ECTHCAG4V5B

High Power TVS Diode

The ECTHCAG4V5B is a high power TVS, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive lines. The ECTHCAG4V5B Series complies with the IEC 610002 (ESD) standard with ±30kV air and ±30kV contact discharge. It is assembled into a 3pin DFN2020-3L package. The leads are finished with NiPdAu. Each device will protect one line. The combination of small size, and high surge capability makes them ideal for use in applications such as cellular phones, LCD displays, USB, and multimedia card interfaces.

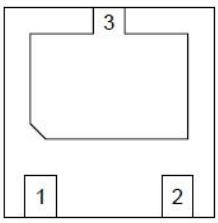
Features

- Protects one I/O lines
- Working voltages : 4.5V
- 2000W peak pulse power (8/20μs)
- Low leakage current
- Response Time is < 1 ns
- Meets MSL 1 Requirements
- Solid-state silicon avalanche technology
- ROHS compliant

DFN2020-3L

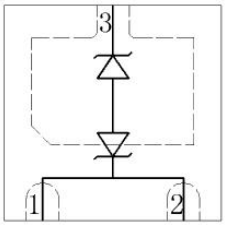
Main applications

- Power Management
- Industrial Application
- Power Supply Protection



Protection solution to meet

- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (Lightning) 180A (8/20μs)



Ordering Information

Device	Mark	Qty per Reel	Reel Size
ECTHCAG4V5B	4.5H	3000	7 Inch

Maximum ratings (Temp=25℃ Unless Otherwise Specified)			
Parameter	**Symbol**	**Value**	**Unit**
Peak Pulse Power (tp=8/20μs waveform)	P_{PPP}	2000	Watts
ESD Rating per IEC61000-4-2： Contact Air		30 30	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.

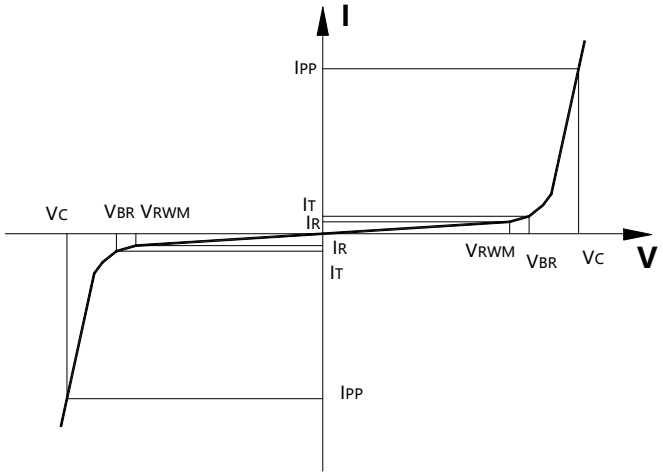
**Other voltages may be available upon request.*

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

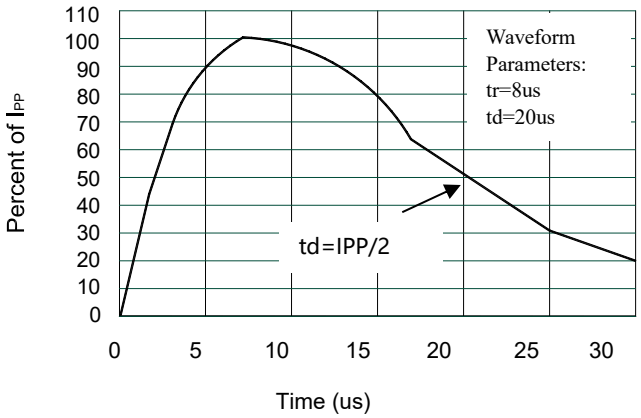
Electrical characteristics (Temp=25℃ Unless Otherwise Specified)						
Symbol	**Parameter**	**Conditions**	**Min.**	**Typ.**	**Max.**	**Units**
V_{RWM}	Reverse Working Voltage	Pin 3 to pin 1,2			4.5	V
V_{BR}	Reverse Breakdown Voltage	IT = 1mA, Pin 3 to pin 1,2		5		V
I_R	Reverse Leakage Current	V_{RWM} =4.5V, Pin 3 to pin 1,2			1	μA
V_C	Clamping Voltage	I_{PP} = 50A, tp =8/20μs, Pin 3 to pin 1,2		5		V
		I_{PP} = 180A, tp =8/20μs, Pin 3 to pin 1,2		10	13	V
C_J	Junction Capacitance	V_R = 0V, f = 1MHz, Pin 3 to pin 1,2		400		pF

