

## SOT-563 Plastic-Encapsulate ESD Protection Diodes

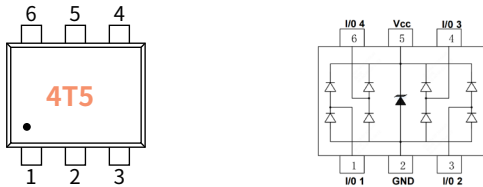
### Features

- Low leakage current
- Low clamping voltage
- IEC 61000-4-2 (ESD Air):  $\pm 20\text{kV}$
- IEC 61000-4-2 (ESD Contact):  $\pm 15\text{kV}$
- IEC 61000-4-5 (Lightning 8/20 $\mu\text{s}$ ): 6.0A

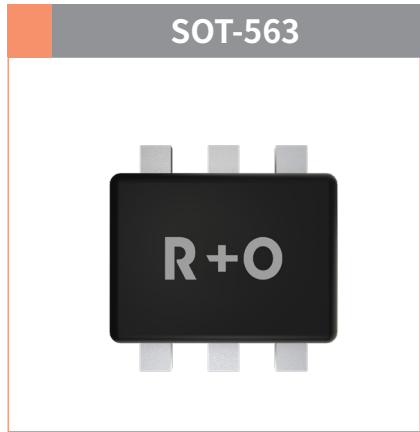
### Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation, Digital Cameras
- Peripherals, Audio Players, Industrial Equipment

### Function Diagram



**Reverse Working Voltage**  
5V Max.  
**Ultra Small capacitance**  
0.25 pF(Typ.)

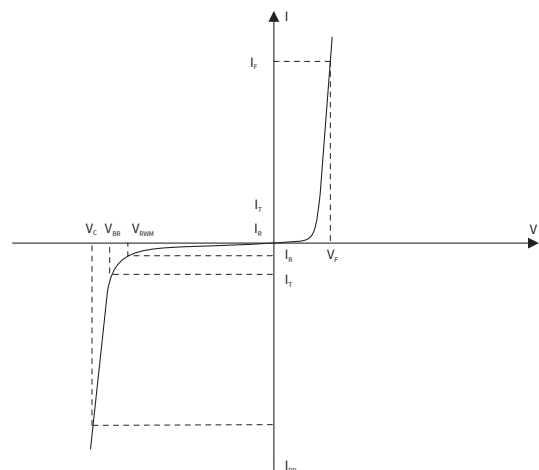


### Maximum Ratings (Ta=25°C Unless otherwise specified)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>ESD</sub>	Electrostatic Discharge Voltage	ESD per IEC 61000-4-2( Air )	$\pm 20$	KV
		ESD per IEC 61000-4-2( Contact)	$\pm 15$	KV
P <sub>PP</sub>	Peak Pulse Power	tp = 8/20 $\mu\text{s}$	90	W
I <sub>PP</sub>	Rated Peak Pulse Current	tp = 8/20 $\mu\text{s}$	6.0	A
T <sub>J</sub>	Operating Junction Temperature Range	—	-55 to +125	°C
T <sub>STG</sub>	Operating Junction Temperature Range	—	-55 to +125	°C

