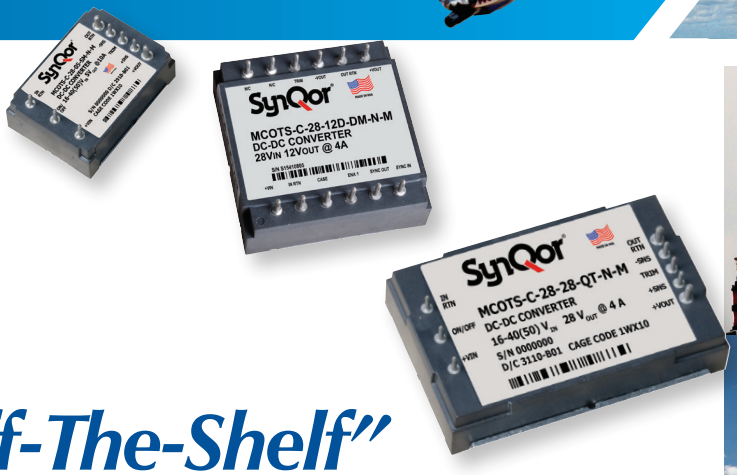
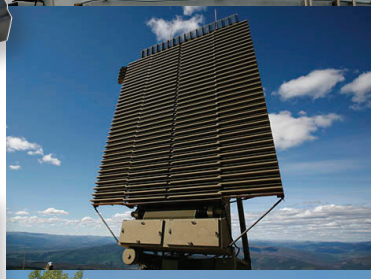
SynQor®

Advancing the Power Curve®

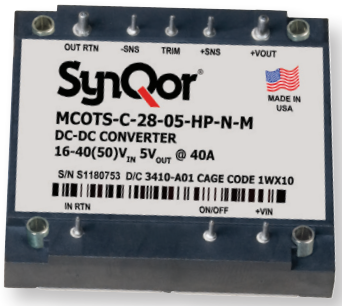
MilCOTS™

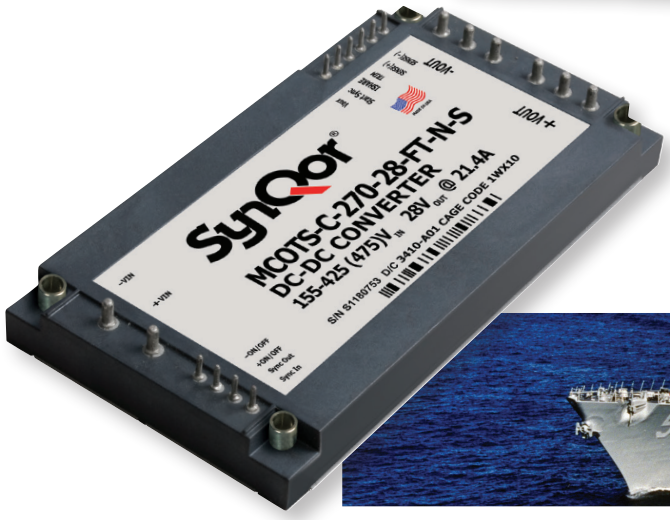
## MIL-STD Compliant
## High Efficiency
## Field Proven



# *Military "Off-The-Shelf" Power Converters & Filters*



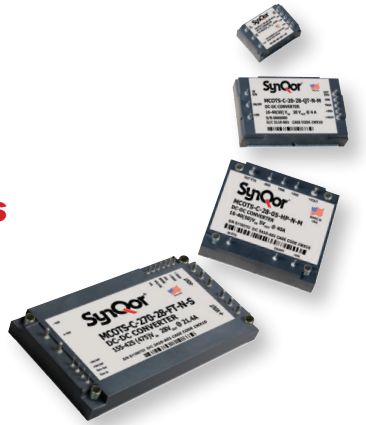

Made in USA

MilQor®

*Products for the*
**Military and Aerospace Industry**

# MilCOTS™

## Isolated Converters



## *"Off-the-shelf" DC-DC Converters for Cost Sensitive Military/Avionics Applications*

**The MilQor® series of Mil-COTS Isolated DC-DC converters brings SynQor's field proven high-efficiency synchronous rectifier technology to the Military/Avionics industry. These "off-the-shelf" converters are compatible with the industry standard format, operate at a fixed frequency, and follow conservative component derating guidelines. MilQor® products are designed and manufactured to comply with a wide range of military standards.**

