



- Universal 90-264VAC Input
- High Efficiency
- Improved EMI Performance
- 5656VDC Isolation
- Single, Dual and Triple Outputs



| Model Number | Output Voltage | Output Amps FL (peak) | Ripple/Noise | Efficiency |
|---------------------------------------|----------------|-----------------------|--------------|------------|
| SINGLE OUTPUT - PCB Mount | | | | |
| ESMA-1500 | 3.3 VDC | 3.5A (3.8A) | 165mV pk-pk | 70% |
| ESMA-1501 | 5 VDC | 3A (3.6A) | 100mV pk-pk | 72% |
| ESMA-1522 | 9 VDC | 1.66A (1.9A) | 90mV pk-pk | 72% |
| ESMA-1502 | 12 VDC | 1.25A (1.5A) | 120mV pk-pk | 75% |
| ESMA-1503 | 15 VDC | 1A (1.25A) | 150mV pk-pk | 76% |
| ESMA-1518 | 18 VDC | 0.83A (1A) | 180mV pk-pk | 77% |
| ESMA-1505 | 24VDC | 0.63A (0.75A) | 240mV pk-pk | 78% |
| SINGLE OUTPUT - Chassis Mount | | | | |
| ESMC-1500 | 3.3 VDC | 3.5A (3.8A) | 165mV pk-pk | 70% |
| ESMC-1501 | 5 VDC | 3A (3.6A) | 100mV pk-pk | 72% |
| ESMC-1522 | 9 VDC | 1.66A (1.9A) | 90mV pk-pk | 72% |
| ESMC-1502 | 12 VDC | 1.25A (1.5A) | 120mV pk-pk | 75% |
| ESMC-1503 | 15VDC | 1A (1.25A) | 150mV pk-pk | 76% |
| ESMC-1518 | 18 VDC | 0.83A (1A) | 180mV pk-pk | 77% |
| ESMC-1505 | 24VDC | 0.63A (0.75A) | 240mV pk-pk | 78% |
| SINGLE OUTPUT - DIN Rail Mount | | | | |
| ESMC-1500/DRL | 3.3 VDC | 3.5A (3.8A) | 165mV pk-pk | 70% |
| ESMC-1501/DRL | 5 VDC | 3A (3.6A) | 100mV pk-pk | 72% |
| ESMC-1522/DRL | 9 VDC | 1.66A (1.9A) | 90mV pk-pk | 72% |
| ESMC-1502/DRL | 12 VDC | 1.25A (1.5A) | 120mV pk-pk | 75% |
| ESMC-1503/DRL | 15VDC | 1A (1.25A) | 150mV pk-pk | 76% |
| ESMC-1518/DRL | 18 VDC | 0.83A (1A) | 180mV pk-pk | 77% |
| ESMC-1505/DRL | 24VDC | 0.63A (0.75A) | 240mV pk-pk | 78% |



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| Model Number | Output Voltage | Output Amps FL (peak) | Ripple/Noise | Efficiency |
|---------------------------------------|----------------|--------------------------|-----------------|------------|
| DUAL OUTPUT - PCB Mount | | | | |
| EDMA-1506 | ±12 VDC | ±0.63A (±0.8A) | ±50 mV pk-pk | 77% |
| EDMA-1507 | ±15 VDC | ±0.5A (±0.65A) | ±50 mV pk-pk | 78% |
| EDMA-1508 | 5/12 VDC | 1.5/0.65A (1.8/0.8A) | ±50 mV pk-pk | 74% |
| DUAL OUTPUT - Chassis Mount | | | | |
| EDMC-1506 | ±12 VDC | ±0.63A (±0.8A) | ±50 mV pk-pk | 77% |
| EDMC-1507 | ±15 VDC | ±0.5A (±0.65A) | ±50 mV pk-pk | 78% |
| EDMC-1508 | 5/12 VDC | 1.5/0.65A (1.8/0.8A) | ±50 mV pk-pk | 74% |
| DUAL OUTPUT - DIN Rail Mount | | | | |
| EDMC-1506/DRL | ±12 VDC | ±0.63A (±0.8A) | ±50 mV pk-pk | 77% |
| EDMC-1507/DRL | ±15 VDC | ±0.5A (±0.65A) | ±50 mV pk-pk | 78% |
| EDMC-1508/DRL | 5/12 VDC | 1.5/0.65A (1.8/0.8A) | ±50 mV pk-pk | 74% |
| TRIPLE OUTPUT - PCB Mount | | | | |
| ETMA-1509 | 5 ±12 VDC | 2.5 ±0.1 A / 2.8 ±0.13 A | 50 ±75 mV pk-pk | 70% |
| ETMA-1511 | 5 ±15 VDC | 2.5 ±0.1 A / 2.8 ±0.13 A | 50 ±75 mV pk-pk | 71% |
| TRIPLE OUTPUT - Chassis Mount | | | | |
| ETMC-1509 | 5 ±12 VDC | 2.5 ±0.1 A / 2.8 ±0.13 A | 50 ±75 mV pk-pk | 70% |
| ETMC-1511 | 5 ±15 VDC | 2.5 ±0.1 A / 2.8 ±0.13 A | 50 ±75 mV pk-pk | 71% |
| TRIPLE OUTPUT - DIN Rail Mount | | | | |
| ETMC-1509/DRL | 5 ±12 VDC | 2.5 ±0.1 A / 2.8 ±0.13 A | 50 ±75 mV pk-pk | 70% |
| ETMC-1511/DRL | 5 ±15 VDC | 2.5 ±0.1 A / 2.8 ±0.13 A | 50 ±75 mV pk-pk | 71% |