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

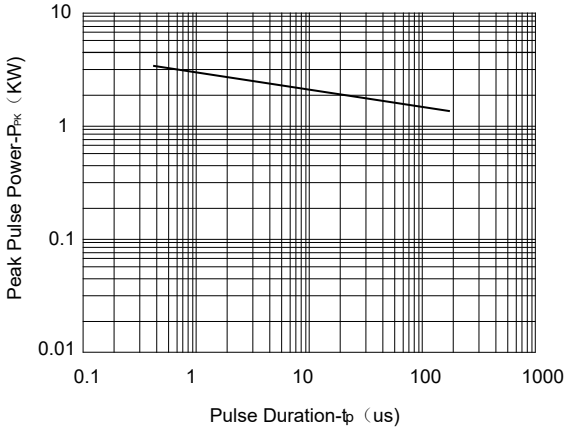
Symbol	Parameter
V_{RWM}	Working Peak Reverse Voltage
V_{BR}	Breakdown Voltage @ I_T
V_C	Clamping Voltage @ I_{PP}
I_T	Test Current
I_{RM}	Leakage current at V_{RWM}
I_{PP}	Peak pulse current
C_O	Off-state Capacitance
C_J	Junction Capacitance



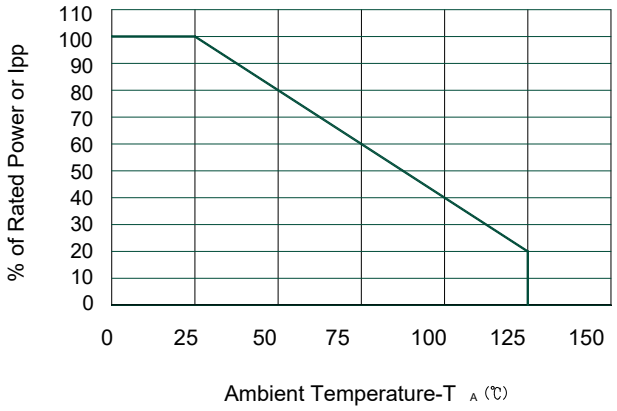
Typical electrical characterist applications



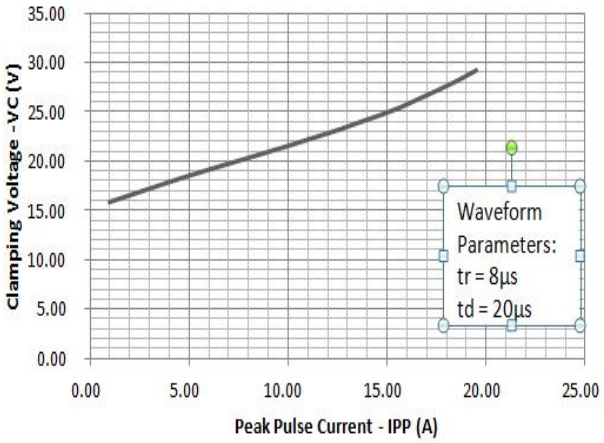
Pulse Waveform



Non-Repetitive Peak Pulse Power vs. Pulse Time



Power Derating Curve



Clamping Voltage vs. Peak Pulse Current

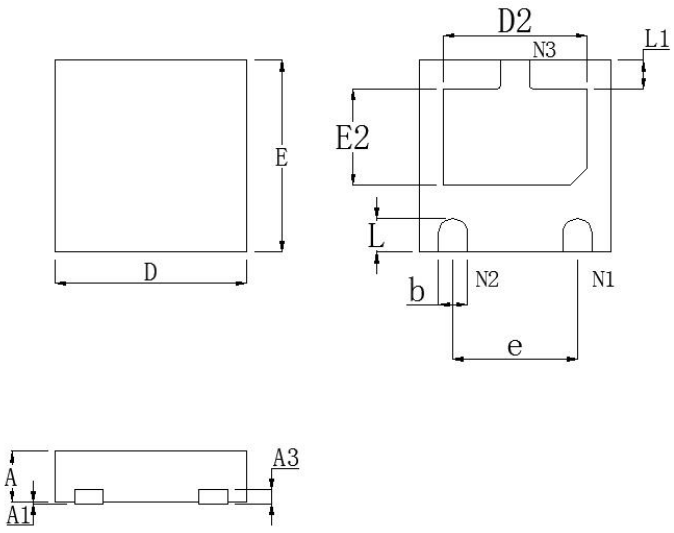
Package Information

DFN2020-3L

Mechanical Data

Case:DFN2020

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters		
	Min	Nom	Max
A	0.50	0.55	0.60
A1	0.00	-	0.05
A3	0.15 REF.		
D	1.95	2.00	2.05
E	1.95	2.00	2.05
b	0.25	0.30	0.35
L	0.30	0.35	0.40
L1	0.25	0.30	0.35
D2	1.35	1.50	1.60
E2	0.85	1.00	1.10
e	1.30 BSC		

Recommended Pad outline