### MCOTS Product Features

- High efficiency, up to 95% at full rated load current
- Fixed frequency switching provides predictable EMI
- No minimum load requirement
- Rugged design for harsh environments
- Full Feature option on some models
- Flanged baseplate available
- Industry standard pin-out configurations and standard footprints.
- Available: High-capacitance option for very large output capacitance and extreme transient applications

### Compliance Features

MilCOTS converters with MilCOTS filters are designed to meet:

- MIL-HDBK-704-8 (A through F)
- RTCA/DO-160 Section 16, 17, 18
- MIL-STD-1275 (B, D)
- MIL-STD-461 (C, D, E, F)
- DEF-STAN 61-5 (part 6)/(5, 6)

### Protection

- Input under-voltage lockout
- Output current limit and short circuit protection
- Active back bias limit
- Output over-voltage protection
- Thermal shutdown (not on DM Package Size)

### Control

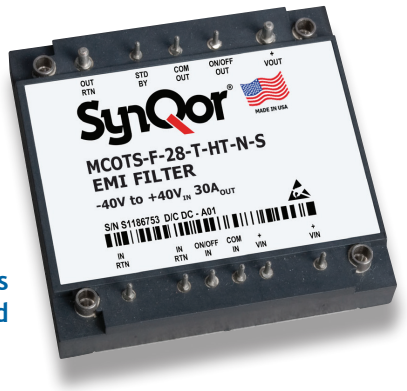
- On/Off control referenced to input side (ON/OFF control islolated in Full Bricks)
- Remote sense for the output voltage
- Digital Output Current Sharing (HZ only)
- Output voltage trim range of: +10% to -20%
  (Half-Brick Zeta) +10% to -50%
  (Quarter-Brick Exa) +10% to -50%
  (Sixteenth Brick) +10% to -10%

| Family | Product | Cont. Input Voltage | Output Voltage | | Package Size/ (Performance Level) | Heatsink Option | Screening Level | Options |
|---|---|---|---|---|---|---|---|---|
| MCOTS | C: Converter | **28:** 16-40V<br>**28E:** 16-70V<br>**28V:** 9-40V<br>**28VE:** 9-70V<br>**48:** 34-75V<br>**150:** 90-210V<br>**270:** 155-425V<br>**270H:** 240-425V<br>**270N:** 240-280V | **1R2:** 1.2V<br>**1R5:** 1.5V<br>**1R8:** 1.8V<br>**2R5:** 2.5V<br>**3R3:** 3.3V<br>**05:** 5V<br>**07:** 7V<br>**7R5:** 7.5V<br>**08:** 8V<br>**10:** 10V | **12:** 12V<br>**15:** 15V<br>**24:** 24V<br>**28:** 28V<br>**36:** 36V<br>**40:** 40V<br>**48:** 48V<br>**50:** 50V<br>**135:** 135V<br>**270:** 270V | **FZ:** Full Brick (Zeta)<br>**FP:** Full Brick (Peta)<br>**FT:** Full Brick (Tera)<br>**HZ:** Half Brick (Zeta)<br>**HP:** Half Brick (Peta)<br>**HT:** Half Brick (Tera)<br>**QE:** Quarter Brick (Exa)<br>**QT:** Quarter Brick (Tera)<br>**SM:** Sixteenth Brick (Mega)<br>**DM:** Demi Brick (Mega) | **N:** Encased, Baseplate<br>**D:** Encased, Non-Threaded Baseplate<br>**F:** Encased, Flanged Baseplate | **S:** S-Grade<br>**M:** M-Grade | **[ ]:** Standard<br>**F:** Full Feature<br>**C:** High-Capacitance<br>**FC:** High-Capacitance & Full Feature |

**Part Numbering Example:** MCOTS-C-28-05-HP-N-M For valid part numbers, refer to the website or contact your local sales representative.

* Not all features apply, see individual product data sheet for product specifics.

