

## 1. Features

- Ultra-Low capacitance:0.5pF(typ.)
- Reverse stand-off voltage:3.3V
- IEC 61000-4-2 (Air): ±30KV  
IEC 61000-4-2 (Contact): ±30KV

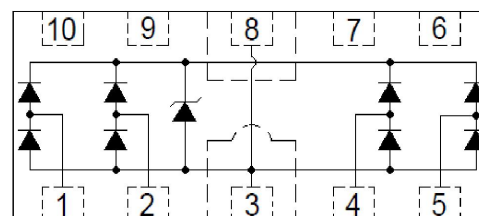
## 2. Pin Description



## 3. Applications

- USB2.0 & 3.0 & 3.1
- HDMI 1.3, 1.4 and 2.0
- Display Ports
- Serial ATA
- PCI Express
- Desktops, Servers and Notebooks
- Digital Visual Interfaces (DVI)
- MDDI Ports

## 4. Schematic Diagram



Top View

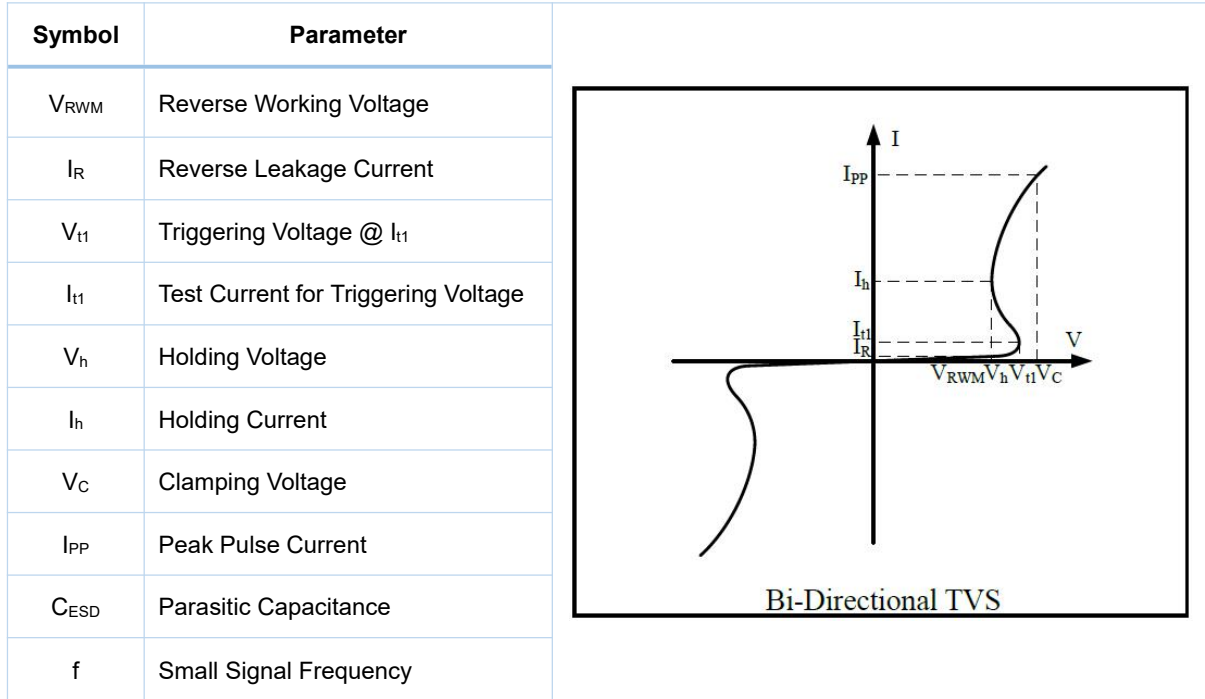
## 5. Order Information

Type	Package	Size (mm)	Delivery Form	Delivery Quantity
SCS641U05S	DFN2510	2.50x1.00x0.50	7" T&R	3,000

## 6. Limiting Values( $T_A = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

Symbol	Parameter	Conditions	Min	Max	Unit
$V_{ESD}$	Electrostatic Discharge Voltage	IEC 61000-4-2; Contact Discharge	-	±30	KV
		IEC 61000-4-2; Air Discharge	-	±30	KV
$I_{PPM}$	Rated Peak Pulse Current	$t_p = 8/20\text{ }\mu\text{s}$	-	7	A
$P_{PK}$	Peak Pulse Power	$t_p = 8/20\text{ }\mu\text{s}$	-	56	W
$T_A$	Ambient Temperature Range	-	-40	125	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature Range	-	-55	150	$^{\circ}\text{C}$