15W Ultraminiature Medical Encapsulated Switchers

EMA15 series

INPUT SPECIFICATIONS

| | |
|----------------------|--------------------------------|
| Input Voltage Range | 90-264 VAC / 120~380 Volts(DC) |
| Frequency Range | 47-63 Hz |
| Inrush Current, typ: | 20A@115VAC; 40A@230VAC |
| Leakage Current | <500UA @ 264VAC, 50Hz |

OUTPUT SPECIFICATIONS

| | |
|-----------------------------------|--|
| Voltage and Current | See Selection Chart |
| Load Regulation (Note 6,7) | |
| | Single/Duals(EDCC/A-1506/07/DRL) $\pm 3\%$ |
| | Duals (EDCC/A-1508;EDCC-1508/DRL) 0.5/3% |
| | Triple 0.2/ $\pm 0.3\%$ typ |
| Line Regulation (typ) (Note 8) | |
| | Single $\pm 0.1\sim 1\%$ |
| | Duals(EDCC/A-1506/07/DRL) $\pm 0.3\sim 1\%$ |
| | Duals (EDCC/A-1508;EDCC-1508/DRL) 0.5/0.5% |
| | Triple 0.3/ $\pm 0.1\%$ |
| Cross Regulation (Note 11) | |
| | Duals(EDCC/A-1506/07/DRL) 2% |
| | Duals (EDCC/A-1508;EDCC-1508/DRL) 0.5/3% typ |
| | Triple NA/ $\pm 0.1\%$ (Note 11) |
| Preset Accuracy (Note 9) | |
| | Single/Duals(EDCC/A-1506/07/DRL) 1% |
| | Duals (EDCC/A-1508;EDCC-1508/DRL) 2/5% |
| | Triple 1/ $\pm 5\%$ |
| Over Voltage Protection | Clamp, 130-150% |
| Over Temp. Protection | Latching, cool and re-power |
| Short Circuit Protection (Note 3) | Indefinite |
| Hold Up Time | 20 mS, typ |

GENERAL SPECIFICATIONS

| | |
|---------------------|------------------------------------|
| Isolation (Note 4) | 5656VDC I/P-O/P |
| | 3535VDC I/P-Ground |
| | 1414VDC O/P-Ground |
| Efficiency | See Selection Chart |
| Switching Frequency | 100Khz, (fixed, typical) |
| Safety | UL60601-1, EN60601-1 |
| EMC /EMI | EN55022; FCC/A, VDE 0871/A, CISPRB |

All specifications are typical at nominal input, full load, and 25°C unless otherwise noted

PHYSICAL SPECIFICATIONS

| | | |
|---------------|--|--------------------------|
| Size | PCB Mount | 2.75L" x 1.89W" x 0.93H" |
| | Chassis Mount | 3.96L" x 2.16W" x 1.0H" |
| | Din Rail | 3.96L" x 2.16W" x 1.35H" |
| Case Material | Rynite, 94V-0 Rated | |
| Construction | Encapsulated. Soft Pot | |
| Weight | PCB/ CHA / DinRail 4.6oz (128g) / 8.5oz (238g)/ 11.5oz(326g) | |

