



## Discription

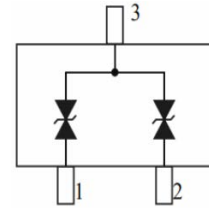
The HDUP2105SOQ-7 protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events. Excellent clamping capability, low leakage, low capacitance, and fast response time provide best in class protection on designs that are exposed to ESD. It gives designer the flexibility to protect one bi-directional line in applications where arrays are not practical.

## Features

- ★ Transient protection for high-speed data lines  
IEC 61000-4-2(ESD)  $\pm 8\text{kV}$  (Contact)  
 $\pm 15\text{kV}$  (Air)  
IEC 61000-4-4(EFT) 40A (5/50 ns)
- ★ Peak power dissipation: 350W (8/20us)
- ★ Working voltages : 24V
- ★ Protects one bidirectional line or two unidirectional lines
- ★ Low clamping voltage
- ★ Low leakage current



SOT-23



Circuit Diagram

## Ordering information

Product ID	Pack	Qty(PCS)
HDUP2105SOQ-7	SOT-23	3000

## Absolute Ratings( $T_{amb} = 25^{\circ}\text{C}$ )

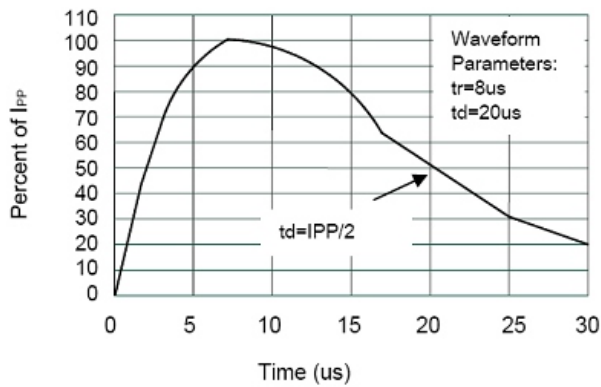
Symbol	Parameter	Value	Units	
$P_{PP}$	Peak Pulse Power ( $t_p = 8/20 \mu s$ )	350	W	
$T_L$	Maximum lead temperature for soldering during 10s	260	$^{\circ}\text{C}$	
$T_{stg}$	Storage Temperature Range	-55 to +155	$^{\circ}\text{C}$	
$T_{op}$	Operating Temperature Range	-40 to +125	$^{\circ}\text{C}$	
$T_j$	Maximum junction temperature	150	$^{\circ}\text{C}$	
	IEC61000-4-2 (ESD)	air discharge contact discharge	$\pm 15$ $\pm 8$	KV
	IEC61000-4-4 (EFT)	40	A	



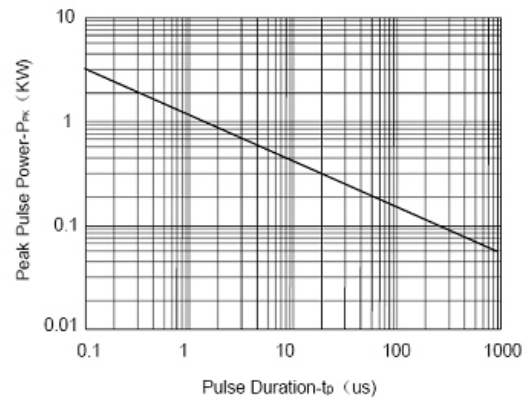
### Electrical Characteristics

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
$V_{RWM}$	Reverse Working Voltage	Pin 1 or 2 to Pin3			24	V
$V_{BR}$	Reverse Breakdown Voltage	$I_T = 1mA$ Pin 1 or 2 to Pin3	26.2		32	V
$I_R$	Reverse Leakage Current	$V_{RWM} = 24V$ Pin 1 or 2 to Pin3		15	100	nA
$V_C$	Clamping Voltage	$I_{RWM} = 1A, t_p = 8/20\mu s$ Pin 1 or 2 to Pin3			36	V
		$I_{RWM} = 5A, t_p = 8/20\mu s$ Pin 1 or 2 to Pin3			46	V
$C_J$	Junction Capacitance	$V_R = 0V, f = 1MHz$ Pin 1 or 2 to Pin3		25	30	pF

### Typical Characteristics



**Pulse Waveform**



**Non-Repetitive Peak Pulse Power vs. Pulse Time**

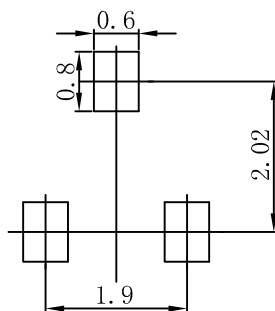


### SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

### SOT-23 Suggested Pad Layout



**Note:**

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.



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