Elektronische Bauelemente

KS05V4

Low Capacitance
Integrated ESD Protection Array

RoHS Compliant Product
A suffix of "-C" specifies halogen and lead-free

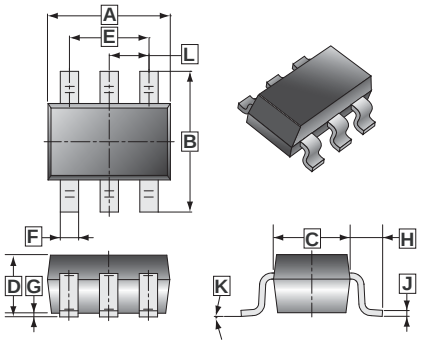
DESCRIPTION

KS05V4 is designed to protect I/Os being sensitive concerning capacitive load, such as USB2.0,Ethernet, DVI etc. from destruction by ElectroStatic Discharges (ESD).

Therefore, KS05V4 incorporates four pairs of ultra-low capacity rail-to-rail diodes plus an additional Zener diode to provide protection to downstream signal and supply components from Electrostatic Discharge (ESD) voltages. Due to the rail-to-rail diodes being connected to the Zener diode, the protection is working independent from the availability of a supply voltage.

KS05V4 is fabricated using thin film-on-silicon technology and integrates 4 ultra-low capacity rail-to-rail ESD protection diodes in a miniature TSOP-6 package

TSOP-6



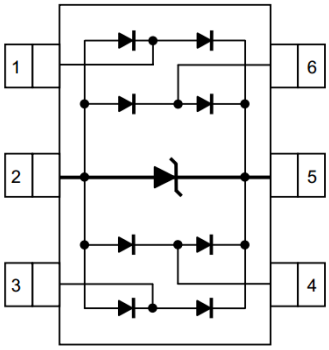
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0	0.10
B	2.60	3.00	H	0.60 REF.	
C	1.40	1.80	J	0.12 REF.	
D	1.10 MAX.		K	0°	10°
E	1.90 REF.		L	0.95 REF.	
F	0.30	0.50			

APPLICATIONS

- Digital Cameras
- Portable Instrumentation
- Notebooks, Desktops, and Serves
- Personal Digital Assistants (PDAs)
- Cell phone handsets and accessories

FEATURES

- Low clamping voltage
- Low leakage current
- Small package
- TSOP-6 package
- ESD IEC 6100-4-2 Level 4, ±8 kV Contact Discharge Compliant Protection
- Low Voltage Clamping Due To Integrated Zener Diode
- Four Ultra-Low Input Capacitance (1 pF typ.) ESD Rail-to-Rail Protection Diodes



Schematic And Pinning Diagram

PACKAGE INFORMATION

Package	MPQ	Leader Size
TSOP-6	3K	7 inch

ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise specified)

Rating		Symbol	Value	Unit
IEC 61000-4-2 (ESD)	Air	V_{ESD}	±14	kV
	Contact		±8	
Peak pulse current (tp=8/20us)@ IEC 61000-4-5	V_{DD}-GND	I_{PP}	6	A
Peak pulse power (tp=8/20us)@ IEC 61000-4-5		P_{PK}	100	W
Lead temperature		T_L	260	°C
Operating Junction and Storage temperature range		T_J, T_{STG}	85, -55 ~ 125	°C

