SMD transformers for automotive grade
Transformers for BMS

RoHS REACH SVHC-Free Halogen Free Lead Free

Product Portal

VGT, VST series

FEATURES

- A pulse transformer of SMD type high withstand voltage.
- Realized improvement of anti-vibration performance and high level coplanarity by its unique structure.
- Possible to keep steady performance and stable supply of this products by fully automated production lines.
- Operating temperature range: –40 to +130°C (including self-temperature rise)
- Compliant with AEC-Q200

APPLICATION

- Lithium-ion battery voltage monitoring system for xEV
- Application guides: Automotive (xEV)

PART NUMBER CONSTRUCTION

VGT	10/9EE	-	X01	S1P4
Series name	Core shape		Type name	Internal code

CHARACTERISTICS SPECIFICATION TABLE

Part No.	Inductance* NP (μH)	Leakage inductance* NP(NS all shorted) (μH)max.	DC resistance NP1, NP2 (Ω)	DC resistance NS1, NS2 (Ω)	Withstanding voltage NP-NS Sense: 1mA	Withstanding voltage Coil-Core Sense: 1mA	Turn ratio
VGT10/9EE-X01S1P4	140 to 333	2	0.29±30%	0.30±30%	2.8kVrms/1min	1.4kVrms/1min	1:1:1:1
VGT10/9EE-X03S2P4	350 to 895	27	0.46±30%	0.46±30%	2.8kVrms/1min	1.4kVrms/1min	1:1:1:1
VGT10/9EE-204S2P4	140 to 333	2	0.30±30%	0.32±30%	2.8kVrms/1min	1.4kVrms/1min	1:1:1:1
VST10/9EE-202S2P4	350 to 895	27	0.49±30%	0.47±30%	2.8kVrms/1min	1.4kVrms/1min	1:1:1:1

* Measuring conditions: 100kHz/1V

TEMPERATURE RANGE, INDIVIDUAL WEIGHT

Part No.	Temperature range Operating temperature* (°C)	Temperature range Storage temperature** (°C)	Individual weight (g)
VGT10/9EE-X01S1P4	–40 to +130	–40 to +130	1.5
VGT10/9EE-X03S2P4	–40 to +130	–40 to +130	1.5
VGT10/9EE-204S2P4	–40 to +130	–40 to +130	1.5
VST10/9EE-202S2P4	–40 to +130	–40 to +130	1.5

* Operating temperature range includes self-temperature rise.
** The storage temperature range is for after the assembly.

REPLACEMENT INFORMATION

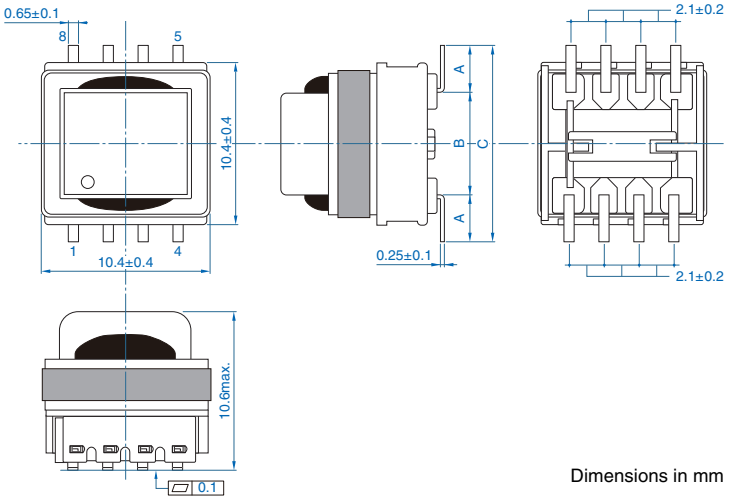
Refer to the following for information on alternative products.

Newly designed, unsolicited part number	Recommended replacement part number
VGT10/9EE-204S2P4	VGT10/9EE-X01S1P4
VST10/9EE-202S2P4	VGT10/9EE-X03S2P4

Background yellow: The product which is not recommended to a new design.

VGT, VST series

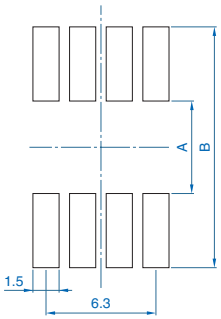
SHAPE & DIMENSIONS



Dimensions in mm

Part No.	A	B	C
VGT10/9EE-X01S1P4	(3.45)	5.8±0.3	12.7±0.4
VGT10/9EE-X03S2P4	(3.45)	5.8±0.3	12.7±0.4
VGT10/9EE-204S2P4	(3.45)	6.5±0.3	12.6±0.4
VST10/9EE-202S2P4	(3.45)	6.5±0.3	12.6±0.4

