

# Application Guide

KEMET makes it possible.

Electronic Components

***KEMET***

**CHARGED.<sup>®</sup>**

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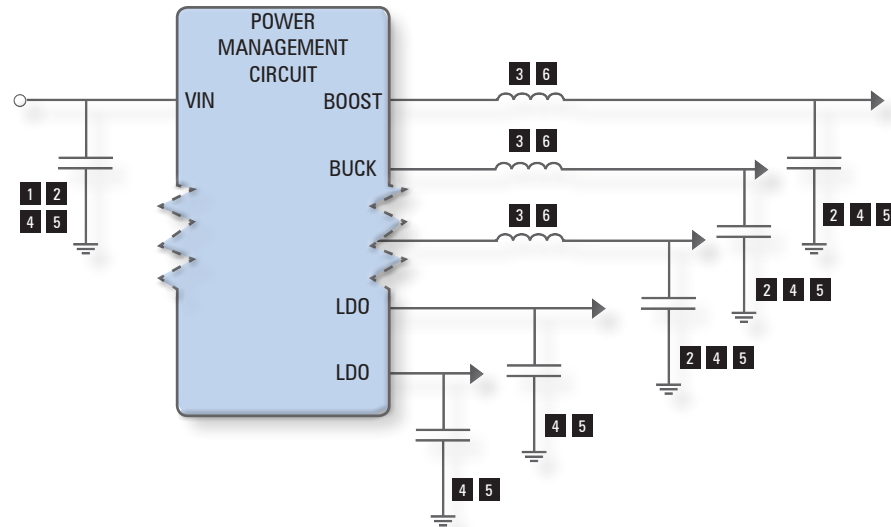
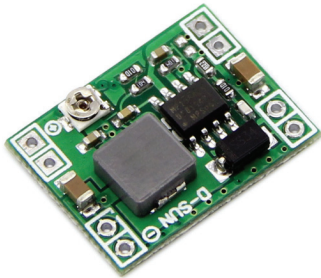
## Why Choose KEMET

KEMET Electronics Corporation is a leading global supplier of electronic components. We offer our customers the broadest selection of capacitor technologies in the industry, along with an expanding range of electromechanical devices, electromagnetic compatibility solutions and supercapacitors. Our vision is to be the preferred supplier of electronic component solutions for customers demanding the highest standards of quality, delivery and service.



# Low Voltage and DC Applications

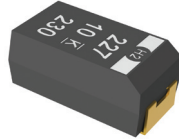
# DC POWER DISTRIBUTION



**1 SMT ALUMINUM ELECTROLYTIC**  
EDH, EDK, EEV, EXV



**2 KO-CAP®**  
T520, T521, T530



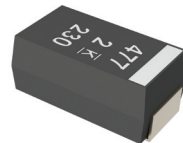
**3 POWER INDUCTOR**  
MPC, CPI, HDI, PLC, SBC



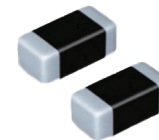
**4 MLCC**  
X7R, X5R



**5 ALUMINUM POLYMER**  
A700, A720



**6 CHIP INDUCTORS**  
PWS, PWI, PWR, PWF



## FREQUENTLY ASKED QUESTIONS

What input voltage(s) are you using?

What output voltage(s) are you using?

What type of voltage regulators?

What frequency are switching regs running?

How much output current?