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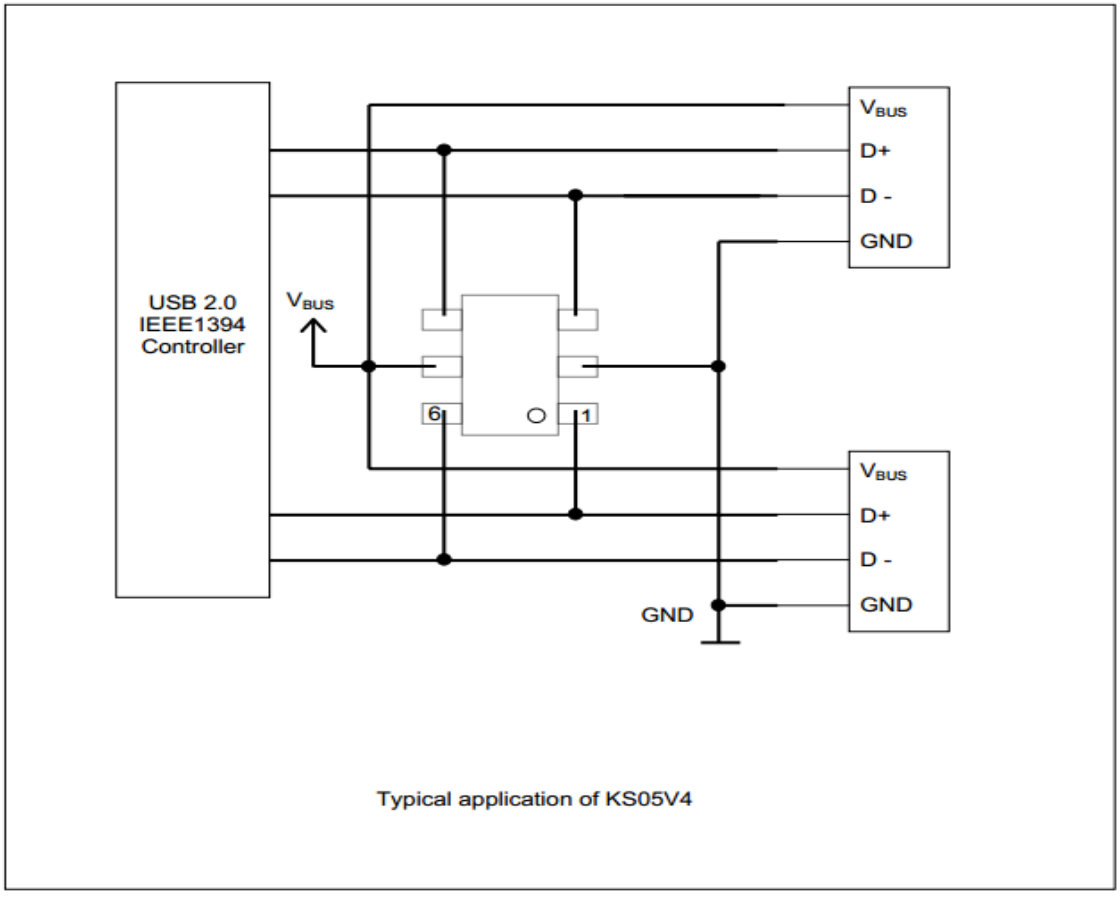
ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
DC Input Voltage Range	$V_{I/O}$		-	-	5.5	V
Zener Diode Breakdown Voltage@ Pin 5 to 2	$V_{BRI/O}$	I=1mA	6	-	9	V
Forward Voltage	V_F		-	0.7	-	V
Diode Reverse Leakage Current@ Pins 1,3,4,6 to Ground	I_{lkg}	V_{RWM}=3V	-	-	100	nA
Pin Capacitance to Ground@ Pins 1,3,4,6	$C_{I/O}$	Vdc=0V, f=1MHz Pin 5=3V	-	1	-	pF
Zener Diode Capacitance to Ground@ Pin 5 to 2	C_{ZENER}	Vdc=0V, f=1MHz Pin 5=3V	-	40	-	pF
Clamping Voltage	V_C	I_{PP}=1A, tp=8/20us	-	-	6.8	V
		I_{PP}=4A, tp=8/20us	-	-	8.1	V
		I_{PP}=9A, tp=8/20us	-	-	11.5	V

Applications Information

Universal Serial Bus 2.0 Protection

KS05V4 is optimized to protect e.g. two USB 2.0 ports of Electro-Static-Discharge (ESD). Each device is capable of protection both USB data lines and the VBUS supply. A typical application is shown in the schematic below.



Typical application of KS05V4