# MilCOTS™ FILTERS




## DC Filter Modules

**SynQor provides EMI filters for the MIL-COTS DC-DC converters. All EMI filters provide high levels of differential-mode and common-mode attenuation and include stabilizing bulk capacitors and damping resistors.**

### MCOTS DC Filter Features

- Low DC resistance
- Differential-mode attenuation
- Common-mode attenuation
- Bulk capacitance provides input system stabilization for downstream power converters
- No electrolytic capacitors (all ceramic design)
- High-voltage isolation between common-mode pins and input / output
- Wide temperature range operation
- Designed to meet MIL-STD-461

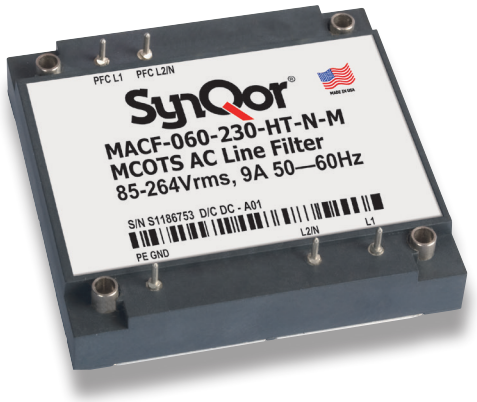
| DC Filter Model Number | Input Voltage | | Output Current | Isolation Voltage (to common-mode) | Maximum DC Resistance @ 100°C | Differential-Mode Attenuation | Common-Mode Attenuation |
|---|---|---|---|---|---|---|---|
| | Continuous | Surge (<100ms) | | | | | |
| **HALF BRICK** | | | | | | | |
| **MCOTS-F-28-T-HP** | ±40V | +100V, -50V | 40A | 2250V | 40mΩ | >80dB @ 250kHz | >36dB @ 250kHz |
| **MCOTS-F-28-T-HT** | ±40V | +100V, -50V | 30A | 2250V | 40mΩ | >80dB @ 250kHz | >36dB @ 250kHz |
| **MCOTS-F-270-P-HT** | ±500V | ±630V | 9A | 2500V | 106mΩ | >70dB @ 250kHz | >50dB @ 250kHz |
| **QUARTER BRICK** | | | | | | | |
| **MCOTS-F-28-P-QT** | ±40V | ±50V | 30A | 2250V | 20mΩ | >80dB @ 250kHz | >36dB @ 250kHz |
| **MCOTS-F-48-P-QT** | ±80V | ±100V | 20A | 2250V | 32mΩ | >80dB @ 250kHz | >36dB @ 250kHz |
| **MCOTS-F-270-P-QT** | ±500V | ±630V | 4.0A | 2500V | 180mΩ | >80dB @ 500kHz | >50dB @ 500kHz |
| **DEMI BRICK** | | | | | | | |
| **MCOTS-F-28-P-DM** | ±40V | ±50V | 10A | 1000V | 60mΩ | >80dB @ 500kHz | >60dB @ 500kHz |
| **MCOTS-F-28E-P-DM** | ±70V | ±100V | 10A | 1000V | 60mΩ | >80dB @ 500kHz | >60dB @ 500kHz |

## AC Line Filter Modules

**SynQor provides AC Line filters for the MIL-COTS series of PFC modules and DC-DC converters. SynQor's high-performance filters are designed to comply with industry EMI standards.**

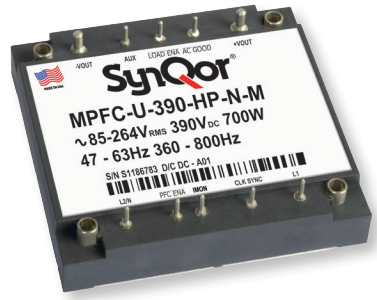
### MCOTS AC Filter Features

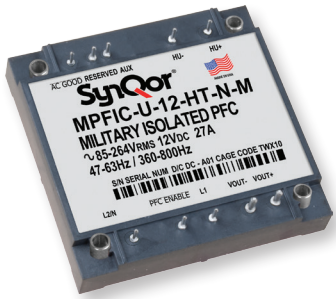
- 1kW@115$V_{RMS}$ (Single Phase) - Half-Brick
- 2kW@115$V_{RMS\ (L-N)}$ (Three Phase)
- All ceramic capacitor design
- High voltage isolation between baseplate and input/output
- Internally damped
- Low power dissipation
- Complies with industry EMI standards when used with SynQor MPFC and DC-DC converter modules