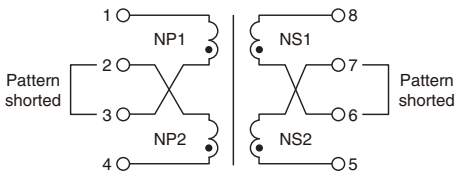
RECOMMENDED LAND PATTERN



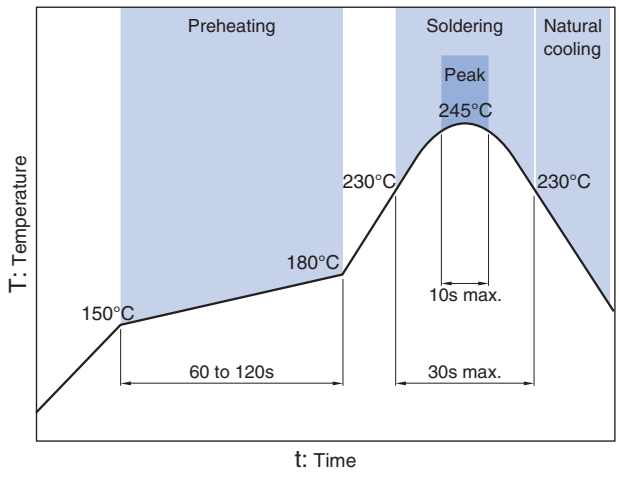
Dimensions in mm

Part No.	A	B
VGT10/9EE-X01S1P4	4.8	13.7
VGT10/9EE-X03S2P4	4.8	13.7
VGT10/9EE-204S2P4	5.3	13.8
VST10/9EE-202S2P4	5.3	13.8

CIRCUIT DIAGRAM



RECOMMENDED REFLOW PROFILE



*When mounting the product, use our recommended reflow profile described above.

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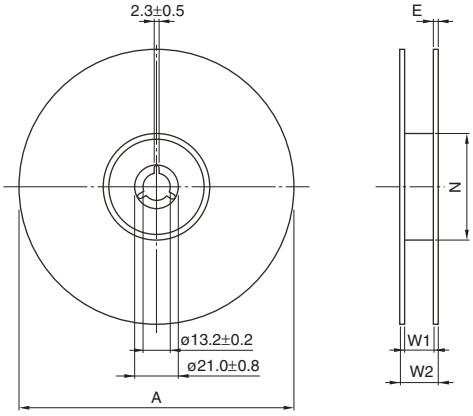
■PACKAGING STYLE

□REEL DIMENSIONS, PACKAGE QUANTITY

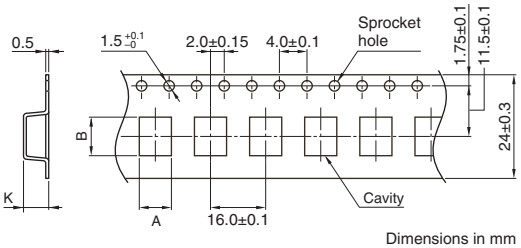


Dimensions in mm

Part No.	A	W1	W2	N	E	Package quantity (pcs/reel)
VGT10/9EE-X01S1P4	ø330	24.5	28.9	ø99.4	2.2	250
VGT10/9EE-X03S2P4	ø330	24.5	28.9	ø99.4	2.2	250
VGT10/9EE-204S2P4	ø480	24.5	28.9	ø115	2.2	600
VST10/9EE-202S2P4	ø480	24.5	28.9	ø115	2.2	600

・These values are typical values.

□TAPE DIMENSIONS



Dimensions in mm

Type	A	B	K
VGT10/9EE-X01S1P4	10.6	14.0	10.9
VGT10/9EE-X03S2P4	10.6	14.0	10.9
VGT10/9EE-204S2P4	10.6	13.2	10.9
VST10/9EE-202S2P4	10.6	13.2	10.9

Background yellow: The product which is not recommended to a new design.

An attention matter on use

Please read this specifications before using this product by all means.

An attention matter on security

I undertake use with this product, and it is paid attention enough, and please design an attention matter safely.

⚠ Attention on a design

- When you designs a base of an electric circuit.
  Please use size of the hole or pad which we recommend.
- Magnetic flux to leak out occurs. Please confirm it about influence of magnetic flux beforehand.
  There is fear to cause false movement of machinery.

⚠ Attention on the handling

- Please do not use it when you let a product drop.
  The product produces possibility to lose a function
- Please pay attention to the pin which had it pointed keenly.
  There is danger to injure.
- Please avoid the next place. The place that receives a drop of water, trash, the dust, foggy influence. The place where direct rays of the sun hits. There is fear to cause false movement of machinery.
- Please prohibit safekeeping and use at the next place. Environment to be accompanied with gas corrosion, salt, acid, alkali. There is fear to lose a function.
- When you carry the product on a base of an electric circuit.
  Please do not use a metal tool. Because impossible power is added to a product.
  There is fear to lose a function.

⚠ Attention on the handling

- I considered the next matter, and we designed a product.
  Safe standard and power supply voltage and circuit drive condition, drive frequency and Duty ON-TIME.
  By those conditions, we decided structure and the turns number.
  Please avoid use in designed condition outside.
  There are destruction of a circuit part and fear of ignition.
- This product considered a characteristic of a component and a self temperature rise, and it was made.
  We select range of humidity as use temperature already.
  Please avoid use by range more than this.
  There are the damage and fear of ignition.
- Please avoid use in the environment next.
  The environment that trash and the dust stick to a product. There is fear to cause a fire.
- The products listed on this specification sheet are intended for use in general electronic equipment and transportation equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots, cars, electric trains, ships, etc.) under a normal operation and use condition.
- The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.
- If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in this catalog, please contact us.

(1) Aerospace/Aviation equipment
(2) Medical equipment
(3) Power-generation control equipment
(4) Atomic energy-related equipment
(5) Seabed equipmentapplications
(6) Transportation control equipment
(7) Public information-processing equipment
(8) Military equipment
(9) Electric heating apparatus, burning equipment
(10) Disaster prevention/crime prevention equipment
(11) Safety equipment
(12) Other applications that are not considered general-purpose applications

When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.