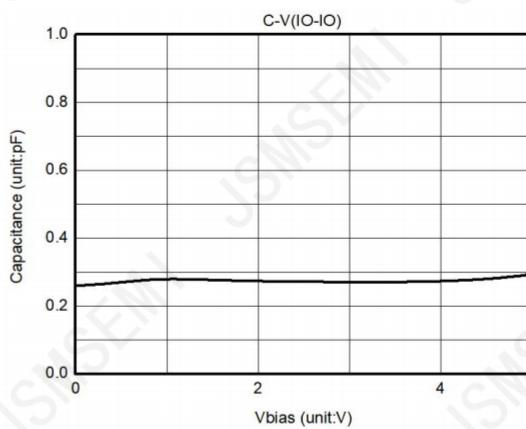


Figure3: 8 X 20us Pulse Waveform

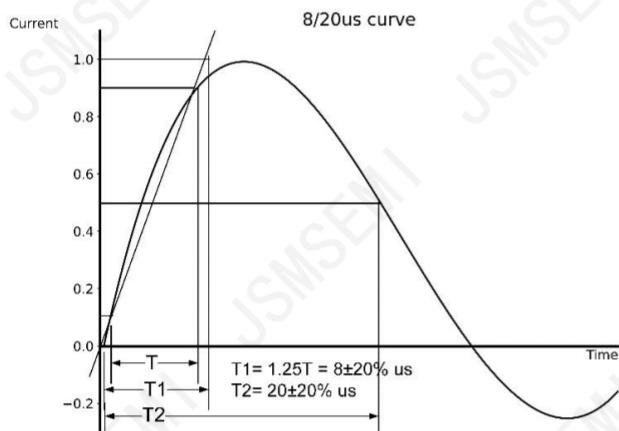


Figure5: Peak Pulse Power vs. Pulse Time

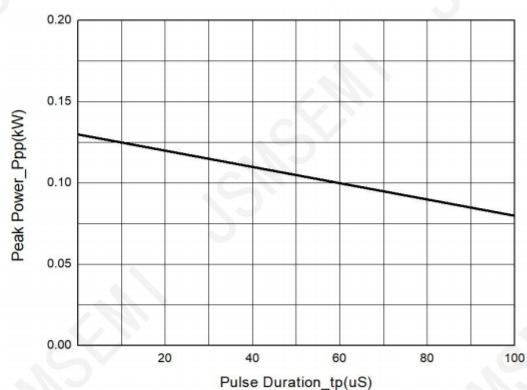


Figure4: Power derating vs. Ambient temperature

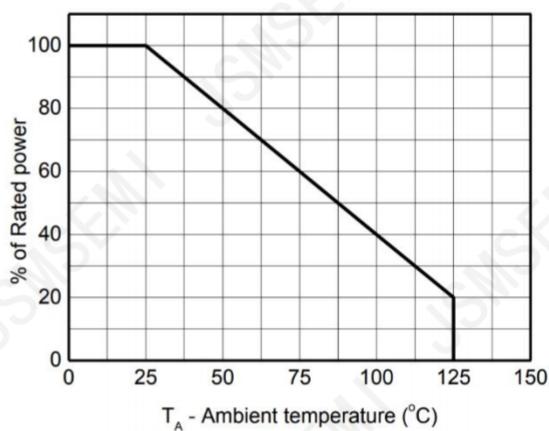
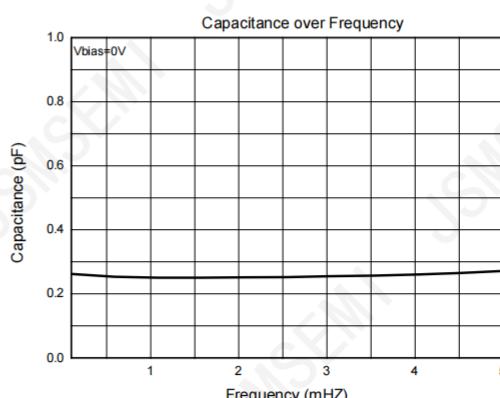
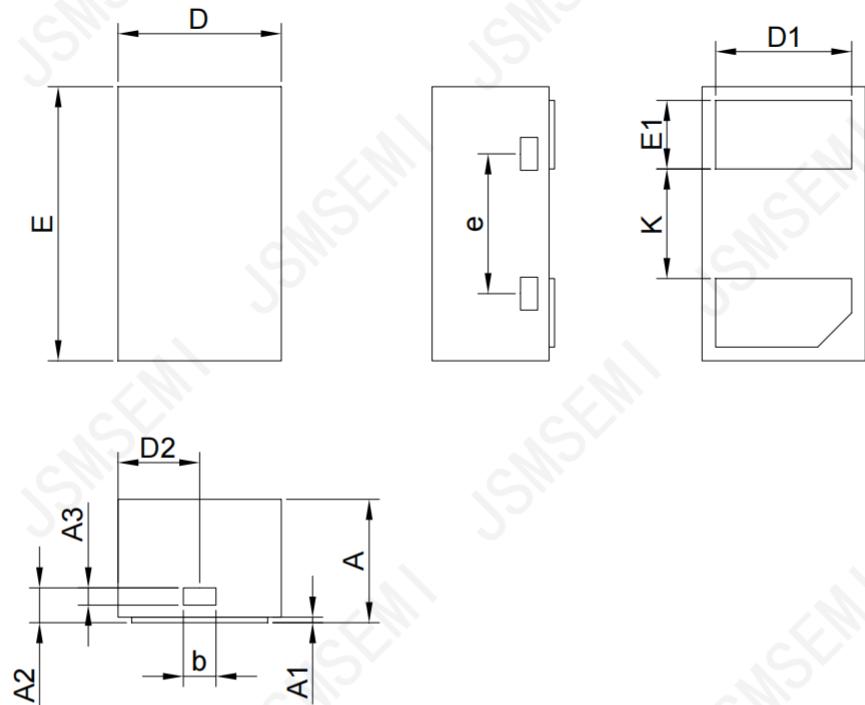


Figure6: Capacitance over Frequency



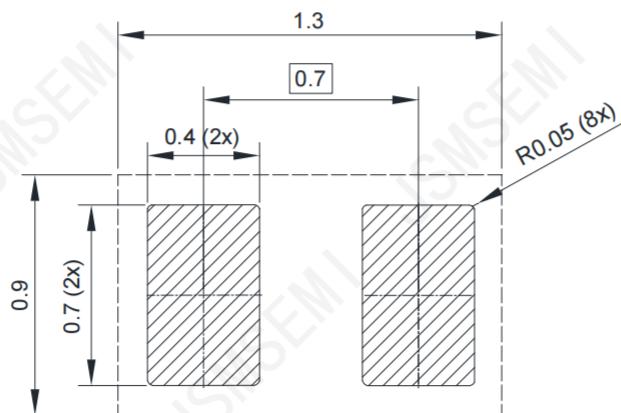
Dimension (DFN1006-2)



Units in millimeters

Symbol	Min.	Nom.	Max.	Symbol	Min.	Nom.	Max.
A	0.350	0.450	0.550	D1	0.400	0.500	0.600
A1	0.000	0.020	0.050	D2	0.200	0.300	0.400
A2	0.077	0.127	0.207	E	0.900	1.000	1.100
A3	0.013	0.063	0.113	E1	0.150	0.250	0.350
b	0.070	0.120	0.200	e	0.360	0.410	0.460
D	0.500	0.600	0.700	k	0.300	0.400	0.500

Recommended Soldering Footprint



DIMENSIONS: MILLIMETERS

Revision History

Rev.	Change	Date
V1.0	Initial version	6/27/2021

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