| Model Number | Input Phase | Input Frequency | Input Voltage | Output Current | Output Power |
|---|---|---|---|---|---|
| **MACF-U-230-ET** | Single Phase | 50/60Hz & 400Hz | 85-264$V_{RMS}$ | 4.5$A_{RMS}$ | 500W@115$V_{RMS}$/1kW@230$V_{RMS}$ |
| **MACF-060-230-HT** | Single Phase | 50/60Hz | 85-264$V_{RMS}$ | 9$A_{RMS}$ | 1kW@115$V_{RMS}$/2kW@230$V_{RMS}$ |
| **MACF-400-230-HT** | Single Phase | 400Hz | 85-264$V_{RMS}$ | 9$A_{RMS}$ | 1kW@115$V_{RMS}$/2kW@230$V_{RMS}$ |
| **MACF-115-3PH-UNVD-QT** | Three Phase | 45-800Hz | 85-140$V_{RMS\ (L-N)}$ | 6$A_{RMS}$ | >2kW@115$V_{RMS\ (L-N)}$ |
| **MACF-115-3PH-UNV-HT** | Three Phase | 45-800Hz | 85-140$V_{RMS\ (L-N)}$ | 8$A_{RMS}$ | >2kW@115$V_{RMS\ (L-N)}$ |

# MPFCQor™
**Power Factor Correction**




# MPFICQor™
**Isolated Power Factor Correction**

## *Military Grade Power Factor Correction Modules*

**The MPFCQor and MPFICQor Power Factor Correction modules are essential building blocks of an AC-DC power supply. Used in conjunction with a hold-up capacitor, SynQor's MCOTS AC line filter, and SynQor's high efficiency MCOTS DC-DC converters the MPFCQor will draw a nearly perfect sinusoidal current (PF>0.99) from a single phase AC input. The MPFICQor will also draw this near perfect sinusoidal current while only requiring a hold-up capacitor and SynQor's MCOTS AC line filter. The half-brick MPFCQor module can be paralleled to achieve higher power and the MPFICQor module has an optional droop sharing version. The modules are supplied completely encased to provide protection from the harsh environments seen in many military and extreme environments.**

### Operational Features

- Universal input voltage range: 85-264Vrms
- Narrow input voltage range: 85-180Vrms (MPFC Only)
- Universal input frequency range: 47 - 63Hz / 360 - 800Hz
- MPFC Half-Brick: 700W output power
- MPFC Quarter-Brick: 350W output power
- MPFIC Half-Brick: 325W output power
- ≥0.99 Power Factor
- MPFC Efficiency: Up to 95%
- MPFIC Efficiency: Up to 92%
- Internal inrush current limit
- Auxiliary 10V bias supply
- 100°C max baseplate temperature at full power
- MPFC Half-Brick can be paralleled with current sharing
- MPFIC Half-Brick can be paralleled with the droop sharing option
- Compatible with SynQor's MCOTS DC-DC Converters & SynQor's AC line filters

### Protection/Control Features

- PFC Enable
- Load Enable (also: Power Out Good signal) (MPFC Only)
- AC Power Good Signal (MPFC & MPFIC Half-Bricks Only)
- DC Power Good Signal (MPFIC Half-Brick Only)
- Clock synchronization (MPFC Half-Brick Only)
- Output current monitor/current sharing (MPFC Half-Brick Only)
- Input current limit and auto-recovery short circuit protection
- Auto-recovery input under/over-voltage protection
- Auto-recovery output over-voltage protection
- Auto-recovery thermal shutdown

## Mil-COTS Power Factor Correction Module

| Family | Vin Range | Output Voltage | Package Size | Thermal Design | Screening Level |
|---|---|---|---|---|---|
| MPFC | **U:** 85-264V<br>**115:** 85-180V | **270:** 270Vdc<br>**390:** 390Vdc | **HP:** Half-brick Peta<br>**QP:** Quarter-brick Peta | **N:** Encased, Threaded Baseplate<br>**D:** Encased, Non-threaded Baseplate<br>**F:** Encased, Flanged Baseplate | **S:** S-Grade<br>**M:** M-Grade |

**Part Numbering Example: MPFC-U-390-HP-N-M** For valid part numbers, refer to the website or contact your local sales representative.

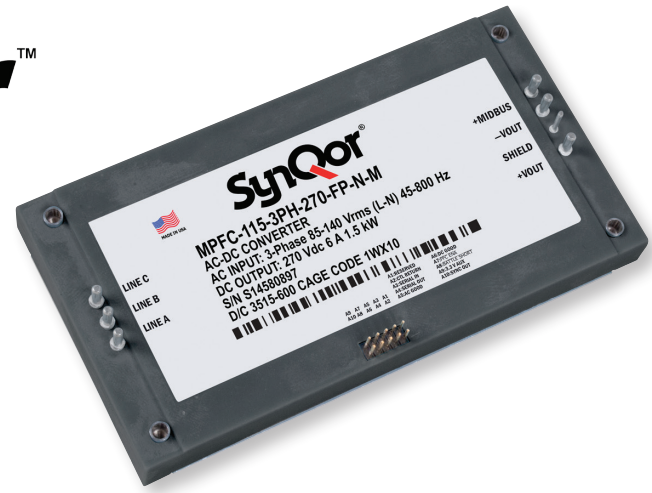
## Mil-COTS Isolated Power Factor Correction Module

