Power Transformers

MINNTRONIX
Wind Up the Best®
Phone: 1.605.884.0195
Fax: 1.605.884.0199
www.minntronix.com

OFF-LINE Switch Mode

- Information shown uses standard parts.
- Modified or special designs are available.

- Designs available to match a variety of PWM control IC's.
- Designs meet UL/CSA/TUV/VDE Safety Standards.
- Various configurations to fit different switching circuit applications.
- Engineering support available to work closely with customer through project development and production.

GENERAL APPLICATION INFORMATION

Minntronix offers several designs of Off-Line Switch Mode Power Transformers, which specifically support the development of switching mode power supply using PWM control IC's from N.S, P.I., T.I., I.R., MOTOROLA, etc.

Minntronix switch mode transformers have been optimized to provide maximum power conversion efficiency in the Forward, Flyback, Push-pull, Half-bridge, Full-bridge, Buck and Boost circuit configurations.

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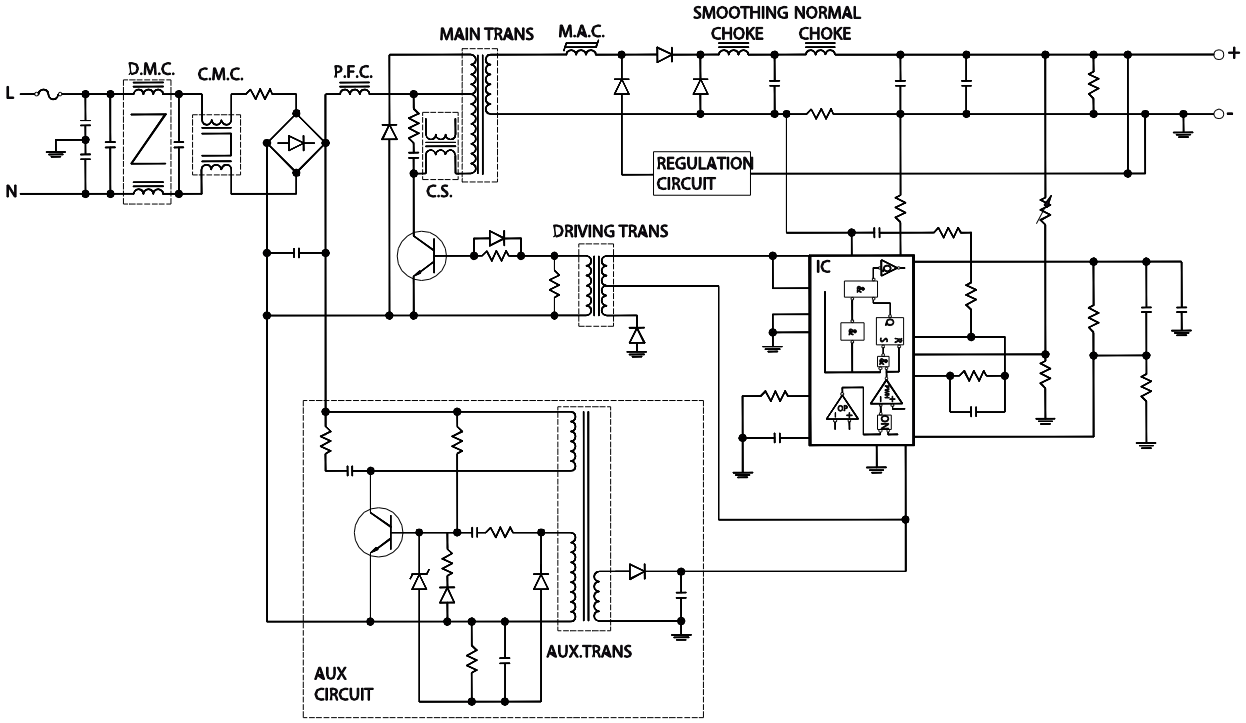
OFF-LINE Switch Mode

MINNTRONIX HIGH PERFORMANCE MAGNETICS FOR S.M.P.S

Typical forward converter circuit topology



D.M.C. - - - - Differential Mode Choke

C.M.C. - - - - Common Mode Choke

P.F.C. - - - - Power Factor Correction Choke

M.A.C. - - - - MAG AMP Choke

C.S. - - - - Current Sense Transformer

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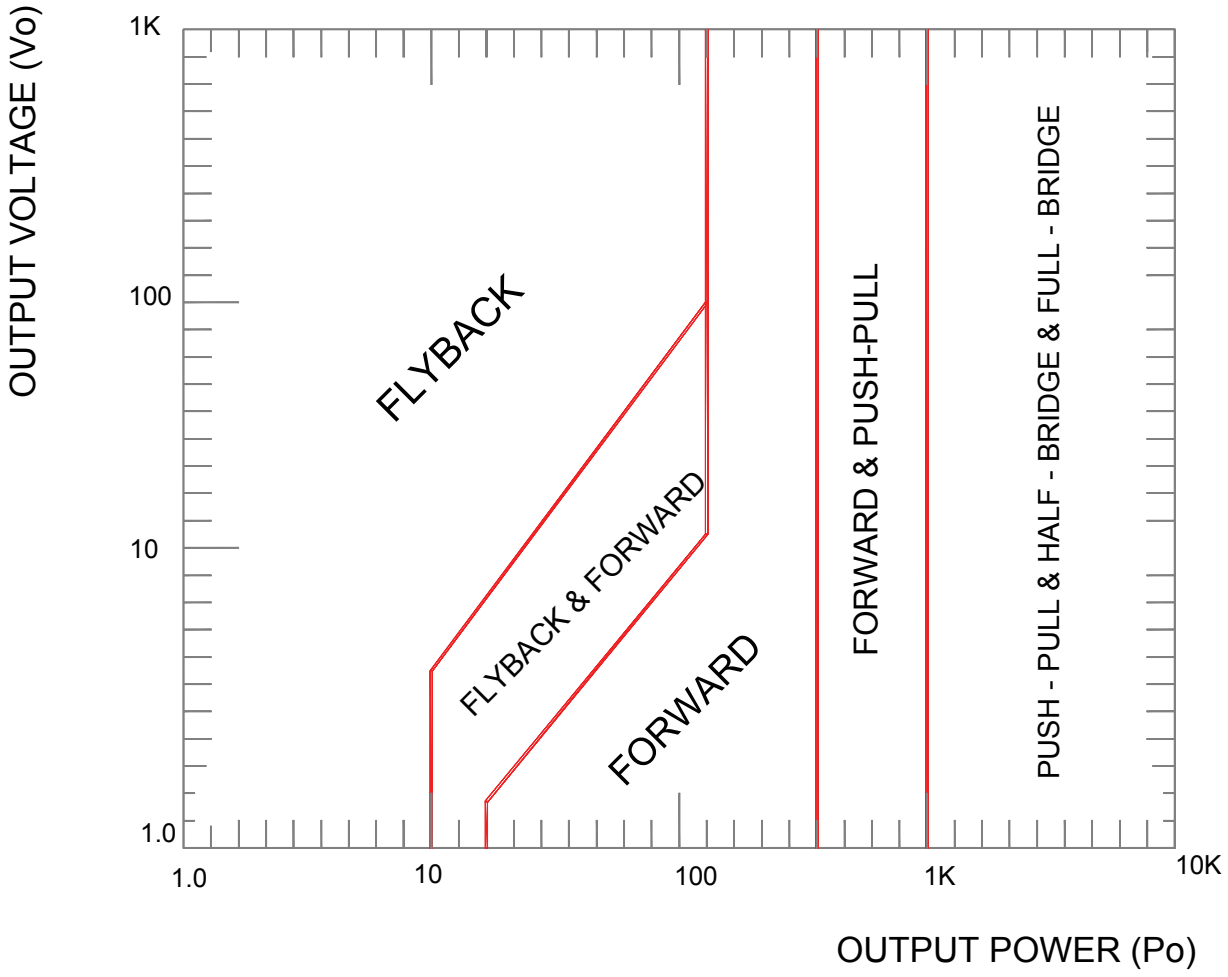
APPLICATION NOTES

Converter topology as a function of S.M.P.S output voltage (Vo) and output power (Po)



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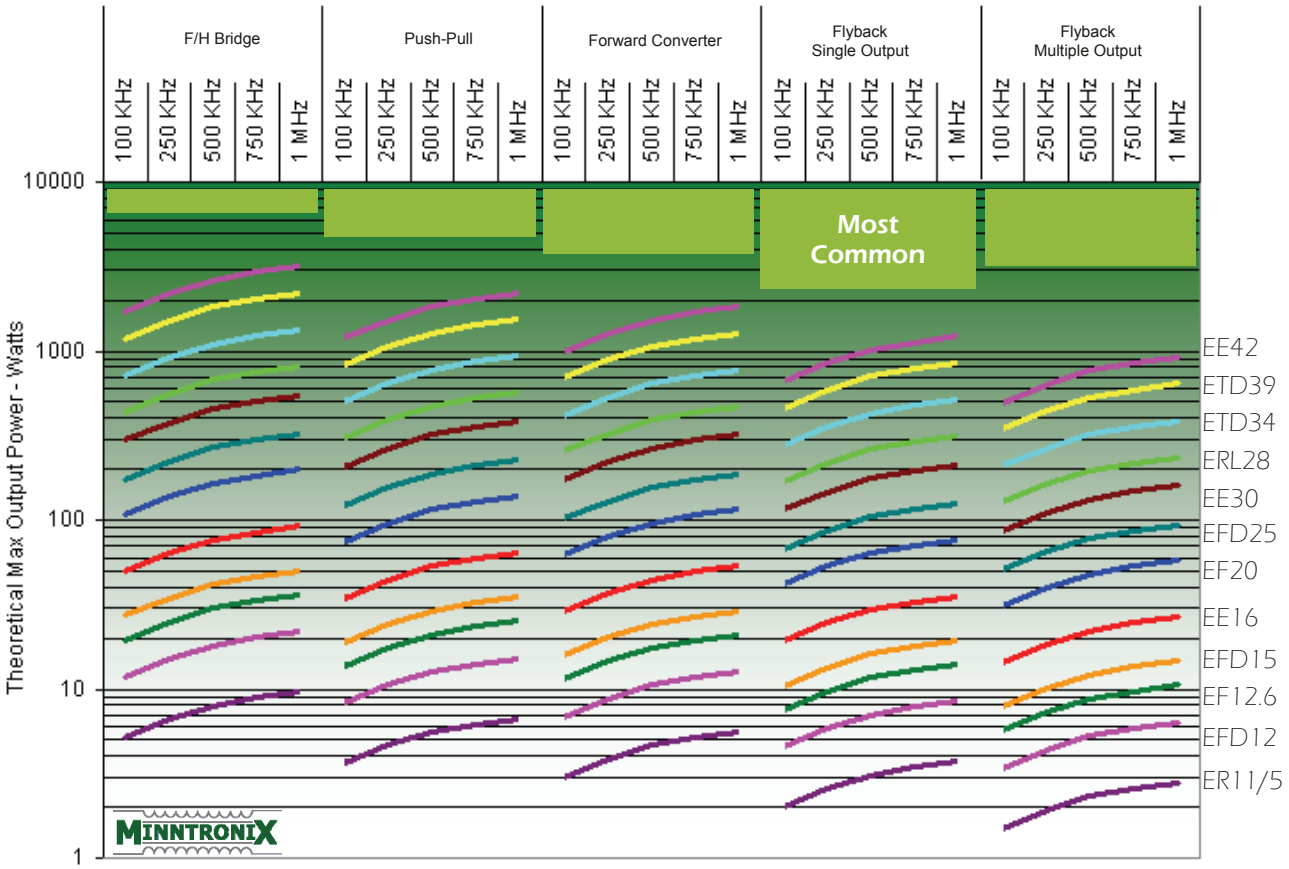
APPLICATION NOTES

General power application chart for standard transformer package styles (actual power/size is a variable of frequency, topology, and safety requirements).

Power Range (W)

TYPE	<5	5~10	10~20	20~50	50~100	100~200	200~500	500~1K
EI	EI12.5	EI16	EI19	EI25	EI40		EI50	EI60
EE	EE13	EE16	EE19	EE25	EE40	EE42	EE55	EE65
EF	EF12.6	EF16	EF20	EF25	EF30	EF32		
EFD		EFD12	EFD15	EFD20	EFD25	EFD30		
EPC		EPC13	EPC17	EPC19	EPC25	EPC30		
EER	EER9.5	EER11	EER14.5	EER28	EER35	EER42	EER49	
ETD				ETD29	ETD34	ETD44	ETD49	ETD54
EP	EP10	EP13	EP17	EP20				
RM	RM4	RM5	RM6	RM10	RM12	RM14		
POT	POT1107	POT1408	POT1811	POT2213	POT3019	POT3622	POT4229	
PQ				PQ2016	PQ2625	PQ3230	PQ3535	PQ4040
EC						EC35	EC41	EC70
ERL					ERL28	ERL35		



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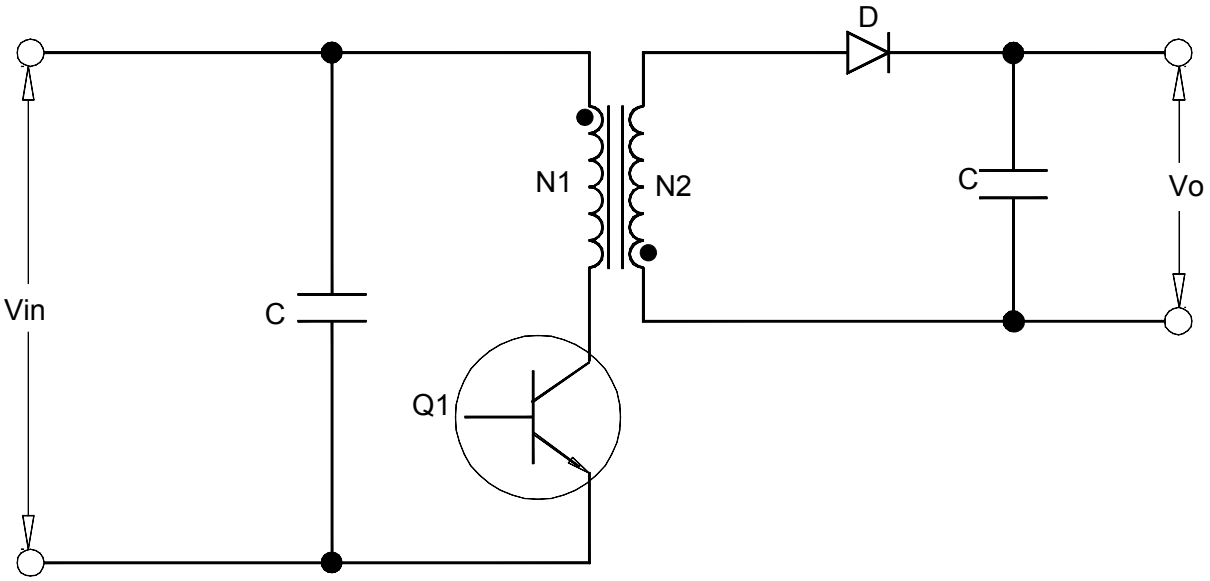
APPLICATION NOTES

Simplified flyback circuit topology



Advantages:

1. Simple circuit with a variety of controllers available.
2. Low component count.
3. Only one inductive component.
4. Low leakage loss.
5. Many regulation options (single output).
6. Collector current reduced by turns ratio of transformer.
7. Easily accommodates multiple outputs.

Disadvantages:

1. Large output capacitor required to reduce ripple current.
2. High isolation requirement may reduce close coupling of primary and secondary winding.
3. High eddy current loss in the air gap area.
4. Large transformer core with air gap may restrict applications.
5. EMI considerations.
6. Some components, including transformers, may require critical tolerancing.
7. Cross-regulation of multiple secondary's.

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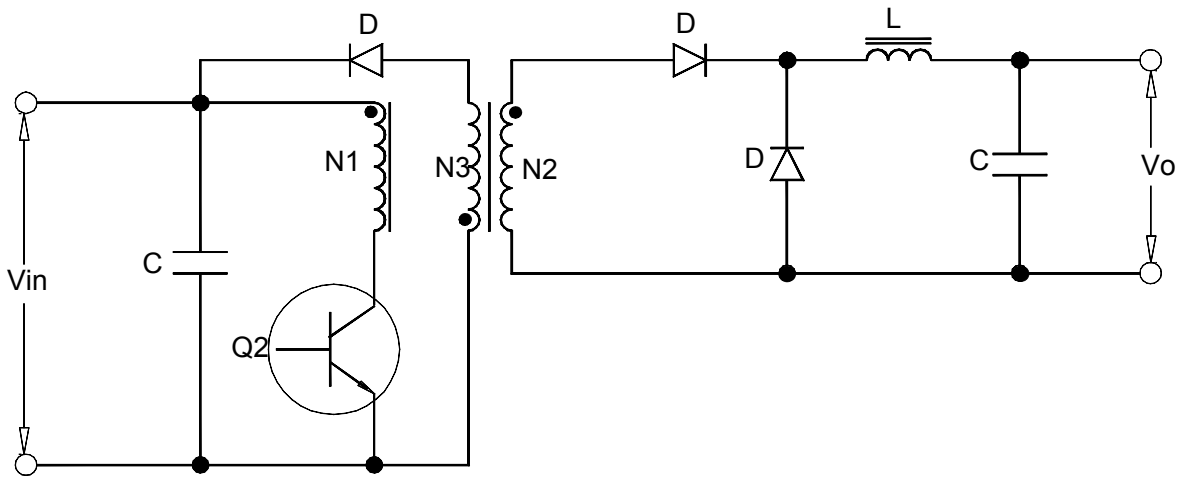
APPLICATION NOTES

Simplified forward converter circuit topology



Advantages

1. Higher power range compared to flyback converter.
2. Relatively simple circuit with medium component count.
3. High efficiency.
4. Multiple outputs are possible.
5. Low ripple current (small output capacitor).
6. Collector current adjustable by turn ratio of N2/N1.
7. Smaller main transformer than flyback.

