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Short circuit proof PCB transformer
VB



General Data

Rated input voltage 230 Vac
Rated output voltage 6 - 2 x 24 Vac
Rated power 0.35 - 3.2 VA
Insulation class B
Maximum ambient temperature 70 °C
Efficiency up to 58 %
Degree of protection IP 00

Advantages

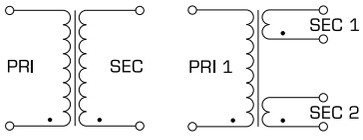
Minimum size at high output
Unconditionally short-circuit proof
Also with double output voltage for series or parallel connection
Designed for high ambient temperatures
Permanent corrosion protection, high insulation value and maximum electrical reliability thanks to XtraDensiFill resin encapsulation
Coil shell in 2-chamber technology
Self-extinguishing potting material

Applications

As a mains transformer for adjustment of the voltage and simple electrical isolation.

As a safety isolating transformer for the safe electrical isolation of the input and output sides. The transformer is suitable for creating SELV and PELV circuits because of the limit on the output voltage.

Circuit diagram



Standards

Mains transformer
to: VDE 0570 Teil 2-1, DIN EN 61558-2-1, EN 61558-2-1, IEC 61558-2-1, UL 5085-1/-2, CSA 22.2 No.66

Safety isolating transformer
to: VDE 0570 Teil 2-6, DIN EN 61558-2-6, EN 61558-2-6, IEC 61558-2-6, UL 5085-1/-2, CSA 22.2 No.66

Certifications

ENEC 10 (VDE), UL 5085-1/-2, CSA 22.2 No.66

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Electrical data

Type	VB 0,35/1/..	VB 0,35/2/..	VB 0,5/1/..	VB 0,5/2/..	VB 1,0/1/..	VB 1,0/2/..
Input						
Rated input voltage	230 Vac	230 Vac	230 Vac	230 Vac	230 Vac	230 Vac
Rated frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Output						
Rated output voltage: Order no.	6 Vac: VB 0,35/1/6 8 Vac: VB 0,35/1/8 9 Vac: VB 0,35/1/9 12 Vac: VB 0,35/1/12 15 Vac: VB 0,35/1/15 18 Vac: VB 0,35/1/18 24 Vac: VB 0,35/1/24	2x6 Vac: VB 0,35/2/6 2x8 Vac: VB 0,35/2/8 2x9 Vac: VB 0,35/2/9 2x12 Vac: VB 0,35/2/12 2x15 Vac: VB 0,35/2/15* 2x18 Vac: VB 0,35/2/18* 2x24 Vac: VB 0,35/2/24*	6 Vac: VB 0,5/1/6 8 Vac: VB 0,5/1/8 9 Vac: VB 0,5/1/9 12 Vac: VB 0,5/1/12 15 Vac: VB 0,5/1/15 18 Vac: VB 0,5/1/18 24 Vac: VB 0,5/1/24	2x6 Vac: VB 0,5/2/6 2x8 Vac: VB 0,5/2/8 2x9 Vac: VB 0,5/2/9 2x12 Vac: VB 0,5/2/12 2x15 Vac: VB 0,5/2/15* 2x18 Vac: VB 0,5/2/18* 2x24 Vac: VB 0,5/2/24*	6 Vac: VB 1,0/1/6 8 Vac: VB 1,0/1/8 9 Vac: VB 1,0/1/9 12 Vac: VB 1,0/1/12 15 Vac: VB 1,0/1/15 18 Vac: VB 1,0/1/18 24 Vac: VB 1,0/1/24	2x6 Vac: VB 1,0/2/6 2x8 Vac: VB 1,0/2/8 2x9 Vac: VB 1,0/2/9 2x12 Vac: VB 1,0/2/12 2x15 Vac: VB 1,0/2/15* 2x18 Vac: VB 1,0/2/18* 2x24 Vac: VB 1,0/2/24*
Rated Power	0.35 VA	0.35 VA	0.50 VA	0.50 VA	1.00 VA	1.00 VA
No-load voltage (app. x factor)	1.80	1.80	1.80	1.80	1.40	1.40
No-load loss (typ.)	1.30 W	1.30 W	1.10 W	1.10 W	0.90 W	0.90 W
Efficiency	30 %	30 %	40 %	40 %	55 %	55 %
Standards						
Classification	Safety isolating transformer	Safety isolating transformer *Mains transformer (without VDE mark)	Safety isolating transformer	Safety isolating transformer *Mains transformer (without VDE mark)	Safety isolating transformer	Safety isolating transformer *Mains transformer (without VDE mark)
Approvals						
Approvals	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)
Environment						
Ambient temperature max.	70 °C	70 °C	70 °C	70 °C	70 °C	70 °C
Safety and protection						
Type	encapsulated	encapsulated	encapsulated	encapsulated	encapsulated	encapsulated
Class of Insulation System	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105
Protection index	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00
Safety class (prepared)	II	II	II	II	II	II
Short circuit strength	inherently short-circuit proof	inherently short-circuit proof	inherently short-circuit proof	inherently short-circuit proof	inherently short-circuit proof	inherently short-circuit proof
Order numbers						
Order Number	**refer to rated output voltage**	**refer to rated output voltage**	**refer to rated output voltage**	**refer to rated output voltage**	**refer to rated output voltage**	**refer to rated output voltage**

