Insulator ppt pdf

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SATA CONNECTORS Adam Technologies, Inc. INTRODUCTION: Adam Tech SATA series Serial ATA connectors combine hot-plug capability with a combination of power and signal contacts in a blind- mate design. They are ideal for connecting disk drives to backplanes in servers or network equipment. Adam Tech SATA connectors are designed with differential-pair signaling technology and are precision manufactured to consistently perform at speeds up to 3.0 Gbits/s. FEATURES: Meets SCA Interconnection Standards 40P Fiber Channel and 80P SCSI compatible Intermatable Industry Standard Design MATING CONNECTORS: Adam Tech SATA series plugs and all industry standard SATA plugs. SPECIFICATIONS: Material: Insulator: Hi-Temp thermoplastic, glass filled, rated UL94V-0 Insulator Color: Black Contacts: Phosphor Bronze Plating: Gold Flash over nickel underplate on mating area, tin over Copper underplate on tails Electrical: Operating Voltage: 30V AC Current Rating: 1.5 Amps Max. Contact Resistance: 30 mΩ Max. initial Insulation Resistance: 1000 MΩ Min. Dielectric Withstanding Voltage: 500V AC for 1 Minute Mechanical: Insertion force: 10.20 lbs max. Withdrawal force: 2.25 lbs min. Temperature Rating: Operating Temperature: -55°C to +125°C Soldering process temperature: 260°C PACKAGING: Anti-ESD plastic trays or tubes APPROVALS AND CERTIFICATIONS: UL Recognized File No. E224053 CSA Certified File No. LR1578596 POLARIZATION PL = Left Polarization PR = Right Polarization PM = Type G SERIAL ATA SATA SERIES ORDERING INFORMATION SATA A PL SMT SERIES INDICATOR SATA = Serial ATA Connector BODY STYLE A Thru M MOUNTING VT = Verticle Thru-hole RT = Right Angle Thru-hole SM = Straddle mount SMT = Surface mount Pb UL ® ® ® E D COMPLIANT 2002 / 95 / EC RoHS V HI-TEMP INSULATOR AVA I L A B L E OPTIONS: Add designator(s) to end of part number K = Key S = Side slots (type D) 30 = 30 µin gold plating in contact area P = Locating Pegs 138 909 Rahway Avenue • Union, New Jersey 07083 • T: 908-687-5000 • F: 908-687-5710 • WWW.ADAM-TECH.COM RoHS COMPLIANT Page 2 About Us 关于我们 客户服务 联系方式 器件索引 网站地图 最新更新 手机版 站点相关: 大学堂 TI培训 Datasheet 电子工程 北京市海淀区知春路23号集成电路设计园量子银座1305 电话:(010)82350740 邮编:100191 INDEX Series A38 / B38 Single Row Terminal Blocks SPECIFICATIONS Rating: A38: 30A, 600V B38: 50A, 600V Center Spacing: .437" (11.10 mm) Wire Size: #10-22 AWG CU Screw Size: #8-32 Zinc Plated Steel Torque Rating: A38: 9 in-lb; B38: 15 in-lb Distance Between Barriers: .378" (9.60mm) Operating Temperature: 221°F (105°C) Molded Material: Black, UL Rated 94VO Thermoplastic Breakdown Voltage: 5000V rms Recommended PCB Hole Diameter (A38): .076" (1.93mm) Approvals: UL E62622; CSA LR15364; CE Certified TABLE A MOUNTING ENDS ONLY Poles 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 B Mount Ctrs. 1.31 1.75 2.19 2.62 3.06 3.50 3.93 4.37 4.81 5.24 5.68 6.12 6.56 6.99 7.43 "A" Dim. Length 1.67 2.10 2.54 2.98 3.41 3.85 4.29 4.72 5.16 5.60 6.04 6.47 6.91 7.35 7.78 BARRIER ENDS ONLY "A" Dim. Length 0.93 1.37 1.81 4.05 2.68 3.12 3.56 3.99 4.43 4.87 5.30 5.74 6.18 6.61 7.05 A382208 B381404 Series A38 "A" DIM. "B" DIM. HOLE SIZE .20 (5.0) 11.10 (.437) .80 (20.4) * Dimensions in inches. To convert to millimeters, multiply by 25.4. .28 (7.0) Series B38 "A" DIM. .437 (11.10) .65 (16.4) .21 (5.2) .25 (6.4) Cooper Bussmann l 7300 W. Wilson Ave l Chicago, IL 60656-4708 l Fax: 708-867-2211 l Phone: 708-867-4600 Website: 19 INDEX Part Numbering System Series Terminal Style Base/End # of Poles Screw Options Options A 3 8 nnn n 1 2 7 8 9 - hand wired - pc tail - extended wire wrap - short pc tail - .250" QC male tab n 1 - flat base, mount ends 2 - flat base, barrier ends 3 - insulator base* mount ends 4 - insulator base* barrier ends nn 02 to 16 nn Blank - standard screw (steel zinc plated, philslot BHMS) 04 - brass, nickel plated, philslot BHMS 07 - steel, SEMS zinc plated philslot screw 92 - steel, zinc plated slotted BHMS 94 - brass, nickel plated slotted BHMS nn L1 to L6 marking options (pg 23) RC - retaining clips (pg 16) Covers - (pg 24) *N/A on 2 & 8 terminal styles. B 3 8 nnn n 1 - long turret 2 - short turret 3 - screw terminal #6-32 