Disadvantages

1. Higher component count, particularly with multiple regulated outputs.
2. Poor transient response.
3. Large output choke is required.

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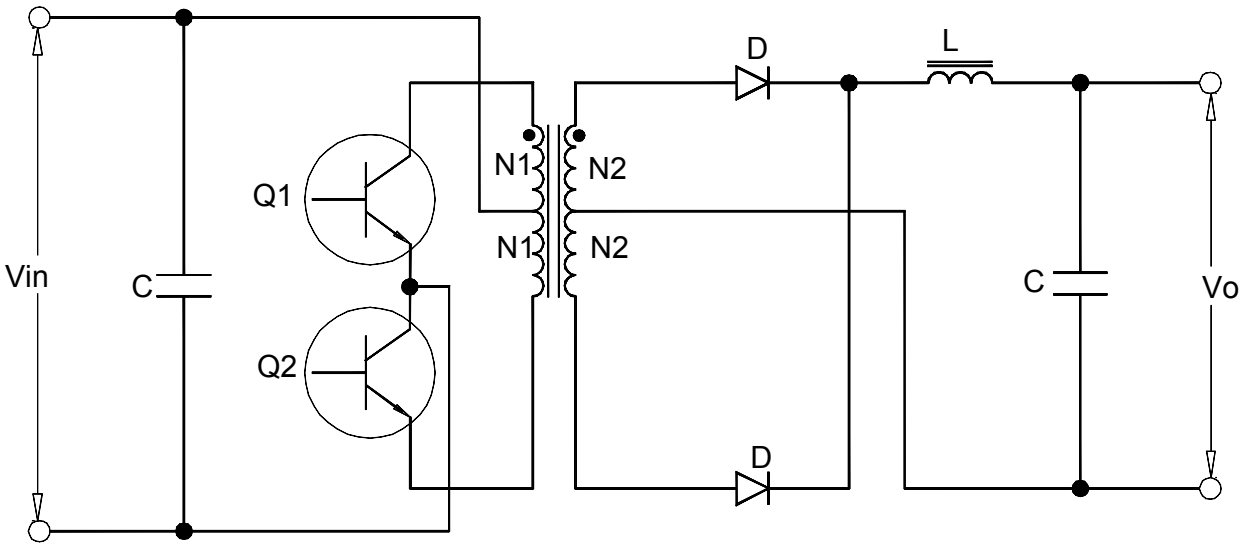
OFF-LINE Switch Mode

APPLICATION NOTES

Simplified push-pull circuit topology



Advantages

1. Power range up to the KW achievable.
2. Simple circuit.
3. Relatively simple radio interference suppression.
4. High efficiency.
5. Small output choke required.
6. Collector current adjustable as a function of N2/N1.

Disadvantages

1. Higher component count, particularly with multiple regulated outputs.
2. Poor transient response.

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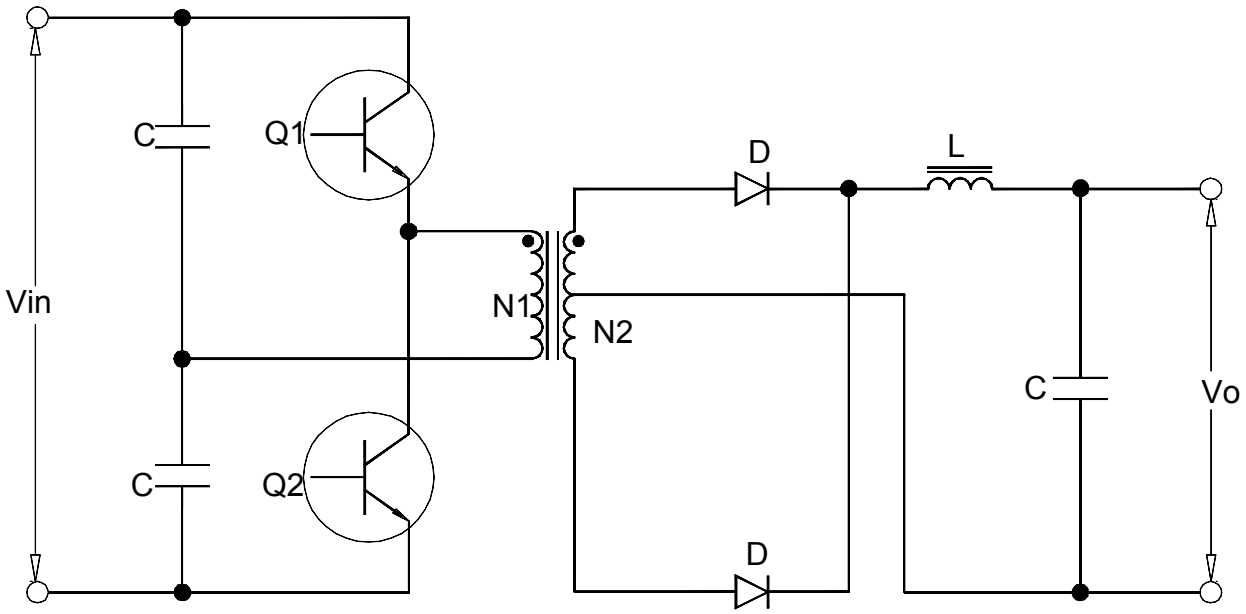
APPLICATION NOTES

Simplified half-bridged circuit topology



Advantages

1. Power range up to 10KW.
2. Simple circuit.
3. High efficiency.
4. Small output choke required.
5. Collector current adjustable by turns ratio of N2/N1.

Disadvantages

1. Higher component count, particularly with multiple regulated outputs.
2. Poor transient response.
3. Requires auxiliary power supply for control circuits.

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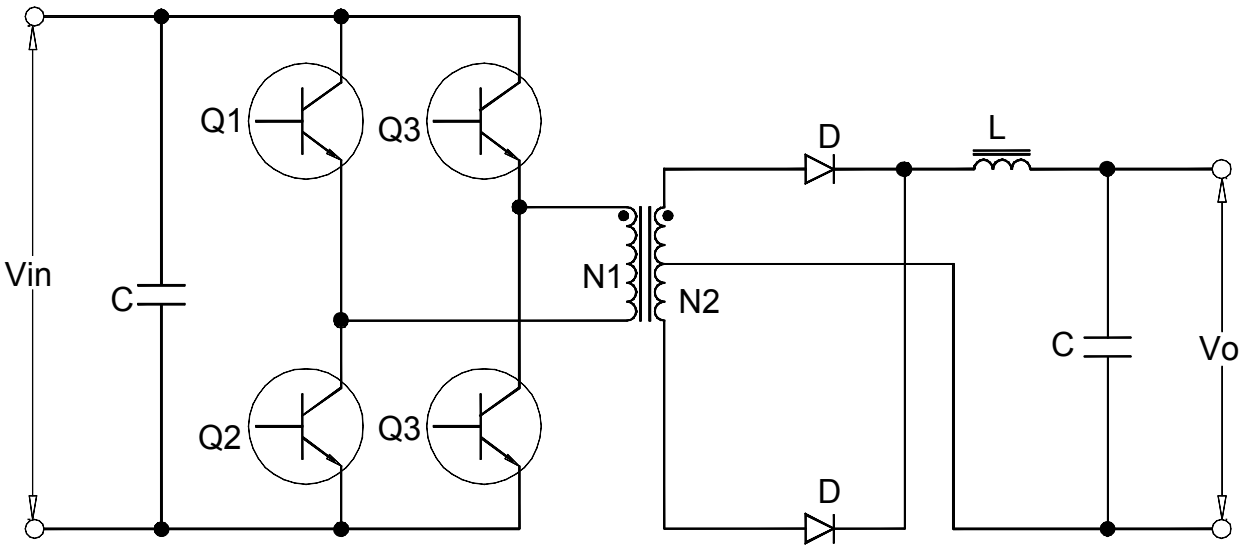
APPLICATION NOTES

Simplified full bridge push-pull circuit topology



Advantages

1. Power range up to 10KW.
2. Collector current adjustable by turns ratio of N2/N1.

Disadvantages

1. Higher component count, particularly with multiple regulated outputs.
2. Poor transient response.
3. Requires auxiliary power supply for control circuits.

MEL SERIES

Driving Inverter Transformers

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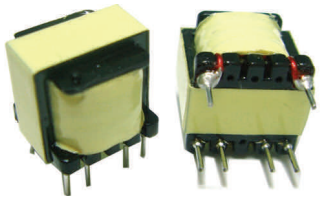
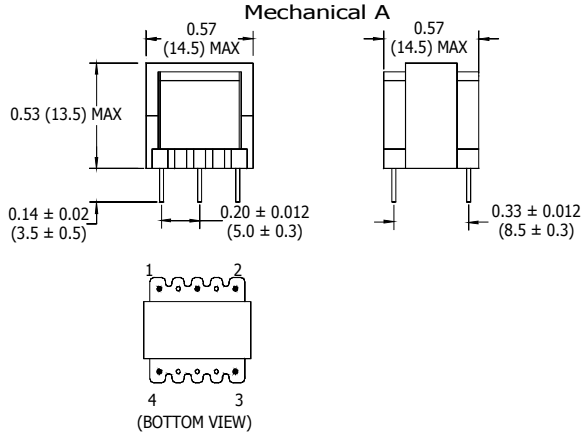
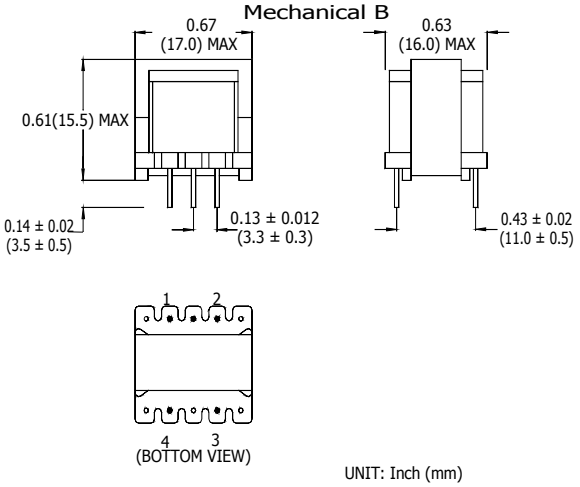


Mechanical A



Mechanical B



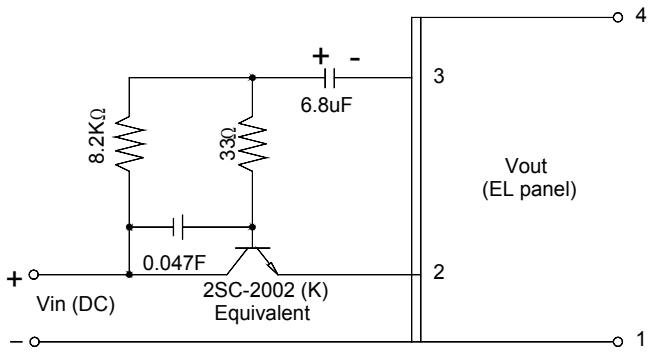
UNIT: Inch (mm)

FEATURES

- Low inverter loss and high light output efficiency.
- Longer life time of NEC EL panel than that with AC power supply.
- Offer lowest product profile per Watt.
- Can be customized for your specific application.

SPECIFICATIONS

- Storage temperature range: -20°C to +70°C.
- Operating ambient temperature range: -10°C to +55°C.
- Wider temperature ranges are available on a custom basis.
- Typical operating frequencies are between 400Hz to 1KHz.
- Infrared reflow temperature is +240°C for 30 seconds maximum.



Electrical Specifications at 25°C

Part Number	Suitable Frequency	Input Voltage	Max. Open Voltage	Load Lamp	Max. Load Lamp	Mechanical
MEL-10001	200Hz~2kHz	3V~6V	135V	10~19cm^2	22cm^2	A
MEL-10002	200Hz~2kHz	3V~6V	140V	10~38cm^2	45cm^2	A
MEL-10003	200Hz~2kHz	3V~6V	150V	10~38cm^2	45cm^2	A
MEL-10004	200Hz~2kHz	3V~6V	155V	10~38cm^2	45cm^2	A
MEL-10005	200Hz~2kHz	3V~6V	135V	41~70cm^2	80cm^2	B
MEL-10006	200Hz~2kHz	3V~6V	160V	41~70cm^2	80cm^2	B

MN-120 SERIES

Power Over Ethernet (PoE) Transformer

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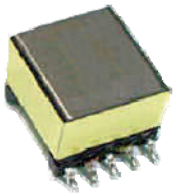
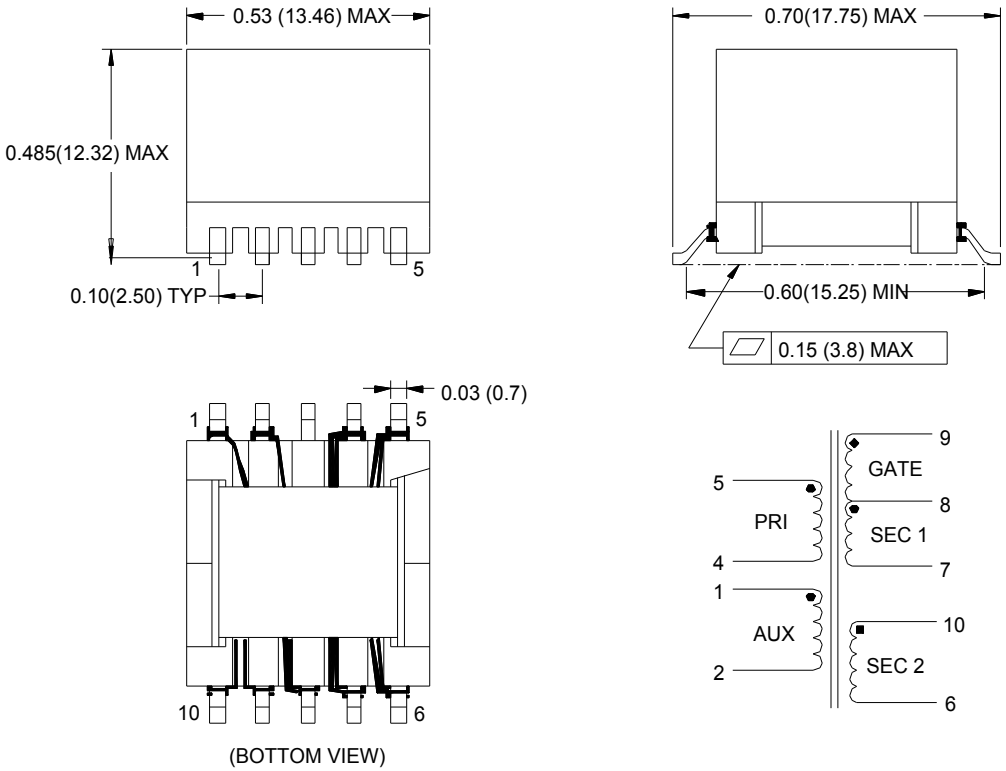


- Optimized for 250kHz with 14-60 Vin
- 2000Vrms isolation (Pri-Sec)
- Ambient temperature -40°C to +85°C
- Operating/storage temp. range: -40°C to +85°C
- 10V auxiliary winding
- Works with National Semiconductor LM5071 PD Controller



UNIT:Inch (mm)

Electrical Specification at 25°C

Part Number	Inductance[1] at 0 A ± 10% (uH)	Leakage Inductance[2] (uH max)	Isat (ADC)	Inductance at Isat (uH min)	DCR (Ω Max)		Turns Ratio		Output
MN-120-001	35.0	0.95	2.0	30	Pri (5-4)	0.062			
					Aux (1-2)	0.225	Pri:Aux	1:0.533	10V, 0.05A
					Gate (9-8)	0.138	Pri:Gate	1:0.266	5.5V, 0.05A
					Sec 1 (8-7)	0.012	Pri:Sec 1	1:0.2	3.3V, 2.0A
					Sec 2 (10-6)	0.018	Pri:Sec 2	1:0.266	5.0V, 1.0A

1. Inductance is measured at 250kHz, 0.2Vrms, 0Adc.
2. Leakage inductance is for the primary winding with the secondary windings shorted (at 250kHz 0.2Vrms).