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Short circuit proof PCB transformer
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Electrical data

Type	VB 1,2/1/..	VB 1,2/2/..	VB 1,5/1/..	VB 1,5/2/..	VB 2,0/1/..	VB 2,0/2/..
Input						
Rated input voltage	230 Vac	230 Vac	230 Vac	230 Vac	230 Vac	230 Vac
Rated frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Output						
Rated output voltage: Order no.	6 Vac: VB 1,2/1/6 8 Vac: VB 1,2/1/8 9 Vac: VB 1,2/1/9 12 Vac: VB 1,2/1/12 15 Vac: VB 1,2/1/15 18 Vac: VB 1,2/1/18 24 Vac: VB 1,2/1/24	2x6 Vac: VB 1,2/2/6 2x8 Vac: VB 1,2/2/8 2x9 Vac: VB 1,2/2/9 2x12 Vac: VB 1,2/2/12 2x15 Vac: VB 1,2/2/15* 2x18 Vac: VB 1,2/2/18* 2x24 Vac: VB 1,2/2/24*	6 Vac: VB 1,5/1/6 8 Vac: VB 1,5/1/8 9 Vac: VB 1,5/1/9 12 Vac: VB 1,5/1/12 15 Vac: VB 1,5/1/15 18 Vac: VB 1,5/1/18 24 Vac: VB 1,5/1/24	2x6 Vac: VB 1,5/2/6 2x8 Vac: VB 1,5/2/8 2x9 Vac: VB 1,5/2/9 2x12 Vac: VB 1,5/2/12 2x15 Vac: VB 1,5/2/15* 2x18 Vac: VB 1,5/2/18* 2x24 Vac: VB 1,5/2/24*	6 Vac: VB 2,0/1/6 8 Vac: VB 2,0/1/8 9 Vac: VB 2,0/1/9 12 Vac: VB 2,0/1/12 15 Vac: VB 2,0/1/15 18 Vac: VB 2,0/1/18 24 Vac: VB 2,0/1/24	2x6 Vac: VB 2,0/2/6 2x8 Vac: VB 2,0/2/8 2x9 Vac: VB 2,0/2/9 2x12 Vac: VB 2,0/2/12 2x15 Vac: VB 2,0/2/15* 2x18 Vac: VB 2,0/2/18* 2x24 Vac: VB 2,0/2/24*
Rated Power	1.20 VA	1.20 VA	1.50 VA	1.50 VA	2.00 VA	2.00 VA
No-load voltage (app. x factor)	1.35	1.35	1.45	1.45	1.70	1.70
No-load loss (typ.)	1.00 W	1.00 W	1.00 W	1.00 W	1.10 W	1.10 W
Efficiency	57 %	57 %	57 %	57 %	52 %	52 %
Standards						
Classification	Safety isolating transformer	Safety isolating transformer *Mains transformer (without VDE mark)	Safety isolating transformer	Safety isolating transformer *Mains transformer (without VDE mark)	Safety isolating transformer	Safety isolating transformer *Mains transformer (without VDE mark)
Approvals						
Approvals	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)
Environment						
Ambient temperature max.	70 °C	70 °C	70 °C	70 °C	70 °C	70 °C
Safety and protection						
Type	encapsulated	encapsulated	encapsulated	encapsulated	encapsulated	encapsulated
Class of Insulation System	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105
Protection index	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00
Safety class (prepared)	II	II	II	II	II	II
Short circuit strength	inherently short-circuit proof	inherently short-circuit proof	inherently short-circuit proof	inherently short-circuit proof	inherently short-circuit proof	inherently short-circuit proof
Order numbers						
Order Number	**refer to rated output voltage**	**refer to rated output voltage**	**refer to rated output voltage**	**refer to rated output voltage**	**refer to rated output voltage**	**refer to rated output voltage**

