

ECTHCAG12VUL

High Power TVS Diode

The ECTHCAG12VUL 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 ECTHCAG12VUL complies with the IEC 61000-4-2 (ESD) with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a 3-pin DFN2020-3 lead-free package. 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 multi media card interfaces.

Features

- Protects one I/O lines
- Operating voltage: 12V
- 6000W peak pulse power (8/20 μs)
- Low leakage current
- Solid-state silicon avalanche technology
- ROHS compliant



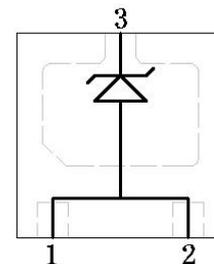
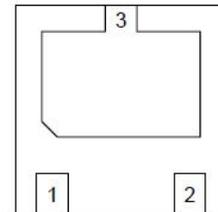
DFN2020-3L

Main applications

- Power Management
- Industrial Application
- Power Supply Protection

Protection solution to meet

- IEC61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact)
- IEC61000-4-5 (Lightning) 200A (8/20 μs)



Ordering Information

Device	Qty per Reel	Reel Size
ECTHCAG12VUL	3000	7 Inch

Maximum ratings (Temp=25°C Unless Otherwise Specified)			
Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20µs waveform)	P _{PPP}	6000	Watts
Peak Pulse Current (8/20 µ s)	I _{PP}	200	A
ESD Rating per IEC61000-4-2:	Contact	30	KV
	Air	30	
Lead Soldering Temperature	T _L	260 (10 sec.)	°C
Operating Temperature Range	T _J	-55 ~ 125	°C
Storage Temperature Range	T _{STG}	-55 ~ 150	°C

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.

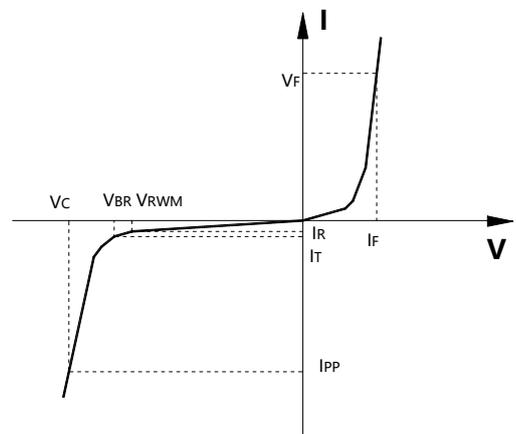
*Other voltages may be available upon request.

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

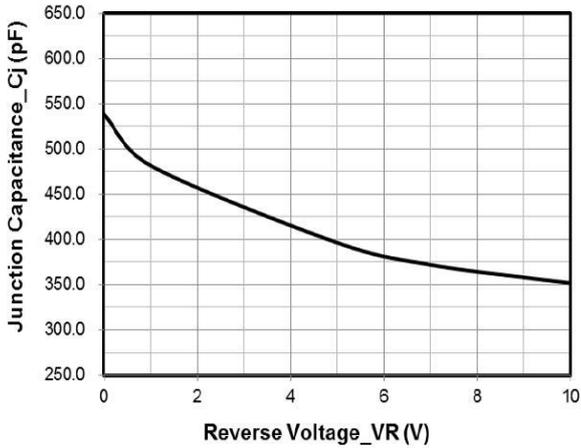
Electrical characteristics (Temp=25°C Unless Otherwise Specified)						
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
V _{RWM}	Reverse Working Voltage	Pin 3 to pin 1,2			12	V
V _{BR}	Reverse Breakdown Voltage	I _T = 1mA, Pin 3 to pin 1,2	13			V
I _R	Reverse Leakage Current	V _{RWM} =12V, Pin 3 to pin 1,2			1.0	µA
V _C	Clamping Voltage	I _{PP} = 1A, tp =8/20µs, Pin 3 to pin 1,2			15	V
		I _{PP} = 200A, tp =8/20µs, Pin 3 to pin 1,2			30	V
C _J	Junction Capacitance	V _R = 0V, f = 1MHz, Pin 3 to pin 1,2		550		pF