screw top & bottom) 4 - stud (#8-32 screw top, #6-32 screw bottom) 5 - double stud (#6-32 stud top & bottom) n 0 - flat base, mount ends 4 - insulator base, barrier ends 9 - insulator base mount ends nn 02 to 16 nn Blank - standard screw steel zinc plated philslot BHMS) 04 - brass, nickel plated, philslot BHMS 32 - #6-32 zinc plated steel philslot BHMS* 34 - #6-32 nickel plated brass philslot BHMS* 92 - steel, zinc plated slotted BHMS 94 - brass, nickel plated slotted BHMS nn L1 to L6 marking options (pg 23) RC - retaining clips (pg 16) Covers - (pg 24) *Note: 32 & 34 screws only *available with 3 terminal style. A38 Terminal Styles Wire ready screws standard .55 (14.0) .031 (.79) .031 (.79) .110 (2.80) .062 (1.58) .20 (5.1) .031 (.79) .59 (15.1) .031 (.79) .062 (1.58) .062 (1.58) .17 (4.3) .031 (.79) .250 (6.35) .67 (17.0) 1 Handwired 2 P.C.Pin 7 Extended Pin 8 Short P. C. Pin 9 .250" QC Male Tab B38 Terminal Styles #6 - 32 SCREW #6 - 32 NUT .21 (5.3) .30 (7.6) 0.18 (6.4) 0.46 (11.6) 0.25 (6.4) 0.18 (4.6) .58 (4.8) 0.27 (6.8) #6 - 32 NUT .58 (4.8) #6 - 32 NUT #6 - 32 SCREW .02 (0.5) 1 Long Turret 2 Short Turret 3 Stud 4 Double Stud 5 Screw Terminal Screw Options Standard Zinc Plated Steel 04 Brass Nickel Plated 07 Steel SEMS Zinc Plated 32 Zinc Plated Steel Philslot BHMS 34 Nickel Plated Brass Philslot BHMS 92 Slotted, Zinc Plated Steel 94 Slotted, Nickel Plated Brass 20 Cooper Bussmann l 7300 W. Wilson Ave l Chicago, IL 60656-4708 l Fax: 708-867-2211 l Phone: 708-867-4600 Website: Page 2 About Us 关于我们 客户服务 联系方式 器件索引 网站地图 最新更新 手机版 站点相关: 大学堂 TI培训 Datasheet 电子工程 北京市海淀区知春路23号集成电路设计园量子银座1305 电话:(010)82350740 邮编:100191 "SF6" redirects here. For the video game, see Street Fighter 6. Greenhouse gas Sulfur hexafluoride Names IUPAC name Sulfur hexafluoride Systematic IUPAC name Hexafluoro-λ6-sulfane[1] Other names Elagas Esaflon Sulfur(VI) fluoride Sulfuric fluoride Identifiers CAS Number 2551-62-4 Y 3D model (JSmol) Interactive image ChEBI CHEBI:30496 Y ChemSpider 16425 Y ECHA InfoCard 100.018.050 EC Number 219-854-2 Gmelin Reference 2752 KEGG D05962 N MeSH Sulfur+hexafluoride PubChem CID 17358 RTECS number WS4900000 UNII WS7LR3I1D6 N UN number 1080 CompTox Dashboard (EPA) DTXSID8029656 InChI InChI=1S/F6S/c1-7(2,3,4,5)6 YKey: SFZCNBIFKDRMGX-UHFFFAOYSA-N Y SMILES FS(F)(F)(F)(F)F Properties Chemical formula SF6 Molar mass 146.06 g/mol Appearance Colorless gas Odor odorless[2] Density 6.17 g/L Melting point −64 °C; −83 °F; 209 K Boiling point −50.8 °C (−59.4 °F; 222.3 K) Critical point (T, P) 45.51±0.1 °C, 3.749±0.01 MPa[3] Solubility in water 0.003% (25 °C)[2] Solubility slightly soluble in water, very soluble in ethanol, hexane, benzene Vapor pressure 2.9 MPa (at 21.1 °C) Magnetic susceptibility (χ) −44.0×10−6 cm3/mol Thermal conductivity 13.45 mW/(m·K) at 25 °C[4] 11.42 mW/(m·K) at 0 °C Viscosity 15.23 µPa·s[5] Structure Crystal structure Orthorhombic, oP28 Space group Oh Coordination geometry Orthogonal hexagonal Molecular shape Octahedral Dipole moment 0 D Thermochemistry Heat capacity (C) 0.097 kJ/(mol·K) (constant pressure) Std molarentropy (So298) 292 J·mol−1·K−1[6] Std enthalpy offormation (ΔfH298) −1209 kJ·mol−1[6] Pharmacology ATC code V08DA05 (WHO) License data EU EMA: by sulphur hexafluoride Hazards GHS labelling:[7] Pictograms Signal word Warning Hazard statements H280 Precautionary statements P403 NFPA 704 (fire diamond) 1 0 0SA NIOSH (US health exposure limits): PEL (Permissible) TWA 1000 ppm (6000 mg/m3)[2] REL (Recommended) TWA 1000 ppm (6000 mg/m3)[2] IDLH (Immediate danger) N.D.[2] Safety data sheet (SDS) External MSDS Related compounds Related sulfur fluorides Disulfur decafluoride Sulfur tetrafluoride Related compounds Selenium hexafluoride Sulfuryl fluoride Tellurium hexafluoridePolonium hexafluoride Except where otherwise noted, data are given for materials in their standard state (at 25 °C [77 °F], 100 kPa). Y verify (what is YN ?) Infobox references Chemical compound Sulfur hexafluoride (SF6) or sulphur hexafluoride (British spelling) is an extremely potent and persistent greenhouse gas that is primarily utilized as an electrical insulator and arc suppressant.