SPD with Separated Signal Ground (RS 232)

RayDat SGH-3 Series

D1 • C1 • C2 • C3





IEC/EN Category: D1/C1/C2/C3

Mode of Protection: Longitudinal, Transverse

Coarse Protection: 3 Terminal GDT

Voltages: 5, 12, 15, 24, 30, 48, 60, 110 V DC

Frequency Range: 30 MHz

Surge Discharge Ratings: I_n : 10 kA, I_{max} : 20 kA, I_{imp} : 2.5 kA

Series Load Current: 1A

Enclosure: DIN 43880 2/3TE, DIN Rail Mount

Terminals: Stranded to 4 mm² Housing: Modular Design Compliance: IEC/EN 61643-21

The RayDAT SGH-3 Series of surge protective devices has been developed to protect against the effects of induced voltages onto data, signal and communication circuits.

It is intended for those applications where high ground potential rises may frequently occur, such as in locations close to electric

The circuit topology consists of a multi-stage protector providing both common (longitudinal) mode and differential (transverse) mode protection.

Coarse protection is provided by a three terminal gas discharge

tube while fine protection is provided using a high speed silicon avalanche diode or metal oxide varistor stage. Care is taken to ensure coordination between these two stages without voltage or surge current blind spots occurring.

Thermal protection is provided to reduce the hazards of thermal runaway should there be an inadvertent mains incursion fault. Both common (longitudinal) mode and differential (transverse) mode protection is provided.

If the module is unplugged out of the base, the connection lines remain enabled.

Technical Data

SGH-3 Series		5V	12V	15V	24V	30V	48V	60V	110V		
Electrical											
Lines Protected		1 (2 Conductors)									
Nominal Operating Voltage (DC)	U _n	5V	12V	15V	24V	30 V	48 V	60 V	110V		
Maximum Continuous Operating Voltage (DC)	U _c	6V	15V	18V	28V	33V	52V	64 V	170V		
Rated Load Current at 25°C	IL				1	A					
C2 Nominal Discharge Current (8/20 µs)	In				10	kA					
Maximum Discharge Current (8/20 µs)	I _{max}	20 kA									
D1 Impulse Current (10/350 µs)	I _{imp}				2.5	kA					
Residual Voltage at 5 kA (8/20 µs) (Line-Line)	U _{res}	<22V	<42V	<48V	<70 V	<80V	<140 V	<160V	<450V		
Rated Spark Overvoltage (SG-Ground)		184-276V									
(Line-Line), (Line-SG)		7-10V	16-19V	20-24V	30-36V	35-43V	55-68V	67-85 V	184-264V		
Response Time Overvoltage Protection (Line-Line)	t _A	<1ns									
(Line-Ground)		<100ns									
Insulation Resistance of the Protection (Line-Line)	R _{iso}				> 1 GΩ	!/100V					
(Line-Ground)		≥ 6KΩ	≥ 15MΩ	≥ 18MΩ	≥ 28 MΩ	≥ 33 MΩ	≥ 52 MΩ	≥ 64 MΩ	≥ 170 MΩ		
Serial Resistance per Path	R	1.6-2.0Ω									
Transverse Capacitance (Line-Line)	С	50 pF									
(Line-Ground)		5pF									
Cut-off Frequency	f_G	30 MHz									
Mechanical											
Temperature Range					-40 °C to	o +80 °C					
Terminal Cross Section Multi-strand					4 m	nm²					
Terminal Screw Torque					0.5	Nm					
Degree of Protection IEC/EN 60529					IP	20					
Housing Material		Thermoplastic; Grey; Extinguishing Degree V-0									
Mounting IEC/EN 60715		35 mm DIN Rail									
Order Information											
Order Code		5V	12V	15V	24V	30V	48V	60V	110V		
SGH-3-xxx		7086,61	7086,62	7086,63	7086,64	7086,65	7086,66	7086,67	7086,68		
SGH-3-xxxM (module)		7086.69	7086.70	7086.71	7086.72	7086.73	7086.74	7086.75	7086.76		

RayDat SGH-3 Series

Internal Configuration

Legend

BD Bi-directional TVS Diode

DB Diode Block

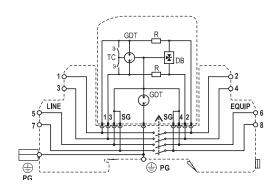
GDT Gas Discharge Tube

R Resistor

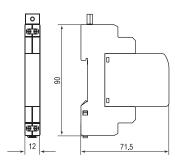
PG Protective Grounding

SG Signal Grounding

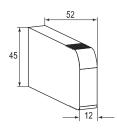
TC Thermo-clip



Dimensions & Packaging



SGH-3 Series	5V	12V	15V	24V	30V	48V	60V	110V	
Dimensions									
Weight per Unit		60 g							
Dimensions DIN 43880		2/3 TE							
Packaging Dimensions (Single Unit)	87 × 15 × 102 mm								
Minimum Package Quantity	15 pieces								



SGH-3-xxxM Series	5V	12V	15V	24V	30V	48V	60V	110V
Dimensions								
Weight per Unit	26g							
Packaging Dimensions (Single Unit)	87 × 15 × 102 mm							
Minimum Package Quantity	15 pieces							