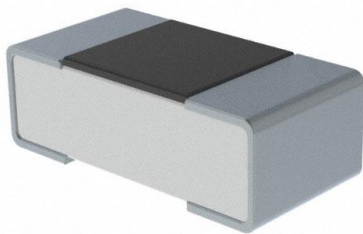


# SG73S1ETTP2212F Datasheet

[www.digi-electronics.com](http://www.digi-electronics.com)



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	SG73S1ETTP2212F-DG
Manufacturer	<a href="#">KOA Speer Electronics, Inc.</a>
Manufacturer Product Number	SG73S1ETTP2212F
Description	RES 22.1K OHM 1% 1/8W 0402
Detailed Description	22.1 kOhms ±1% 0.125W, 1/8W Chip Resistor 0402 (1005 Metric) Automotive AEC-Q200, Moisture Resistant, Pulse Withstanding Thick Film

This model SG73S1ETTP2212F is available at DiGi.Electronics.

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## Purchase and inquiry

Manufacturer Product Number:

SG73S1ETTP2212F

Series:

SG73S

Resistance:

22.1 kOhms

Power (Watts):

0.125W, 1/8W

Features:

Automotive AEC-Q200, Moisture Resistant, Pulse Withstanding

Operating Temperature:

-55°C ~ 155°C

Supplier Device Package:

0402

Size / Dimension:

0.039" L x 0.020" W (1.00mm x 0.50mm)

Number of Terminations:

2

Manufacturer:

KOA Speer Electronics, Inc.

Product Status:

Active

Tolerance:

±1%

Composition:

Thick Film

Temperature Coefficient:

±200ppm/°C

Package / Case:

0402 (1005 Metric)

Ratings:

AEC-Q200

Height - Seated (Max):

0.016" (0.40mm)

Base Product Number:

SG73S1

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

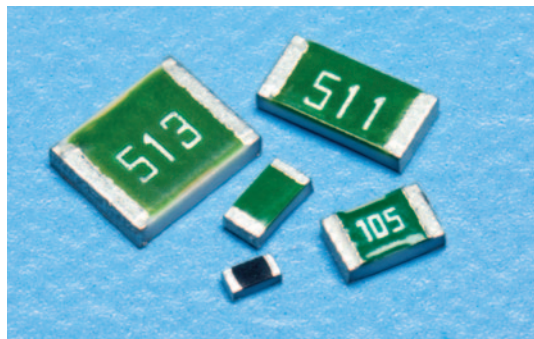
8533.21.0030

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

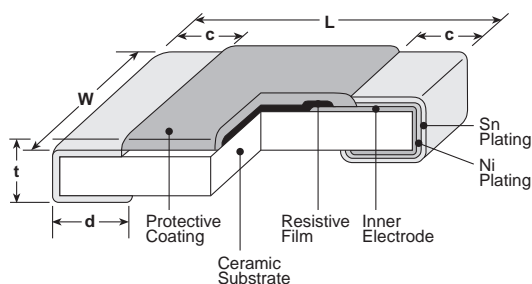
EAR99



**features**

- Superior to RK73B/RK73H series in surge withstanding voltage and high power
- Resistance tolerance is available from  $\pm 0.5\%$
- Suitable for both reflow and flow solderings
- Products with lead-free terminations meet EU RoHS requirements. EU RoHS regulation is not intended for Pb-glass contained in electrode, resistor element and glass.
- AEC-Q200 Tested