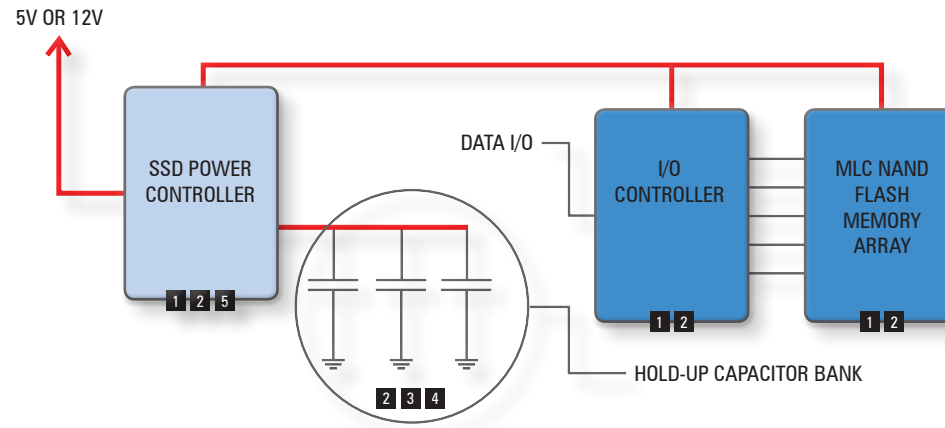
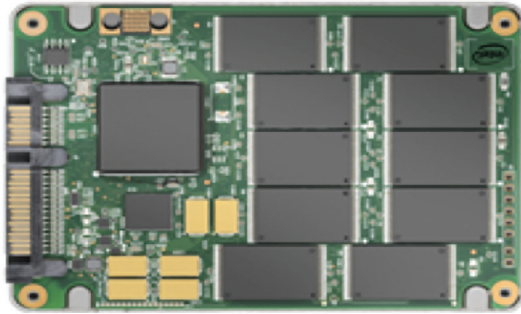
What is the circuit application of each "rail"?

Using an OTS module or designing your own?

Whose regulators are you using?

# SOLID STATE DRIVE (SSD)

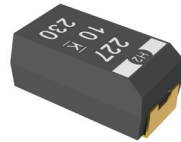
POWER BLOCKS    DIGITAL BLOCKS



**1 MLCC**  
X7R, X5R



**2 KO-CAP®**  
T545



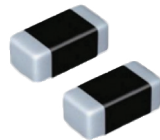
**3 RADIAL ALUMINUM ELECTROLYTICS**  
ESK, ESH, ESC, ESG



**4 RADIAL SUPERCAPACITORS**  
HVZ SERIES



**5 INDUCTORS**  
PWS, PWI, PWR, PWF



## FREQUENTLY ASKED QUESTIONS

Is this SSD for enterprise or server applications?

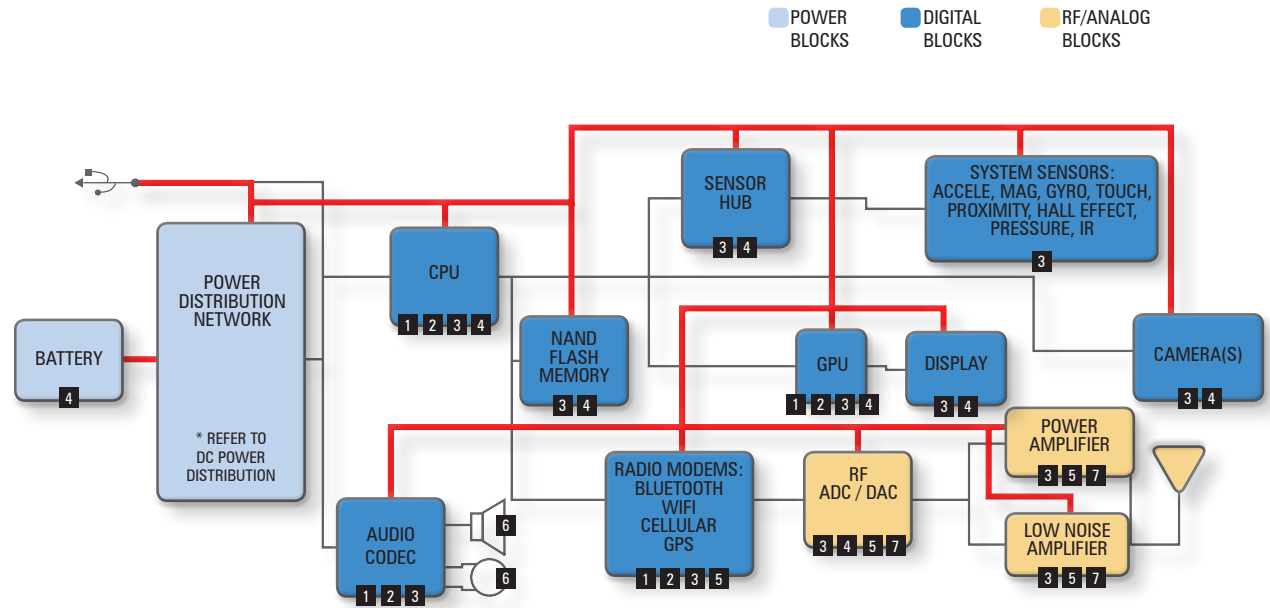
How much footprint and height space is available for hold-up?

