TQS0524P

The TQS0524P_ULC provides a typical line to line capacitance of 0.2pF between I/O pins and low insertion loss up to 3GHz providing greater signal integrity making it ideally suited for HDMI applications, such as Digital TVs, DVD players, Computing, set-top boxes and MDDI applications in mobile computing devices.

It has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by ESD(electrostatic discharge), CDE (Cable Discharge Events),and EFT (electrical fast transients).

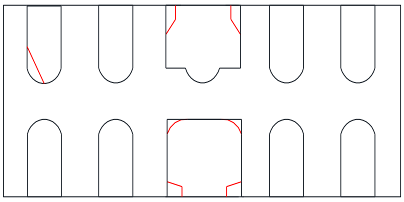
Features

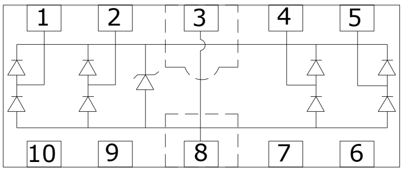
- Protects two or four I/O lines
- Low capacitance:0.2pf Typical between I/O channel
- Working voltages : 5V
- Low leakage current
- Response Time is < 1 ns
- Meets MSL 1 Requirements
- **Solid-state silicon avalanche technology**
- ROHS compliant
- TECHIP technology

DFN2510

Main applications

- High Definition Multi-Media Interface (HDMI1.3/1.4/2.0)
- Digital Visual Interface (DVI)
- Display Port Interface
- Serial ATA
- PCI Express
- USB 1.1/2.0/3.0/3.1/OTG
- IEEE 1394 Firewire Ports
- Projection TV Monitors and Flat Panel Displays
- Notebook Computers
- Set Top Box
- Projection TV





Protection solution to meet

- IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)

Ordering Information

Device	Qty per Reel	Reel Size
TQS0524P	3000	7 Inch

Typical electrical characterist applications

Maximum ratings (Tamb=25℃ Unless Otherwise Specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20µs waveform)	P_{PPP}	55	Watts
ESD Rating per IEC61000-4-2: Contact Air		20 20	KV
Lead Soldering Temperature	T_L	260 (10 sec.)	℃
Operating Temperature Range	T_J	-55 ~ 150	℃
Storage Temperature Range	T_{STG}	-55 ~ 150	℃

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

**Other voltages may be available upon request.*

1. Non-repetitive current pulse, per Figure 1.

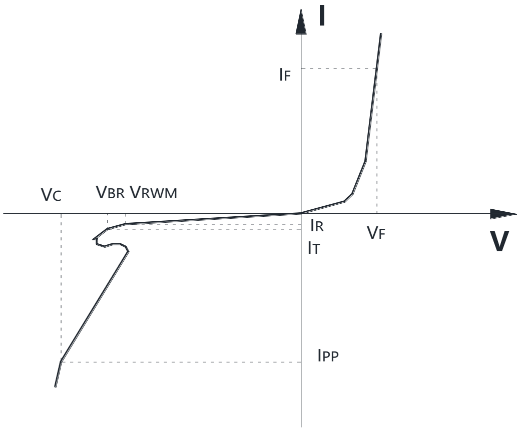
Electrical characteristics (Tamb=25℃ Unless Otherwise Specified)

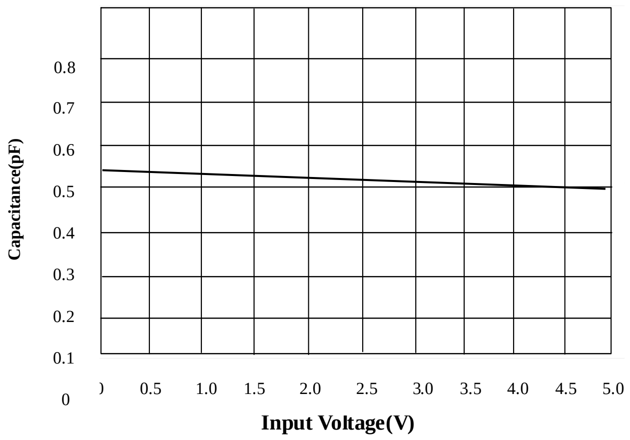
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
V_{RWM}	Reverse Working Voltage	Any I/O to Ground			5.0	V
V_{BR}	Reverse Breakdown Voltage	I_T = 0.1mA, Any I/O to Ground	6.0			V
I_R	Reverse Leakage Current	V_{RWM} = 5V, Any I/O to Ground			1	µA
V_F	Diode Forward Voltage	I_F = 15mA		0.85	1.2	V
V_C	Clamping Voltage	I_{PP} = 1A$^{(1)}$, any I/O pin to Ground			6	V
		I_{PP} = 12A$^{(1)}$, any I/O pin to Ground			12	V
R_{dyn}	dynamic resistance	positive transient(TLP) negative transient(TLP)		0.26 0.28		Ω
$C_J$$^{(2)}$	Junction Capacitance	V_{IN} = 2.5V, f = 1MHz, between I/O pins		0.20		pF
		V_{IN}= 2.5V, f = 1MHz, any I/O pin to Ground		0.45	0.65	pF

Notes:(1)Measurements performed using a 100ns Transmission Line Pulse(TLP) system.

