

## DFN2020-3L Plastic-Encapsulate ESD Protection Diodes

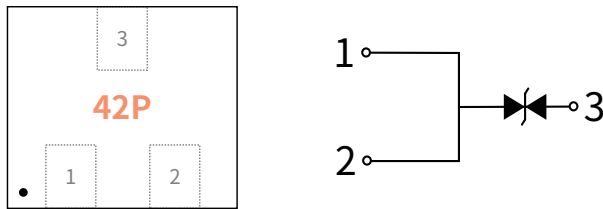
### ● Features

- Low leakage current
- DFN2020-3L surface mount package
- IEC 61000-4-2 (ESD Air):  $\pm 30\text{kV}$
- IEC 61000-4-2 (ESD Contact):  $\pm 30\text{kV}$
- IEC 61000-4-5 (Lightning 8/20 $\mu\text{s}$ ): 280A

### ● Applications

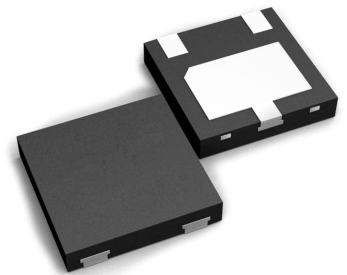
- Power Management
- Industrial Application
- Power Supply Protection

### ● Function Diagram



**Reverse Working Voltage**  
4.5V Max.  
**High capacitance**  
800pF(Max.)

DFN2020-3L

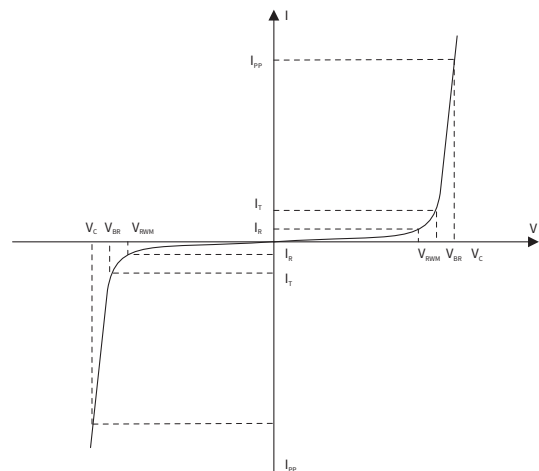


### ● Maximum Ratings (Ta=25°C Unless otherwise specified)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>ESD</sub>	Electrostatic Discharge Voltage	ESD per IEC 61000-4-2( Air )	$\pm 30$	KV
		ESD per IEC 61000-4-2( Contact)	$\pm 30$	KV
P <sub>PP</sub>	Peak Pulse Power	tp = 8/20 $\mu\text{s}$	5880	W
I <sub>PP</sub>	Rated Peak Pulse Current	tp = 8/20 $\mu\text{s}$	280	A
T <sub>J</sub>	Operating JunctionTemperature Range	—	-55 to +125	°C
T <sub>STG</sub>	Operating JunctionTemperature Range	—	-55 to +150	°C

