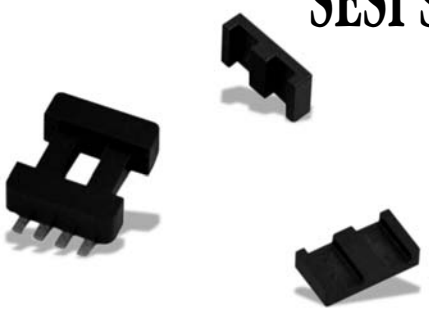
Spectrum Component Sales, Inc. * Sales & Distribution *
TEL: 678-990-1754 * TOLL FREE: 888-977-3287 * FAX: 678-990-1758
105 Hill Street, Ste 2D * Norcross, GA 30017 USA * sales@scsiglobal.com

SESI SMD Power Inductors and Transformers



Microspire upgraded aircoil grid transfer + transfer moulding technology by using E-PLANAR ferrite cores ; which lead to the SESI product range (SMD Energy Storage Inductors).
Main advantages :

- Low profile component
- Ferrite cores external assembling.
- SMD placement (fixed terminations + tape & reel)
- Traceability

The SESI power inductors 9.1 to 22 are European Space Agency qualified. These components have been designed during the last 8 years in order to offer simple functions (SESI 9 to 18 chokes).
Microspire also designs complex functions (current transformers, forward transformers, gate drive transformers, push-pull transformers, common mode chokes, multiple chokes...) in these packages.

The possible functions in the SESI design

ELECTRICAL FUNCTIONS / PACKAGE	SESI 9.1	SESI 15	SESI 18	SESI 22	SESI 32
Standard SESI Power Inductors Series	From 0.6µH / 6A to 0.7mH / 0.2A	From 0.75µH / 14A to 1.9mH / 0.3A	From 4.2µH / 9.8A to 231µH / 1.3A	From 3.8µH / 19A to 1.8mH / 0.8A	From 4.7µH to 4.7mH Current up to 27Arms / 38A peak
Multiple Coupled Inductors		Diffrential mode From 20kHz to 1MHz 2 x 4.2µH - 3.5Adc	122.4µH - 1.6A plus 27µH - 0.2A Turn ratio 2.1: 1		
Common Mode Choke (see CMC Series)		From 2 x 50µH / 6.7A to 2 x 4mH / 0.55A	From 2 x 60µH / 9.9A to 2 x 4.9mH / 0.9A	From 60µH / 14.3A to 3.3mH / 1.9A	
PFC Inductors				52W -125kHz - L = 2.5mH - 0.9A Connected to 115V / 400Hz avionics on board supply	115W -100kHz - L = 825µH -1.5A Connected to 115V / 400Hz avionics on board supply
Forward Transformers ...				From 30W / 100kHz (1, 2 or 3 secondaries Vin = 14V - αmax = 0.45) to 96W / 185kHz (2 secondaries Vin = 17V - αmax = 0.50)	From 60W / 100kHz (2 secondaries Vin = 130V - αmax = 0.4) to 300W / 500kHz (Vin = 350V - αmax = 0.45 Output 12V - 25A)
... and associated Output Filtering Chokes			4.9µH - 9A Ripple at 250kHz	25.5µH - 6A Ripple at 100kHz	From 17.5µH / 12.5A to 220µH / 2A - Ripple at 100kHz
Push-Pull Transformers		Low-power applications	30W - 200kHz Vin = 10V peak-to-peak Output 3.3 or 5V	60W - 200kHz Input 17 to 32V Output 2 x 15V / 2A	150W - 200kHz Input 17 to 32V Output 5V / 30A (Specific package and pins)
Full-Bridge Transformers			80W - 200kHz Input 28V or 300V - Output 26V / 3A	160W - 200kHz Input 28V or 300V - Output 26V / 6A	High power applications
Flyback Transformers (see FLYT Series)	0.5W - 100kHz 1 secondary winding Vin = 30V - αmax = 0.4 Continuous mode	15W - 250kHz 4 secondaries windings - Vin = 25V - αmax = 0.27 - Shielded version - Insulation 500 Vdc Ri > 100MΩ	15.5W - 250kHz 6 secondaries Vin = 25V - αmax = 0.45	18W - 100 kHz 2 secondaries windings Vin = 14V - αmax = 0.5 Quasi-resonant discountinuous mode	Flyback - PFC 250W - 100kHz Vin = 28V - αmax = 0.45 6 outputs
Standard Current Sense Transformers	See our CT91 series - Current up to 8Arms sine wave / 10.5A square or DC max	Standard series to be developed			
Pulse Transformers	20Vµs - 200kHz Turn ratio 1: 1 - Is = 1A peak max	60Vµs - 50/500kHz Turn ratio 1: 1.5 - L > 500µH			23 to 27V - 250µs Turn ratio 1: 1 - For a 100Ω load