ENVIRONMENTAL SPECIFICATIONS

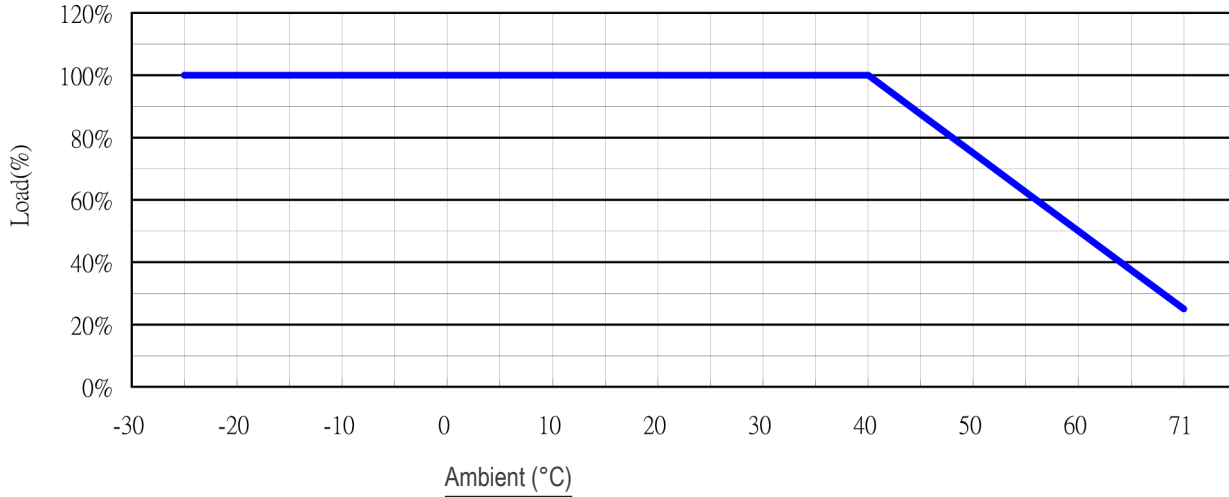
| | |
|----------------------------|---------------------------------|
| Oper. Temperature (Note 5) | 0 to +40°C (See Derate) |
| Storage Temperature | -25 to +71°C |
| Relative Humidity | 0 to + 95%, non-cond |
| MTBF | (Mil Std 217, 25°C) 575,000 Hrs |
| Temperature Coefficient | $\pm 0.03\%/^{\circ}\text{C}$ |

NOTE

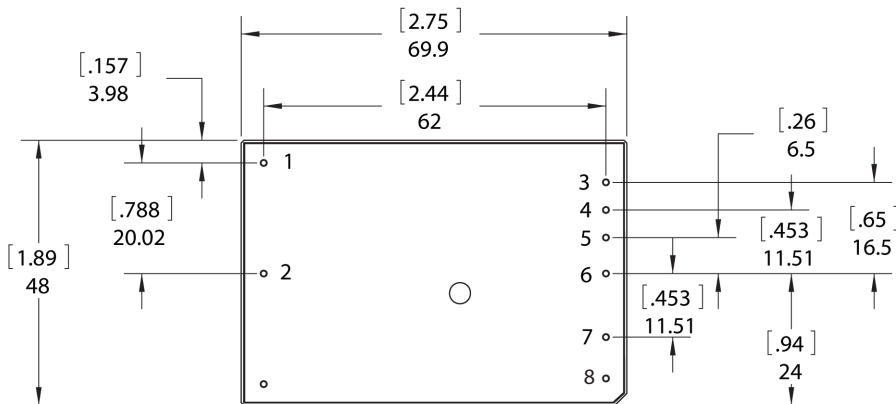
- All measurements should be made directly at the terminals of the power supply.
- Ripple and Noise depend upon output voltage as specified per particular model.
- Short Circuit Protection is self-recovering when overcurrent condition is removed.
- Isolation for up to 1minute duration.
- Specified for free-air convection cooling.
- Minimum load is NOT required for proper operation. However, auxiliary outputs should be reduced as a function of primary output minimum load or load regulation will be higher.
- Load regulation measured from 20% to FL.
- Line regulation measured from 90VAC 264VAC.
- Preset accuracy measured at nominal load, 120 VAC input.
- O/P noise measured directly at pins/terminals at nom. load, 0.1uF bypass, pk-pk @20MHz bandwidth.
- Cross Reg-Triples: Measured at nom. load with the 5V output varied between 60% and 100% of nom. load.
- 100% Production Tested.

Astrodyne products are not authorized or warranted for use as critical components in life support systems, equipment used in hazardous environments, nuclear controls systems, or other mission-critical applications.