| Family | Vin Range | Output Voltage | Package Size | Thermal Design | Screening Level | Option |
|---|---|---|---|---|---|---|
| MPFIC | **U:** 85-264V | **12:** 12V<br>**24:** 24V<br>**28:** 28V<br>**48:** 48V | **HT:** Half-brick Tera | **N:** Encased<br>**D:** Encased with Non-threaded Baseplate<br>**F:** Encased with Flanged Baseplate | **S:** S-Grade<br>**M:** M-Grade | **[ ]:** Standard<br>**D:** Droop |

**Part Numbering Example: MPFIC-U-12-HT-N-M** For valid part numbers, refer to the website or contact your local sales representative.

# MPFCQor™

**3-Phase**
**Power Factor Correction**




## *Military Grade 3-Phase Power Factor Correction Module*

**The MPFCQor Power Factor Correction module is an essential building block of an AC-DC power supply. Used in conjunction with SynQor's MCOTS AC line filter and a limited amount of stabilizing capacitance, the 3-Phase MPFCQor will draw a nearly perfect sinusoidal current from each phase of a 3-Phase AC input. The module is supplied completely encased to provide protection from the harsh environments seen in many military and extreme environments.**

### Operational Features

- Full-brick form factor industry standard
- 1.5kW continuous (2.0kW surge)
- Semi-regulated output: 270Vdc
- Compatible with Military Standard 60Hz, 400Hz and var. freq. systems
- Meets military standards for harmonic content
- Minimal Inrush current
- Additional Half-brick input filter available to meet full EMI
- 100°C max baseplate temperature at full power
- Compatible with SynQor MCOTS - 270 Converters
- Enables systems with repetitive load transients to pass MIL-STD-461 CE101 with superior load current rejection

### Protection/Control Features

- PFC Enable and Battle Short inputs
- All control pins referenced to separate ground with functional isolation
- AC and DC Power Good outputs
- Clock synchronization output
- 3.3V standby power output
- Input current limit and auto-recovery short circuit protection
- Auto-recovery input under/over-voltage protection
- Auto-recovery output over-voltage protection
- Auto-recovery thermal shutdown
- Parallel option available

## MIL-COTS Power Factor Correction Module

| Family | Vin Range | Input Phases | Vout | Package Size | Thermal Design | Screening Level |
|---|---|---|---|---|---|---|
| **MPFC** | **115:** 85-140V | **3PH:** Three-Phase | **270:** 270Vdc<br>**270P:** 270Vdc, parallel option | **FP:** Full-brick Peta | **N:** Encased, Threaded Baseplate<br>**D:** Encased, Non-Threaded Baseplate<br>**F:** Encased, Flanged Baseplate | **S:** S-Grade<br>**M:** M-Grade |

**Part Numbering Example:** MPFC-115-3PH-270-FP-N-M For valid part numbers, refer to the website or contact your local sales representative.

# MilCOTS™

## High Voltage Non-Isolated


### *Military-Grade High Voltage, Non-Isolated DC-DC Converters*

The high input voltage non-isolated DC-DC converters offer unique solutions for converting high-powered, variable voltages to a wide range of output voltages. The converter is a non-isolated buck-boost regulator, which employs synchronous rectification to achieve extremely high conversion efficiency. These products are suitable for use in IBA, or to provide a regulated output voltage from a variable voltage source such as a battery. They can be configured to 'buck' the input voltage down or 'boost' the input voltage up using a single external resistor.