### Electrical Parameter

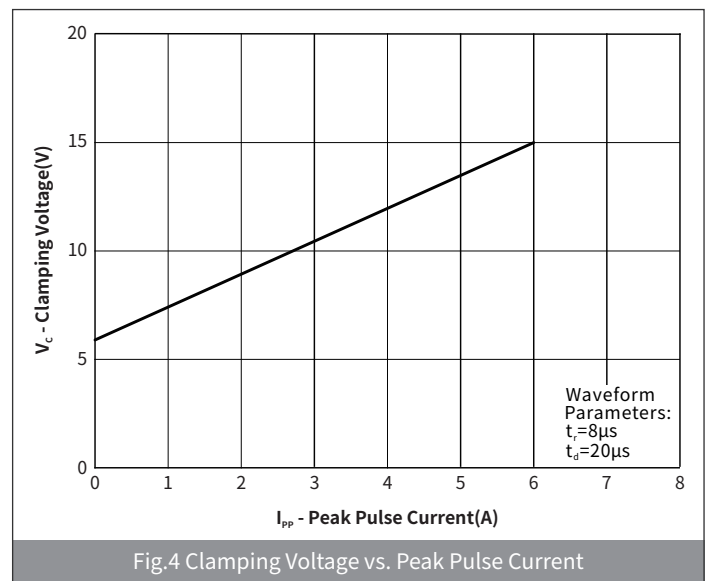
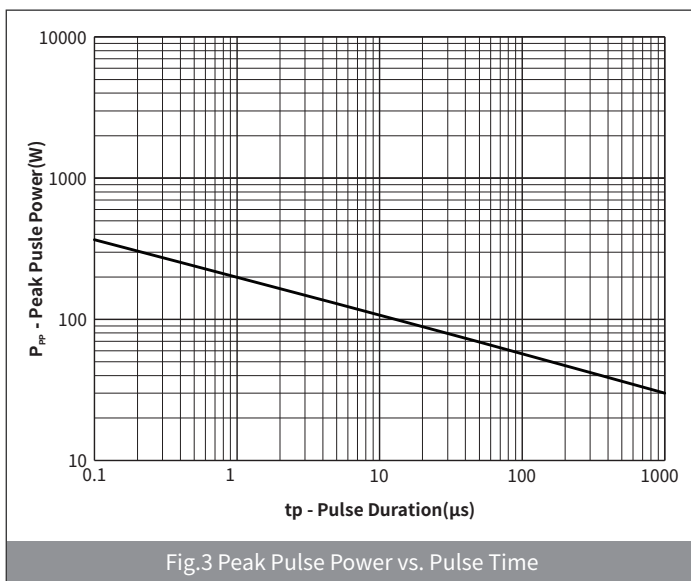
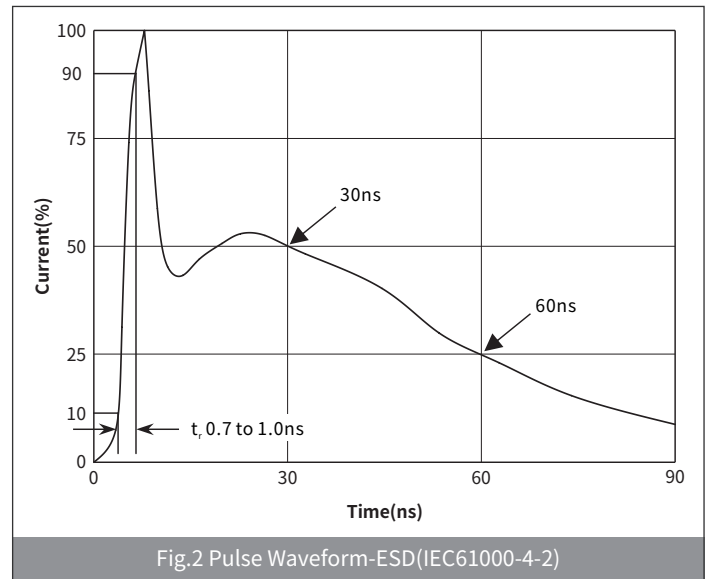
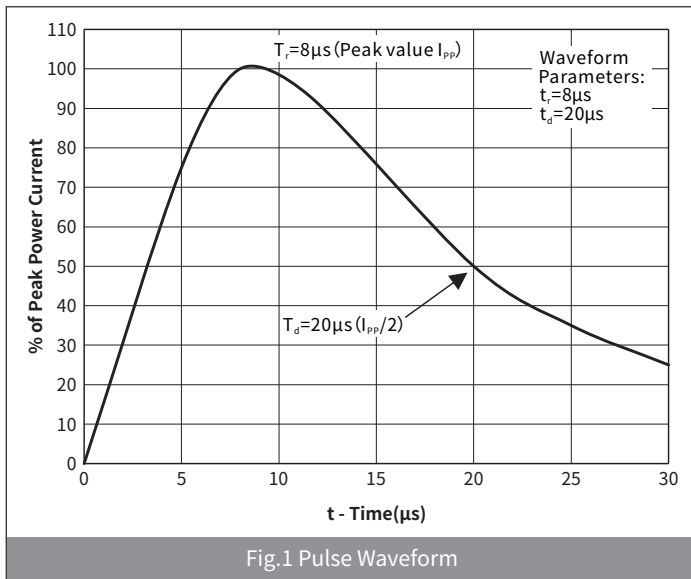
SYMBOL	PARAMETER
V <sub>C</sub>	Clamping Voltage @ I <sub>pp</sub>
V <sub>BR</sub>	Breakdown Voltage @ I <sub>T</sub>
I <sub>PP</sub>	Peak Pulse Current
I <sub>T</sub>	Test Current
I <sub>R</sub>	Reverse Leakage Current @ VRWM
V <sub>RWM</sub>	Peak Reverse Working Voltage
P <sub>PP</sub>	Peak Pulse Power 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	$V_{RWM}$	$T_a=25^\circ\text{C}$	—	—	5.0	V
Breakdown Voltage	$V_{BR}$	$I_T=1\text{mA}, T_a=25^\circ\text{C}$	6.0	7.4	—	V
Reverse Leakage Current	$I_R$	$V_{RWM}=5.0\text{V}, T_a=25^\circ\text{C}$	—	—	0.5	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP}=6.0\text{A}, t_p=8/20\mu\text{s}$	—	12	15	V
Junction Capacitance	$C_J$	$V_{RWM}=0\text{V}, f=1\text{MHz}, \text{Between I/O pins}$	—	0.25	0.35	pF
		$V_{RWM}=0\text{V}, f=1\text{MHz}, \text{pin I/O to GND}$	—	0.55	0.70	

