ECELCAB5VBL

Low-Capacitance Bidirectional Micro Packaged TVS Diodes for ESD Protection

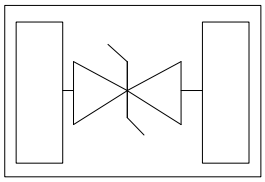
The ECELCAB5VBL is designed with ECORE technology to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space comes at a premium. Also because of its low capacitance, it is suited for use in high frequency designs such as USB 2.0 high speed, VGA, DVI, SDI and other high speed line applications.

It has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by ESD(electrostatic discharge), and EFT (electrical fast transients).

Features

- Peak Power Dissipation − 20 W (8 x 20 us Waveform)
- Stand-off Voltage: 5.0 V
- Low capacitance (<3.5pF) for high-speed interfaces
- No insertion loss to 1.0GHz
- Replacement for MLV (0402)
- Protects I/O Port
- Low Clamping Voltage
- Low Leakage
- Low Capacitance
- Response Time is < 1 ns
- Meets MSL 1 Requirements
- ROHS compliant

DFN1006



Main applications

- High Speed Line :USB1.0/2.0, VGA, DVI, SDI,
- Serial and Parallel Ports
- Notebooks, Desktops, Servers
- Projection TV
- Cellular handsets and accessories
- Portable instrumentation
- Peripherals

Protection solution to meet

- IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)

Ordering Information

Device	Qty per Reel	Reel Size
ECELCAB5VBL	5000/10000pcs	7inch

Maximum ratings (Tamb=25℃ Unless Otherwise Specified)			
Parameter	**Symbol**	**Value**	**Unit**
Peak Pulse Power (tp=8/20μs waveform)	P_{PPP}	20	Watts
Peak pulse current (tp=8/20μs waveform)	I_{PP}	1	A
ESD Rating per IEC61000-4-2： Contact Air		8 15	KV
Lead Soldering Temperature	T_L	260 (10 sec.)	℃
Operating Temperature Range	T_J	-55 ~ 150	℃
Storage Temperature Range	T_{STG}	-55 ~ 150	℃

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

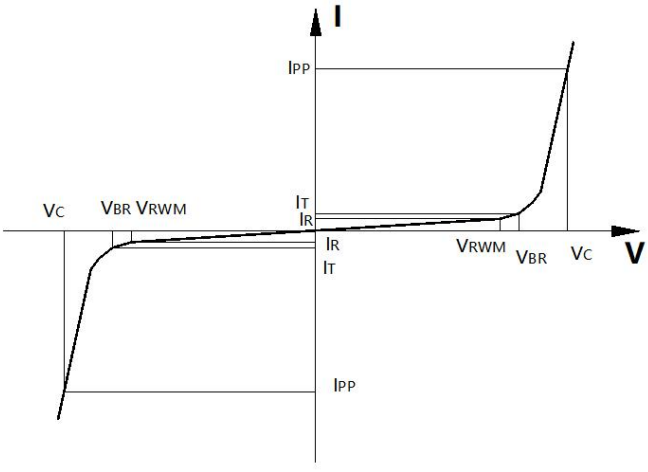
**Other voltages may be available upon request.*

1. Non-repetitive current pulse, per Figure 1.

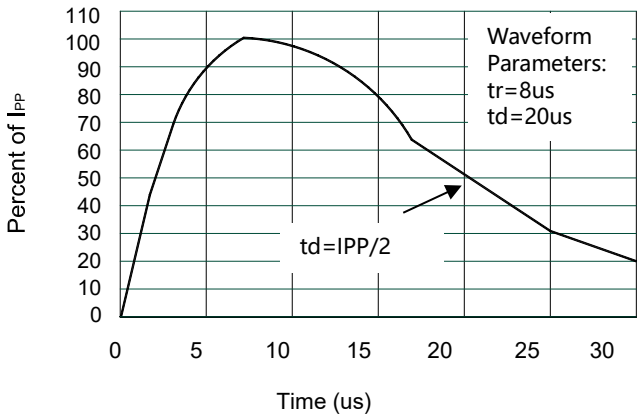
Electrical characteristics (Tamb=25℃ Unless Otherwise Specified)								
Device	**V_{RWM}**	**I_R @ V_{RWM}**	**V_{BR}@1 mA**		**V_C@1 A**		**Capacitance**	
		(uA)	**(V)**		**(V)**		**@ V_R = 0 V, 1 MHz (pF)**	
	(V)	**Max**	**Min**	**Max**	**Typ**	**Max**	**Typ**	**Max**
ECELCAB5VBL	5.0	0.1	6.0	12	11.8	17	2.2	3.5