## Battery Charging Features

### High-Voltage Non-Isolated (Key feature of Trimmable Current Limit)

- Provides the power conversion platform for battery charging
- Output current limit is externally controlled for constant-current charging
- Current can be set with an external resistor or an active circuit
- Current analog signal provided for instrumentation and control functions
- Ideal diode output stage with zero back-drive currents prevents discharge of battery when not charging
- Output voltage set-point is independently controlled through trim pin
- Unit will smoothly transition between current and voltage modes as charging cycle needs change

| Model Number | Brick Size | Input Voltage | Output Voltage | Current | Max Output Power | High Efficiency |
|---|---|---|---|---|---|---|
| MCOTS-N-28V-60-HG | Half-brick | 9-60V | 0-60V | 40A | 2000W | 96% Efficiency |
| MCOTS-N-28V-60-QT | Quarter-brick | 9-60V | 0-60V | 25A | 1500W | 96% Efficiency |
| MCOTS-N-28V-60-EP | Eighth-brick | 9-60V | 0-60V | 15A | 900W | 95% Efficiency |
| MCOTS-N-28VE-90-HG | Half-brick | 9-90V | 0-90V | 26A | 2000W | 96% Efficiency |
| MCOTS-N-28VE-90-QT | Quarter-brick | 9-90V | 0-90V | 18A | 1500W | 97% Efficiency |
| MCOTS-N-28VE-90-EP | Eighth-brick | 9-90V | 0-90V | 10A | 900W | 96% Efficiency |

| Family | Product | Vin Range | Vout | Package Size | Thermal Design | Screening Level |
|---|---|---|---|---|---|---|
| MCOTS | **N:** Non-isolated Converter | **28V:** 9-60V<br>**28VE:** 9-90V | **60:** 0-60V<br>**90:** 0-90V | **EP:** Eighth-brick Peta<br>**QT:** Quarter-brick Tera<br>**HG:** Half-brick Giga | **N:** Encased, Threaded Baseplate<br>**D:** Encased, Non-threaded Baseplate<br>**F:** Encased, Flanged Baseplate | **S:** S-Grade<br>**M:** M-Grade |

**Part Numbering Example:** MCOTS-N-28VE-90-HG-N-M For valid part numbers, refer to the website or contact your local sales representative.

# MilCOTS™

## Bus Converters


### *Rugged, High Efficiency Next Generation DC-DC Bus Converters*

These military-grade bus converters are the next-generation, board-mountable, isolated, fixed switching frequency DC-DC converters that use synchronous rectification to achieve extremely high conversion efficiency. The power dissipated by the converter is so low that a heatsink is not required, which saves cost, weight, height, and application effort. MCOTS-Bus converters are ideal for creating the mid-bus voltage required to drive point-of-load (non-isolated) converters in IBA.

| Model Number | Package Size | Input Voltage | Input Transient | Output Voltage | Output Current | Max Output Power | Efficiency |
|---|---|---|---|---|---|---|---|
| MCOTS-B-270-31 | Half-Brick | 230-400V | 155-450V | 29.7V | 32.5A | 1000W | 95% |
| MCOTS-B-600-31 | Half-Brick | 440-700V | 400-750V | 30.3V | 32.5A | 1000W | 95% |

| Family | Product | Vin Range | Vout | Package Size | Thermal Design | Screening Level |
|---|---|---|---|---|---|---|
| MCOTS | **B:** Bus Converter | **270:** 230-400V<br>**600:** 440-700V | **31:** 31V | **HT:** Half-brick Tera | **N:** Encased, Threaded Baseplate<br>**D:** Encased, Non-Threaded Baseplate<br>**F:** Encased, Flanged Baseplate | **S:** S-Grade<br>**M:** M-Grade |

**Part Numbering Example:** MCOTS-B-600-31-HT-N-M For valid part numbers, refer to the website or contact your local sales representative.

# Mil-COTS Listed by Package Size & Output Voltage

| MCOTS-28 Demi | Vout | Single Output 3.3V | 5.0V | 12V | 15V | 28V | Dual Output ±5.0V | ±12V | ±15V |
|---|---|---|---|---|---|---|---|---|---|
| 16-40Vin Cont. 50Vin 1s Trans. Absolute Max Vin = 60V | Demi Brick | 15A 50W | 10A 50W | 4.0A 48W | 3.3A 50W | 1.8A 50W | 10A 50W Total | 4A 48W Total | 3.3A 50W Total |

