

## Description

The CSHXXE2UX is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time. The CSHXXE2UX is suited for using in computers, printers, business machines, communication systems, medical equipment and other applications.



## Mechanical Characteristics

- SOT-23
- ROHS/ Compliant
- Halogen free
- Molding compound flammability rating: UL 94V-0
- Marking: Part number
- Packing: Tape and Reel per EIA 481

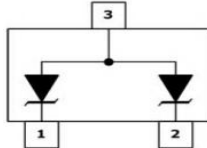
## Features

- IEC 61000-4-2 (ESD)
  - $\pm 30\text{kV}$  Contact Discharge
  - $\pm 30\text{kV}$  Air Discharge
- IEC 61000-4-5 (Lightning)
  - 4A~20A (8/20us)
- IEC 61000-4-4 EFT Protection
  - 40A (5/50ns)
- Halogen free and RoHS compliant
- Protects two channels I/O line
- Low leakage current

## Applications

- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants
- Notebooks / Desktops / Servers
- Portable Instrumentation
- Network, telecom
- Switch Systems
- ECU I/O port

## Dimensions and Pin Configuration

Pin	Name	Description	Circuit Diagram
1-3	IO1	Connect to IO	
2-3	IO2	Connect to IO	

## Ordering Information

Part No.	Package	Material	Packing	Quantity per reel	Flammability	Reel Size
CSH12E2U	SOT-23	Halogen free	Tape&Reel	3000PCS	UL 94V-0	7 inches

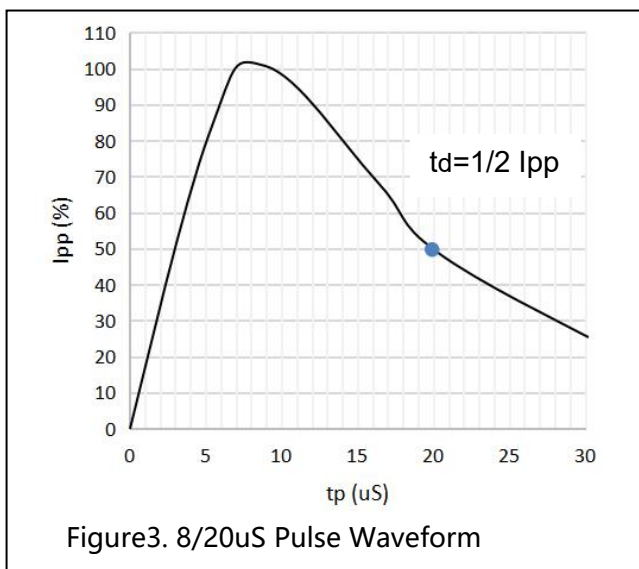
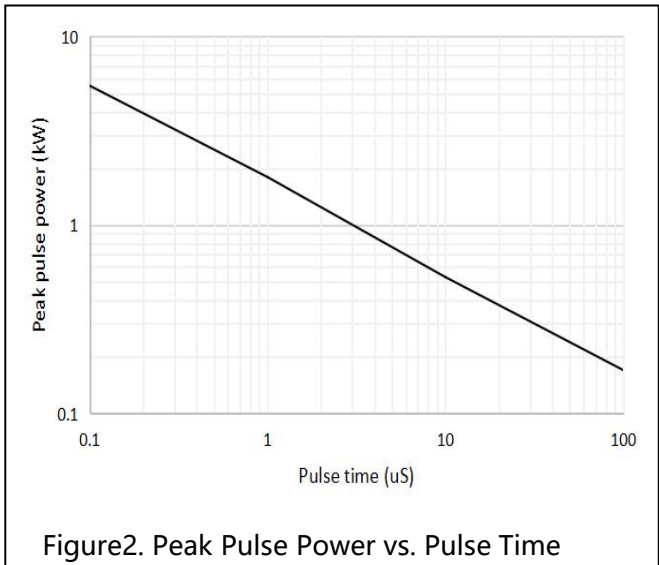
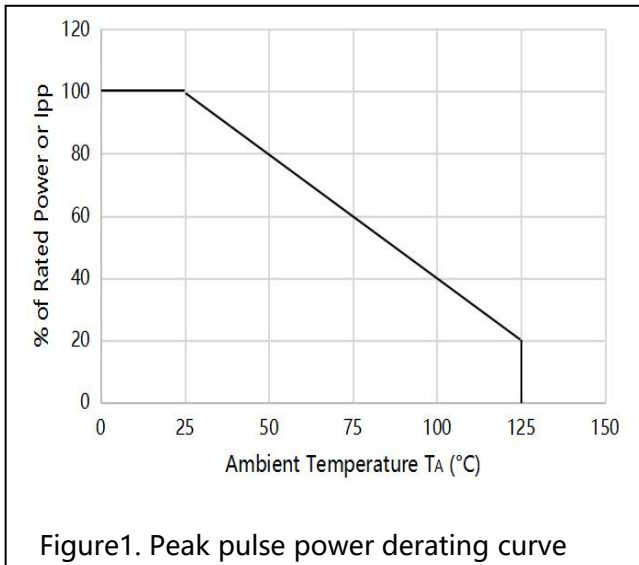
## Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise specified)