What is the input voltage for the system?

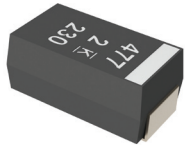
What are the operating temperature and storage temperature conditions of the SSD?

What is the expected lifetime of the device?

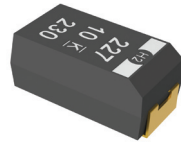
# SMARTPHONE/ TABLET



## 1 ALUMINUM POLYMER A700, A720



## 2 KO-CAP® T520, T528, T521, T529



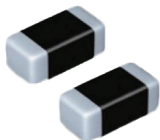
## 4 FLEX SUPPRESSOR® EFH, EFG, EFF



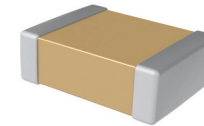
## 5 RF MLCC CBR



## 7 CHIP INDUCTORS RMS



## 3 MLCC COG, X7R, X5R



## 6 ACOUSTIC MODULE MINIATURE ACUTATOR Rxx



## FREQUENTLY ASKED QUESTIONS

Is this a Qualcomm-based design?

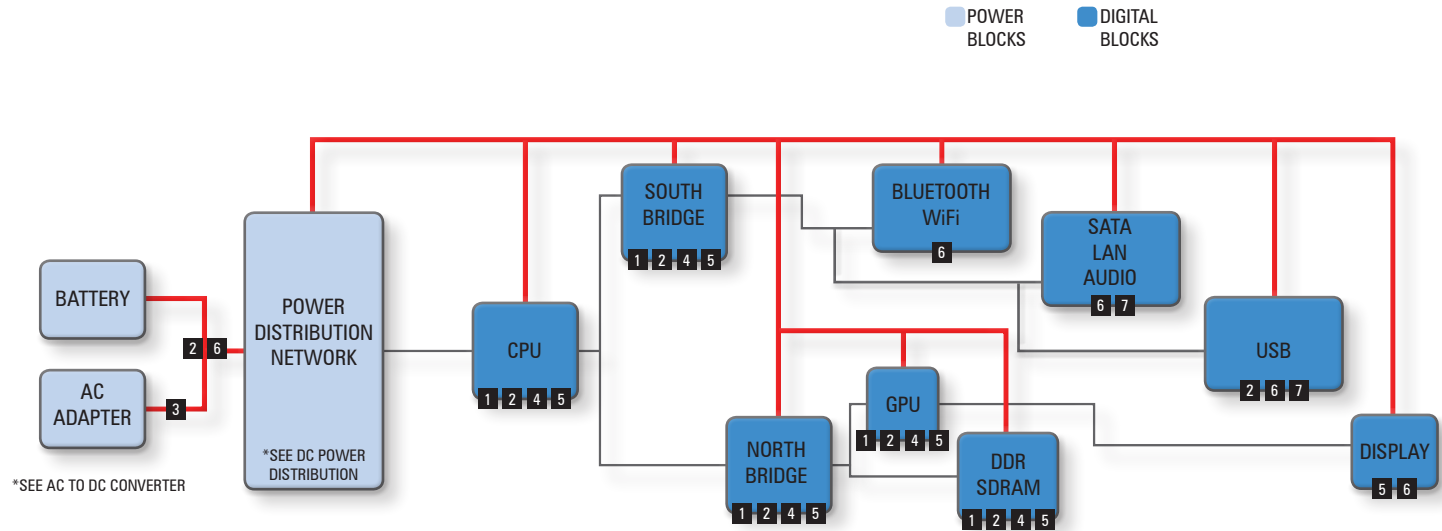
What type of display are you using?

What type of battery are you using?

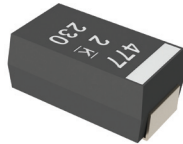
What voltage rails are on your system?

Does the design need to be waterproof?