**dimensions and construction**



Type (Inch Size Code)	Dimensions inches (mm)				
	L	W	c	d	t
<b>SG73S1E</b> (0402)	.039 <sup>+0.004</sup> / <sub>-.002</sub> (1.0 <sup>+0.1</sup> / <sub>-0.05</sub> )	.02±.002 (0.5±0.05)	.006±.004 (0.15±0.1)	.010 <sup>+0.002</sup> / <sub>-.004</sub> (0.25 <sup>+0.05</sup> / <sub>-0.1</sub> )	.014±.002 (0.35±0.05)
<b>SG73S1J</b> (0603)	.063±.008 (1.6±0.2)	.031±.004 (0.8±0.1)	.012±.004 (0.3±0.1)	.012±.004 (0.3±0.1)	.018±.004 (0.45±0.1)
<b>SG73S1J AT</b> (0603)			.014±.006 (0.35±0.15)	.02±.008 (0.5±0.2)	
<b>SG73S2A</b> (0805)	.079±.008 (2.0±0.2)	.049±.004 (1.25±0.1)	.012 <sup>+0.008</sup> / <sub>-.004</sub> (0.3 <sup>+0.2</sup> / <sub>-0.1</sub> )	.012 <sup>+0.008</sup> / <sub>-.004</sub> (0.3 <sup>+0.2</sup> / <sub>-0.1</sub> )	.02±.004 (0.5±0.1)
<b>SG73S2A AT</b> (0805)			.018±.010 (0.45±0.25)	.024±.008 (0.6±0.2)	
<b>SG73S2B</b> (1206)	.126±.008 (3.2±0.2)	.063±.008 (1.6±0.2)	.016 <sup>+0.008</sup> / <sub>-.004</sub> (0.4 <sup>+0.2</sup> / <sub>-0.1</sub> )	.016 <sup>+0.008</sup> / <sub>-.004</sub> (0.4 <sup>+0.2</sup> / <sub>-0.1</sub> )	.024±.004 (0.6±0.1)
<b>SG73S2B AT</b> (1203)			.022±.014 (0.55±0.35)	.031±.008 (0.8±0.2)	
<b>SG73S2E</b> <b>SG73S2E1</b> (1210)			.016 <sup>+0.008</sup> / <sub>-.004</sub> (0.4 <sup>+0.2</sup> / <sub>-0.1</sub> )	.016 <sup>+0.008</sup> / <sub>-.004</sub> (0.4 <sup>+0.2</sup> / <sub>-0.1</sub> )	

**ordering information**

SG73S	2B		T	TD	1001	F
Type	Size	Characteristic	Termination Material	Packaging	Nominal Resistance	Tolerance
SG73S	1E 1J 2A 2B 2E 2E1	Nil: Standard A: Heat shock resistance *	T: Sn	TP: 0402, 0603, 0805: 7" 2mm pitch punch paper TD: 0603, 0805, 1206, 1210: 7" 4mm pitch punched paper TE: 0805, 1206, 1210: 7" 4mm embossed plastic	$\pm 0.5\%$ , $\pm 1\%$ : 3 significant figures + 1 multiplier "R" indicates decimal on value <100Ω $\pm 2\%$ , $\pm 5\%$ : 2 significant figures + 1 multiplier "R" indicates decimal on value <10Ω	D: $\pm 0.5\%$ F: $\pm 1\%$ G: $\pm 2\%$ J: $\pm 5\%$

\* With type A, only T is available as the terminal surface material.

Contact us when you have control request for environmental hazardous material other than the substance specified by EU RoHS.

For further information on packaging, please refer to Appendix A

**applications and ratings**

Part Designation	Power Rating	Rated Ambient Temp.	Rated Terminal Part Temp.	T.C.R. (ppm/°C) Max.	Resistance Range (Ω)			Maximum Working Voltage	Maximum Overload Voltage	Operating Temp. Range
					(E-24)/E-96 (D±0.5%)	(E-24)/E-96 (F±1%)	(E-24) (G±2%, J±5%)			
SG73S1E (0402) <b>NEW&gt;</b>	0.125W	70°C	125°C	±200	10 - 1M	1 - 1M	1 - 10M	75V	100V	-55°C to +155°C
	0.33W	—	105°C							
SG73S1J (0603) <b>NEW&gt;</b>	0.2W	70°C	135°C	±100	510 - 576k	510 - 576k	510 - 560k	150V	200V	
				±100*1	10 - 499	1 - 499	1 - 470			
	0.5W	—	105°C	±100	590k - 1M	590k - 1M	620k - 10M			
				±100*1	510 - 576k	510 - 576k	510 - 560k			
SG73S2A (0805) <b>NEW&gt;</b>	0.25W	70°C	125°C	±200	10 - 1M	1 - 1M	1 - 10M	400V	600V (800V)*2	
	0.75W	—	105°C							
SG73S2B (1206) <b>NEW&gt;</b>	0.33W	70°C	125°C	±200	10 - 1M	1 - 1M	1 - 10M	200V	400V	
	1W	—	105°C							
SG73S2E (1210) <b>NEW&gt;</b>	0.5W	70°C	125°C	±200	10 - 1M	1 - 1M	1 - 10M	200V	400V	
	1.5W	—	105°C							
SG73S2E1 (1210) <b>NEW&gt;</b>	1.5W	—	105°C	±200	10 - 1M	1 - 1M	1 - 10M	200V	400V	

\*1 Cold T.C.R. (-55°C ~ +25°C) is +150 x 10<sup>-6</sup>/K

\*2 Applies when power rating is 0.4W or lower.