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)@25°C	P <sub>pk</sub>	-	360	W
ESD (IEC61000-4-2 air discharge) @25°C	V <sub>ESD</sub>	-	±30	kV
ESD (IEC61000-4-2 contact discharge) @25°C	V <sub>ESD</sub>	-	±30	kV
Junction temperature	T <sub>J</sub>	-	125	°C
Operating temperature	T <sub>OP</sub>	-40	125	°C
Storage temperature	T <sub>STG</sub>	-55	150	°C
Lead temperature	T <sub>L</sub>	-	260	°C

Electrical Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise specified)

PART NUMBER	DEVICE MARKING	$V_R$ (V) (max.)	$V_B$ (V) (min.)	$I_T$ (mA)	$V_C@1A$ (V) (max.)	$V_C$ (V)		$I_R$ ( $\mu\text{A}$ ) (max.)	$C_T$ (pF) (max.)
						(max.)	(@A)		
CSH12E2UX	M03	12.0	12.5	0.1	19.0	24	15	1	90

Typical Performance Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise Specified)



Applications Information

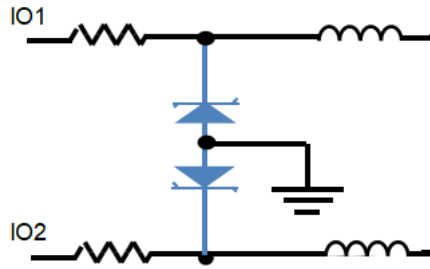
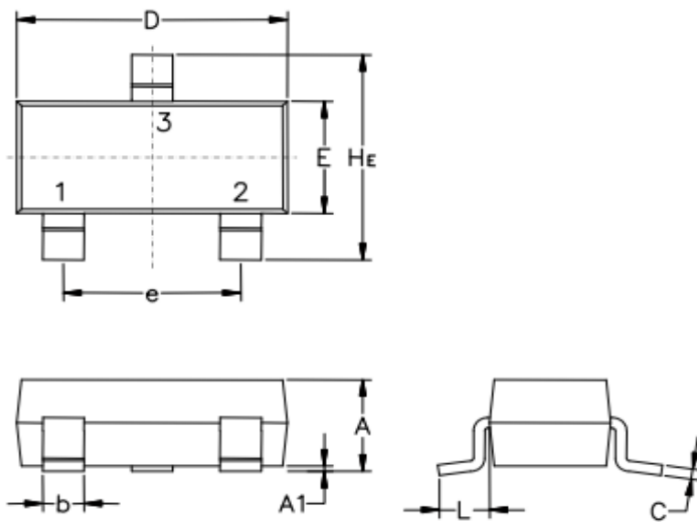


Figure4. I/O protection CSH12E2U

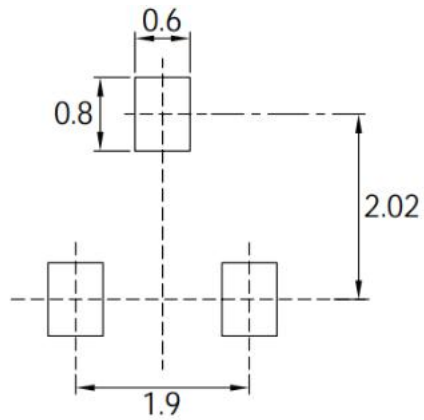
Package Outline Drawing



Unit: mm, tolerance +/-0.05mm

Symbol	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.15	0.18	0.20
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.35	0.54	0.69	0.014	0.021	0.029
HE	2.10	2.40	2.64	0.083	0.094	0.104

### Recommended Land Pattern



Note:

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