### ● Electrical Parameter

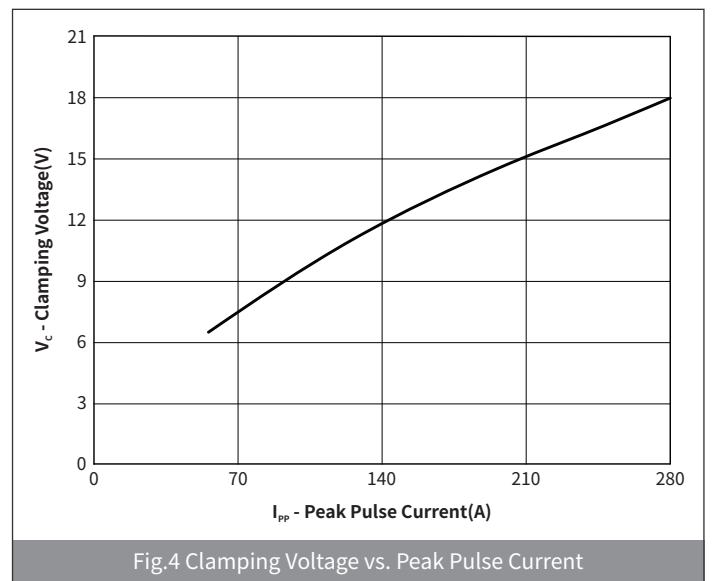
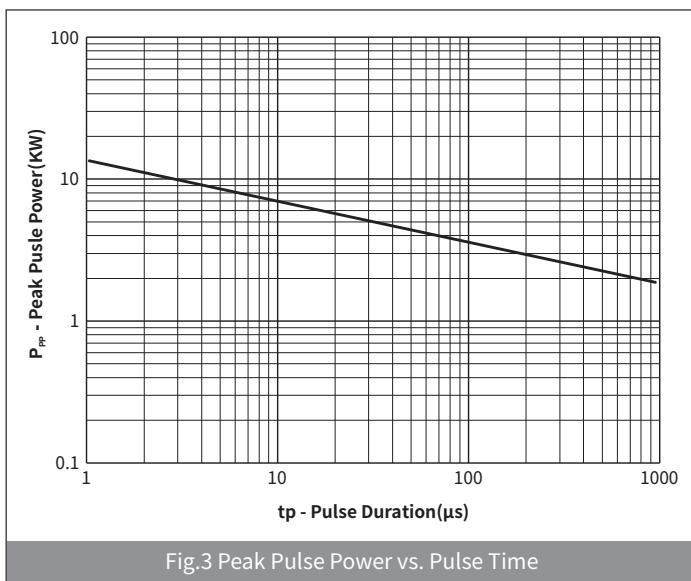
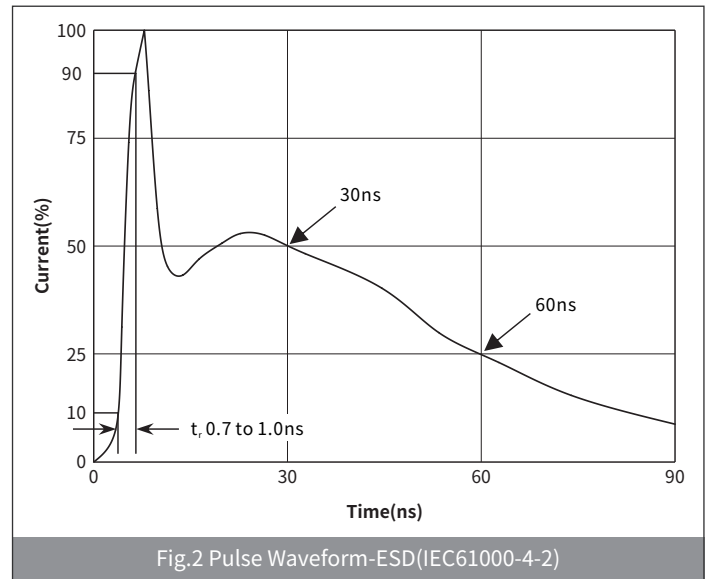
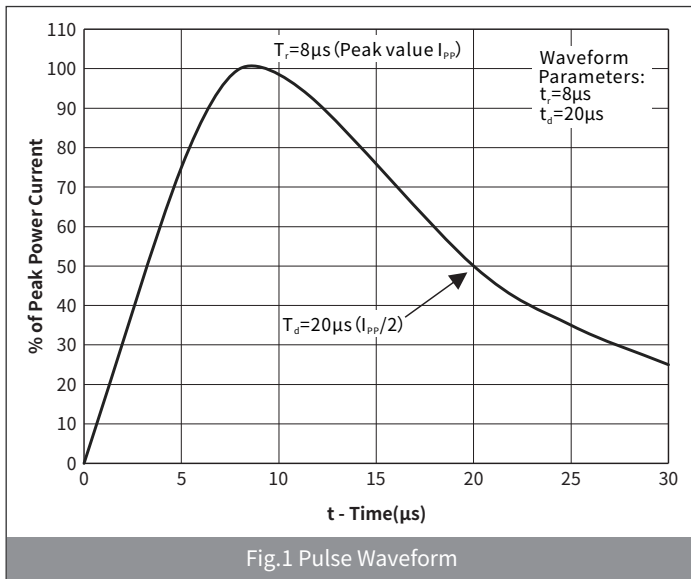
SYMBOL	PARAMETER
V <sub>C</sub>	Clamping Voltage @ I <sub>PP</sub>
V <sub>BR</sub>	Breakdown Voltage @ I <sub>T</sub>
I <sub>PP</sub>	Peak Pulse Current
I <sub>T</sub>	Test Current
I <sub>R</sub>	Reverse Leakage Current @ VRWM
V <sub>RWM</sub>	Peak Reverse Working Voltage
P <sub>PP</sub>	Peak Pulse Power Dissipation
C <sub>J</sub>	Junction Capacitance @ V <sub>R</sub> =0V,f=1MHz
I <sub>F</sub>	Forward Current
V <sub>F</sub>	Forward Voltage @I <sub>F</sub>



## ● Electrical Characteristics (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	CONDITION	Min	Typ	Max	UNIT
Peak Reverse Working Voltage	$V_{RWM}$	$T_a=25^\circ\text{C}$	—	—	4.5	V
Breakdown Voltage	$V_{BR}$	$I_R=1.0\text{mA}, T_a=25^\circ\text{C}$	4.7	—	6	V
Reverse Leakage Current	$I_R$	$V_R=4.5\text{V}, T_a=25^\circ\text{C}$	—	—	1	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP}=50\text{A}, t_p=8/20\mu\text{s}$	—	—	8.5	V
		$I_{PP}=280\text{A}, t_p=8/20\mu\text{s}$	—	—	21	
Junction Capacitance	$C_J$	$V_R=0\text{V}, f=1\text{MHz}$	—	650	800	pF

## ● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



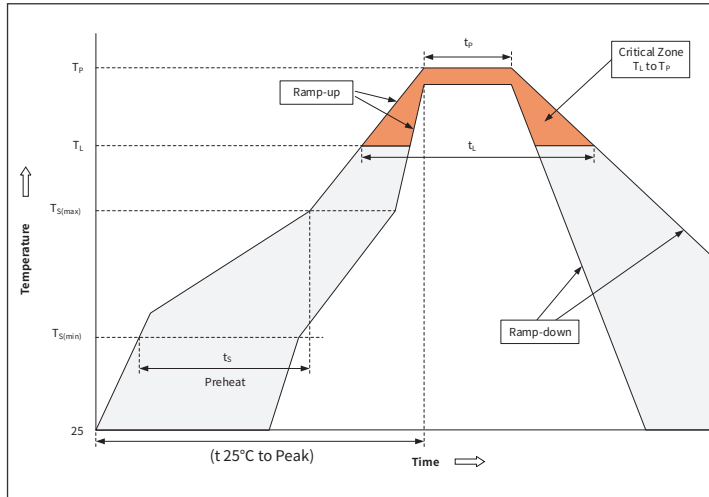
# H4V5H22B

Bi-directional 4.5V High Capacitance ESD

## Ordering Information

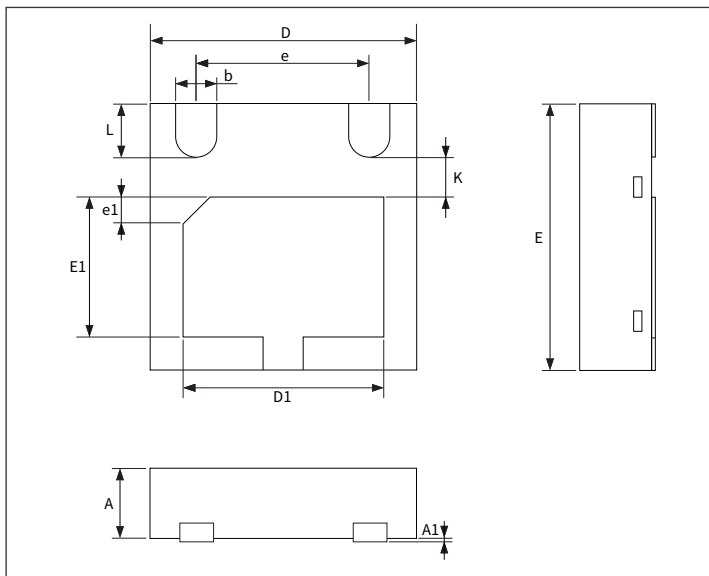
PREFERED P/N	PACKAGE	SIZE(mm)	DELIVERY MODE	MPQ(PCS)
H4V5H22B	DFN2020-3L	2.00×2.00×0.55	7" REEL	3000

## Recommended Soldering Conditions



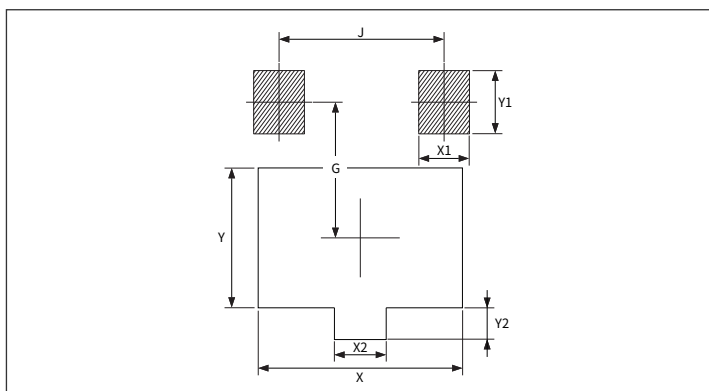
Profile Feature		Pb-Free Assembly
Pre-heat	Temperature Min ( $T_{S(min)}$ )	+150°C
	Temperature Max ( $T_{S(max)}$ )	+200°C
	Time (Min to Max) ( $t_s$ )	60-180 secs.
Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak)		3°C/sec. Max
$T_{S(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max
Reflow	Temperature ( $T_L$ ) (Liquid us)	+217°C
	Temperature ( $t_L$ )	60-150 secs.
Peak Temp ( $T_P$ )		+260(+0/-5)°C
Time within 5°C of actual Peak Temp ( $t_p$ )		20-40secs
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp ( $T_P$ )		8 min. Max
Do not exceed		+260°C

## Package Outline Dimensions (DFN2020-3L)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.50	0.60	0.020	0.023
A1	-	0.05	-	0.002
D	1.90	2.10	0.074	0.082
D1	1.40	1.60	0.055	0.063
E	1.90	2.10	0.074	0.082
E1	0.95	1.15	0.037	0.045
K	0.30		0.012	
e	1.30		0.051	
c	0.127		0.005	
b	0.25	0.35	0.010	0.014
L	0.35	0.45	0.014	0.018

## Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
G	1.05	1.15	0.043	0.047
J	1.25	1.35	0.051	0.055
X	1.55	1.65	0.063	0.067
X1	0.35	0.45	0.016	0.020
X2	0.35	0.45	0.016	0.020
Y	1.05	1.15	0.043	0.047
Y1	0.45	0.55	0.020	0.024
Y2	0.2	0.3	0.010	0.014

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