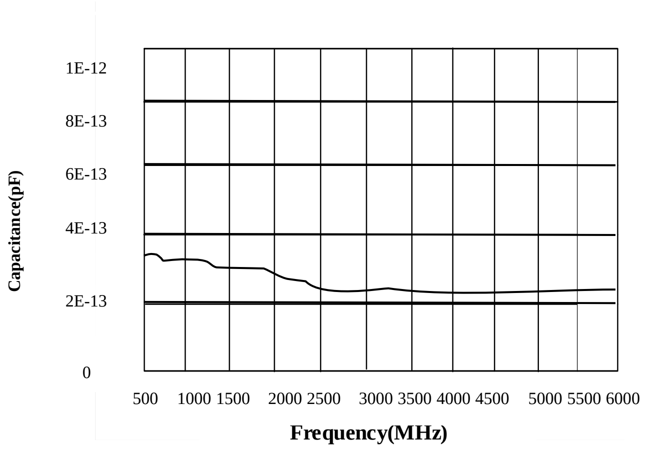
(2)Junction capacitance is measured in V_R=0V,F=1MHz

Symbol	Parameter
V_{RWM}	Working Peak Reverse Voltage
V_{BR}	Breakdown Voltage @ I_T
V_C	Clamping Voltage @ I_{PP} 100ns Transmission Line Pulse(TLP)
I_T	Test Current
I_{RM}	Leakage current at V_{RWM}
I_{PP}	Peak pulse current
C_O	Off-state Capacitance
C_J	Junction Capacitance

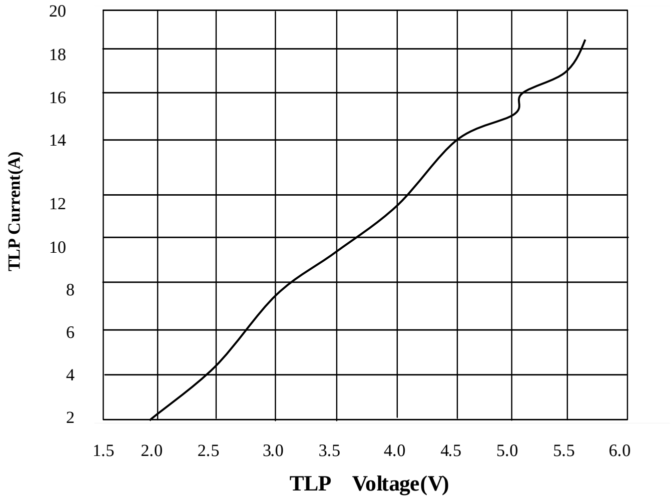




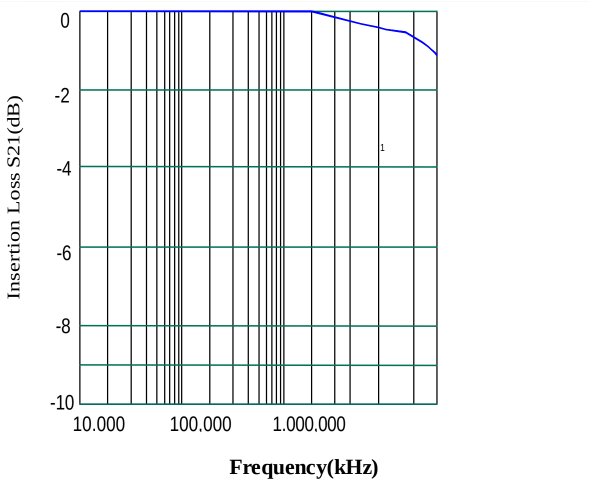
Typical Variation of CIN vs.VIN



Capacitance vs. Frequency
(IO to GND)



Transmission Line Pulsing (TLP) Measurement



Insertion Loss vs. Frequency
(IO to GND)

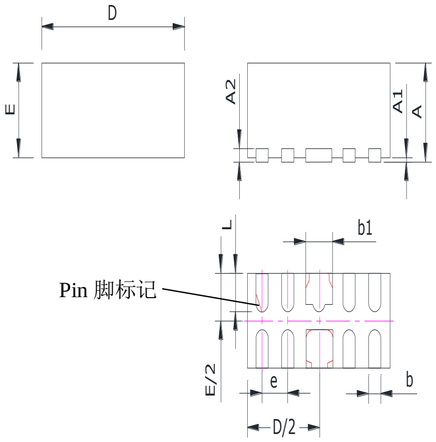
Package Information

DFN2510

Mechanical Data

Case:DFN2510

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters	
	Min	**Max**
A	0.45	0.65
A1	0.05REF	
A2	0.15REF	
b	0.15	0.25
b1	0.30	0.50
D	2.424	2.576
E	0.924	1.076
e	0.50REF	
L	0.30	0.45

Recommended Pad outline