MN-300 SERIES

Power Over Ethernet (PoE) Transformer

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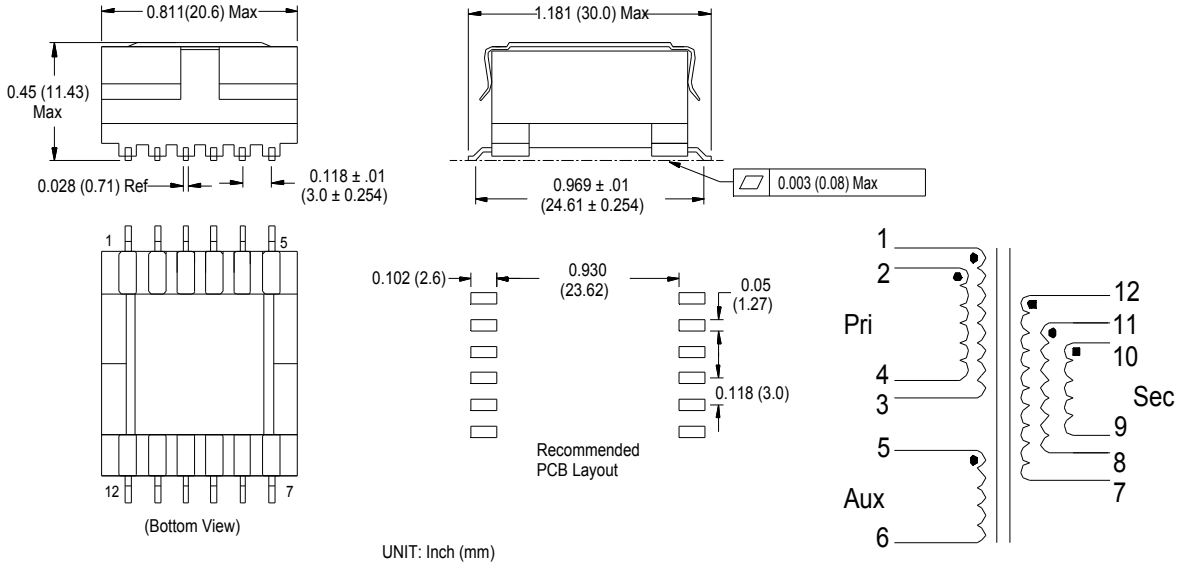
- Power rating: 30W PoE per IEEE 802.3at.
- Optimized for 250kHz with 36-72 Vin
- 1500Vrms isolation (Pri-Sec)
- Ambient temperature -40°C to +125°C
- Operating/storage temp. range: -40°C to +125°C
- 12V Auxiliary winding

Mechanical Dimensions:



Electrical Specification at 25°C

Part Number	Inductance[1] at 0 A ± 10% (uH)	Inductance at Isat (uH min)	DCR[2] (W max)			Leakage Inductance[3] (uH max)	Isat (Adc)	Turns Ratio[4]		Output[5]
			pri	sec	aux			pri:sec	pri:aux	
MN-300-001	42.0	37.8	0.070	0.0023	0.220	3.00	2.6	1 : 0.10	1 : 0.35	3.3V, 9A
MN-300-002	42.0	37.8	0.069	0.005	0.225	1.60	2.6	1 : 0.15	1 : 0.35	5V, 6A
MN-300-003	42.0	37.8	0.061	0.015	0.195	0.545	2.6	1 : 0.32	1 : 0.32	12V, 2.5A
MN-300-004	42.0	37.8	0.060	0.037	0.195	0.430	2.6	1 : 0.58	1 : 0.32	19.5V, 1.5A
MN-300-005	42.0	37.8	0.060	0.055	0.195	0.310	2.6	1 : 0.68	1 : 0.32	24V, 1.25A

1. Inductance is measured at 250kHz, 0.7Vrms, 0Adc.
2. Pri and Sec DCR is specified with the windings connected in parallel.
3. Leakage inductance is for the primary winding with the secondary windings shorted. (at 250kHz 0.7Vrms).
4. Turns ratio is with the primary and the secondary windings connected in parallel.
5. Output is with the secondary windings connected in parallel. Output of the auxiliary winding is 12V.

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- Units designed to match the application of TNYXXX series, from Power Integrations with universal AC input as designated.
- Operating temperature range: 0°C ~ 70°C

Electrical Specifications-Tinyswitch Family (at 25°C)

Part Number	Matched to IC No.	Package	Electrical Specification												
			Vin Vac (50/60HZ)	Vout 1 Vdc	Io (CONT) Amps	Vout 2 Vdc	Io (CONT) Amps	Vout 3 Vdc	Io (CONT) Amps	Vout 4 Vdc	Io (CONT) Amps	Pw (CONT) Watt	Pw (PEAK) Watt	Lp (TYP) uH	HI-POT (MIN) Vrms
MN254P00	TNY254P	EE13V	62-265	+9	0.17							1.5	4.0	1720	3000
MN254P01	TNY254P	EE16V	65-265	+9	0.34							3.0	4.0	3400	3000
MN254P02	TNY254P	EE16V	65-132	+10	0.3							3.0	5.0	3400	3000
MN254P03	TNY254P	EE16V	65-265	+9	0.34							3.0	4.0	3860	3000
MN254P04	TNY254P	EE16V	85-265	+5	0.6							3.0	4.0	5200	3000
MN254P05	TNY254P	EE16V	100-140	+18	0.19							3.5	5.0	4508	3000
MN254P06	TNY254P	EE19H	96-332	+19	0.21							4.0	4.0	2775	3000
MN254G00	TNY254G	EE16H	170-264	+2.4	0.3							0.75	5.0	3400	3000
MN254P07	TNY254P	EE16V	85-253	+24	0.16							4.0	4.0	5300	3700
MN254P08	TNY254P	EE16V	190-265	+12	0.16							2.0	5.0	3001	3000
MN255P00	TNY255P	EE16V	85-265	+12	0.625							7.5	6.5	3000	3000
MN253P00	TNY253P	EE16V	85-265	+7.5	0.15							1.125	2.0	5000	3000
MN255P01	TNY255P	EE16V	85-265	+15	0.17	-15	0.17					5.0	6.5	1850	3000
MN254P09	TNY254P	EE16V	170-264	+7	0.3							2.1	5.0	3500	1500
MN254P10	TNY254P	EE16V	120/240	+12	0.3							3.0	5.0	3000	3000
MN253G00	TNY253G	EE16V	85-265	+9	0.065							0.6	2.0	2640	3000
MN255P02	TNY255P	EE16V	115/230	+5	1.6							8.0	10.0	2200	3600
MN255P03	TNY255P	EE16V	85-165	+5	1.5							7.5	6.5	4000	3000
MN254P11	TNY254P	EE16V	120-265	+7	0.3							2.1	4.0	3500	3000
MN255P04	TNY255P	EE16V	85-265	+12	0.5							6.0	6.5	2400	3000
MN253P01	TNY253P	EE16V	85-265	+12.6	0.12							1.5	2.0	6000	3000
MN253P02	TNY253P	EE16V	207-253	+5	0.4							2.0	4.0	7403	3000
MN256P00	TNY256P	EE16V	85-265	+5	1.5							7.5	10.0	734	3000
MN256P01	TNY256P	EE16V	90-265	+6.5	1.25							8.0	10.0	1200	3000
MN254P12	TNY254P	EE16V	120-240	+3.3	0.91							3.0	4.0	4200	3000
MN255P05	TNY255P	EE16V	85-265	+10	0.7							7.0	6.5	3540	3000
MN255P06	TNY255P	EE16V	85-265	+24	0.4							9.6	6.5	4000	3000
MN254G01	TNY254G	EE16V	85-265	+7.0	0.6							4.0	4.0	4740	3000
MN254P13	TNY254P	EE16H	85-265	+12	0.05							0.6	4.0	1150	3000
MN254P14	TNY254P	EE16V	85-265	+5.5	0.45							2.5	4.0	3900	3000
MN256P02	TNY256P	EE19V	85-265	+9	0.88							8.0	10.0	950	3000
MN253P03	TNY253P	EE13V	185-265	+5	0.3							1.5	4.0	7403	1000
MN254P15	TNY254P	EE16V	85-265	+5	1.0							5.0	4.0	4000	3000
MN255P07	TNY255P	EE16V	85-265	+5	1.2							6.0	6.5	2443	3000
MN256P03	TNY256P	EE19V	85-265	+6.5	1.25							8.0	10.0	1000	3000
MN256P04	TNY256P	EE16V	85-265	+5.5	1.0							5.5	10.0	750	3000
MN254P16	TNY254P	EF16H	90-265	+6.2	0.65							4.1	4.0	1200	3000
MN254P17	TNY254P	EE16H	85-265	+5	0.48							2.4	4.0	3900	3000
MN254P18	TNY254P	EE16V	170-265	+7	0.42							3.0	5.0	3500	3000
MN254P19	TNY254P	EE16V	170-265	+60	0.016							1.0	5.0	5300	3000
MN254P20	TNY254P	EFD20	85-265	+5	0.48							2.4	4.0	3601	3000
MN255P08	TNY255P	EE16V	85-265	+12	0.5							6.0	6.5	2033	3000
MN254P21	TNY254P	EE16V	160-265	+15	0.2							3.0	5.0	3826	3000

Specifications subject to change. Custom versions of any Minntronix products are available upon request.

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MN256P05	TNY256P	EE16V	85-265	+5	1.0	+12	0.1	-12	0.1			7.4	10.0	734	3000
MN254P22	TNY254P	EE16V	85-265	+3.3	0.85							3.0	4.0	3900	3000
MN256P06	TNY256P	EF20V	230	+13.7	1.0							13.7	15.0	1500	3000
MN256P07	TNY256P	EE19V	230	+1.8	0.7	+3.3	1.8	+12	0.25	-1.2	0.25	13.2	15.0	1550	3000
MN256P08	TNY256P	EE19V	85-265	+3.3	3.0							10.0	10.0	1200	3000
MN255P09	TNY255P	EE16V	85-265	+5	0.5	+12	0.1					3.7	6.5	1785	3000
MN265P09	TNY256P	EE16V	230	+12	0.8							10.0	15.0	1500	3000
MN254P23	TNY254P	EE16V	230	+12	0.1	-12	0.1					2.4	5.0	3001	3000
MN254P24	TNY254P	EE16V	90-265	+12	0.1	-12	0.1					2.4	4.0	3200	3000
MN254P25	TNY254P	EE16V	85-265	+5	0.3	+24	0.1					3.9	4.0	5000	3000
MN256P10	TNY256P	EE16V	85-265	+5	0.5	+12	0.2					5.0	10.0	580	3000
MN254P26	TNY254P	EE16V	85-265	+5	0.75							3.75	4.0	1140	3000
MN255P10	TNY255P	EE16V	85-265	+12	0.17							2.0	6.5	669	3000
MN254P27	TNY254P	EE16V	85-265	+15	0.12	+24	0.05					3.0	4.0	3400	3000
MN253G01	TNY253G	EF12.6H	50-100(DC)	+9	0.3							2.7	4.0	2640	3000
MN254G02	TNY254G	EFD15	85-265	+5	0.48							2.4	4.0	9682	3000
MN256P11	TNY256P	EE16V	85-265	+5	0.2	+24	0.2					5.8	10.0	600	3000
MN256Y00	TNY256Y	EE19H	230	+15	0.8							12.0	19.0	1700	3000
MN253G02	TNY253G	EE16V	85-265	+9	0.060	-9	0.055					1.035	2.0	3400	3000
MN256Y01	TNY256Y	EE19V	195-265	+12	1.0							12.0	19.0	1336	3000
MN253P04	TNY253P	EE16V	85-265	+5	0.3							1.5	2.0	6000	3000
MN255P11	TNY255P	EE16V	187-265	+5	0.6	+12	0.6					10.2	10.0	1274	3000
MN254P28	TNY254P	EE16V	65-132	+6	0.3	+9	0.3	+10	0.3			7.5	5.0	3400	3000
MN254P29	TNY254P	EE16V	195-265	+5	0.6	+24	0.05					4.2	5.0	4501	3000
MN256P12	TNY256P	EE19V	190-264	+15	0.53							7.95	15.0	954	3000
MN256Y02	TNY256Y	EE19H	195-265	+18	0.67							12.0	19.0	1638	3000
MN253P05	TNY253P	EE16V	120	+12	0.02							0.25	4.0	1150	3000
MN256P13	TNY256P	EF16V	230	+12	0.8							10.0	15.0	1000	3000
MN254P30	TNY254P	EE16H	85-265	+10	0.25							2.5	4.0	3400	3000
MN264P00	TNY264P	EE13V	85-265	+24	0.125							3.0	6.0	1263	3000
MN255P12	TNY255P	EF16H	195-265	+6	1.0							6.0	10.0	2200	3000
MN264G00	TNY264G	EF12.6H	85-265	+14	0.11	-14	0.11					3.08	6.0	1344	1000
MN254P31	TNY254P	EE16V	85-265	+3.3	0.25	-3.3	0.025					0.9075	4.0	3900	3000
MN264G01	TNY264G	EF12.6H	85-265	+12	0.045	-12	0.035					0.96	6.0	1344	1000
MN266P00	TNY266P	EL16V	85-265	+20	0.3							6.0	6.0	677	3000
MN264G02	TNY264G	EFD15	85-265	+12	0.045	-12	0.035					0.96	3.0	1344	3000
MN264G03	TNY264G	EE16V	85-265	+12	0.045	-12	0.035					0.96	6.0	1344	3000
MN264G04	TNY264G	EF12.6H	85-265	+3.3	0.15	+15	0.045					1.2	6.0	459	3000
MN264G05	TNY264G	EF12.6H	85-265	+9.0	0.13							1.2	6.0	459	3000
MN268P00	TNY268P	EF20H	85-265	+12.0	1.0							12.0	15.0	1004	3000
MN268P01	TNY268P	EE19H	85-265	+5.0	1.5	+24	0.125					10.5	15.0	1004	3000
MN264P01	TNY264P	EE16V	85-265	+3.3	0.225	+12	0.110					2.0	6.0	1344	3000
MN268G00	TNY268G	EE16H	85-265	+24	0.4							9.6	15.0	4000	3000
MN264G06	TNY264G	EE13V	207-253	+10.5	0.2							2.1	9.0	3000	3000

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- Units designed to match the application of TNYXXX series, from Power Integrations with universal AC input as designated.
- Operating temperature range: 0°C ~ 70°C

Electrical Specifications-Tinyswitch Family (at 25°C)

Part Number	Matched to IC No.	Package	Electrical Specification												
			Vin Vac (50/60HZ)	Vout 1 Vdc	Io (CONT) Amps	Vout 2 Vdc	Io (CONT) Amps	Vout 3 Vdc	Io (CONT) Amps	Vout 4 Vdc	Io (CONT) Amps	Pw (CONT) Watt	Pw (PEAK) Watt	Lp (TYP) uH	HI-POT (MIN) Vrms
MN264P02	TNY264P	EF12.6H	85-265	+3.3	0.225	+12	0.110					2.0	4.0	770	3000
MN264P03	TNY264P	EF12.6H	85-265	+9.0	0.33							3.0	4.0	1250	3000
MN264G07	TNY264G	EF12.6H	85-265	+16.0	0.16	-16.0	0.16					5.0	6.0	2174	1000
MN264G08	TNY264G	EF12.6H	85-265	+5.0	0.2							1.0	6.0	770	3000
MN264P04	TNY264P	EF12.6H	85-265	+14.0	0.1							1.4	4.0	1174	3000
MN264P05	TNY264P	EF16H	85-265	+5	0.6							3.0	4.0	1329	3000
MN264P06	TNY264P	EF12.6H	85-265	+5	0.1	+15	0.02	-15	0.02			1.1	4.0	770	3000
MN264P07	TNY264P	EF12.6H	85-135	+18	0.28							5.04	9.0	2174	1000
MN264G09	TNY264G	EF12.6H	85-265	+5	0.8							4.0	6.0	2174	1000
MN264G10	TNY264G	EF12.6H	192-288	+12	0.15							1.8	9.0	1281	4000
MN266P01	TNY266P	EF12.6H	85-265	+12	0.55							6.6	9.5	1197	3000

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- Units designed to match the application of TOPXXX series, from Power Integrations with universal AC input as designated.
- Operating temperature range: 0°C ~ 70°C

Electrical Specifications-Topswitch Family (at 25°C)