| MCOTS-28 | Vout | 1.2V | 1.5V | 1.8V | 2.5V | 3.3V | 5V | 7V | 7.5V | 12V | 15V | 24V | 28V | 40V | 48V | 50V | 135V | 270V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16-40Vin Cont. 50Vin 1s Trans. Absolute Max Vin = 60V | Full Zeta | | | | | | | | | | | | | | | | | 3.7A 999W |
| | 1/2 Zeta | | | | | | 60A 300W | | | 42A 504W | 34A 510W | 21A 504W | 18A 504W | 12.5A 500W | | 10A 500W | 3.7A 500W | |
| | 1/2 Peta | | | 60A 108W | | 50A 165W | 40A 200W | | 27A 202W | 16A 192W | 13A 195W | 8.33A 192W | 7A 196W | 5A 200W | 4A 192W | | | |
| | 1/4 Exa | | | | | | 40A 200W | | | 25A 300W | 20A 300W | | 10.7A 300W | | | 6A 300W | | |
| | 1/4 Tera | 40A 48W | 40A 60W | 40A 72W | 40A 100W | 30A 99W | 24A 120W | 17A 119W | | 10A 120W | 8A 120W | 5A 120W | 4A 112W | 3A 120W | 2.5A 120W | | | |
| | 1/16 Mega | 25A 30W | 25A 38W | 25A 45W | 20A 50W | 15A 50W | 10A 50W | 7A 49W | | 4A 48W | | | | | | | | |

| MCOTS-28E | Vout | 1.5V | 1.8V | 2.5V | 3.3V | 5V | 7.5V | 9.6V | 12V | 15V | 24V | 28V | 30V | 40V | 48V | 50V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16-70Vin Cont. 100Vin 1s Trans. Absolute Max Vin = 100V | 1/2 Zeta | | | | | 60A 300W | | 42A 403W | 33A 396W | 26A 390W | 16A 384W | 14A 392W | | 10A 400W | | 8A 400W |
| | 1/2 Peta | | 60A 108W | | 50A 165W | 36A 180W | 24A 180W | | 15A 180W | 12A 180W | 7.5A 180W | 6.5A 182W | | 4.5A 180W | 3.7A 178W | |
| | 1/4 Tera | | | | 30A 99W | 24A 120W | | | 10A 120W | 8A 120W | | 4.3A 120W | | | 2.5A 120W | |

| MCOTS-28V | Vout | 1.5V | 1.8V | 2.5V | 3.3V | 5V | 7V | 7.5V | 12V | 15V | 24V | 28V | 30V | 40V | 48V | 50V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9-40Vin Cont. 55Vin 1s Trans. Absolute Max Vin = 60V | 1/2 Zeta | | | | | 50A 250W | | | 21A 252W | 17A 255W | 10A 240W | 9A 252W | | 6A 240W | | 5A 250W |
| | 1/2 Peta | | 60A 108W | | 50A 165W | 36A 180W | | 24A 180W | 15A 180W | 12A 180W | 7.5A 180W | 6.5A 182W | | 4.5A 180W | 3.7A 178W | |
| | 1/4 Tera | | 35A 63W | | 25A 83W | 17A 85W | 12A 84W | | 7A 84W | 5.5A 83W | 3.5A 84W | 2.8A 78W | | | 1.8A 86W | |

| MCOTS-28VE | Vout | 1.5V | 1.8V | 2.5V | 3.3V | 5V | 7V | 7.5V | 12V | 15V | 24V | 28V | 30V | 40V | 48V | 50V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9-70Vin Cont. 100Vin 1s Trans. Absolute Max Vin = 100V | 1/2 Zeta | | | | | 50A 250W | | | 21A 252W | 17A 255W | 10A 240W | 9A 252W | | 6A 240W | | 5A 250W |
| | 1/2 Peta | | 55A 99W | | 45A 149W | 32A 160W | | 22A 165W | 13A 156W | 11A 165W | 6.7A 161W | 5.8A 162W | | 4A 160W | 3.4A 163W | |
| | 1/4 Tera | | 35A 63W | | 25A 83W | 17A 85W | 12A 84W | | 7A 84W | 5.5A 83W | 3.5A 84W | 2.8A 78W | | | 1.8A 86W | |

| MCOTS-48 | Vout | 1.2V | 1.5V | 1.8V | 2.5V | 3.3V | 5V | 7V | 12V | 15V | 24V | 28V | 30V | 40V | 48V | 50V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 34-75Vin Cont. 100Vin 1s Trans. Absolute Max Vin = 100V | 1/2 Zeta | | | | | | 60A 300W | | 50A 600W | 40A 600W | 25A 600W | 21.5A 602W | | 15A 600W | | 12A 600W |
| | 1/2 Peta | 60A 72W | 60A 90W | 60A 108W | 60A 150W | 60A 198W | 46A 230W | 35A 245W | 21A 252W | 17A 255W | 10.5A 252W | 9A 252W | | 6.3A 252W | 5.2A 250W | |
| | 1/4 Tera | 40A 48W | 40A 60W | 40A 72W | 40A 100W | 30A 99W | 25A 125W | 20A 140W | 12A 144W | 10A 150W | 6A 144W | 5A 140W | 5A 150W | 3A 120W | 3A 144W | |
| | 1/16 Mega | 25A 30W | 25A 38W | 25A 45W | 20A 50W | 15A 50W | 10A 50W | 7A 49W | 4A 48W | 3A 45W | | | | | | |