Notes : 1. Because of a wide range of possibilities according to working frequency, number of windings, insulation required, output currents... only examples of products already manufactured are presented
2. However, in most cases, our planar SESI technology can replace sucessfully linear and toroid wound component

The process tools have already been developed. The bill of material has been validated together with our design, and only pin assignment and windings number for the function required need to be defined.
No additional manual operation is to be performed on the component (component tearing add up on the board + wire soldering).
All the material used for SESI manufacturing is complying with the requirements of space or aerospace environments. For each material, several suppliers have been qualified. For aerospace, the SESI technology may be manufactured either in our French or our Moroccan factories .
For simple functions (chokes) the parts have been tested by the CNES according to Microspire test program :

- Thermal shock, life tests, overload
- Vibration and shock tests have been performed by a qualified testhouse.

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SESI Custom Technologies

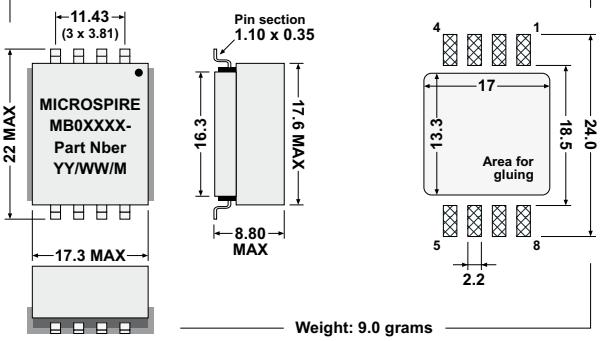
Upon request our Engineers can design custom transformers and inductors in the standard SESI9, 15, 18, 22 and 32 packages. These magnetics can be either surface mount or through-hole and can have up to 8 windings in the SESI32 package.
This design approach offers faster response, no tooling cost and competitve prices because of low materials costs obtained from high-volume standard parts production.

SESI 32 SESI 22 SESI 18 SESI 15 SESI 14 SESI 9.1 SESI 9

Shieldedversions

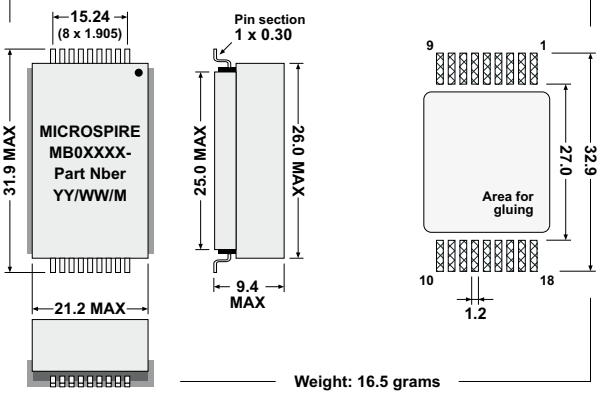
SESI 15 WE SESI 18.1 WE SESI 22 WE SESI 22.1 WE

SESI 15 WE — Pad Layout (mm)



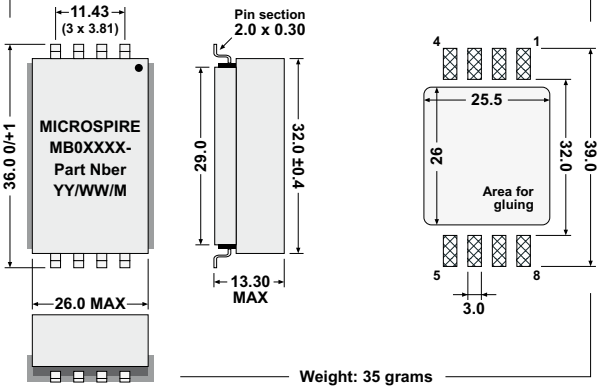
Weight: 9.0 grams

SESI 18.1 WE — Pad Layout (mm)