Part Number	Matched to IC No.	Package	Electrical Specification												
			Vin Vac (50/60HZ)	Vout 1 Vdc	Io (CONT) Amps	Vout 2 Vdc	Io (CONT) Amps	Vout 3 Vdc	Io (CONT) Amps	Vout 4 Vdc	Io (CONT) Amps	Pw (CONT) Watt	Pw (PEAK) Watt	Lp (TYP) uH	HI-POT (MIN) Vrms
MS102Y01	TOP102YAI	EE16H	48(DC)	+5	1.13	-5	1.13					12.0	17.0	210	1500
MS200Y01	TOP200YAI	EF20H	90-260	+3	3.5							10.5	12.0	2800	3000
MS201Y01	TOP201YAI	EF20H	90-260	+3	3.5							10.5	22.0	2800	3000
MS202Y01	TOP202YAI	EE22V	85-265	+5	1.047	+12	1.047					18.0	30.0	560	3000
MS204Y01	TOP204YAI	EI28V	85-265	+15	1.0							15.0	60.0	627	3000
MS221Y01	TOP221YAI	EF16V	85-145	+14	0.57							8.0	12.0	892	3000
MS222Y01	TOP222YAI	EE22V	145-265	+5	1.00	+15	1.00					20.0	25.0	1770	3000
MS223Y01	TOP223YAI	EE22V	85-265	+5	0.8	+12	0.4	-12	0.4	+17	0.4	20.5	30.0	634	3000
MS222Y02	TOP222YAI	EL19V	180-260	+5	1.5	+3.6	0.15	+2.5	0.02	-2.5	0.02	8.5	25.0	1500	3000
MS222P01	TOP222P	EE16V	85-265	+15	0.5							7.5	10.0	1637	3000
MS224P01	TOP224P	EI25V	100-120	+12	1.0							12.0	30.0	596	3000
MS200Y02	TOP200YAI	EE16H	85-265	+5	1.0							5.0	12.0	4200	3000
MS202Y02	TOP202YAI	EE22V	85-265	+7.5	2.0							15.0	30.0	620	3000
MS204Y02	TOP204YAI	EI28V	85-265	+15	2.0							30.0	60.0	627	3000
MS210P01	TOP210PFI	EE16H	85-265	+5	0.8							4.0	5.0	8000	3000
MS201Y02	TOP201YAI	EF25H	85-265	+12	1.25							15.0	22.0	1884	3000
MS202Y03	TOP202YAI	EF20H	85-265	+5	1.047	+12	1.047					18.0	30.0	560	3000
MS104Y01	TOP104YAI	EI28V	90-132	+10	0.01	+27	2.5	+6	0.05			68.0	75.0	627	3000
MS210P02	TOP210PFI	EE16V	90-132	+12	0.25							3.0	8.0	820	3000
MS202Y04	TOP202YAI	EE22V	85-265	+7.5	2.0							15.0	30.0	620	3000
MS224Y01	TOP224YAI	EFD20	85-265	+14.5	1.1							16.0	45.0	1620	3000
MS223Y02	TOP223YAI	EI28V	80-360	+5	1.0	+12	0.3	+20	0.3	+32	0.02	15.5	30.0	620	3000
MS223Y03	TOP223YAI	EFD25	85-265	+5	1.5	+12	0.15	-12	0.15	-60	0.06	15.0	30.0	1120	3000
MS222P02	TOP222P	EE19V	85-265	+15	0.5							7.5	10.0	1637	3000
MS223P01	TOP223P	EF20H	85-265	+5	0.3	+28	0.2					7.5	15.0	1420	3000
MS224Y02	TOP224YAI	EF30H	85-265	+23	1.52							35.0	45.0	960	4000
MS223Y04	TOP223YAI	EE22V	85-265	+12	1.03	-12	0.97					24.0	30.0	634	3000
MS202Y05	TOP202YAI	EE16H	85-265	+5	1.047	+12	1.047					18.0	30.0	560	1500
MS221Y02	TOP221YAI	EE13V	85-145	+14	0.57							8.0	12.0	892	1000
MS200Y03	TOP200YAI	EE16H	85-265	+24	0.04	+11	0.004					1.1	12.0	6000	2500
MS223Y05	TOP223YAI	EE22V	90-132	+8	4.5	+5	0.5					38.5	50.0	634	3000
MS222P03	TOP222P	EE16V	50-100(DC)	+5	1.05							5.25	15.0	1008	3000
MS224Y03	TOP224YAI	EE25V	50-100(DC)	+24	1.0							24.0	75.0	440	3000
MS222Y03	TOP222YAI	EE19V	85-265	+5	1.0	+24	0.1					7.4	15.0	1084	3750
MS224Y04	TOP224YAI	EI28V	92-133	+5	0.2	+8	4.5					37.0	75.0	881	3000
MS223Y06	TOP223YAI	EE19H	50-100(DC)	+6	1.5							9.0	50.0	480	3000
MS221Y03	TOP221YAI	EE19H	195-265	+24	0.29	+6	0.1					7.6	12.0	3099	3000
MS223Y07	TOP223YAI	EI28V	185-265	+12	0.85	+6	5.13					41.0	50.0	1570	3000
MS223Y08	TOP223YAI	EPC30	185-265	+12	0.85	+6	5.13					41.0	50.0	1570	3000
MS225Y01	TOP225YAI	EI30V	200-255	+28	2.14							60.0	100.0	1138	1000
MS227Y01	TOP227YAI	EI28V	85-265	+12	5.0							60.0	90.0	500	3000
MS224Y05	TOP224YAI	ETD29H	92-132	+12	0.3	+8	4.5					40.0	75.0	1380	4800
MS223P02	TOP223P	EF20H	85-265	+6.5	1.5							10.0	15.0	1170	3000

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Part Number	Matched to IC No.	Package	Electrical Specification												
			Vin Vac (50/60HZ)	Vout 1 Vdc	Io (CONT) Amps	Vout 2 Vdc	Io (CONT) Amps	Vout 3 Vdc	Io (CONT) Amps	Vout 4 Vdc	Io (CONT) Amps	Pw (CONT) Watt	Pw (PEAK) Watt	Lp (TYP) uH	HI-POT (MIN) Vrms
MS221Y04	TOP221YAI	EE16V	85-265	+5	0.72							3.6	7.0	2431	3000
MS209P01	TOP209P	EE16V	85-265	+5	0.4							2.0	2.0	10000	3000
MS224P03	TOP224P	EE25V	85-265	+12	1.0							12.0	20.0	650	3000
MS223Y09	TOP223YAI	EE25V	85-265	+5	3.0							15.0	30.0	980	3000
MS221P01	TOP221P	EE16H	185-265	+6.2	0.4	+13.5	0.03					2.9	9.0	2925	3000
MS221P02	TOP221P	EE16V	85-265	+5	0.7							3.5	6.0	2430	3000
MS224Y06	TOP224YAI	EE25V	98-138	+30	0.87							26.0	75.0	575	3000
MS224Y07	TOP224YAI	EI28V	172-265	+14	1.78							25.0	75.0	1675	3000
MS227Y02	TOP227YAI	EI40V	190-265	+25	6.0							150.0	150.0	650	3000
MS221Y05	TOP221YAI	EF16H	85-265	+5	0.72							3.6	7.0	2431	3000
MS221Y06	TOP221YAI	EE16V	85-265	+5	0.72	-5	0.2					4.6	7.0	2431	3000
MS412G01	TOP412G	EFD20	42-60(DC)	+5	1.2							6.0	12.0	1678	1500
MS414G01	TOP414G	EFD20	36-72(DC)	+5	2.0							10.0	18.0	614	1500
MS225Y02	TOP225YAI	EI28V	85-265	+12	4.0							48.0	60.0	600	3000
MS234Y01	TOP234YAI	EF25V	85-265	+12	2.5							30.0	45.0	1016	3000
MS223P03	TOP223P	EPC19	99-198	-48	0.02	-24	0.3	-48	0.015	-165	0.02	12.2	25.0	905	1500
MS227Y03	TOP227YAI	ETD34H	195-265	+10	10.0							100.0	150.0	600	3000
MS227Y04	TOP227YAI	EI33V	85-265	+24	1.875	-24	1.875					90.0	90.0	750	3000
MS221P03	TOP221P	EE19H	85-265	+5	0.5	+12	0.2					4.9	6.0	2968	3000
MS226Y01	TOP226YAI	ETD34H	207-253	+12	1.5	+24	3.0					90.0	125.0	600	3000
MS412G02	TOP412G	EFD20	40-150(DC)	+5	0.6							3.0	18.0	534	1500
MS103Y01	TOP103YAI	EFD20	40-50(DC)	+5	0.25	+15	1.3					21.0	22.0	168	1500
MS223P04	TOP223P	EF20H	85-265	+5	1.0							5.0	15.0	1170	3000
MS227Y05	TOP227YAI	EI28V	85-265	+5	1.0	+12	1.0					17.0	90.0	500	3000
MS227Y06	TOP227YAI	EI28V	85-265	+5	3.0	+12	2.0					39.0	90.0	500	3000
MS227Y07	TOP227YAI	EI28V	85-265	+5	6.0							30.0	90.0	500	3000
MS227Y08	TOP227YAI	EI28V	85-265	+12	1.0							12.0	90.0	500	3000
MS412G03	TOP412G	EE16V	46-80(DC)	+3.3	0.6	+24	0.3					9.0	15.0	345	1500
MS227YO9	TOP227YAI	ERL28V	85-265	+15	4.66							70.0	90.0	275	3000
MS223Y10	TOP223YAI	ERL28V	200-250	+24	1.25							30.0	50.0	1333	3000
MS104Y02	TOP104YAI	EL19H	40-60(DC)	+15	1.67							25.0	25.0	319	3000
MS223Y11	TOP223YAI	EFD25	85-265	+5	1.5	+12	0.15	-12	0.15			11.1	30.0	1120	3000
MS224Y08	TOP224YAI	EFD25	85-265	+14.5	1.1	+12	0.15	-12	0.15			20.0	45.0	1620	3000
MS222Y04	TOP222YAI	EE19V	85-265	+5	2.0							10.0	15.0	1084	3000
MS234Y02	TOP234YAI	EF25H	85-265	+3.3	2.3	+12	1.1	+16	1.1			38.0	45.0	1650	3000
MS221Y07	TOP221YAI	EE16V	48(DC)	+5	0.6	-24	0.042	-48	0.021			5.0	12.0	210	3000
MS221Y08	TOP221YAI	EE16V	85-265	+9.75	0.5							4.8	7.0	4000	3000
MS232Y01	TOP232YAI	EF20H	175-265	+3.3	0.25	+5	0.25	+15	0.2			5.125	10.0	1650	3000
MS232Y02	TOP232YAI	EF20H	175-265	+12	0.25							3.0	10.0	1650	3000
MS226Y02	TOP226YAI	ETD29V	85-265	+12	2.5	+65	0.5					62.5	75.0	391	3000
MS234Y03	TOP234YAI	EF25V	85-265	+12	2.5							30.0	45.0	1016	3000
MS233Y01	TOP223YAI	EF20H	195-265	+24	0.8	+5	0.2					20.2	50.0	1618	3000
MS232Y03	TOP232YAI	EE16V	195-265	+24	0.1	+5	0.1					2.9	10.0	602	3000
MS227Y10	TOP227YAI	ETD34H	195-265	+13.5	10.0							135.0	150.0	600	3000

Specifications subject to change. Custom versions of any Minntronix products are available upon request.

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Electrical Specifications-Topswitch Family (at 25°C)

Part Number	Matched to IC No.	Package	Electrical Specification												
			Vin Vac (50/60HZ)	Vout 1 Vdc	Io (CONT) Amps	Vout 2 Vdc	Io (CONT) Amps	Vout 3 Vdc	Io (CONT) Amps	Vout 4 Vdc	Io (CONT) Amps	Pw (CONT) Watt	Pw (PEAK) Watt	Lp (TYP) uH	HI-POT (MIN) Vrms
MS200Y04	TOP200YAI	EE16H	85-265	+30	0.08	-30	0.08					4.8	12.0	4200	3000
MS210P04	TOP210PFI	EE16H	85-265	+15.0	0.3							4.5	5.0	4000	3000
MS414G02	TOP414G	EFD20	36-72(DC)	+6	0.1	+15	0.68					10.8	18.0	614	1000
MS227Y11	TOP221YAI	ETD39H	195-265	+13.6	9.9							135.0	150.0	683	3000
MS224Y09	TOP224YAI	EFD20	90-264	+20	0.5							10.0	45.0	580	3000
MS234Y04	TOP234YAI	EF25V	85-265	+14	2.5							35.0	45.0	1016	4000
MS249Y01	TOP249YAI	ETD44H	195-265	+13.5	14.8							200.0	250.0	650	4000
MS414G03	TOP414G	EFD25	18-90(DC)	+5	0.3	+24	0.1					4.0	21.0	370	4000
MS245Y01	TOP245YAI	EI28V	185-265	+24	2.5							60.0	85.0	500	3000
MS243Y01	TOP243YAI	EF25V	195-265	+18	1.8							32.4	45.0	872	3000
MS249Y02	TOP249YAI	ETD39H	85-265	+29	6.2							180.0	180.0	683	3000
MS222Y05	TOP222YAI	EE19V	85-265	+8	0.02	+8	0.25	+12	0.05	+15	0.35	8.01	15.0	1084	3000
MS222Y06	TOP222YAI	EF20H	85-265	+8	0.02	+8	0.25	+12	0.05	+15/+15*3	0.2/0.05*3	8.01	15.0	1084	3000
MS246Y01	TOP246YAI	EI28V	195-265	+19	5.0							95.0	125.0	500	3000
MS247Y01	TOP247YAI	ETD39H	207-253	+33	4.0							132.0	165.0	683	3000
MS249Y03	TOP249YAI	ETD44H	195-265	+33	7.5							247.5	250.0	650	3000
MS210P05	TOP210PFI	EF16H	195-265	+12	0.5							6.0	8.0	4300	3000
MS246Y02	TOP246YAI	EI28V	85-265	+45	1.2							54.0	90.0	500	3000
MS232Y04	TOP232YAI	EE19V	176-265	+5	1.8	+12	0.4					13.8	25.0	1349	3750
MS243Y02	TOP243YAI	EF25V	100-265	+5	1.0	+6	1.0	-5	1.0	-6	1.0	22.0	30.0	708	3000
MS243Y03	TOP243YAI	EE19H	175-265	+12	1.0							12.0	45.0	872	3000
MS243Y04	TOP243YAI	EF25V	175-265	+24	1.3	+5	0.5					33.7	45.0	872	3000
MS245Y02	TOP245YAI	EI28V	175-265	+24	2.5	+5	0.7					63.5	85.0	500	3000
MS243Y05	TOP243YAI	EE19H	175-265	+5	1.5							7.5	45.0	872	3000
MS245Y03	TOP245YAI	EF30H	195-265	+35	2.0	+5	0.1					70.6	85.0	485	3000
MS247Y02	TOP247YAI	EF30H	85-265	+24	3.0	+8	0.05					72.5	125.0	125	3000

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Power Integration Design Reference Matched to TNY, TOP, LNK, DAP IC

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Part Number	Applications	Power Integration Design reference		Package	Vin	Vout	Matched to IC No.	Pout (Watt)	Topology
MTEPR009	Home appliance	DAK-7/EPR9		EE16V	85-265Vac	5/12Vdc	TNY266	5	TinySwitch-II, Flyback
MTEPR010	Charger	EPR10		EF20V	85-265Vac	14Vdc	TOP233	15	TopSwitch-FX, Flyback
MTEPR011	Laptop adapter	EPR11		FPQ26/20	85-265Vac	19Vdc	TOP249	70	TopSwitch-GX, Flyback
MTEPR012A	Main Transformer	DAK-12/EPR12		EER28LV	185-265Vac	3.3/5/12Vdc	TOP247	145	TopSwitch-GX,Flyback
MTEPR012B	stand by	DAK-12/EPR12	AN30	EE16V	90-132Vac	5Vdc	TNY266	10	TinySwitch-II, Flyback
MTEPR014	AC adapter	DAK-14A/EPR14		EF12.6H	85-265Vac	9Vdc	TNY264	3	TinySwitch-II, Flyback
MTEPR015	Charger	EPR-15		EE16V	85-265Vac	12Vdc	TNY264	3	TinySwitch-II, Flyback
MTEPR016	Charger	DAK-16A/EPR16	AN35	EE13H	85-265Vac	5.5Vdc	LNK501	2.75	LinkSwitch, Flyback
MTEPR018	Digital modem	DAK-18/EPR18		EI25V	85-265Vac	3.3/5/30Vdc	TOP243	10	TopSwitch-GX, Flyback
MTEPR021	DAP Switch	DAK-21/EPR21	AN31	CUT1408S	36-75Vac	5Vdc	DAP424	30	DPASwitch, Forward
MTEPR029	DVD Player	EPR29		EEL25V	90-265Vac	3.3/5/12/-12Vdc	TNY268	11	TinySwitch-II, Flyback
MTEPR031A	Main transformer	DAK-31/EPR31	AN30	EER28LV	180-265Vac	3.3/5/12Vdc	TOP249	180	TopSwitch-GX, Flyback
MTEPR031B	Stand by	DAK-31/EPR31	AN30	EE16V	90-132Vac	5Vdc	TNY266	10	TinySwitch-II, Flyback
MTEPR032	Set-top box	DAK-32/EPR32	AN29	EEL25H	85-265Vac	3.3/5/12/-24Vdc	TOP245	20	TopSwitch-GX, Flyback
MTEPR033	LCD Monitor	DAK-33/EPR33		EE2821	90-265Vac	12Vdc	TOP247	45	TopSwitch-GX, Flyback
MTEPR034	AC-DC Power	DAK-34/EPR34		EF25V	85-265Vac	12Vdc	TOP245	30	TopSwitch-GX, Flyback
MTEPR054A	Charger	DAK-54/EPR54		EE16H	85-265Vac	5.5Vdc	LNK520	2.75	LinkSwitch, Flyback
MTEPR054B	Charger (Simple)	DAK-54/ERP54		EE16H	85-265Vac	5.5Vdc	LNK520	2.75	LinkSwitch, Flyback
MTEPR068	DC-DC converter	DAK-68A/EPR68	AN29	ER14.5V	36-57Vdc	3.3Vdc	DAP423	6.6	DPASwitch, Flyback
MTEPR071	DC-DC converter	DAK-71/EPR71		ER14.5V	36-72Vdc	3.3Vdc	DAP423	6.6	DPASwitch, Flyback
MTEPR073A	Charger	DAK-73/EPR73	AN38	EE-16H	85-265Vac	5.7Vdc	LNK354	2.28	LinkSwitch-HF, Flyback
MTEPR073B	Charger (Remove Y Capacitor)	DAK-73/EPR73	AN38	EE-16H	85-265Vac	5.7Vdc	LNK354	2.28	LinkSwitch-HF, Flyback
MTEPR084	Charger	EPR84		EE-13H	85-265 Vac	5Vdc	TNY264	3	TinySwitch-II, Flyback
MTEPR085A	Charger	DAK-85/EPR85 Transformer A	AN39	EE16H	90-265 Vac	4 to 7.5Vdc	LNK562 LNK563 LNK564	1.3 1.7 2	LinkSwitch-LP, Flyback
MTEPR085B	Charger	DAK-85/EPR85 Transformer B	AN39	EE16H	85-265Vac	8 to 12Vdc	LNK562 LNK563 LNK564	1.3 1.7 2	LinkSwitch-LP, Flyback
MTEPR089	CV adapter	DAK-89/ERP89	AN40	EE16H	85-265Vac	6.2Vdc	LNK362	2	LinkSwitch-XT, Flyback
MTEPR091	AC-DC Power	DAK-91/EPR91		EE25V	85-265Vac	12Vdc	TNY278	12	TinySwitch-III, Flyback
MTDER001	Charger	DER001		EE16H	85-265Vac	5.9Vdc	LNK500	2.4	LinkSwitch, Flyback
MTDER002	Charger	DER002		EE13H	85-265Vac	18Vdc	LNK501	3.2	LinkSwitch, Flyback
MTDER003	Charger	DER003		EE13H	85-265Vac	6Vdc	TNY264	2.4	TinySwitch, Flyback
MTDER004	Charger	DER004		EE16H	85-265Vac	6Vdc	TNY264	2.4	TinySwitch, Flyback
MTDER006	Charger	DER006		EF16H	85-264Vac	5.1Vdc	TNY266	3.6	TinySwitch-II, Flyback
MTDER005	DVD Player	DER005		EEL25V	200-264Vac	3.3/5/12/-12Vdc	TNY267	11	TinySwitch-II, Flyback
MTDER007	DVD Player	DER007		EEL25H	85-265Vac	5/3.3/12/-23/3Vdc	TNY267	9	TinySwitch-II, Flyback
MTDER008	DVD Player	DER008		EEL25H	85-265Vac	5/3.3/12/-22/4Vdc	TNY267	9	TinySwitch-II, Flyback
MTDER009	DVD Player	DER009		EEL25H	90-265Vac	5/3.3/12/-12Vdc	TNY267	9	TinySwitch-II, Flyback
MTDER010	DVD Player	DER010		EEL25H	90-265Vac	5/3.3/12/-12Vdc	TNY266	4.9	TinySwitch-II, Flyback
MTDER011	PC standby	DER011		EE19H	120-420Vdc	5/13 Vdc	TNY268	15	TinySwitch-II, Flyback
MTDER012	Charger	DER012		EE13H	90-264Vac	6Vdc	LNK500	2.4	LinkSwitch, Flyback
MTDER013	Charger	DER013		EF12.6H	90-265Vac	5.5Vdc	LNK501	2.2	LinkSwitch, Flyback
MTDER014	Charger	DER014		EE16H	85-265Vac	5Vdc	LNK500	1.5	LInkSwitch, Flyback
MTDER015	Charger	DER015		EE13H	198-253Vac	3.6Vdc	LNK501	2.2	LinkSwitch, Flyback
MTDER016	Charger	DER016		EE13H	189-264Vac	7.5Vdc	LNK500	1.5	LinkSwitch, Flyback
MTDER019	Set-top box	DER019		EF30H	195-265Vac	3.3/5/12/20Vdc	TOP245	32	TopSwitch-GX, Flyback
MTDER20	DC-DC power	DER020		EFD25H	36-72Vdc	12Vdc	DPA426	60	DPASwitch, Flyback

