



# BCT0501

## Normal Capacitance ESD Protection

# BCT0501

## Bi-directional 5V Normal Capacitance ESD Protector

### GENERAL DESCRIPTION

The BCT0501 is a Bi-directional transient voltage suppressor designed to protect sensitive electronic components from electrostatic discharge. It may be used to provide ESD protection up to 30kV(contact and air) according to IEC61000-4-2, and withstand peak pulse current up to 7A (8/20 $\mu$ s) according to IEC61000-4-5.

The BCT0501 is available in DFN1006 package.

### FEATURES

- Transient protection for high-speed data line according to IEC 61000-4-2 (ESD):  $\pm$ 30kV (contact and air)
- IEC 61000-4-5 (Surge) 7A (8/20 $\mu$ s)
- Low leakage current (<100nA)
- Low clamping voltage
- Low operating voltage: 5.0V
- Fast response
- Solid-state silicon-avalanche technology

### APPLICATIONS

- Cell phone
- MID
- Digital camera
- PAD
- Portable devices
- Power supplies

### ORDERING INFORMATION

Order Number	Package Type	Temperature Range	Marking	QTY/Reel
BCT0501ELQ-TR	DFN1006	-40°C to +85°C	WAA	3000

Note :

"W" in Marking is week No.

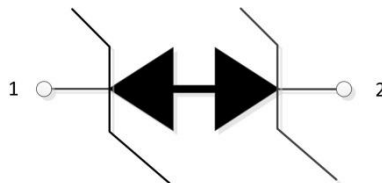
First "A" in Marking is product short code .

Second "A" in Marking is voltage version. A for "5V".

Week number list as follow:

Week	Week No.	Week	Week No.	Week	Week No.
1	A	21	U	41	o
2	B	22	V	42	p
3	C	23	W	43	q
4	D	24	X	44	r
5	E	25	Y	45	s
6	F	26	Z	46	t
7	G	27	a	47	u
8	H	28	b	48	v
9	I	29	c	49	w
10	J	30	d	50	x
11	K	31	e	51	y
12	L	32	f	52	z
13	M	33	g	53	1
14	N	34	h	54	2
15	O	35	i		
16	P	36	j		
17	Q	37	k		
18	R	38	l		
19	S	39	m		
20	T	40	n		

### PIN CONFIGURATION (Top View)





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### ABSOLUTE MAXIMUM RATINGS

Peak Pulse Current ( $t_p = 8/20\mu s$ ).....7A  
Operating Temperature Range.....-55°C to +125°C  
Storage Temperature Range.....-55°C to 150°C  
ESD Susceptibility  
IEC 61000-4-2 (Air).....30KV  
IEC 61000-4-2 (Contact).....30KV

#### NOTE:

Stresses beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

### CAUTION

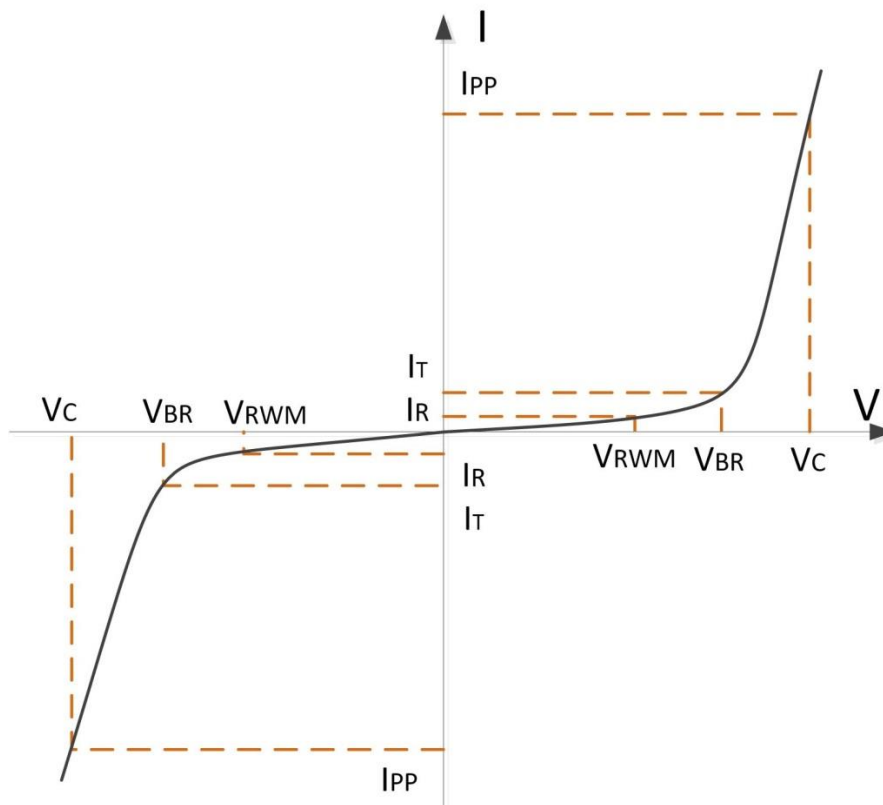
This integrated circuit can be damaged by ESD if you don't pay attention to ESD protection. Broadchip recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