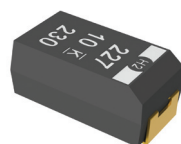
# LAPTOP COMPUTER



## 1 ALUMINUM POLYMER A700, A720



## 2 KO-CAP® T520, T528, T521, T529



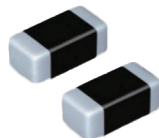
## 4 FLEX SUPPRESSOR® EFH, EFG, EFF



## 5 MLCC COG, X7R, X5R



## 7 INDUCTORS PWS, PWI, PWR, PWF



## 3 EMI CORE ESD



## 6 ALUMINUM ELECTROLYTIC EDH, EDK, ESK, ESH



## FREQUENTLY ASKED QUESTIONS

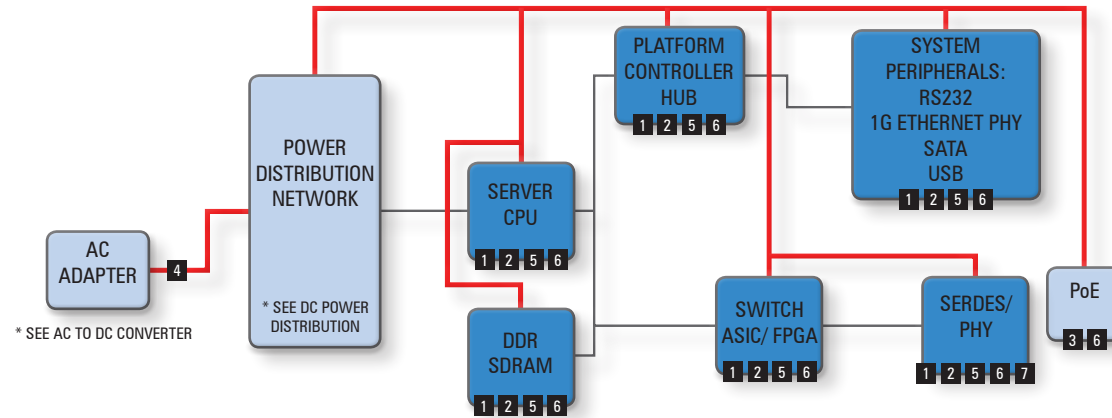
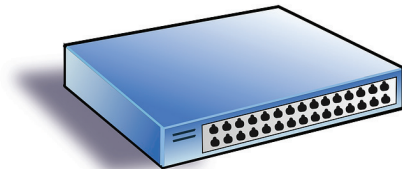
What chipset architecture are you using?

Is this a commercial system or for industrial/military use?

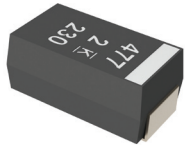
What type of communication peripherals are on your system?

# NETWORK SWITCH

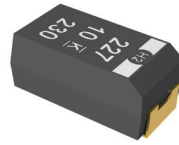
POWER BLOCKS    DIGITAL BLOCKS



**1 ALUMINUM POLYMER**  
A700, A720



**2 KO-CAP®**  
T520, T521, T530



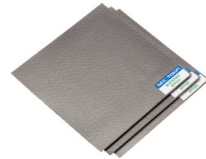
**3 CURRENT SENSOR**  
MDCS



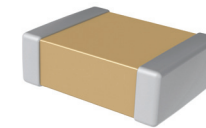
**4 EMI CORE**  
ESD



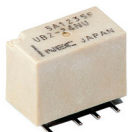
**5 FLEX SUPPRESSOR®**  
EFH, EFG, EFF



**6 MLCC**  
X7R, COG, X5R



**7 SIGNAL RELAY**  
UB2, UD2



## FREQUENTLY ASKED QUESTIONS

What chipset architecture are you using?

Is this a commercial system or for industrial/military use?

What type of communication peripherals are on your system?

How is the equipment powered (AC Line or 48V DC)?

