EC3A SERIES

3 WATT 2:1 INPUT RANGE DC-DC CONVERTERS

E176177 H/HM Versions Only



FEATURES

* 3W Isolated Output
* 24-Pin DIP Package
* Efficiency to 82%
* 2:1 Input Range
* Regulated Outputs
* Pi Input Filter
* Continuous Short Circuit Protection
* UL60950-1 Approval for H/HM Versions only
* Safety Meets IEC/EN/UL 62368-1

MODEL NUMBER(1)	INPUT VOLTAGE(2)	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT		% EFF.(3)	CAPACITOR LOAD MAX.
				NO LOAD	FULL LOAD		
EC3A01□	4.5-6 VDC	5 VDC	600 mA	15 mA	800 mA	75	2200uF
EC3A02□	4.5-6 VDC	12 VDC	250 mA	15 mA	759 mA	79	2200uF
EC3A03□	4.5-6 VDC	15 VDC	200 mA	15 mA	779 mA	77	2200uF
EC3A04□	4.5-6 VDC	±5 VDC	±300 mA	25 mA	779 mA	77	1000uF
EC3A05□	4.5-6 VDC	±12 VDC	±125 mA	25 mA	789 mA	76	1000uF
EC3A06□	4.5-6 VDC	±15 VDC	±100 mA	25 mA	800 mA	75	1000uF
EC3A07□	4.5-6 VDC	3.3 VDC	600 mA	15 mA	582 mA	68	2200uF
EC3A11□	9-18 VDC	5 VDC	600 mA	7.5 mA	325 mA	77	2200uF
EC3A12□	9-18 VDC	12 VDC	250 mA	7.5 mA	313 mA	80	2200uF
EC3A13□	9-18 VDC	15 VDC	200 mA	7.5 mA	316 mA	79	2200uF
EC3A14□	9-18 VDC	±5 VDC	±300 mA	12 mA	325 mA	77	1000uF
EC3A15□	9-18 VDC	±12 VDC	±125 mA	12 mA	325 mA	77	1000uF
EC3A16□	9-18 VDC	±15 VDC	±100 mA	12 mA	316 mA	79	1000uF
EC3A17□	9-18 VDC	3.3 VDC	600 mA	7.5 mA	229 mA	72	2200uF
EC3A21□	18-36 VDC	5 VDC	600 mA	5 mA	158 mA	79	2200uF
EC3A22□	18-36 VDC	12 VDC	250 mA	5 mA	156 mA	80	2200uF
EC3A23□	18-36 VDC	15 VDC	200 mA	5 mA	152 mA	82	2200uF
EC3A24□	18-36 VDC	±5 VDC	±300 mA	7.5 mA	162 mA	77	1000uF
EC3A25□	18-36 VDC	±12 VDC	±125 mA	7.5 mA	158 mA	79	1000uF
EC3A26□	18-36 VDC	±15 VDC	±100 mA	7.5 mA	154 mA	81	1000uF
EC3A27□	18-36 VDC	3.3 VDC	600 mA	5 mA	111 mA	74	2200uF
EC3A31□	36-72 VDC	5 VDC	600 mA	2 mA	78 mA	79	2200uF
EC3A32□	36-72 VDC	12 VDC	250 mA	2 mA	78 mA	80	2200uF
EC3A33□	36-72 VDC	15 VDC	200 mA	2 mA	78 mA	80	2200uF
EC3A34□	36-72 VDC	±5 VDC	±300 mA	3 mA	80 mA	78	1000uF
EC3A35□	36-72 VDC	±12 VDC	±125 mA	3 mA	80 mA	78	1000uF
EC3A36□	36-72 VDC	±15 VDC	±100 mA	3 mA	80 mA	78	1000uF
EC3A37□	36-72 VDC	3.3 VDC	600 mA	3 mA	57 mA	72	2200uF

NOTE:

1. □ Can be None, M, H, HM, MS or HMS.
2. Nominal Input Voltage is 5, 12, 24 or 48VDC.
3. Typical Value at Nominal Input Voltage and Full Load.

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SPECIFICATIONS

All Specifications Typical at Nominal Line, Full Load, and 25℃ Unless Otherwise Noted

INPUT SPECIFICATIONS:

Input Voltage Range ..... 5V 4.5-6V
12V 9-18V
24V 18-36V
48V 36-72V
Input Surge Voltage (100ms max.) ..... 5V ..... 10Vdc max.
12V ..... 25Vdc max.
24V ..... 50Vdc max.
48V ..... 100Vdc max.
Input Filter ..... Pi Type

OUTPUT SPECIFICATIONS:

Voltage Accuracy ..... ±2.0% max.
Voltage Balance (Dual) ..... ±1.0% max.
Temperature Coefficient ..... ±0.05%/℃ max.
Ripple & Noise, 20MHz BW ..... 3.3V/5V ..... 100mV pk-pk, max.
12V/15V ..... 1% pk-pk max.
Short Circuit Protection ..... Continuous
Line Regulation ..... Single/Dual (note1) ..... ±0.5% max.
Load Regulation ..... Single (note2) ..... ±0.5% max.
Dual (note2) ..... ±1.0% max.