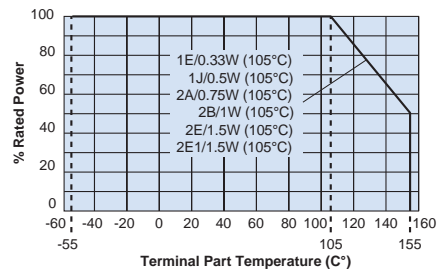
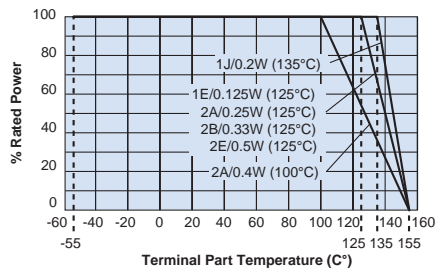
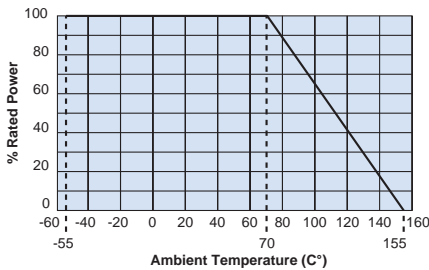
Rated voltage = √Power rating x resistance value or max. working voltage, whichever is lower

Please contact KOA Speer for how to handle a specific surge/pulse

If any questions should arise whether to use the "Rated Ambient Temperature" or the "Rated Terminal Part Temperature," please give priority to the "Rated Terminal Part Temperature." Prior to use and for more details refer to "Introduction of the derating curves on the terminal part temperature" in the beginning of the catalog.

**environmental applications**

**Derating Curve**



For resistors operated at an ambient temperature of 70°C or above, a power rating shall be derated in accordance with the derating curve.

For resistors operated at a terminal part temperature of described for each size or above, a power rating shall be derated in accordance with the derating curve.

Please refer to "Introduction of the derating curve based on the terminal part temperature" in the beginning of our catalog before use.

If you want to use the rated power of <sup>2</sup>, please use the derating curve based on the terminal part temperature above.

Additional environmental applications can also be found at [www.koaspeer.com](http://www.koaspeer.com)

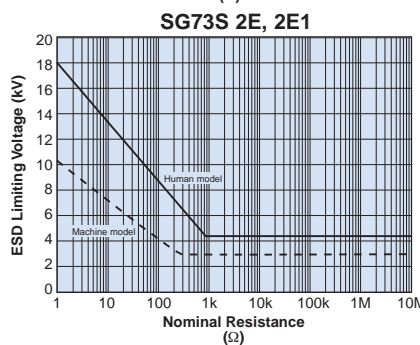
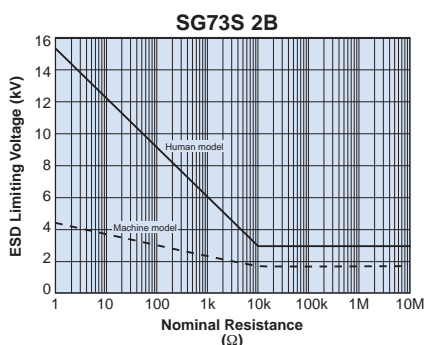
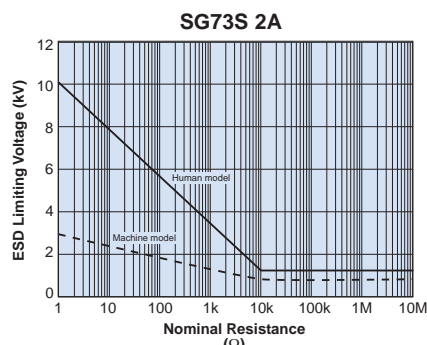
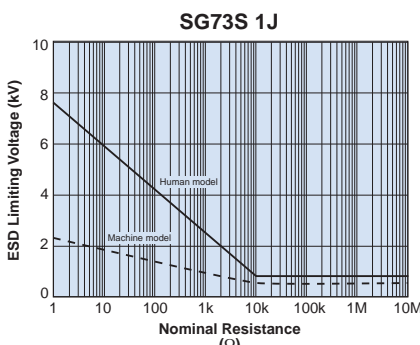
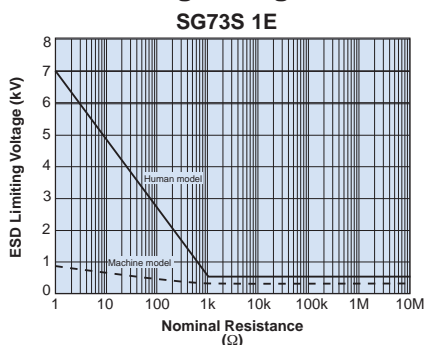
Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