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



Symbol	Test Conditions	Min	Typ.	Max	Unit
$V_{RWM}$	Pin-1,-2,-4,-5 to pin-3,-8, $T=25^{\circ}\text{C}$	-3.3	-	3.3	V
$I_R$	$V_{RWM} = 3.3\text{V}$ ; $T_A = 25\text{ }^{\circ}\text{C}$	-	0.01	1	$\mu\text{A}$
$V_h$	$I_h = 100\text{mA}$	3.3	-	6.0	V
$V_C$	$I_{PP} = 7\text{A}$ , $t_p=8/20\mu\text{s}$	-	8.0	-	V
	$I_{PP}=16\text{A}$ , $t_p=10/100\text{ns}$	-	8.5	-	V
$R_{DYN}$	$t_p=10/100\text{ns}$	-	0.25	-	$\Omega$
$C_{ESD}$	Pin-1,-2,-4,-5 to pin-3,-8, $V_R = 0\text{V}$ , $f = 1\text{ MHz}$	-	0.5	-	pF

## 8. Typical Characteristics

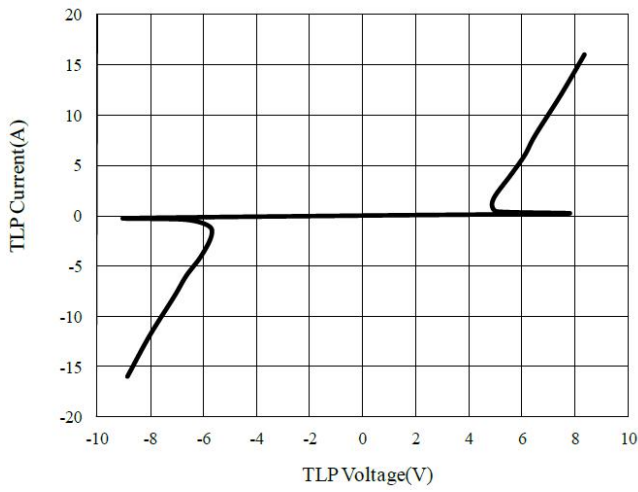


Fig.1 TLP Testing of I/O to GND

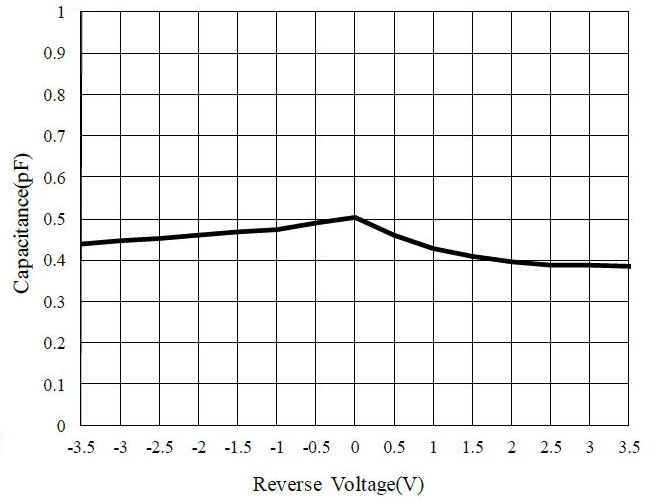


Fig.2 Capacitance vs. Voltage of I/O to GND

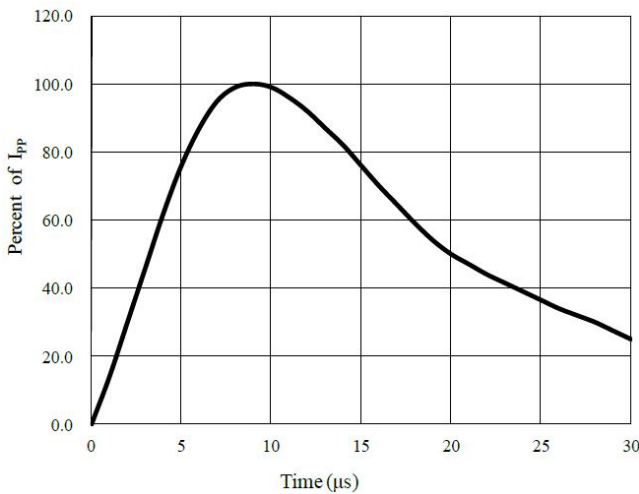


Fig.3 Pulse Waveform

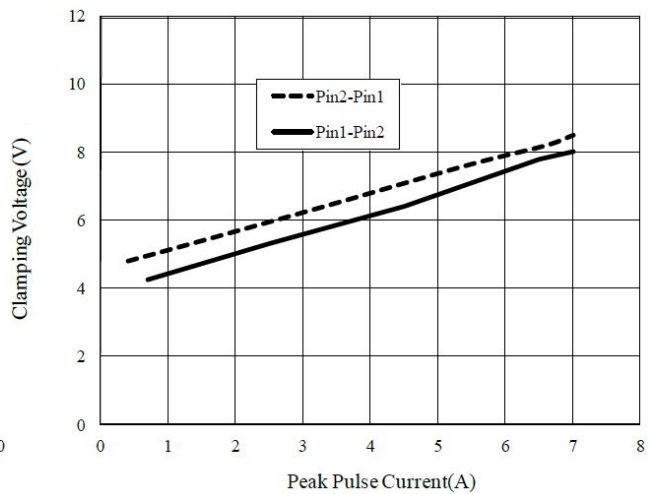


Fig.4 Clamping Voltage vs. Peak Pulse Current

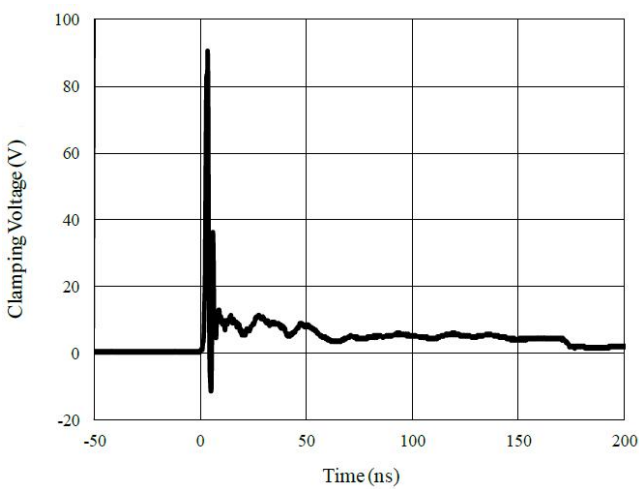


Fig.5 ESD Clamping of I/O to GND  
(+8kV Contact per IEC 61000-4-2)