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Short circuit proof PCB transformer
VB

Electrical data

Type	VB 2,3/1/..	VB 2,3/2/..	VB 2,8/1/..	VB 2,8/2/..	VB 3,2/1/..	VB 3,2/2/..
Input						
Rated input voltage	230 Vac	230 Vac	230 Vac	230 Vac	230 Vac	230 Vac
Rated frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Output						
Rated output voltage: Order no.	6 Vac: VB 2,3/1/6 8 Vac: VB 2,3/1/8 9 Vac: VB 2,3/1/9 12 Vac: VB 2,3/1/12 15 Vac: VB 2,3/1/15 18 Vac: VB 2,3/1/18 24 Vac: VB 2,3/1/24	2x6 Vac: VB 2,3/2/6 2x8 Vac: VB 2,3/2/8 2x9 Vac: VB 2,3/2/9 2x12 Vac: VB 2,3/2/12 2x15 Vac: VB 2,3/2/15* 2x18 Vac: VB 2,3/2/18* 2x24 Vac: VB 2,3/2/24*	6 Vac: VB 2,8/1/6 8 Vac: VB 2,8/1/8 9 Vac: VB 2,8/1/9 12 Vac: VB 2,8/1/12 15 Vac: VB 2,8/1/15 18 Vac: VB 2,8/1/18 24 Vac: VB 2,8/1/24	2x6 Vac: VB 2,8/2/6 2x8 Vac: VB 2,8/2/8 2x9 Vac: VB 2,8/2/9 2x12 Vac: VB 2,8/2/12 2x15 Vac: VB 2,8/2/15* 2x18 Vac: VB 2,8/2/18* 2x24 Vac: VB 2,8/2/24*	6 Vac: VB 3,2/1/6 8 Vac: VB 3,2/1/8 9 Vac: VB 3,2/1/9 12 Vac: VB 3,2/1/12 15 Vac: VB 3,2/1/15 18 Vac: VB 3,2/1/18 24 Vac: VB 3,2/1/24	2x6 Vac: VB 3,2/2/6 2x8 Vac: VB 3,2/2/8 2x9 Vac: VB 3,2/2/9 2x12 Vac: VB 3,2/2/12 2x15 Vac: VB 3,2/2/15* 2x18 Vac: VB 3,2/2/18* 2x24 Vac: VB 3,2/2/24*
Rated Power	2.30 VA	2.30 VA	2.80 VA	2.80 VA	3.20 VA	3.20 VA
No-load voltage (app. x factor)	1.43	1.43	1.80	1.80	1.70	1.70
No-load loss (typ.)	0.90 W	0.90 W	0.90 W	0.90 W	1.00 W	1.00 W
Efficiency	59 %	59 %	57 %	57 %	58 %	58 %
Standards						
Classification	Safety isolating transformer	Safety isolating transformer *Mains transformer (without VDE mark)	Safety isolating transformer	Safety isolating transformer *Mains transformer (without VDE mark)	Safety isolating transformer	Safety isolating transformer *Mains transformer (without VDE mark)
Approvals						
Approvals	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)
Environment						
Ambient temperature max.	70 °C	70 °C	70 °C	70 °C	50 °C	50 °C
Safety and protection						
Type	encapsulated	encapsulated	encapsulated	encapsulated	encapsulated	encapsulated
Class of Insulation System	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105
Protection index	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00
Safety class (prepared)	II	II	II	II	II	II
Short circuit strength	inherently short-circuit proof	inherently short-circuit proof	inherently short-circuit proof	inherently short-circuit proof	inherently short-circuit proof	inherently short-circuit proof
Order numbers						
Order Number	**refer to rated output voltage**	**refer to rated output voltage**	**refer to rated output voltage**	**refer to rated output voltage**	**refer to rated output voltage**	**refer to rated output voltage**