Junction capacitance is measured in V_R=0V,F=1MHz

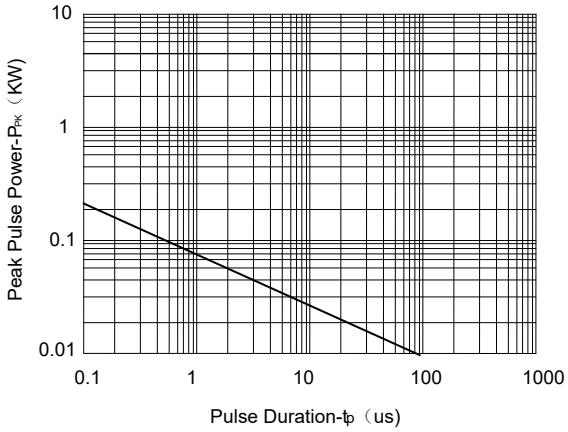
Symbol	Parameter
V_{RWM}	Working Peak Reverse Voltage
V_{BR}	Breakdown Voltage @ I_T
V_C	Clamping Voltage @ I_{PP}
I_T	Test Current
I_{RM}	Leakage current at V_{RWM}
I_{PP}	Peak pulse current
C_O	Off-state Capacitance
C_J	Junction Capacitance



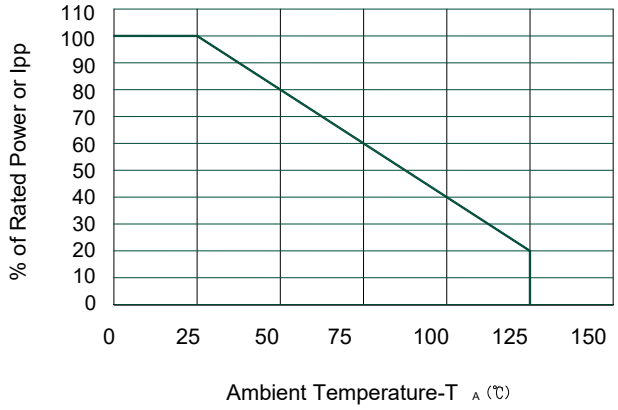
Typical electrical characterist applications



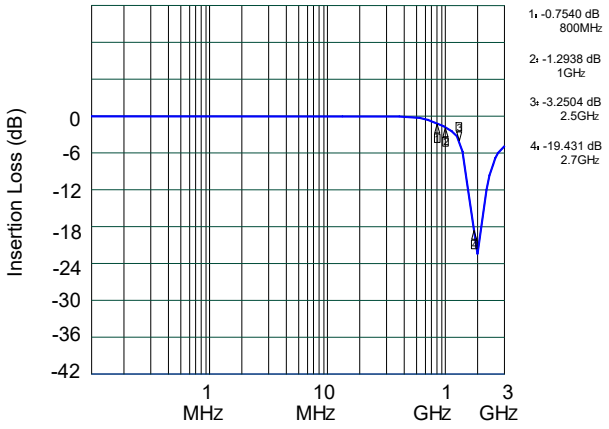
Pulse Waveform



Non-Repetitive Peak Pulse Power vs. Pulse Time



Power Derating Curve



Insertion Loss S21

Package Information

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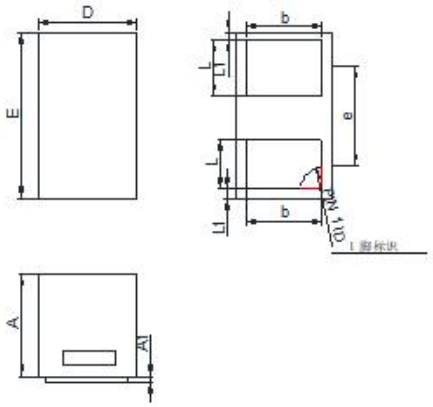
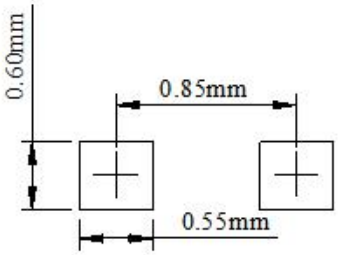
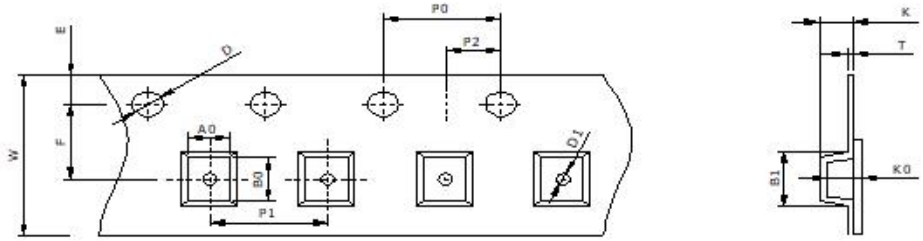


DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	0.30	0.50	0.012	0.020
A1	0.00	0.05	0.000	0.002
D	0.55	0.65	0.022	0.026
E	0.95	1.05	0.037	0.041
b	0.25	0.60	0.010	0.024
e	0.65TYP		0.026TYP	
L	0.15	0.35	0.006	0.014
L1	0.05REF		0.002REF	

Recommended Pad outline



DFN1006 Reel Dim



Package	Chip Size (mm)	Pocket Size B0×A0×K0(mm)	Tape Width	Reel Diameter	Quantity Per Reel	P0	P1
DFN1006	1.0×0.6×0.50	1.10×0.70×0.60	8mm	178mm(7")	5000/10000	4mm	4/2mm
D0	D1	E	F	K	T	W	
1.5mm	0.5mm	1.75mm	3.5mm	0.55mm	0.2mm	8mm	