| MCOTS-150 | Vout | 3.3V | 5V | 6V | 12V | 15V | 24V | 28V | 48V |
|---|---|---|---|---|---|---|---|---|---|
| 90-210Vin Cont. 250Vin 1s Trans. Absolute Max Vin = 250V | 1/4 Tera | | 30A 150W | | | | | 5.35A 150W | 3.1A 149W |

| MCOTS-270 | Vout | 3.3V | 5V | 6V | 12V | 15V | 24V | 28V | 48V |
|---|---|---|---|---|---|---|---|---|---|
| 155-425Vin Cont. 475Vin 1s Trans. Absolute Max Vin = 600V | Full Tera | | 80A 400W | | 50A 600W | 40A 600W | 25A 600W | 21.4A 599W | 12.5A 600W |
| | 1/2 Tera | 60A 198W | 50A 250W | | 25A 300W | 20A 300W | 12.5A 300W | 10.7A 300W | 6.3A 302W |
| | 1/4 Tera | 30A 99W | 30A 150W | 25A 150W | 13A 156W | 10A 150W | 6.25A 150W | 5.35A 150W | 3.1A 149W |

| MCOTS-270H | Vout | 5V | 28V | 36V |
|---|---|---|---|---|
| 240-425Vin Cont. 475Vin 1s Trans. Absolute Max Vin = 600V | Full Peta | 100A 500W | 28.6A 801W | 22.2A 799W |

| MCOTS-270N | Vout | 8V | 10V | 12V | 28V |
|---|---|---|---|---|---|
| 240-280Vin Cont. 200-350Vin 1s Trans. Absolute Max Vin = 600V | 1/2 Tera | 50A 400W | 40A 400W | 33A 396W | 14.5A 406W |

# MilCOTS™

## Product Screening & Qualification

### Product Screening

| Screening | Process Description | S-Grade | M-Grade |
|---|---|---|---|
| Baseplate Operating Temperature | | -55°C to +100°C | -55°C to +100°C |
| Storage Temperature | | -65°C to +135°C | -65°C to +135°C |
| Pre-Cap Inspection | IPC-610 Class III | • | • |
| Temperature Cycling | MIL-STD-883F, Method 1010, Condition B, 10 Cycles | | • |
| Burn-In | 100°C Baseplate | 12 hours | 96 hours |
| Final Electrical Test | 100% | 25°C | -55°C, +25°C, +100°C |
| Final Visual Inspection | MIL-STD-883, Method 2009 | • | • |

### Product Qualification

| Qualification | Details | # Tested (# Failed) | Consistent with MIL-STD-883F Method |
|---|---|---|---|
| Life Testing | Visual, mechanical and electrical test before, during and after 1000 hour burn-in @ full load | 15 (0) | Method 1005.8 |
| Shock-Vibration | Visual, mechanical and electrical test before, during and after shock and vibration tests | 5 (0) | — |
| Humidity | +85°C, 95%RH, 1000 hours, 2 minutes on 6 hours off | 8 (0) | Method 1004.7 |
| Temperature Cycling | 500 cycles of -55°C to +100°C (30 minute dwell at each temperature) | 10 (0) | Method 1010.8 |
| Solderability | 15 pins | 15 (0) | Method 2003 |
| DMT | -65°C to +110°C across full line, and load specifications in 5°C steps | 7 (0) | — |
| Altitude | 70,000 feet (21 km) | 2 (0) | — |

SynQor®

## Advancing the Power Curve®

Located in Boxborough, MA USA, SynQor is a leading supplier of power conversion solutions to the military, avionics, transportation, medical, industrial, telecommunications and computing markets. SynQor's innovative products are designed to exceed the demanding performance, quality, and reliability requirements of today's power electronic engineers who develop leading-edge infrastructure hardware. SynQor provides all the power conversion modules needed to build a power system, and it also provides complete power systems. SynQor's capabilities include both standard and custom solutions, and it delivers them with industry leading service and support. SynQor's total commitment to quality, customer satisfaction and continuous improvement drives our business processes.

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Rev. C 006-0005601 - 08/02/2017

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