[8][9] It is inorganic, colorless, odorless, non-flammable, and non-toxic. SF6 has an octahedral geometry, consisting of six fluorine atoms attached to a central sulfur atom. It is a hypervalent molecule. Typical for a nonpolar gas, SF6 is poorly soluble in water but quite soluble in nonpolar organic solvents. It has a density of 6.12 g/L at sea level conditions, considerably higher than the density of air (1.225 g/L). It is generally transported as a liquefied compressed gas. The concentration of SF6 in Earth's troposphere reached 10.63 parts per trillion (ppt) in 2021, rising at 0.36 ppt/year.[10] The increase over the prior 40 years was driven in large part by the expanding electric power sector, including fugitive emissions from banks of SF6 gas contained in its medium- and high-voltage switchgear. Uses in magnesium, aluminium, and electronics manufacturing also hastened atmospheric growth.[11] Synthesis and reactions See also: Fluorochemical industry Sulfur hexafluoride on Earth exists primarily as a man-made industrial gas, but has also been found to occur naturally.[12] SF6 can be prepared from the elements through exposure of S8 to F2. This was also the method used by the discoverers Henri Moissan and Paul Lebeau in 1901. Some other sulfur fluorides are cogenerated, but these are removed by heating the mixture to disproportionate any S2F10 (which is highly toxic) and then scrubbing the product with NaOH to destroy remaining SF4. Alternatively, utilizing bromine, sulfur hexafluoride can be synthesized from SF4 and CoF3 at lower temperatures (e.g. 100 °C), as follows:[13] 2 CoF3 + SF4 + [Br2] → SF6 + 2 CoF2 + [Br2] There is virtually no reaction chemistry for SF6. A main contribution to the inertness of SF6 is the steric hindrance of the sulfur atom, whereas its heavier group 16 counterparts, such as SeF6 are more reactive than SF6 as a result of less steric hindrance (See hydrolysis example).[14] It does not react with molten sodium below its boiling point,[15] but reacts exothermically with lithium. Applications The electrical power industry used about 80% of the sulfur hexafluoride produced in 2000, mostly as a gaseous dielectric medium.[16] Other main uses as of 2015 included a silicon etchant for semiconductor manufacturing, and an inert gas for the casting of magnesium.[17] Dielectric medium SF6 is used in the electrical industry as a gaseous dielectric medium for high-voltage sulfur hexafluoride circuit breakers, switchgear, and other electrical equipment, often replacing oil-filled circuit breakers (OCBs) that can contain harmful polychlorinated biphenyls (PCBs). SF6 gas under pressure is used as an insulator in gas insulated switchgear (GIS) because it has a much higher dielectric strength than air or dry nitrogen. The high dielectric strength is a result of the gas's high electronegativity and density. This property makes it possible to significantly reduce the size of electrical gear. This makes GIS more suitable for certain purposes such as indoor placement, as opposed to air-insulated electrical gear, which takes up considerably more room. Gas-insulated electrical gear is also more resistant to the effects of pollution and climate, as well as being more reliable in long-term operation because of its controlled operating environment. Exposure to an arc chemically breaks down SF6 though most of the decomposition products tend to quickly re-form SF6, a process termed "self-healing".[18] Arcing or corona can produce disulfur decafluoride (S2F10), a highly toxic gas, with toxicity similar to phosgene. S2F10 was considered a potential chemical warfare agent in World War II because it does not produce lacrimation or skin irritation, thus providing little warning of exposure. SF6 is also commonly encountered as a high voltage dielectric in the high voltage supplies of particle accelerators, such as Van de Graaff generators and Pelletrons and high voltage transmission electron microscopes. Look up fluoroketone in Wiktionary, the free dictionary. Alternatives to SF6 as a dielectric gas include several fluoroketones.[19][20] Compact GIS technology that combines vacuum switching with clean air insulation has been introduced for a subset of applications up to 420 kV.