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



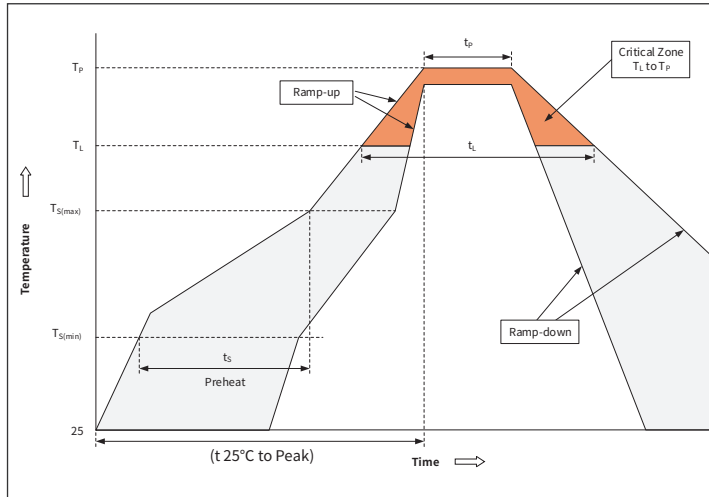
# H5VUT5U-4

Uni-directional 5V Ultra Small Capacitance ESD

## Ordering Information

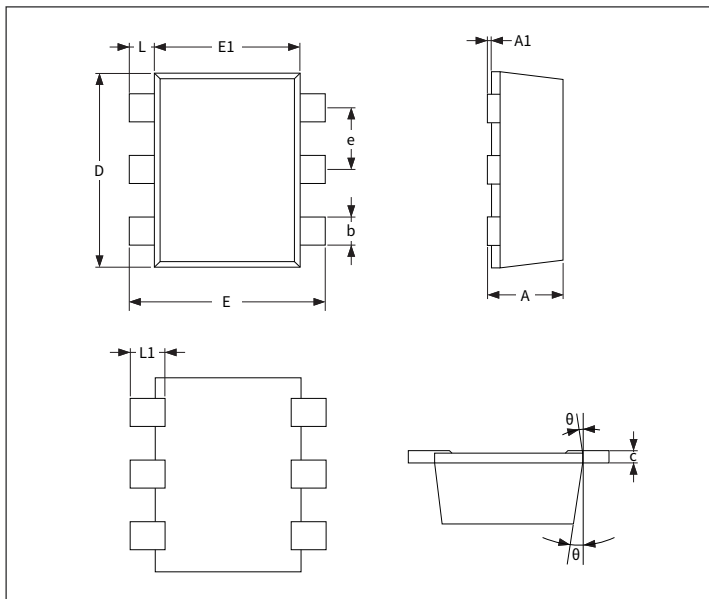
PREFERED P/N	PACKAGE	SIZE(mm)	DELIVERY MODE	MPQ(PCS)
H5VUT5U-4	SOT-563	0.55×1.6×1.6	7" REEL	3000

## Recommended Soldering Conditions



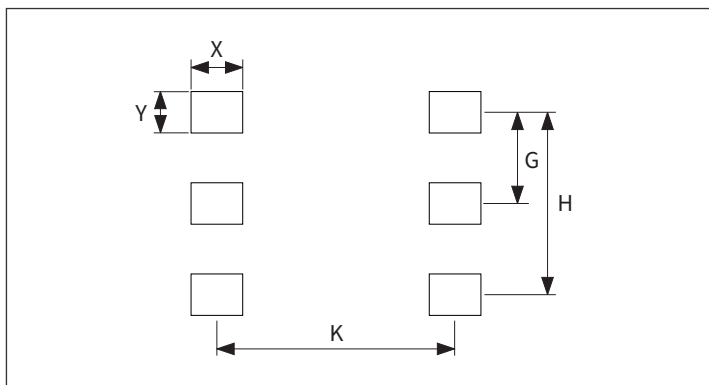
Profile Feature		Pb-Free Assembly
Pre-heat	Temperature Min ( $T_{S(min)}$ )	+150°C
	Temperature Max ( $T_{S(max)}$ )	+200°C
	Time (Min to Max) ( $t_s$ )	60-180 secs.
Average ramp up rate (Liquid us Temp ( $T_l$ ) to peak)		3°C/sec. Max
$T_{S(max)}$ to $T_l$ - Ramp-up Rate		3°C/sec. Max
Reflow	Temperature ( $T_l$ ) (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 (SOT-563)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.525	0.600	0.021	0.024
A1	-	0.050	-	0.002
b	0.170	0.270	0.007	0.011
c	0.090	0.160	0.004	0.006
D	1.500	1.700	0.059	0.067
E1	1.100	1.300	0.043	0.051
E	1.500	1.700	0.059	0.067
e	0.450	0.550	0.018	0.022
L	0.100	0.300	0.004	0.012
L1	0.200	0.400	0.008	0.016
$\theta$	8° REF		8° REF	

## Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
G	0.45	0.55	0.018	0.022
H	0.95	1.05	0.037	0.041
K	1.35	1.45	0.053	0.057
X	0.25	0.35	0.010	0.014
Y	0.25	0.35	0.010	0.014