MTEPR.MTDER SERIES

Power Integration Design Reference
Matched to TNY, TOP, LNK, DAP IC

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Part Number	Applications	Power Integration Design reference	Package	Vin	Vout	Matched to IC No.	Pout (Watt)	Topology
MTDER021	DVD Player	DER021	EEL22V	90-265Vac	3.4/12/5/6/14/40Vdc	TOP245	11	TopSwitch-GX, Flyback
MTDER022	Set-top box	DER022	EF25H	98-135Vac	1.8/3.3/7/17/22Vdc	TOP244	16	TopSwitch-GX, Flyback
MTDER023	Set-top box	DER023	EF25H	195-265Vac	3.3/2.5/5/6.612Vdc	TOP242	13	TopSwitch-GX, Flyback
MTDER024	IP phone	DER024	CUT1408S	36-72Vdc	5/7.5/20Vdc	DAP424	15	DPASwitch, Forward
MTDER025	LCD Monitor	DER025	EER28LH	90-265Vac	20Vdc	TOP247	60	TopSwitch-GX, Flyback
MTDER026	LED driver	DER026	EF20H	108-132Vac	20Vdc	TOP246	14	TopSwitch-GX, Flyback
MTDER027	LCD Monitor	DER027	EFD30H	100-265Vac	2/13Vdc	TOP246	48	TopSwitch-GX, Flyback
MTDER028	Refrigerator	DER028	EE25V	85-265Vac	5/12/24Vdc	TOP244	15	TopSwitch-GX, Flyback
MTDER029A	Main transformer	DER029	EFD20S	36-72Vdc	6.7/11.1Vdc	DPA425	33	DPASwitch, Forward
MTDER029B	Inductor	DER029	EFD20S	36-72Vdc	6.77/11.1Vdc	DOA425	33	DPASwitch, Forward
MTDER032A	Main transformer	DER032	EFD20S	36-75Vdc	3.3/5/-5Vdc	DPA424	22	DPASwitch, Forward
MTDER032B	Inductor	DER032	EFD20S	36-75Vdc	3.3/5/-5Vdc	DPA424	22	DPASwitch, Forward
MTDER033	Charger	DER033	EE13H	85-265Vac	6.5Vdc	TNY266	3.9	TinySwitch-II, Forward
MTDER034	Set-top box	DER034	EF20H	195-265Vac	2.5/3.3/5/9/32Vdc	TOP242	13	TopSwitch-GX, Flyback
MTDER035	Charger	DER035	EE16H	90-265Vac	5.5Vdc	TNY264	3.5	TinySwitch-II, Flyback
MTDER036	Set-top box	DER036	EER35H	180-265Vac	5/6.8/12/-10Vdc	TOP245	41.8	TopSwitch-GX, Flyback
MTDER038	Charger	DER038	EE13H	85-265Vac	5Vdc	LNK520	2.4	LinkSwitch, Flyback
MTDER039	Charger	DER039	EF12.6H	90-265Vac	5.5Vdc	LNK520	2.5	LinkSwitch, Flyback
MTDER040	DVD Player	DER040	EEL25H	90-265Vac	12/5/3.3/-22Vdc	TOP246	21	TopSwitch-GX, Flyback
MTDER041	LCD TV stand by	DER041	EE16H	80-288Vac	5/22Vdc	TNY263	3.7	TinySwitch-II, Flyback
MTDER042	Charger	DER042	EE16H	90-265Vac	4.5Vdc	LNK520	2.25	LinkSwitch, Flyback
MTDER044	Digital video	DER044	EER28LH	85-265Vac	3.3/5/12/23/30Vdc	TOP246	41	TopSwitch-GX, Flyback
MTDER046	Set-top box	DER046	EE16V	195-265Vac	2.5/3.3/12/33Vdc	TNY264	4.5	TinySwitch-II, Flyback
MTDER048	Motor control	DER048	EE13H	85-265Vac	15/12Vdc	LNK304	1.6	LinkSwitch-TN, Flyback
MTDER050	Set-top box	DER050	EF25V	90-264Vac	1.8/3.3/5/12/18/23Vdc	TOP245	30	TopSwitch-GX, Flyback
MTDER051	Set-top box	DER051	EF25H	195-265Vac	1.8/3.3/5/12Vdc	TOP243	16	TopSwitch-GX, Flyback
MTDER052	Refrigerator	DER052	EF16H	85-275Vac	12/9/5Vdc	TNY263	3.9	TinySwitch-II, Flyback
MTDER053	AC-DC Power	DER053	EER35	85-265Vac	12/14Vdc	TOP247	20	TopSwitch-GX, Flyback
MTDER055	Set-top box	DER055	EF20H	160-265Vac	9/5/3.3Vdc	TNY267	10.5	TinySwitch-II, Flyback
MTDER057	Industrial	DER057	EE16V	90-265Vac	12Vdc	LNK501	3	LinkSwitch, Flyback
MTDER060	AC-DC power	DER060	EI22V	90-265Vac	3.5Vdc	TNY268	8.75	TinySwitch-II, Flyback
MTDER062	Charger	DER062	EE16H	85-265Vac	5Vdc	LNK363	3	LinkSwitch-XT, Flyback
MTDER075	Charger	DER075	EE13H	85-265Vac	5Vdc	LNK520	2.4	LinkSwitch, Flyback
MTDER094	LCD Monitor	DER094	EER28H	90-265Vac	5/12Vdc	TOP246	46	TopSwitch-GX, Flyback
MTDER095	DVD Player	DER095	EER28H	90-265Vac	9.7Vdc	TOP245	30	TopSwitch-GX, Flyback
MTDER096	VoIP phone	DER096	EFD20H	37-57Vdc	3.3/5/12/Vdc	DAP423	10	DPASwitch, Flyback
MTDER098	Digital video	DER098	EER28LH	85-265Vac	3.3/5/12/23/30Vdc	TOP246	41	TopSwitch-GX, Flyback
MTDER099	Set-top box	DER099	EEL22V	160-275 Vac	3.3/5/9Vdc	TOP244	17.4	TopSwitch-GX, Flyback
MTDER100	LED lighting	DER100	EE25V	90-265Vac	8Vdc	TOP245	24	TopSwitch-GX, Flyback
MTDER105	AC-DC Power	DER105	EF20H	207-400Vac	14/5Vdc	TOP243	19.3	TopSwitch-GX, Flyback
MTDER106	AC-DC Power	DER106	EEL19	90-265Vac	24Vdc	TOP244	15	TopSwitch-GX,Flyback
MTDER107	AC-DC Power	DER107	EFD20H	90-300Vac	6Vdc	TOP245	10	TopSwitch-GX, Flyback
MTDER108	Network Interface	DER108	EE16V	90-265Vac	24Vdc	TNY267	7.2	TinySwitch-II, Flyback
MTDER110	AC-DC Power	DER110	EE16V	90-265Vac	5/24Vdc	TNY266	7.3	TinySwitch-II, Flyback
MTDER111	AC-DC Power	DER111	EE16H	90-264Vac	4.5Vdc	LNK500	3.15	LinkSwitch, Flyback

Power Transformers

OFF-LINE Switch Mode

Mechanical Dimensions

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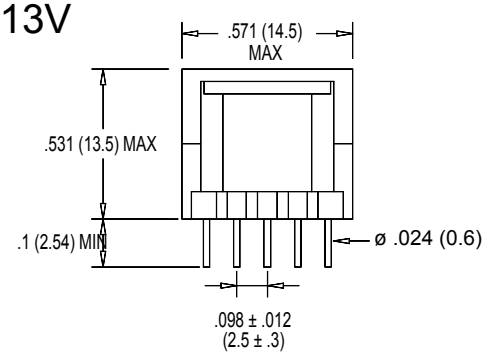
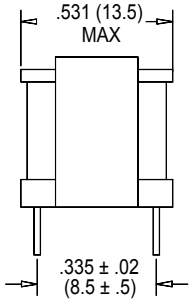
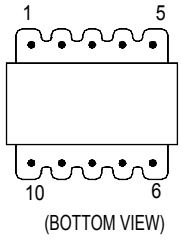
EE13V







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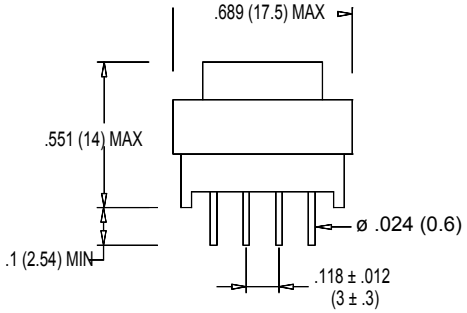

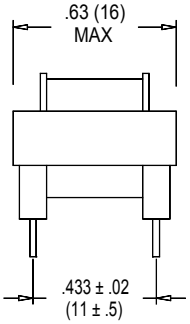

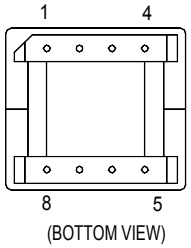

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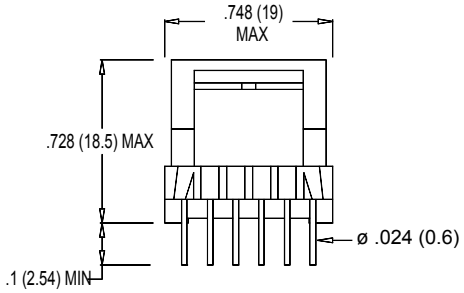

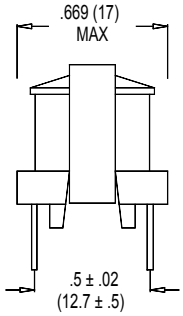

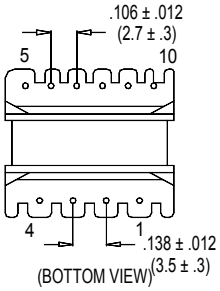

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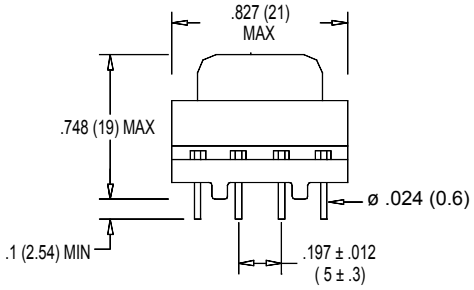

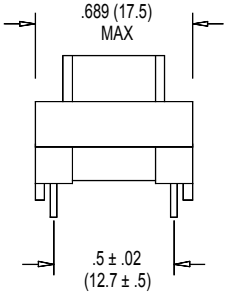

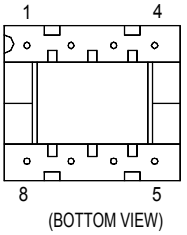

UNIT: Inch (mm)

Power Transformers

OFF-LINE Switch Mode

Mechanical Dimensions

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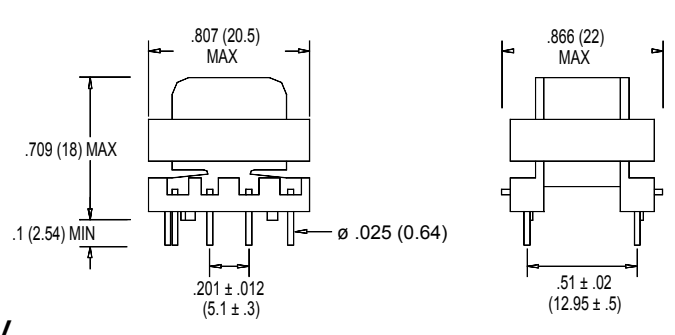
EE19H TYPE B



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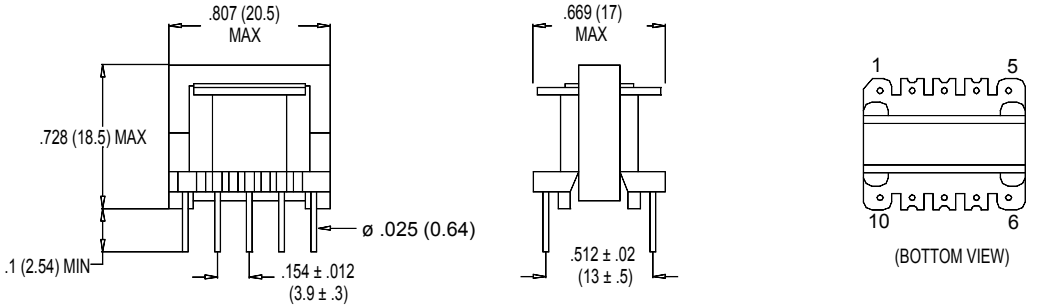

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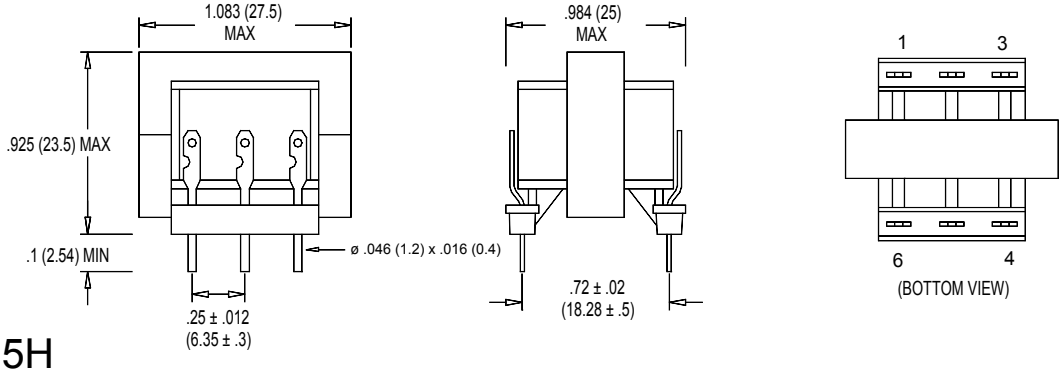