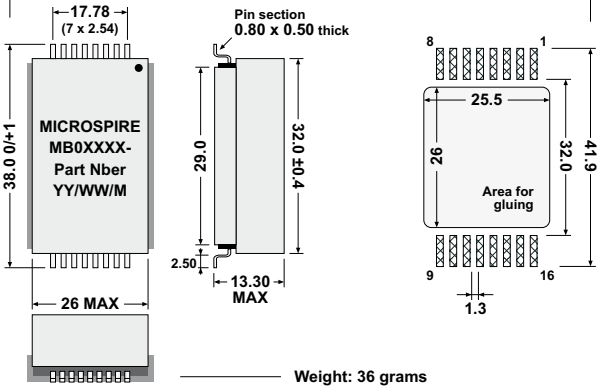
Weight: 16.5 grams

SESI 22 WE — Pad Layout (mm)



Weight: 35 grams

SESI 22.1 WE — Pad Layout (mm)



Weight: 36 grams

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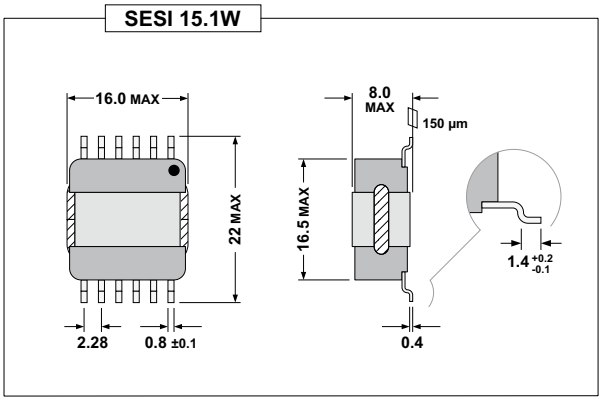
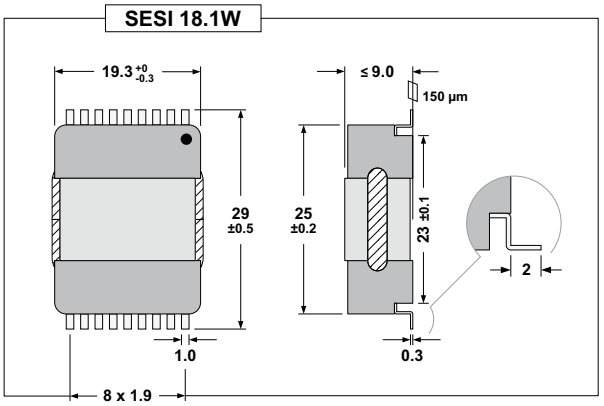
Custom packages with additional terminations

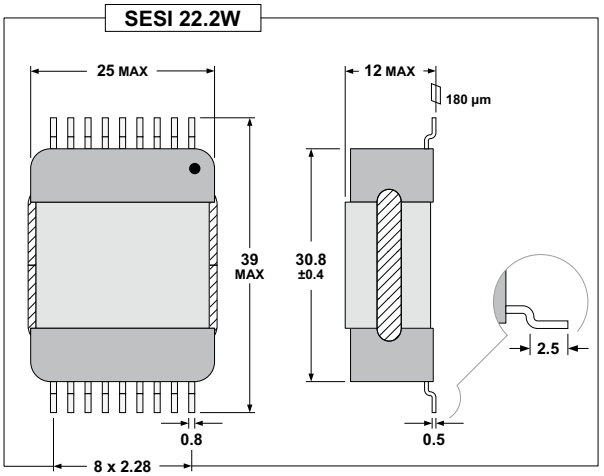
SESI 15.1W



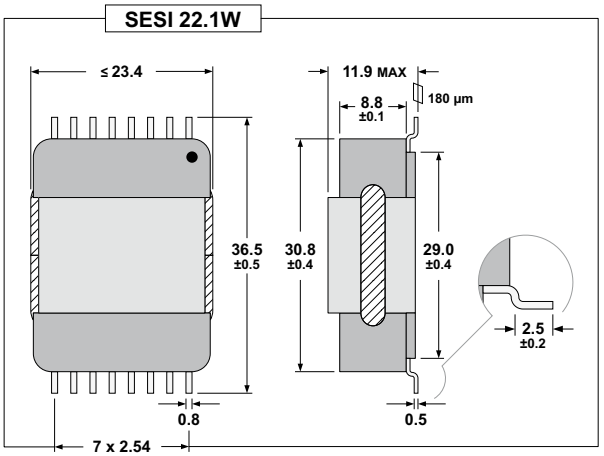
SESI 18.1W



SESI 22.2W



SESI 22.1W



SESI 32W