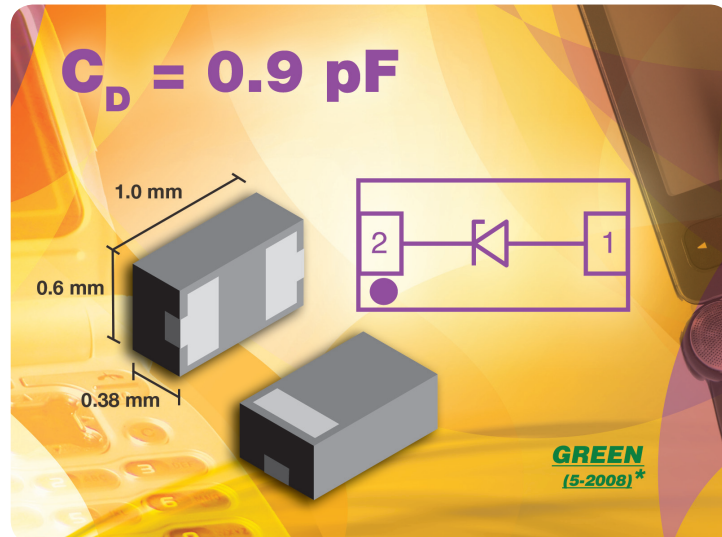


Low-Capacitance, Single-Line ESD Protection Diode



KEY BENEFITS

- Ultra-compact LLP1006-2L leadless package
- Low package height of < 0.4 mm
- Low load capacitance of $C_D = 0.9$ pF
- Low leakage current of < 0.1 μ A
- ESD immunity > ± 15 kV
- High surge current according to IEC 61999-4-5, $I_{PP} > 3$ A
- RoHS-compliant
- Environmentally friendly “green” molding compound
- Pin plating NiPdAu (e4) for no whisker growth

APPLICATIONS

- Mobile phones
- MP3 players and other mobile consumer devices
- HDMI applications
- Mobile computing

RESOURCES

- Datasheet: VBUS051BD-HD1 - <http://www.vishay.com/doc?81785>
- For technical questions contact ESDProtection@vishay.com
- Vishay Material Category Policy: www.vishay.com/doc?99902

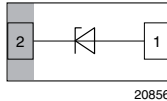


ESD PROTECTION DIODE

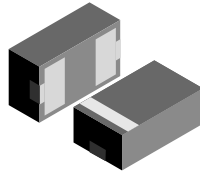
VBUS051BD-HD1



Low-Capacitance, Single-Line ESD Protection Diode



20856



20855

MARKING (example only)



Bar = cathode marking
Y = type code (see table below)
X = date code

FEATURES

- Ultra compact LLP1006-2L package
- Low package profile < 0.4 mm
- 1-line ESD-protection
- High surge current acc. IEC 61000-4-5 $I_{PPM} > 3\text{ A}$
- Low leakage current $I_R < 0.1\ \mu\text{A}$
- Low load capacitance $C_D = 0.9\ \text{pF}$
- ESD-protection acc. IEC 61000-4-2
± 15 kV contact discharge
± 15 kV air discharge
- Soldering can be checked by standard vision inspection;
no X-ray necessary
- Pin plating NiPdAu (e4) no whisker growth
- e4 - precious metal (e.g. Ag, Au, NiPd, NiPdAu) (no Sn)
- Compliant to RoHS Directive 2002/95/EC and in
accordance to WEEE 2002/96/EC



RoHS
COMPLIANT
GREEN
(5-2008)**

ORDERING INFORMATION			
DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL (8 mm TAPE ON 7" REEL)	MINIMUM ORDER QUANTITY
VBUS051BD-HD1	VBUS051BD-HD1-GS08	8000	8000

PACKAGE DATA						
DEVICE NAME	PACKAGE NAME	TYPE CODE	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
VBUS051BD-HD1	LLP1006-2L	A	0.72 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals

ABSOLUTE MAXIMUM RATINGS					
PARAMETER	TEST CONDITIONS		SYMBOL	VALUE	UNIT
Peak pulse current	acc. IEC 61000-4-5; $t_p = 8/20\ \mu\text{s}$; single shot		I_{PPM}	3	A
Peak pulse power	acc. IEC 61000-4-5; $t_p = 8/20\ \mu\text{s}$; single shot		P_{PP}	45	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses		V_{ESD}	± 15	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses			± 15	kV
Operating temperature	Junction temperature		T_J	- 55 to + 145	°C
Storage temperature			T_{STG}	- 55 to + 150	°C

ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\ ^\circ\text{C}$, unless otherwise specified)							
PARAMETER	TEST CONDITIONS/REMARKS		SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected		$N_{channel}$	-	-	1	lines
Reverse working voltage	at $I_R = 0.1\ \mu\text{A}$; pin 2 to pin 1		V_{RWM}	5	-	-	V
Reverse current	at $V_R = V_{RWM} = 5\ \text{V}$; pin 2 to pin 1		I_R	-	< 0.01	0.1	μA
Reverse breakdown voltage	at $I_R = 1\ \text{mA}$; pin 2 to pin 1		V_{BR}	6.9	7.9	8.7	V
Reverse clamping voltage	at $I_{PP} = 3\ \text{A}$; acc. IEC 61000-4-5; pin 2 to pin 1		V_C	-	-	16	V
Forward clamping voltage	at $I_F = 3\ \text{A}$; acc. IEC 61000-4-5; pin 1 to pin 2		V_F	-	3.4	4	V
Capacitance	at $V_R = 0\ \text{V}$; $f = 1\ \text{MHz}$; pin 2 to pin 1		C_D	-	0.9	1.3	pF

** Please see document "Vishay Material Category Policy": www.vishay.com/doc?99902