PCB TRANSFORMERS



Short circuit proof PCB transformer
VB

30 Mechanical data

Typ	Terminals	Pin (ø)	Core type	Weight	Dimension picture (in mm)	A	B	C	D	E	F	G	H
VB 0,35/1/..	Pins for printed circuit boards	0.6 mm	EE 20/6,1	0.02 kg	1	22	22.7	15	15	15	5	-	5
VB 0,35/2/..	Pins for printed circuit boards	0.6 mm	EE 20/6,1	0.02 kg	2	22	22.7	15	15	15	5	5	5
VB 0,5/1/..	Pins for printed circuit boards	0.6 mm	EE 20/10,5	0.04 kg	1	22	22.7	19	15	15	5	-	5
VB 0,5/2/..	Pins for printed circuit boards	0.6 mm	EE 20/10,5	0.04 kg	2	22	22.7	19	15	15	5	5	5
VB 1,0/1/..	Pins for printed circuit boards	0.8 mm	EI 30/10,5	0.07 kg	1	32.3	27.3	21.8	20	20	10	-	5
VB 1,0/2/..	Pins for printed circuit boards	0.8 mm	EI 30/10,5	0.07 kg	2	32.3	27.3	21.8	20	20	10	5	5
VB 1,2/1/..	Pins for printed circuit boards	0.8 mm	EI 30/12,5	0.08 kg	1	32.3	27.3	23.8	20	20	10	-	5
VB 1,2/2/..	Pins for printed circuit boards	0.8 mm	EI 30/12,5	0.08 kg	2	32.3	27.3	23.8	20	20	10	5	5
VB 1,5/1/..	Pins for printed circuit boards	0.8 mm	EI 30/12,5	0.08 kg	1	32.3	27.3	23.8	20	20	10	-	5
VB 1,5/2/..	Pins for printed circuit boards	0.8 mm	EI 30/12,5	0.08 kg	2	32.3	27.3	23.8	20	20	10	5	5
VB 2,0/1/..	Pins for printed circuit boards	0.8 mm	EI 30/15,5	0.10 kg	1	32.3	27.3	26.8	20	20	10	-	5
VB 2,0/2/..	Pins for printed circuit boards	0.8 mm	EI 30/15,5	0.10 kg	2	32.3	27.3	26.8	20	20	10	5	5
VB 2,3/1/..	Pins for printed circuit boards	0.8 mm	EI 30/18,0	0.11 kg	1	32.3	27.3	29	20	20	10	-	5
VB 2,3/2/..	Pins for printed circuit boards	0.8 mm	EI 30/18,0	0.11 kg	2	32.3	27.3	29	20	20	10	5	5
VB 2,8/1/..	Pins for printed circuit boards	0.8 mm	EI 30/23,0	0.14 kg	1	32.3	27.3	34	20	20	10	-	5
VB 2,8/2/..	Pins for printed circuit boards	0.8 mm	EI 30/23,0	0.14 kg	2	32.3	27.3	34	20	20	10	5	5
VB 3,2/1/..	Pins for printed circuit boards	0.8 mm	EI 38/16,5	0.17 kg	1	41	35	30.8	20	25	10	-	5
VB 3,2/2/..	Pins for printed circuit boards	0.8 mm	EI 38/16,5	0.17 kg	2	41	35	30.8	20	25	10	5	5

Dimension pictures