[21] Medical use SF6 is used to provide a tamponade or plug of a retinal hole in retinal detachment repair operations[22] in the form of a gas bubble. It is inert in the vitreous chamber[23] and initially doubles its volume in 36 hours before being absorbed in the blood in 10–14 days.[24] SF6 is used as a contrast agent for ultrasound imaging. Sulfur hexafluoride microbubbles are administered in solution through injection into a peripheral vein. These microbubbles enhance the visibility of blood vessels to ultrasound. This application has been used to examine the vascularity of tumours.[25] It remains visible in the blood for 3 to 8 minutes, and is exhaled by the lungs.[26] Tracer compound Sulfur hexafluoride was the tracer gas used in the first roadway air dispersion model calibration; this research program was sponsored by the U.S. Environmental Protection Agency and conducted in Sunnyvale, California on U.S. Highway 101.[27] Gaseous SF6 is used as a tracer gas in short-term experiments of ventilation efficiency in buildings and indoor enclosures, and for determining infiltration rates. Two major factors recommend its use: its concentration can be measured with satisfactory accuracy at very low concentrations, and the Earth's atmosphere has a negligible concentration of SF6. Sulfur hexafluoride was used as a non-toxic test gas in an experiment at St John's Wood tube station in London, United Kingdom on 25 March 2007.[28] The gas was released throughout the station, and monitored as it drifted around. The purpose of the experiment, which had been announced earlier in March by the Secretary of State for Transport Douglas Alexander, was to investigate how toxic gas might spread throughout London Underground stations and buildings during a terrorist attack. Sulfur hexafluoride is also routinely used as a tracer gas in laboratory fume hood containment testing. The gas is used in the final stage of ASHRAE 110 fume hood qualification. A plume of gas is generated inside of the fume hood and a battery of tests are performed while a gas analyzer arranged outside of the hood samples for SF6 to verify the containment properties of the fume hood. It has been used successfully as a tracer in oceanography to study diapycnal mixing and air-sea gas exchange.[29] Other uses The magnesium industry uses SF6 as an inert "cover gas" to prevent oxidation during casting.[30] Once the largest user, consumption has declined greatly with capture and recycling.[11] Insulated glazing windows have used it as a filler to improve their thermal and acoustic insulation performance.[31][32] SF6 plasma is used in the semiconductor industry as an etchant in processes such as deep reactive-ion etching. A small fraction of the SF6 breaks down in the plasma into sulfur and fluorine, with the fluorine ions performing a chemical reaction with silicon.[33] Tires filled with it take longer to deflate from diffusion through rubber due to the larger molecule size.[31] Nike likewise used it to obtain a patent and to fill the cushion bags in all of their "Air"-branded shoes from 1992 to 2006.[34] 277 tons was used during the peak in 1997.[31] The United States Navy's Mark 50 torpedo closed Rankine-cycle propulsion system is powered by sulfur hexafluoride in an exothermic reaction with solid lithium.[35] Waveguides in high-power microwave systems are pressurized with it. The gas electrically insulates the waveguide, preventing internal arcing. Electrostatic loudspeakers have used it because of its high dielectric strength and high molecular weight.[36] The chemical weapon disulfur decafluoride is produced with it as a feedstock. For entertainment purposes, when breathed, SF6 causes the voice to become significantly deeper, due to its density being so much higher than air, as seen in this video. This is related to the more well-known effect of breathing low-density helium, which causes someone's voice to become much higher. Both of these effects should only be attempted with caution as these gases displace oxygen that the lungs are attempting to extract from the air. Sulfur hexafluoride is also mildly anesthetic.