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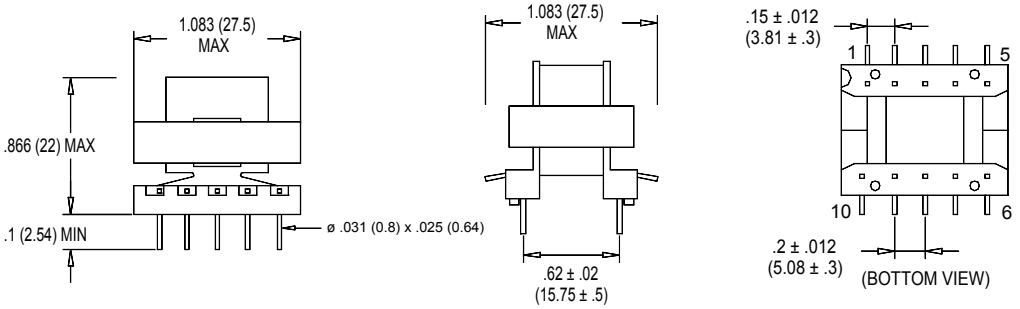

UNIT: Inch (mm)

Power Transformers

OFF-LINE Switch Mode

Mechanical Dimensions

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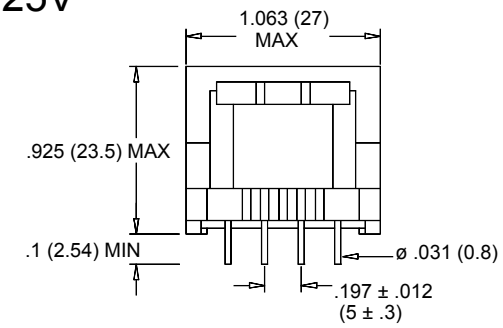
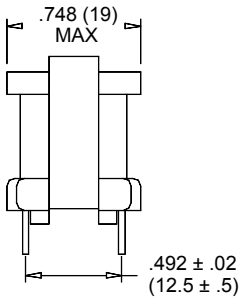
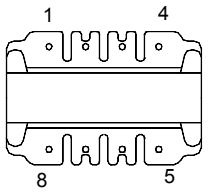
EE25V

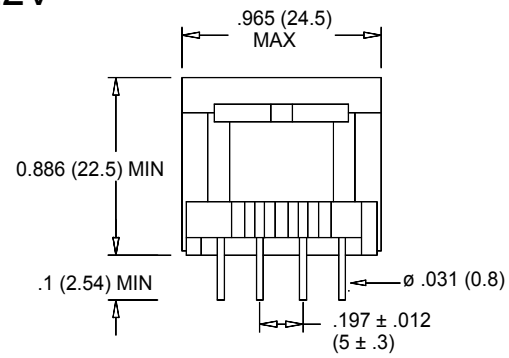


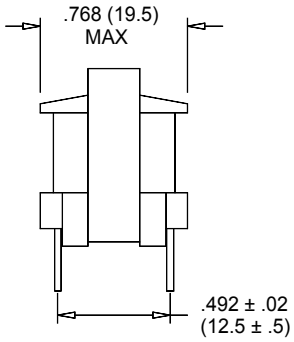


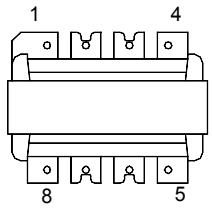


(BOTTOM VIEW)

EI22V







(BOTTOM VIEW)

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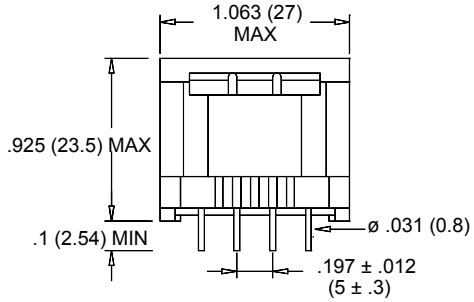
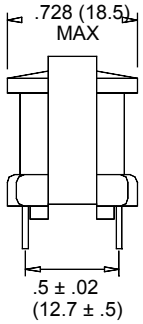
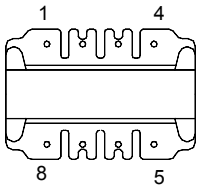
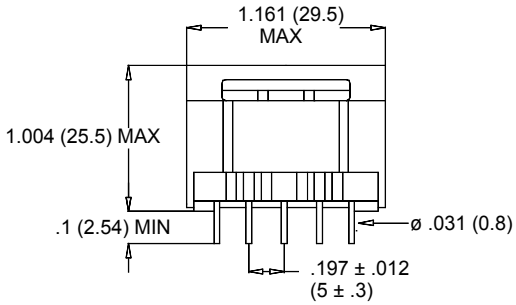


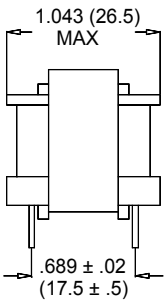


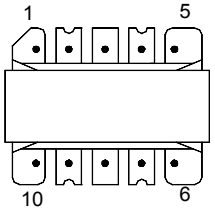


(BOTTOM VIEW)

EI28V







(BOTTOM VIEW)

UNIT: Inch (mm)

Power Transformers

OFF-LINE Switch Mode

Mechanical Dimensions

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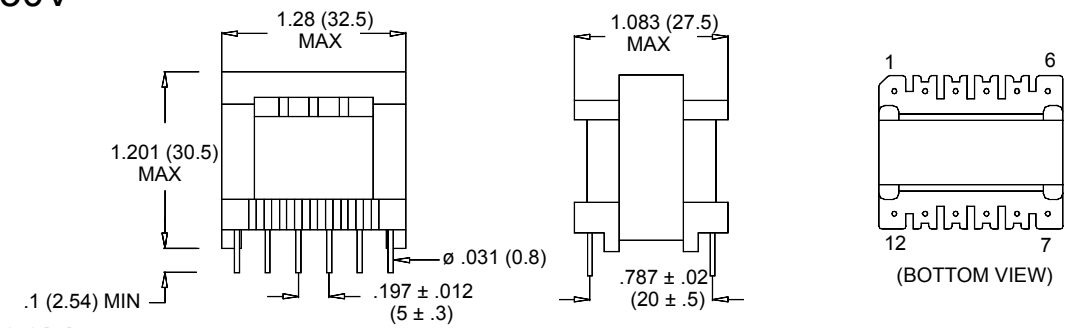
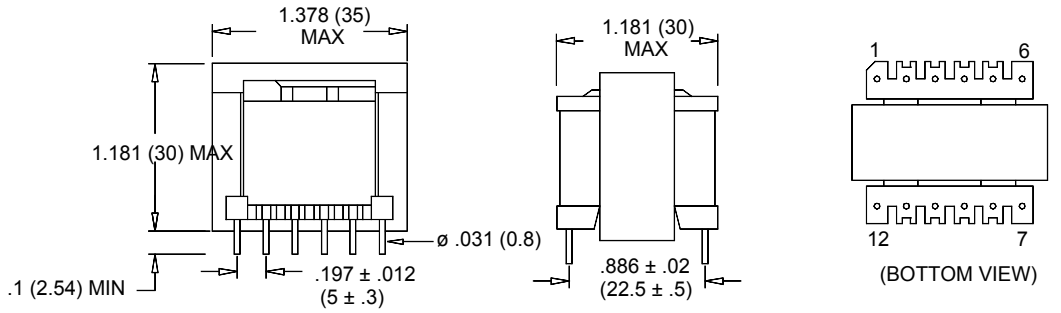
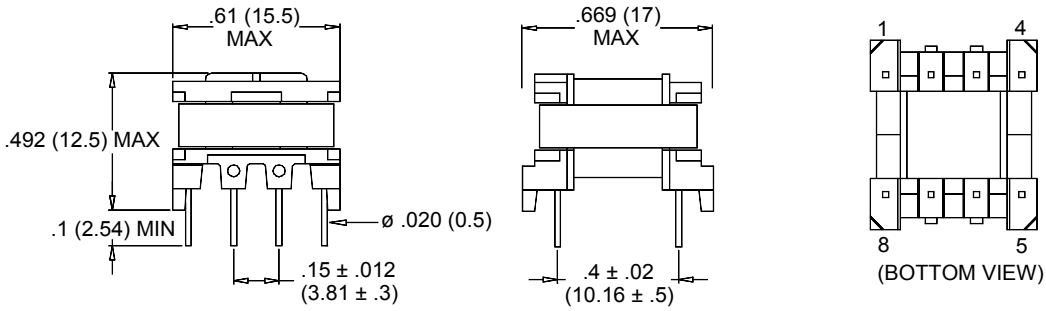
EI30V



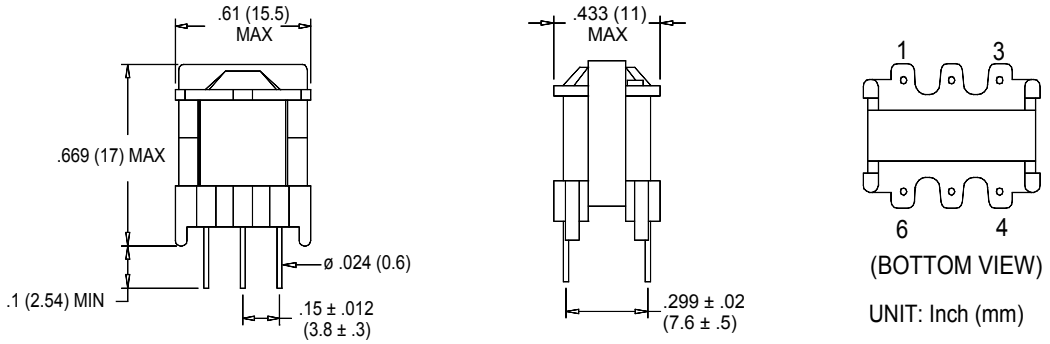
EI33V



EF12.6H



EF12.6V



UNIT: Inch (mm)

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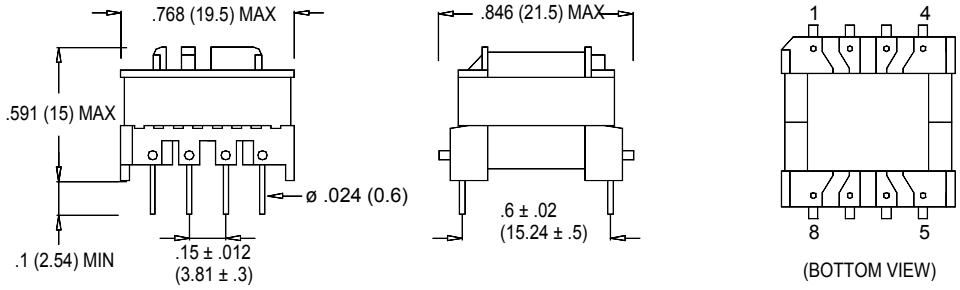
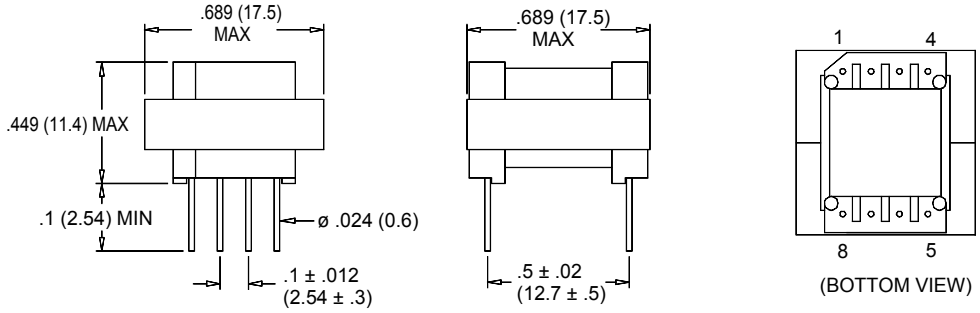
EF16H TYPE A



EF16H TYPE B



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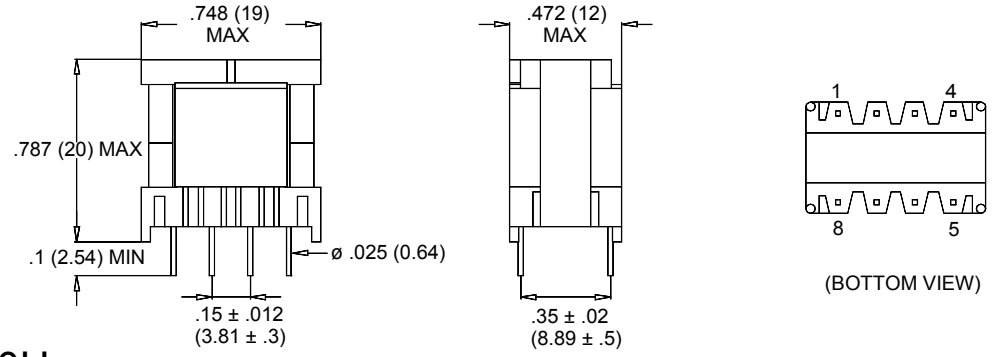
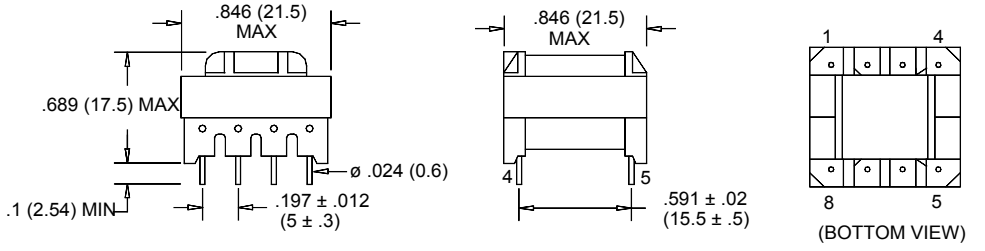


EF20H



UNIT: Inch (mm)

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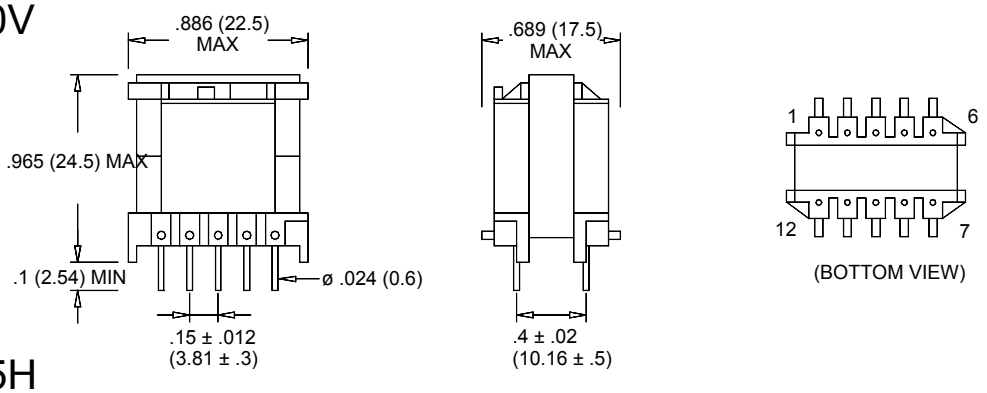
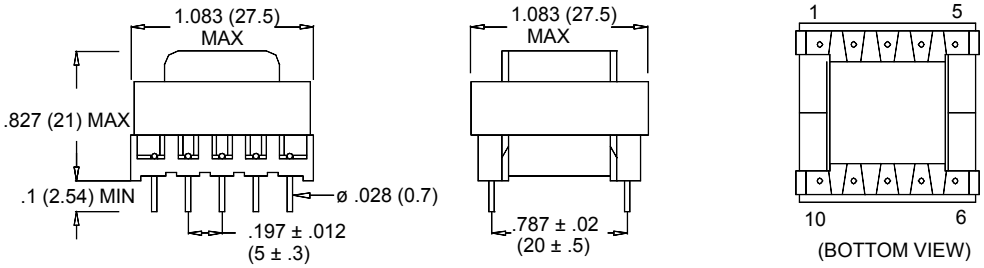
EF20V



EF25H



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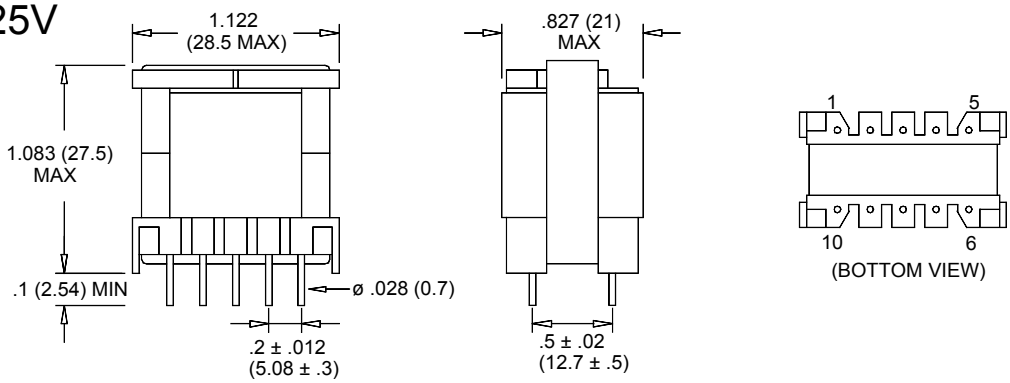
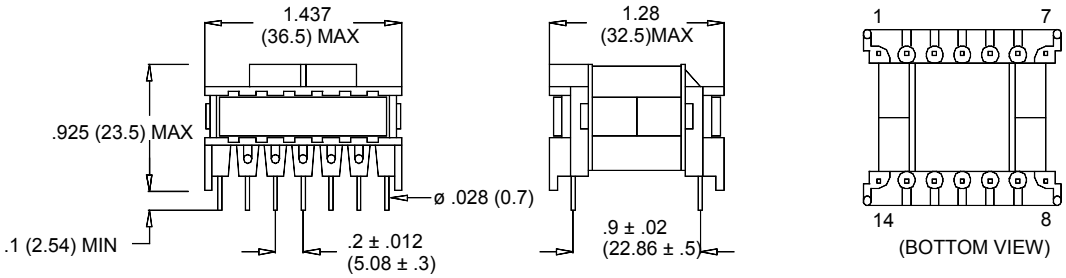