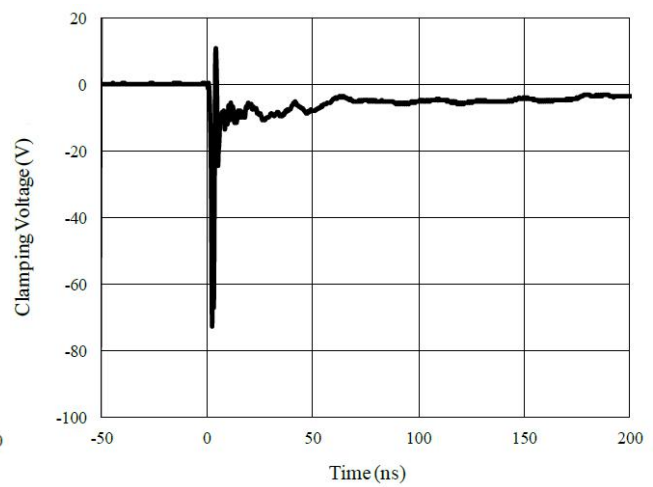
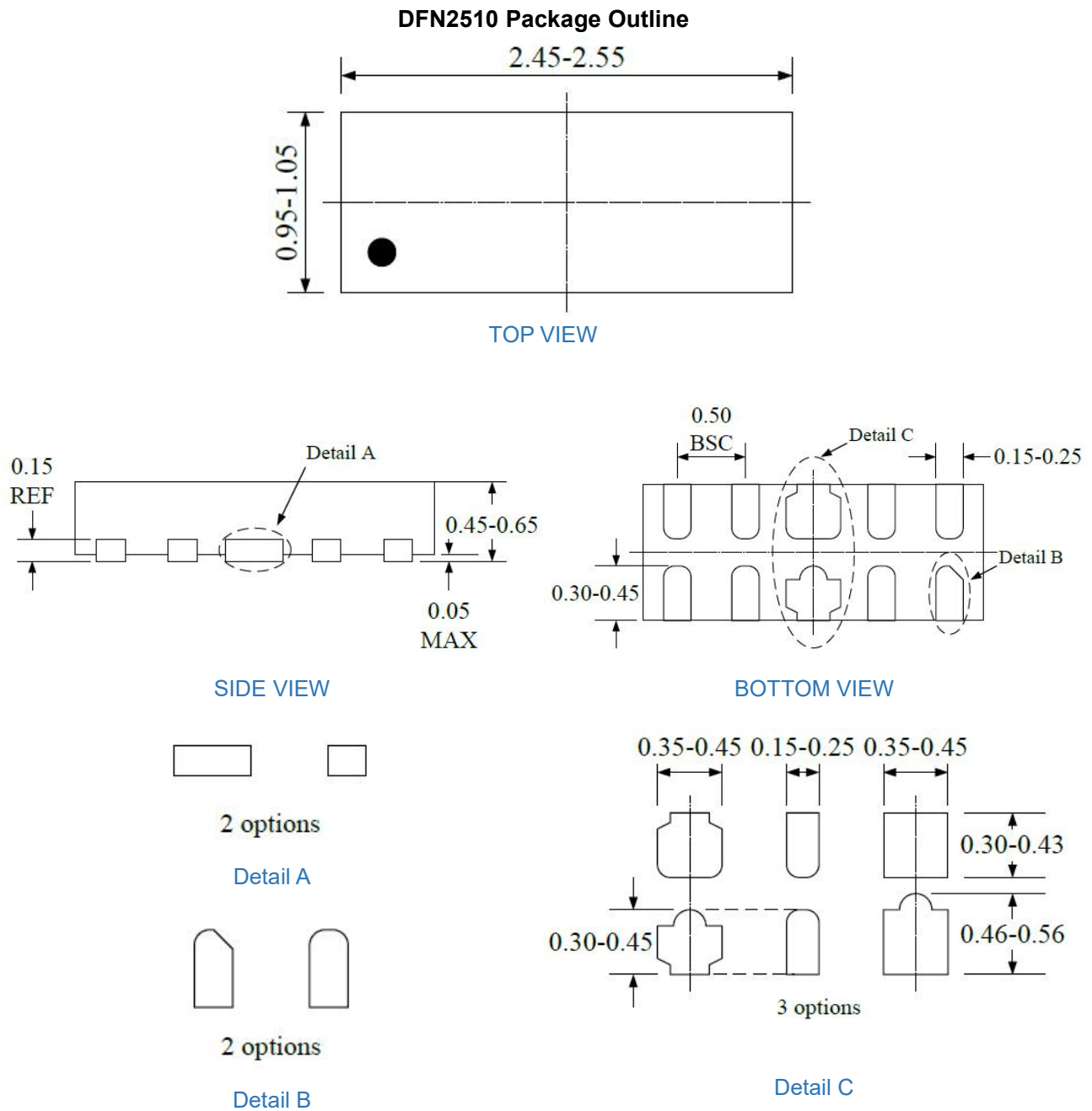


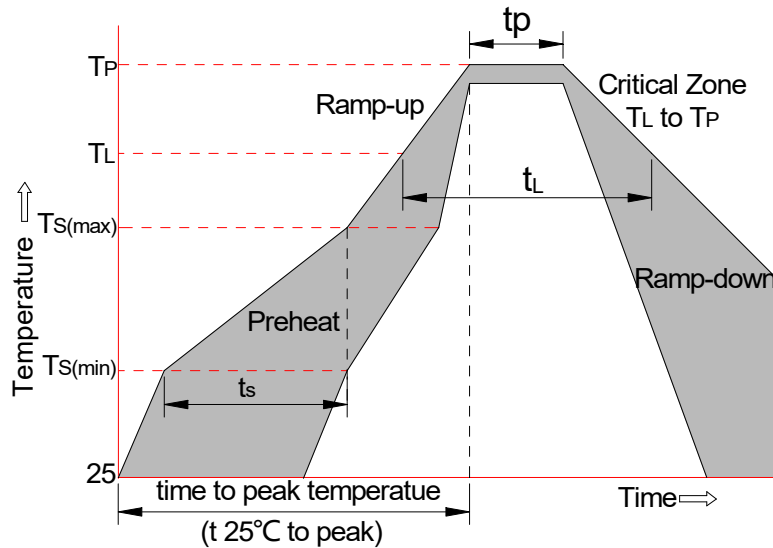
Fig.6 ESD Clamping of I/O to GND  
(-8kV Contact per IEC 61000-4-2)

## 9. Package Dimension



**Package Dimensions (Controlling dimensions are in millimeters)**

## 10. Soldering Parameters



Reflow Condition		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 ( $t_p$ )		30 secs. Max
Ramp-down Rate		6°C/sec. Max
xTime 25°C to Peak Temp ( $T_P$ )		8 min. Max
Do not exceed		+260°C