[37] For science demonstrations / magic as "invisible water" since a light foil boat can be floated in a tank, as will an air-filled balloon. It is used for benchmark and calibration measurements in Associative and Dissociative Electron Attachment (DEA) experiments[38][39] Greenhouse gas Sulfur hexafluoride (SF6) measured by the Advanced Global Atmospheric Gases Experiment (AGAGE) in the lower atmosphere (troposphere) at stations around the world. Abundances are given as pollution free monthly mean mole fractions in parts-per-trillion. Abundance and growth rate of SF6 in Earth's troposphere (1978-2018).[11] Atmospheric concentration of SF6 vs. similar man-made gases (right graph). Note the log scale. According to the Intergovernmental Panel on Climate Change, SF6 is the most potent greenhouse gas that has been evaluated, with a global warming potential of 23,900 times that of CO2 when compared over a 100-year period.[40] Sulfur hexafluoride is inert in the troposphere and stratosphere and is extremely long-lived, with an estimated atmospheric lifetime of 800–3,200 years.[41] Measurements of SF6 show that its global average mixing ratio has increased from a steady base of about 54 parts per quadrillion[12] prior to industrialization, to over 10 parts per trillion (ppt) as of April 2020, and is increasing by about 0.35 ppt (3.5 percent) per year.[10][42] Average global SF6 concentrations increased by about seven percent per year during the 1980s and 1990s, mostly as the result of its use in magnesium production, and by electrical utilities and electronics manufacturers. Given the small amounts of SF6 released compared to carbon dioxide, its overall individual contribution to global warming is estimated to be less than 0.2 percent,[43] however the collective contribution of it and similar man-made halogenated gases has reached about 10 percent as of 2020.[44] Alternatives are being tested.[45][46] In Europe, SF6 falls under the F-Gas directive which ban or control its use for several applications.[8] Since 1 January 2006, SF6 is banned as a tracer gas and in all applications except high-voltage switchgear.[47] It was reported in 2013 that a three-year effort by the United States Department of Energy to identify and fix leaks at its laboratories in the United States such as the Princeton Plasma Physics Laboratory, where the gas is used as a high voltage insulator, had been productive, cutting annual leaks by 1,030 kilograms (2,280 pounds). This was done by comparing purchases with inventory, assuming the difference was leaked, then locating and fixing the leaks.[48] Physiological effects and precautions Sulfur hexafluoride is a nontoxic gas, but by displacing oxygen in the lungs, it also carries the risk of asphyxia if too much is inhaled.[49] Since it is more dense than air, a substantial quantity of gas, when released, will settle in low-lying areas and present a significant risk of asphyxiation if the area is entered. That is particularly relevant to its use as an insulator in electrical equipment since workers may be in trenches or pits below equipment containing SF6.[50] As with all gases, the density of SF6 affects the resonance frequencies of the vocal tract, thus changing drastically the vocal sound qualities, or timbre, of those who inhale it. It does not affect the vibrations of the vocal folds. The density of sulfur hexafluoride is relatively high at room temperature and pressure due to the gas's large molar mass. Unlike helium, which has a molar mass of about 4 g/mol and pitches the voice up, SF6 has a molar mass of about 146 g/mol, and the speed of sound through the gas is about 134 m/s at room temperature, pitching the voice down. For comparison, the molar mass of air, which is about 80% nitrogen and 20% oxygen, is approximately 30 g/mol which leads to a speed of sound of 343 m/s.[51] Sulfur hexafluoride has an anesthetic potency slightly lower than nitrous oxide;[52] it is classified as a mild anesthetic.[53] See also Selenium hexafluoride Tellurium hexafluoride Uranium hexafluoride Hypervalent molecule Halocarbon—another group of major greenhouse gases Trifluoromethylsulfur pentafluoride, a similar gas References

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