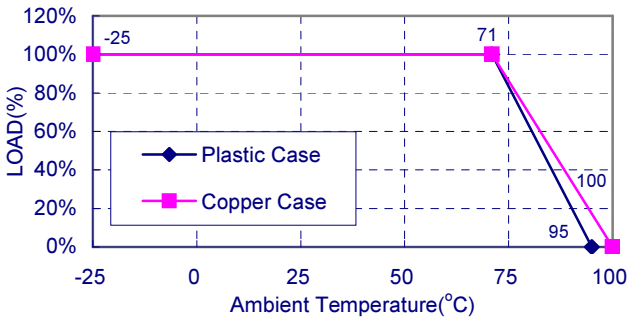
NOTE:

1. Measured from high line to low line.
2. Measured from full load to 10% load.
3. Measured from full load to 1/4 load.
4. Maximum case temperature under any operating condition should not be exceed 95℃ (plastic case), 100℃ (copper case).

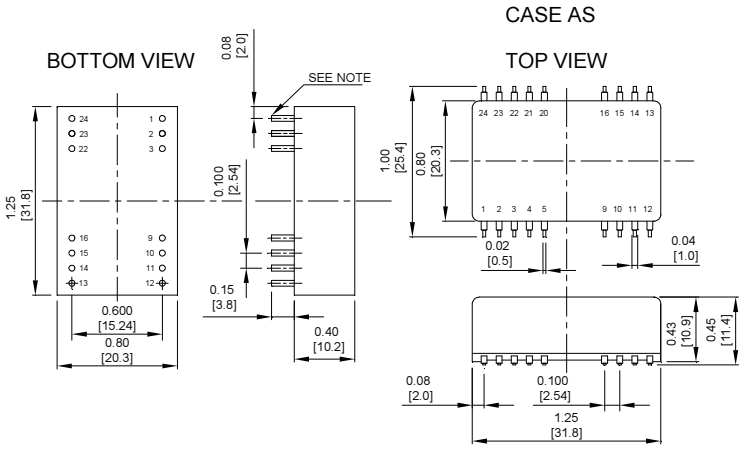
GENERAL SPECIFICATIONS:

Efficiency ..... See Table
Isolation Voltage:
500 VDC min. ..... Standard Models
3K VDC min. ..... (Non-Conductive Black Plastic Only) ..... Suffix "H" Models
1.5K VDC min. ..... Suffix "HM" Models
Isolation Resistance ..... 10^9 Ohm min.
Switching Frequency ..... 100KHz min.
Operating Ambient Temperature Range ..... -25℃ to +71℃
Power De-Rating Curve ..... See Figure1
Case Temperature (note4) ... Plastic/Copper case ... 95℃/100℃ max.
Cooling ..... Natural Convection
Storage Temperature Range ..... -40℃ to +100℃
Humidity ..... 95% RH max. Non Condensing
MTBF ..... MIL-HDBK-217F ..... 2000Khrs typ.
Dimensions ... DIP ..... 1.25×0.80x0.40 inches (31.8x20.3×10.2 mm)
SMD ..... 1.25×0.80x0.45 inches (31.8x20.3×11.4 mm)
Case Material:
Standard Models ..... Non-Conductive Black Plastic
Suffix "M" Models .. Black Coated Copper with Non-Conductive Base
Suffix "S" Models ..... SMD Package
Weight 12.5g

Figure1.Typical Derating curve for Natural Convection



Case A Dimensions:



PIN CONNECTION									
	500 VDC					1.5K & 3K VDC			
Pin	Single Output		Dual Output		Pin	Single Output		Dual Output	
	DIP	SMD	DIP	SMD		DIP	SMD	DIP	SMD
1,24	+V Input		+V Input		1,24	NP	NC	NP	NC
2,23	NC		-V Output		2,3	-V Input		-V Input	
3,22	NC		Common		4,5	NP	NC	NP	NC
4	NP	NC	NP	NC	9	NC		Common	
5	NP	NC	NP	NC	10,15	NC		NC	
9	NP	NC	NP	NC	11	NC		-V Output	
10,15	-V Output		Common		12,13	NP	NC	NP	NC
11,14	+V Output		+V Output		14	+V Output		+V Output	
12,13	-V Input		-V Input		16	-V Output		Common	
16	NP	NC	NP	NC	20,21	NP	NC	NP	NC
20,21	NP	NC	NP	NC	22,23	+V Input		+V Input	

* NP-NO PIN
* NC-NO CONNECTION WITH PIN

NOTE:Pin Size is 0.02 ±0.002 Inch (0.5±0.05 mm)DIA
All Dimensions In Inches (mm)
Tolerances Inches: X.XX= ±0.02 , X.XXX= ±0.010
Millimeters: X.X= ±0.5 , X.XX=±0.25