Broadchip reserves the right to make any change in circuit design, specification or other related things if necessary without notice at any time. Please contact Broadchip sales office to get the latest datasheet.

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ , unless otherwise specified.)

#### Electronics Parameter

Symbol	Definition
$V_{RAM}$	Peak Reverse Working Voltage
$V_{BR}$	Breakdown Voltage
$V_C$	Clamping Voltage
$I_R$	Reverse Leakage Current
$I_T$	Test Current
$I_{PP}$	Maximum Reverse Peak Pulse Current





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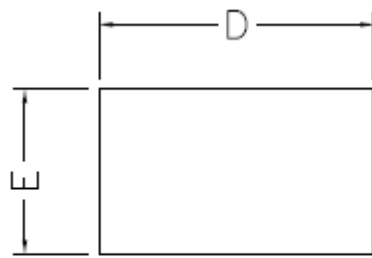
PARAMETER	SYM	CONDITIONS		MIN	TYP	MAX	UNITS
Reverse Stand-Off Voltage	$V_{RWM}$					5.0	V
Reverse Breakdown Voltage	$V_{BR}$	$I_t=1mA$		5.6		8	V
Reverse Leakage Current	$I_R$	$V_{RWM}=5V,$				0.1	$\mu A$
Clamping Voltage	$V_C$	$t_p=8/20\mu s$	$I_{PP}=1A$			9.8	V
			$I_{PP}=5.5A$			12.5	V
Junction Capacitance	$C_J$	$V_R=0V, f=1MHz$			15	16	pF

NOTES:

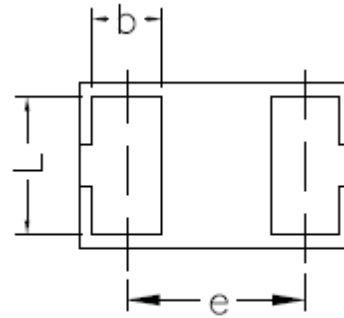
1. ESD gun return path connected to ESD ground plane.

**PACKAGE OUTLINE DIMENSIONS**

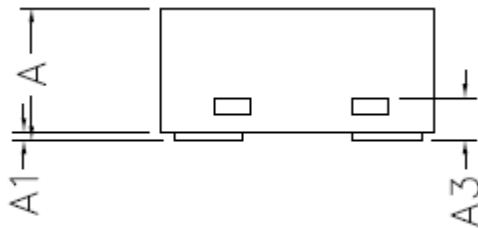
DFN-1006



TOP VIEW



BOTTOM VIEW



SIDE VIEW

COMMON DIMENSIONS(MM)			
PKG.	X1: EXTREME THIN		
REF.	MIN.	NOM.	MAX
A	>0.4	—	0.50
A1	0.00	—	0.05
A3	0.125REF.		
D	0.95	1.00	1.05
F	0.55	0.60	0.65
b	0.20	0.25	0.30
L	0.45	0.50	0.55
	—	—	—
	—	—	—
e	0.65 BSC		

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