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

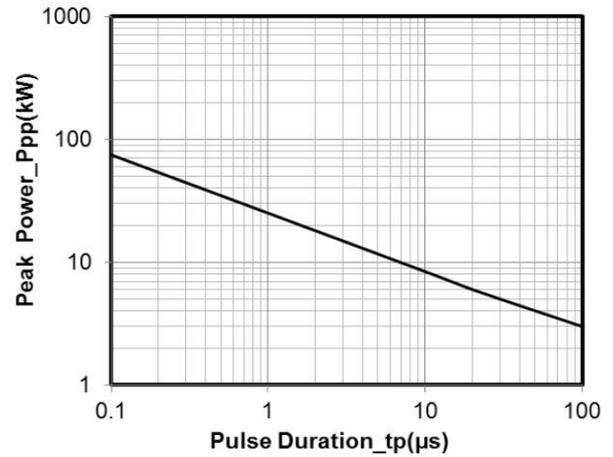
Symbol	Parameter
V _{RWM}	Working Peak Reverse Voltage
V _{BR}	Breakdown Voltage @ I _T
V _C	Clamping Voltage @ I _{PP}
I _T	Test Current
I _{RM}	Leakage current at V _{RWM}
I _{PP}	Peak pulse current
C _O	Off-state Capacitance
C _J	Junction Capacitance



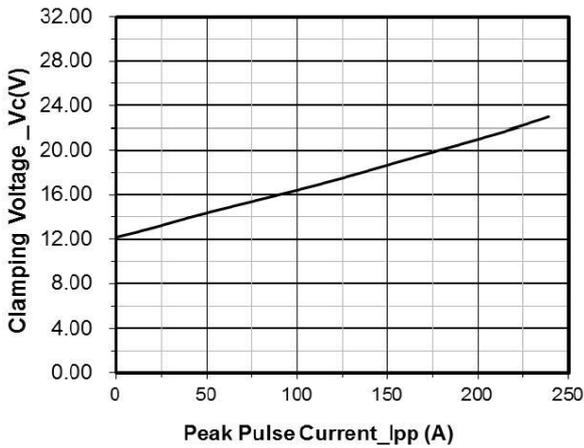
Typical electrical characterist applications



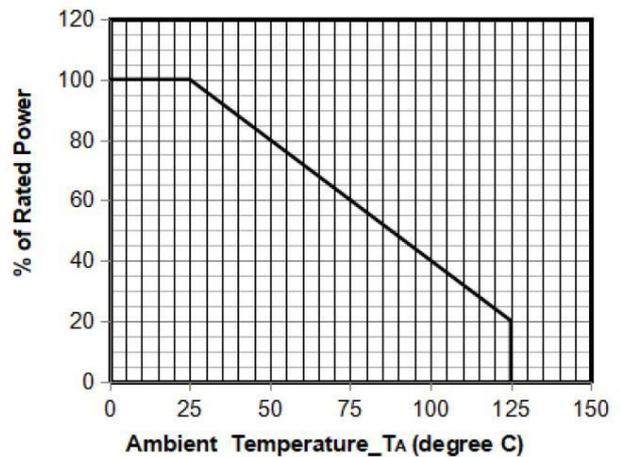
Novction Capacitance vs. Reverse Voltage



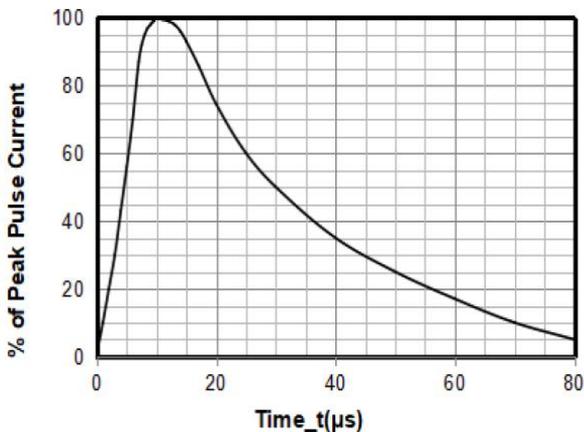
Peak Pulse Power vs. Pulse Time



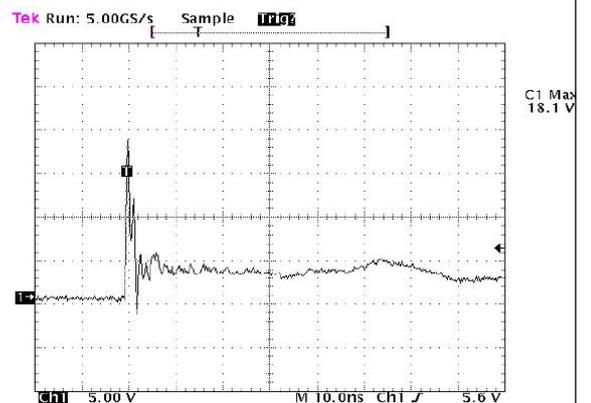
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20μs Pulse Waveform



Note: Data is taken with a 10x attenuator

ESD Clamping Voltage

8 kV Contact per IEC61000-4-2