EF30H



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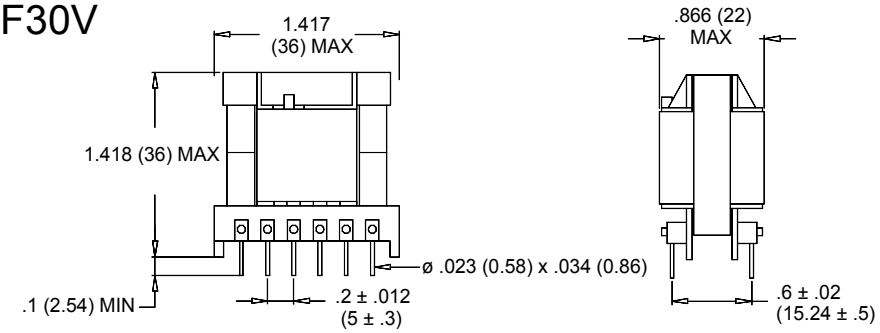
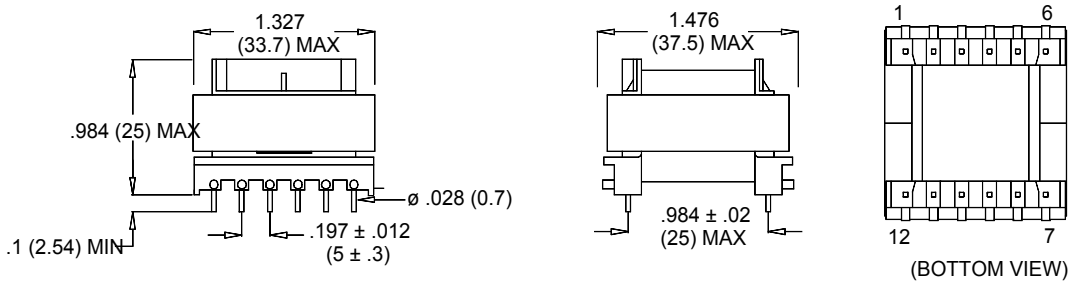
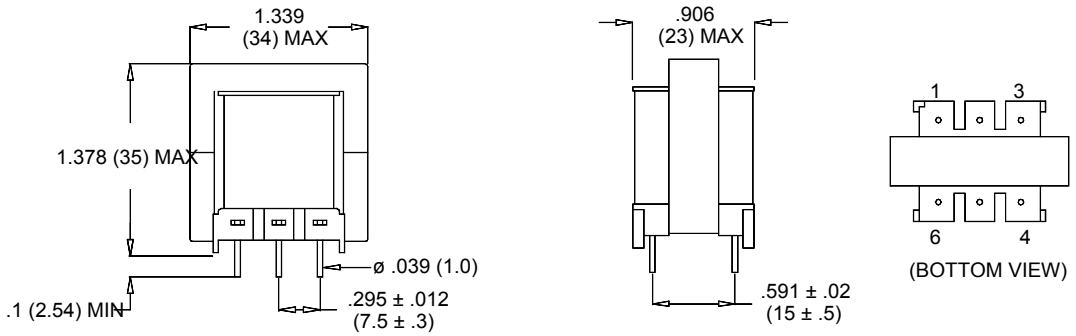
EF30V



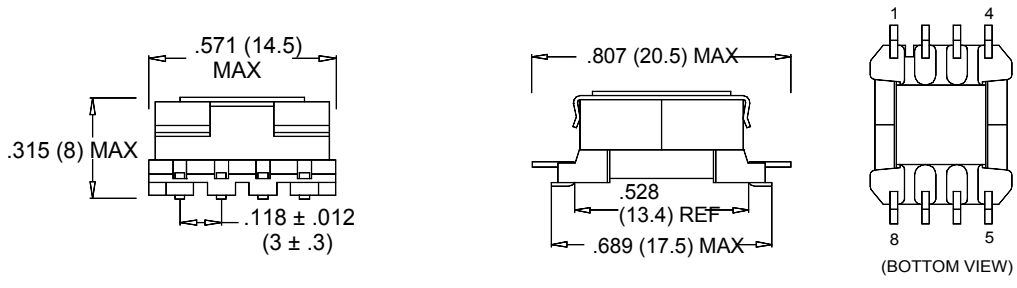
EF32H



EF32V



EFD12 SMD



UNIT: Inch (mm)

Power Transformers

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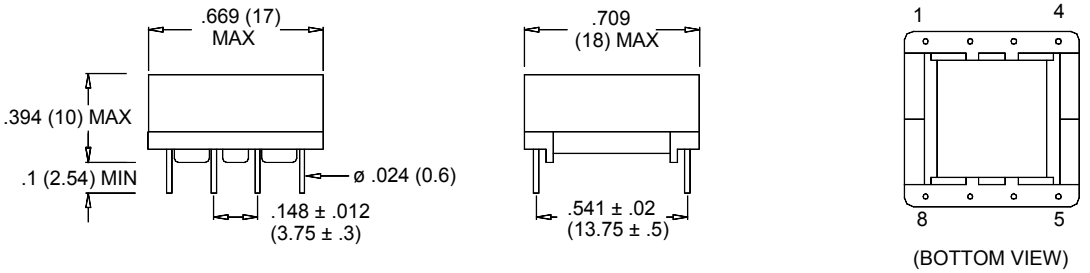
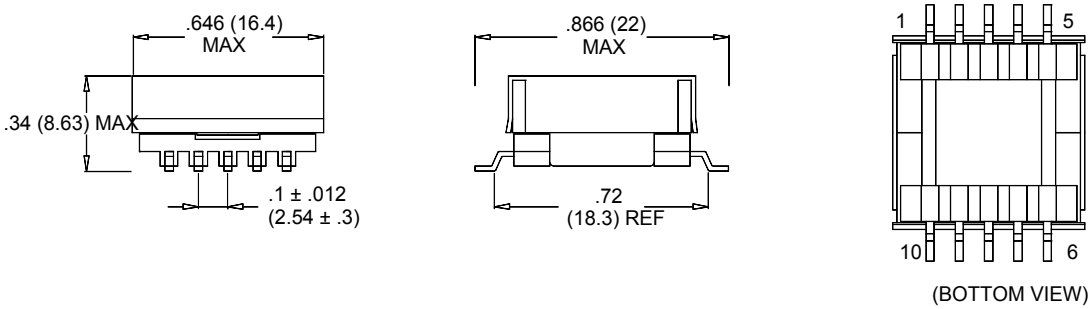
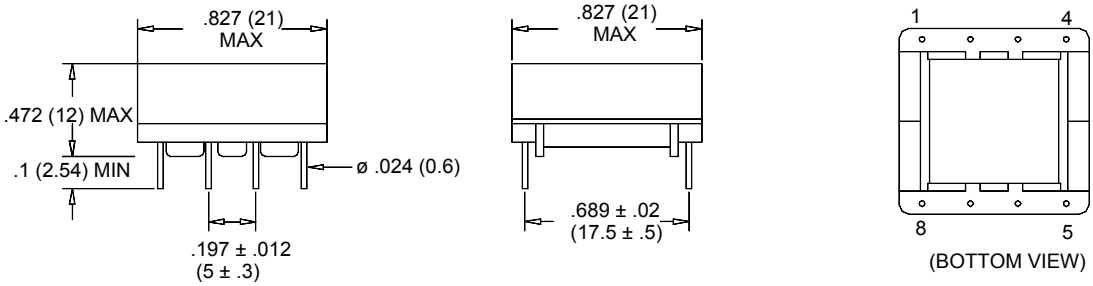
EFD15 THRU-HOLE



EFD15 SMD



EFD20 THRU-HOLE



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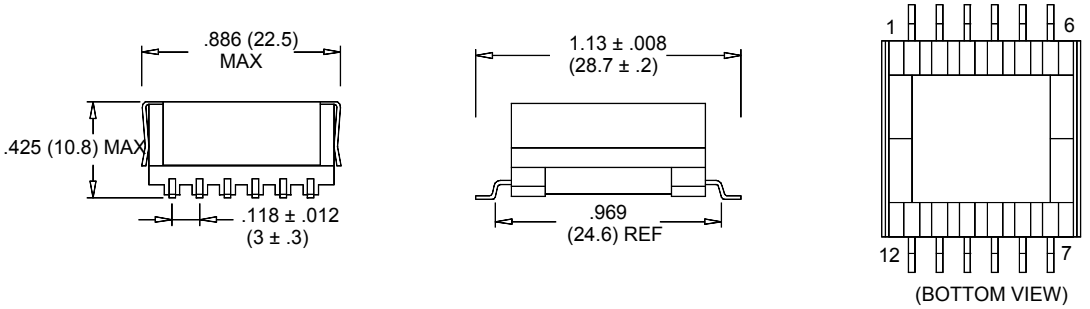

UNIT: Inch (mm)

Power Transformers

OFF-LINE Switch Mode

Mechanical Dimensions

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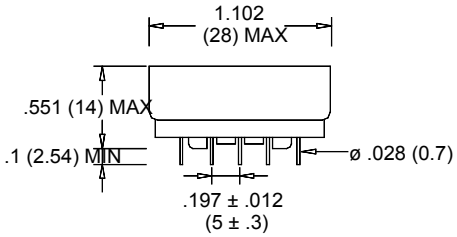
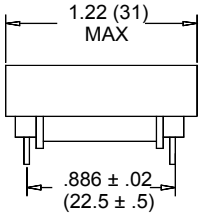
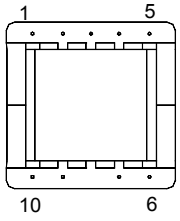
EFD25 THRU-HOLE

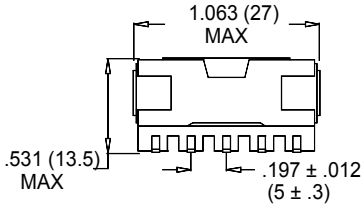


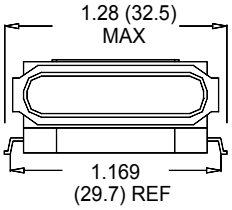


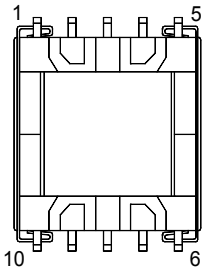


(BOTTOM VIEW)

EFD25 SMD

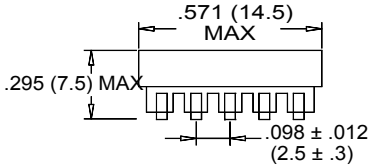


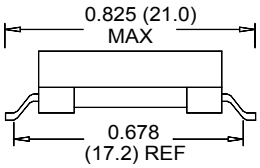


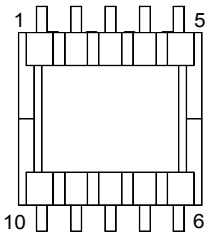


(BOTTOM VIEW)

EPC13 SMD

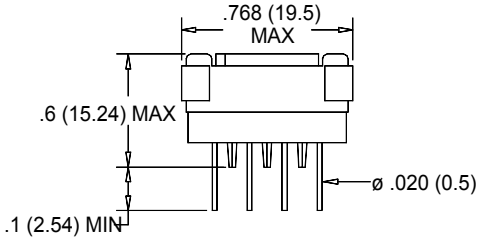


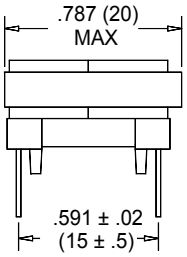


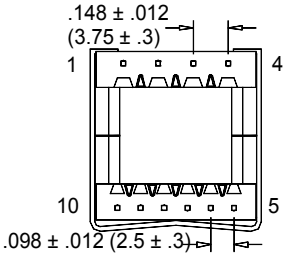


(BOTTOM VIEW)

EPC17 THRU-HOLE







(BOTTOM VIEW)

UNIT: Inch (mm)

Specifications subject to change. Custom versions of any Minntronix products are available upon request.

Power Transformers

OFF-LINE Switch Mode

Mechanical Dimensions

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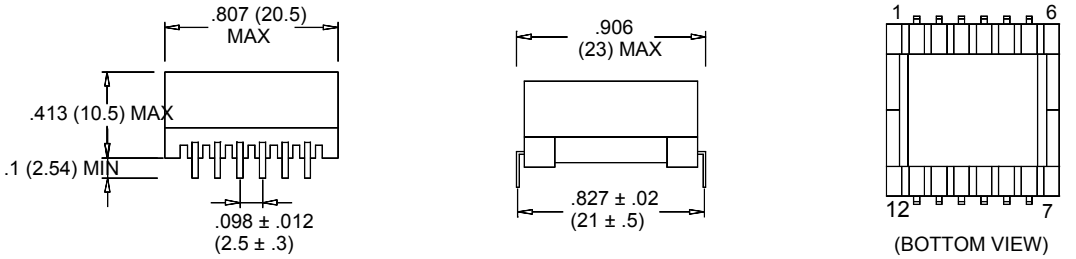
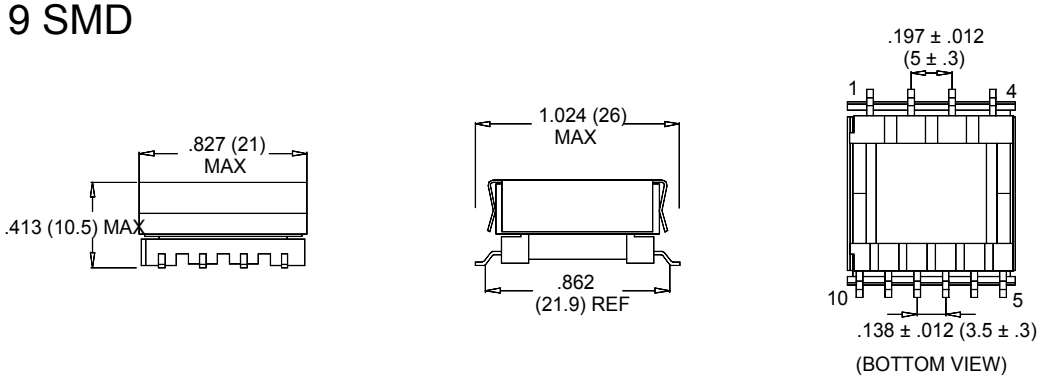
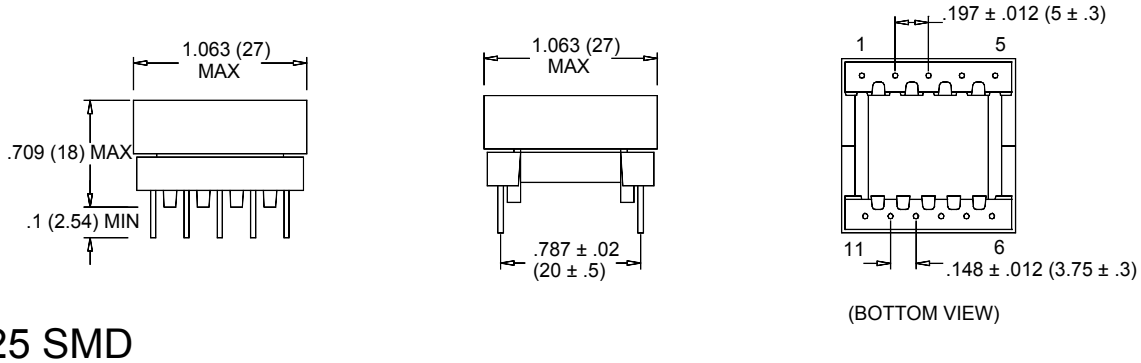
EPC19 THRU-HOLE



EPC19 SMD



EPC25 THRU-HOLE



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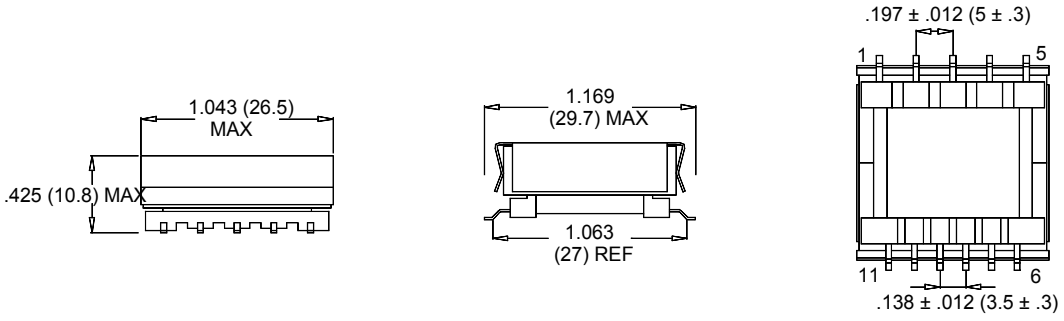

UNIT: Inch (mm)