12/6/24

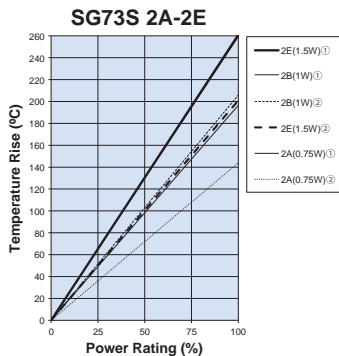
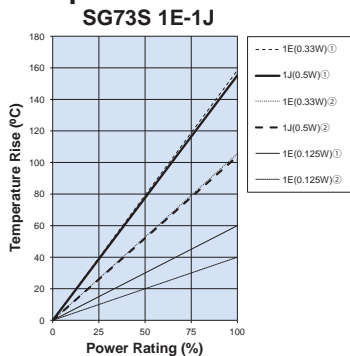
**anti-surge endured surge voltage thick film chip resistor**

**environmental applications (continued)**

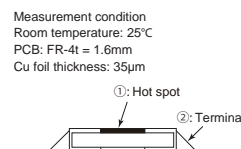
**ESD Limiting Voltage**



**Temperature Rise**



Regarding the temperature rise, the value of the temperature varies per conditions and board for use since the temperature is measured under our measuring conditions.



**Performance Characteristics**

Parameter	Requirement $\Delta R \pm(\%+0.1\Omega)$		Test Method														
	Limit	Typical															
Resistance	Within specified tolerance	—	25°C														
T.C.R.	Within specified T.C.R.	—	+25°C/-55°C and +25°C/+125°C														
Overload (Short time)	$\pm 2\%$	$\pm 0.5\%$	<table border="1"> <tr> <th>Type</th> <th>1E</th> <th>1J</th> <th>2A</th> <th>2B</th> <th>2E</th> <th>2E1</th> </tr> <tr> <td>Overload</td> <td>1.25W</td> <td>2.063W</td> <td>2W (1.6W<sup>2</sup>)</td> <td>3W</td> <td>4W</td> <td>4W</td> </tr> </table>	Type	1E	1J	2A	2B	2E	2E1	Overload	1.25W	2.063W	2W (1.6W <sup>2</sup> )	3W	4W	4W
Type	1E	1J	2A	2B	2E	2E1											
Overload	1.25W	2.063W	2W (1.6W <sup>2</sup> )	3W	4W	4W											
Resistance to Solder Heat	$\pm 1\%$	$\pm 0.75\%$	260°C $\pm$ 5°C, 10 seconds $\pm$ 1 second														
Rapid Change of Temperature	$\pm 0.5\%$ : Characteristic (Nil) Standard $\pm 1\%$ : Characteristic (A) Heat Shock Resistance	$\pm 0.3\%$ : Characteristic (Nil) Standard $\pm 0.5\%$ : Characteristic (A) Heat Shock Resistance	Characteristic (Nil) Standard: -55°C (30 min.)/+125°C (30 min.) 100 cycles Characteristic (A) Heat Shock Resistance: -55°C (30 min.)/+125°C (30 min.) 1000 cycles														
Moisture Resistance	$\pm 3\%$	$\pm 0.75\%$	40°C $\pm$ 2°C, 90%~95%RH, 1000 hours; 1.5 hr ON, 0.5 hr OFF cycle														
Endurance at 70°C	$\pm 3\%$	$\pm 0.75\%$	70°C $\pm$ 2°C or rated terminal part temp. $\pm$ 2°C 1000 hours; 1.5 hr ON, 0.5 hr OFF cycle														
High Temperature Exposure	$\pm 1\%$	$\pm 0.3\%$	+155°C, 1000 hours														

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

12/4/24

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