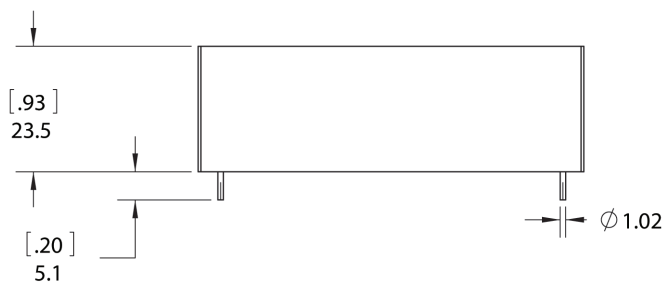
OUTPUT DERATING CURVE



MECHANICAL DIMENSIONS



PIN - OUT VIEWED FROM BOTTOM

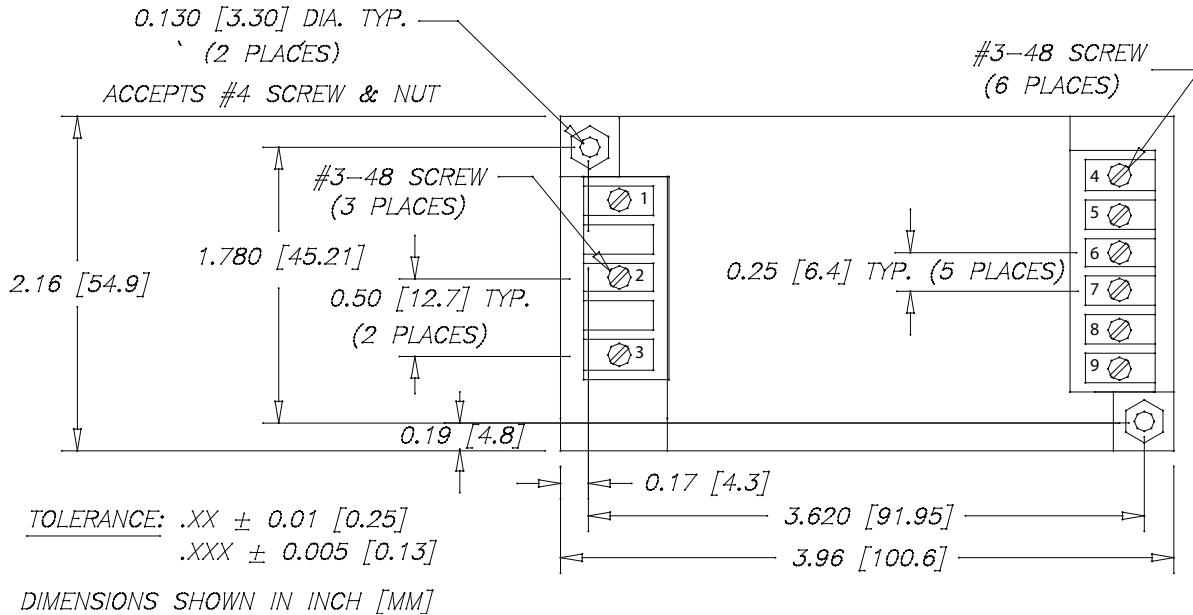


Model

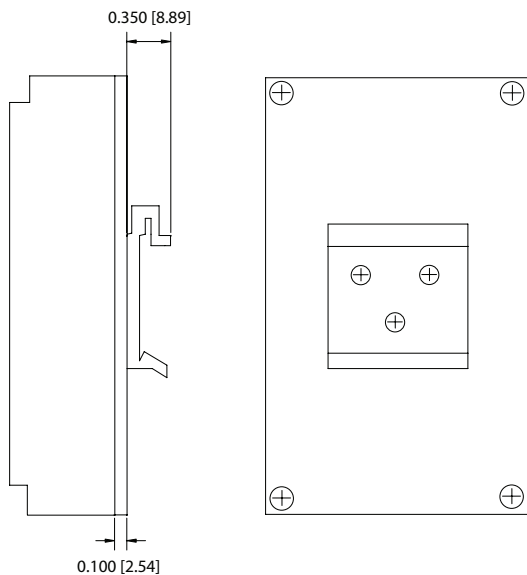
Type / Pin#

| Model Type / Pin# | Single | Dual | Dual(1508) | Triple |
|-------------------|--------|--------|------------|--------|
| 1 | ACL | ACL | ACL | ACL |
| 2 | ACN | ACN | ACN | ACN |
| 3 | No Pin | No Pin | No Pin | +Vout |
| 4 | +Vout | +Vout | +12V | COM |
| 5 | No Pin | No Pin | No Pin | -Vout |
| 6 | No Pin | COM | +5V | +5Vout |
| 7 | -Vout | -Vout | COM | +5VRTN |

MECHANICAL DIMENSIONS - CHASSIS MOUNT



MECHANICAL DIMENSIONS - DIN RAIL



Model

| Type / Pin# | Single | Dual | Dual (1508) | Triple |
|-------------|--------|-------|-------------|--------|
| 1 | ACN | ACN | ACN | ACN |
| 2 | N/C | N/C | N/C | N/C |
| 3 | ACL | ACL | ACL | ACL |
| 4 | N/C | N/C | N/C | N/C |
| 5 | -Vout | -Vout | Com | +5RTN |
| 6 | -Vout | Com | Com | +5Vout |
| 7 | +Vout | Com | +5V | -Vout |
| 8 | +Vout | +Vout | +12V | Com |
| 9 | N/C | N/C | N/C | +Vout |

DIN Rail mounting kit available for Chassis-mount modules, specify part # M-DRL-01. Kit includes mounting plate, DIN Rail clip and assembly hardware.