Power Transformers

OFF-LINE Switch Mode

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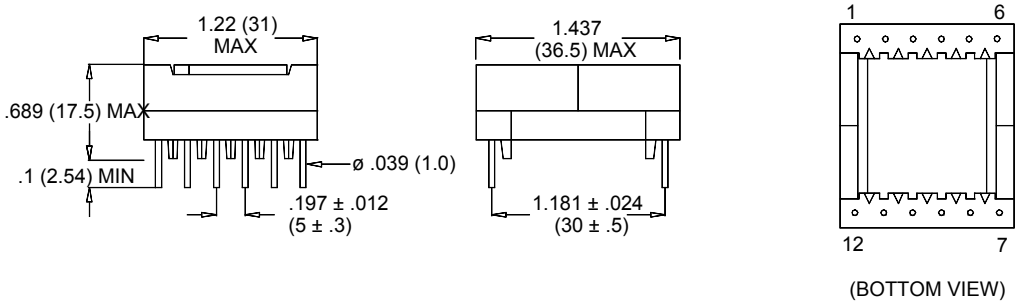
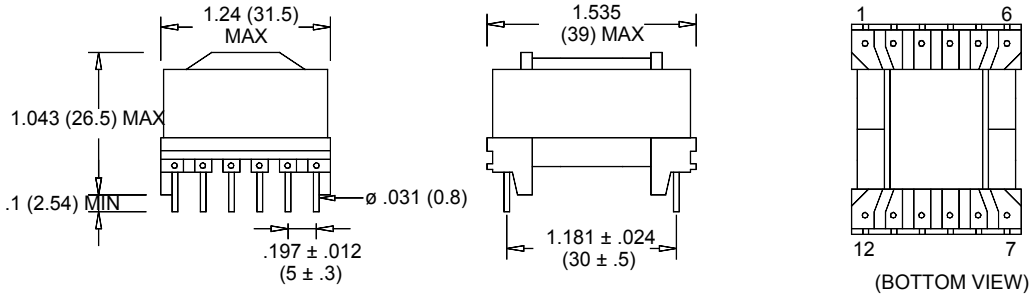
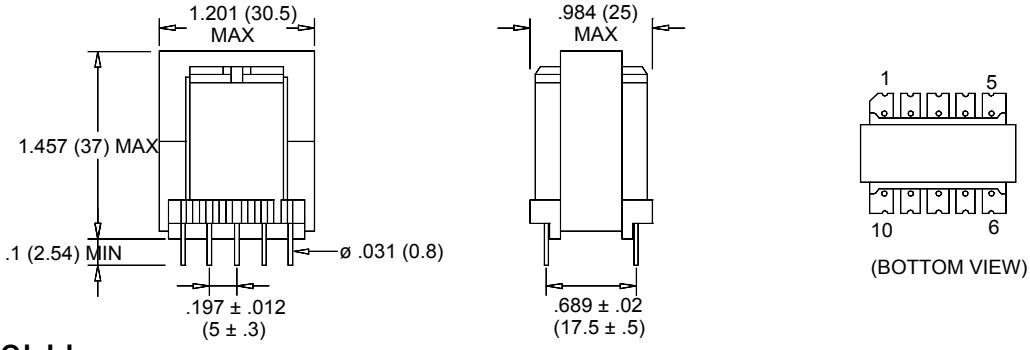
EPC30 THRU-HOLE



EER28H



EER28V



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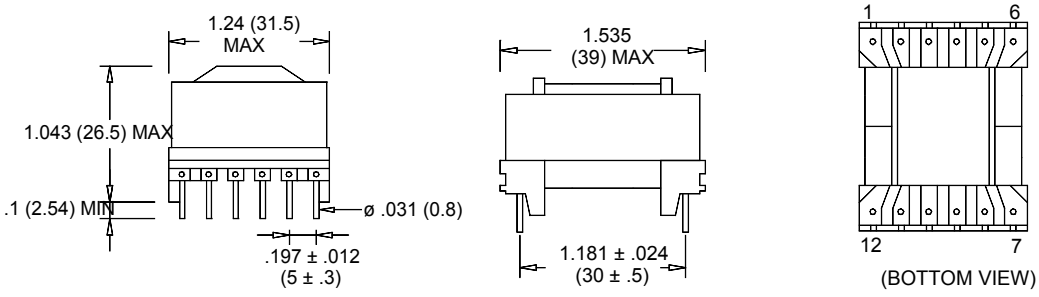

UNIT: Inch (mm)

Power Transformers

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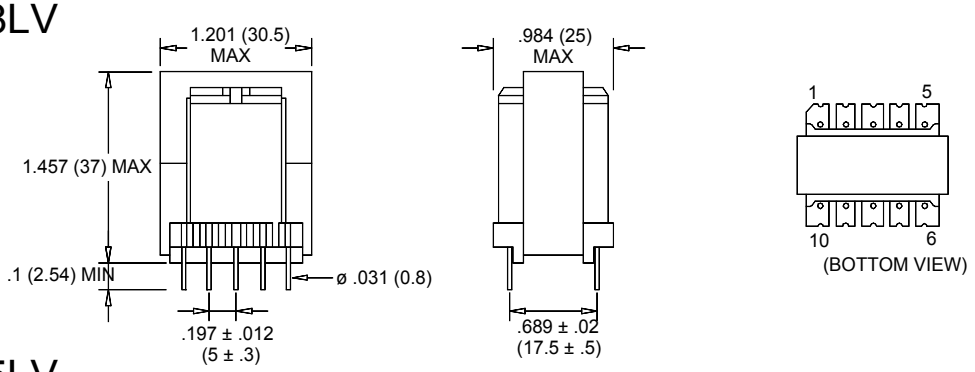
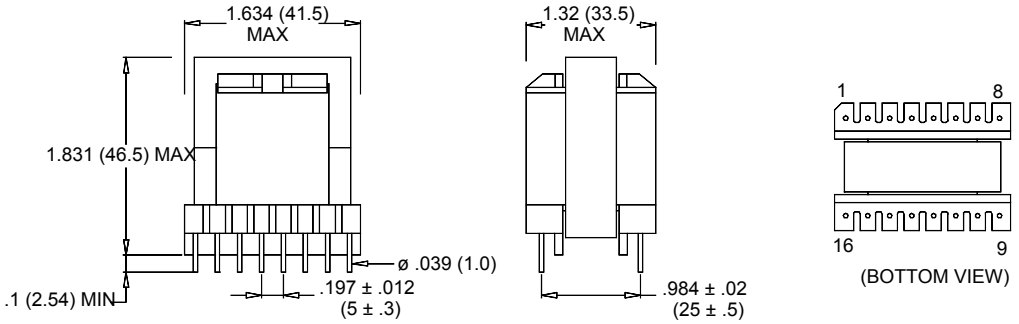
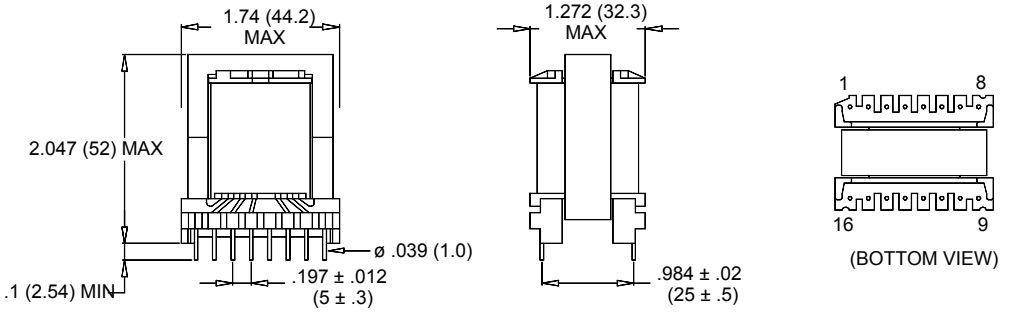
EER28LV



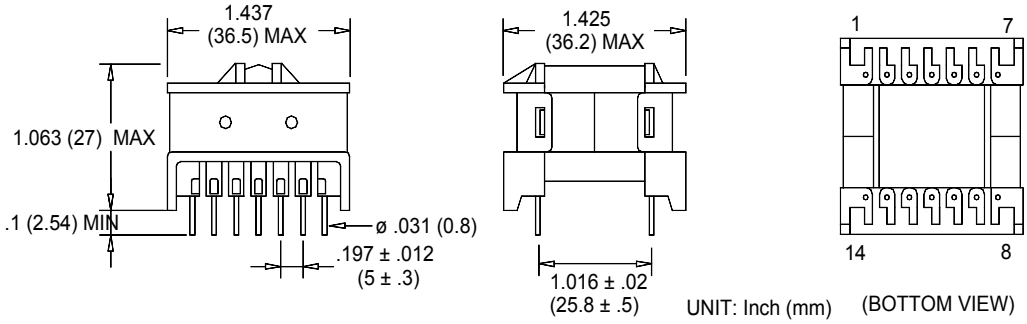
EER35LV



EER39LV



ETD29H



Power Transformers

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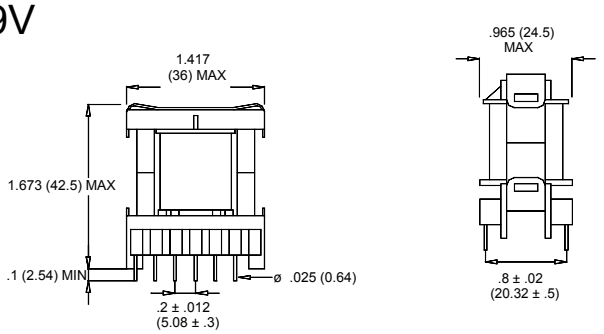
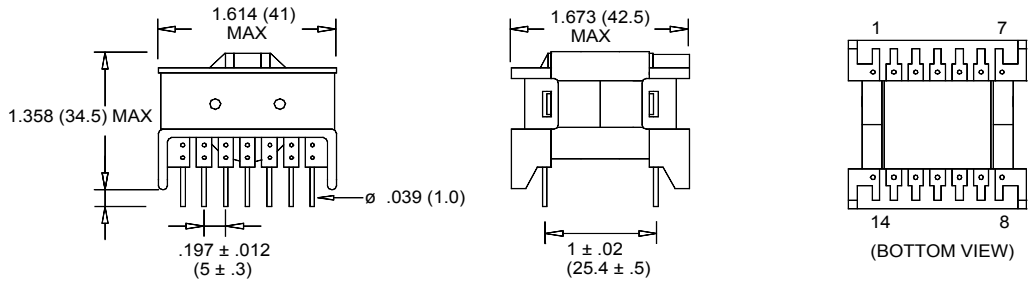
ETD29V



ETD34H



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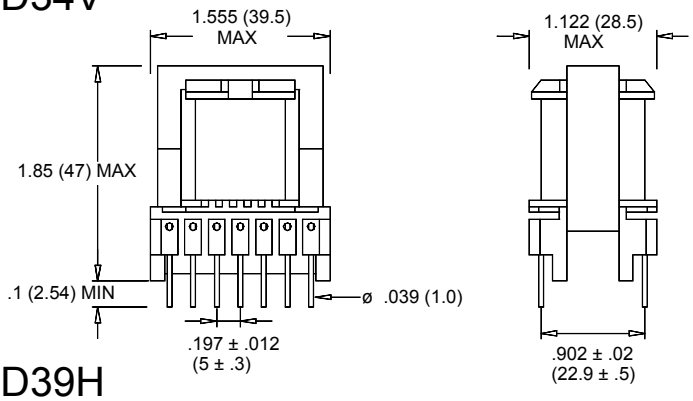

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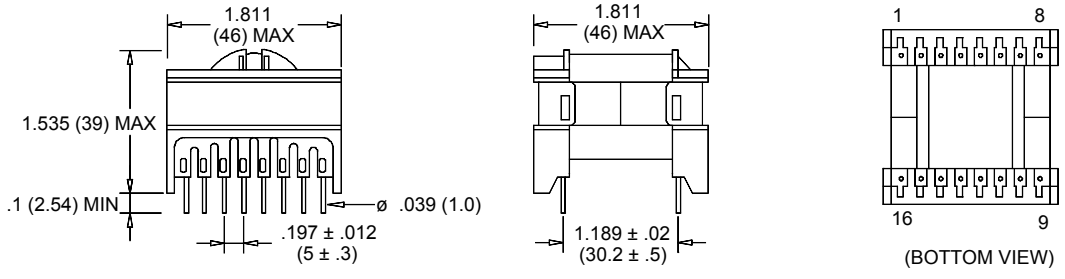

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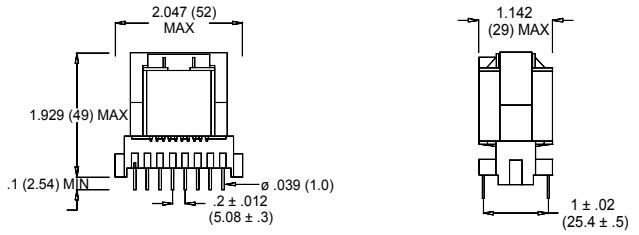
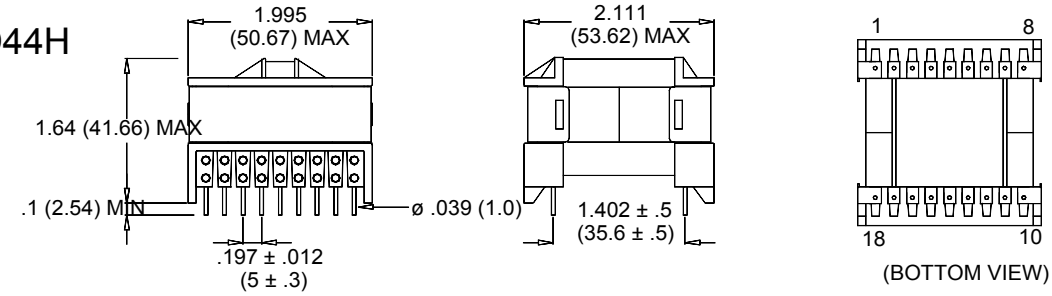
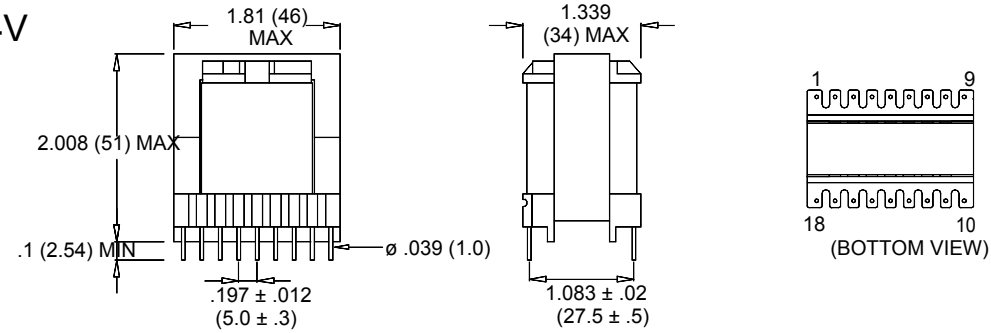
ETD39V



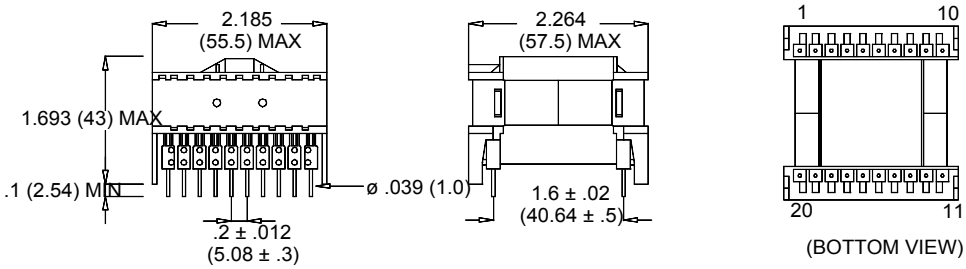
ETD44H



ETD44V



ETD49H



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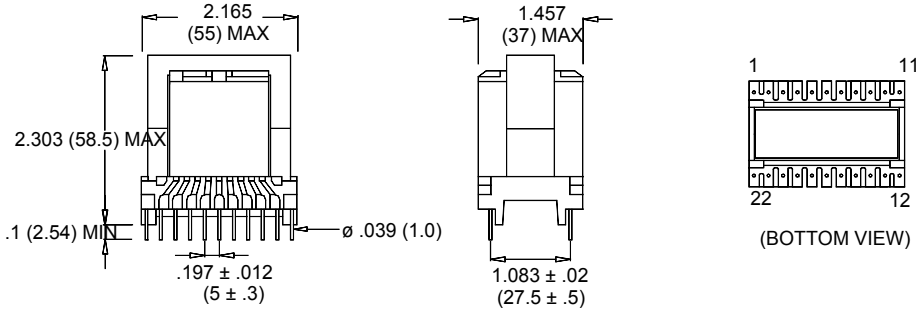

UNIT: Inch (mm)

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CUSTOM SMPS TRANSFORMER DESIGN

Minntronix can provide custom switchmode transformer designs, given the following information:

1. Input voltage range (Vin).
2. Output power (Po).
3. Output voltage (Vo).
4. Output current (Io).
5. Switching frequency (F).
6. Allowable maximum temperature rise (°C).
7. Mechanical dimension (LxWxH).
8. Safety & insulation system requirements.

For Reference Only