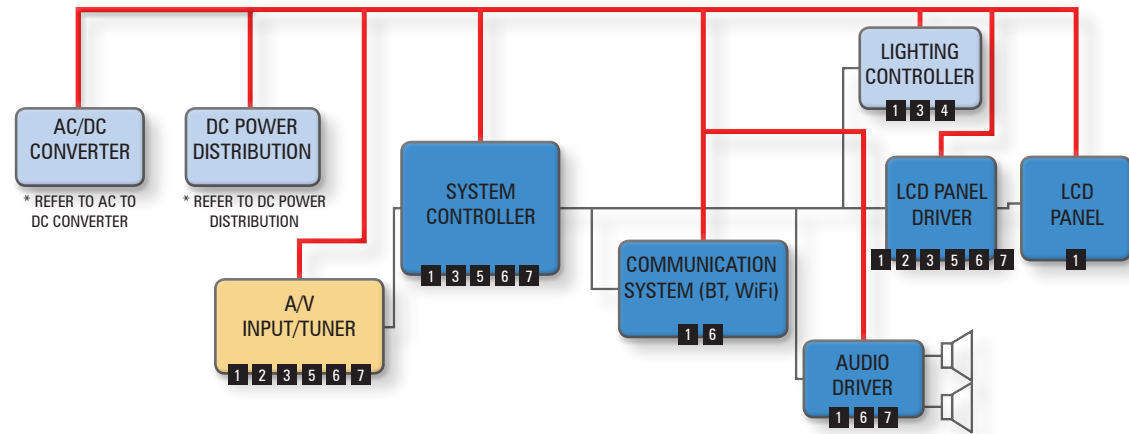
Does your design need a "LAN Bypass" or "fail over" relay?

**KEMET**  
**APPLICATION GUIDE**  
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# FLAT PANEL TV



■ POWER BLOCKS   
 ■ DIGITAL BLOCKS   
 ■ RF/ANALOG BLOCKS



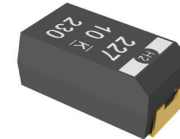
**1 MLCC**  
X7R, X5R



**2 CHIP FILTER**  
M-500CT, M-600T



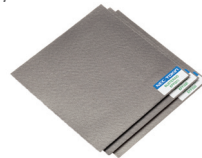
**3 KO-CAP®**  
T520, T521



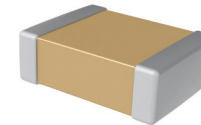
**4 POWER INDUCTOR**  
MPC, CPI, HDI, PLC, SBS



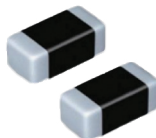
**5 FLEX SUPPRESSOR®**  
EFH, EFG, EFF



**6 MLCC**  
COG



**7 INDUCTORS**  
PWS, PWI, PWR, PWF



## FREQUENTLY ASKED QUESTIONS

What type of backlight system are you using?

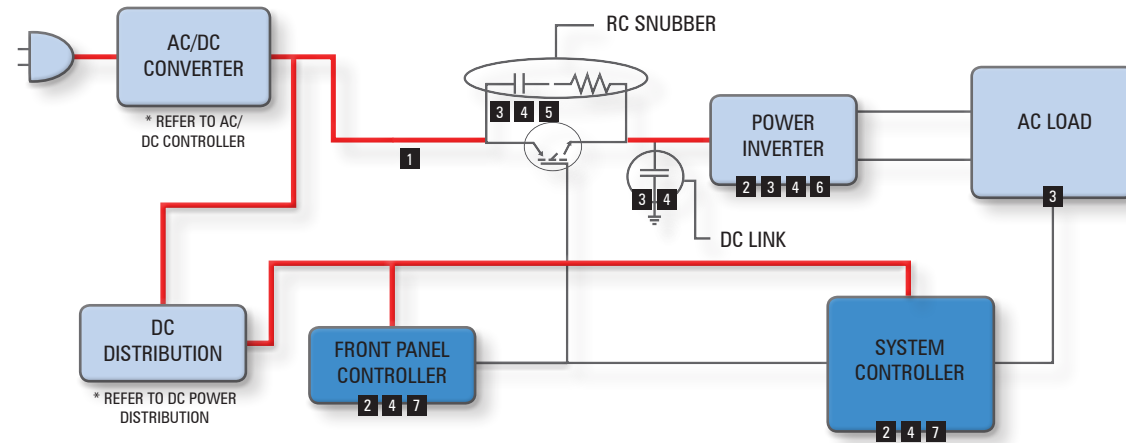
What type of wireless connectivity options does your system have?

What is your power consumption target for the whole system?

# HIGH EFFICIENCY APPLIANCES



POWER BLOCKS    DIGITAL BLOCKS



**1 EMI CORE**  
ESD



**2 ALUMINUM ELECTROLYTIC**  
EDH, EDK, ESK, ESH, ELH, ELG



**3 FILM**  
C4AE



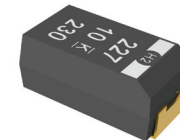
**4 MLCC**  
COG, X7R, X5R



**5 FILM OR RC SNUBBER**  
R71, R73, R76, C4AS, F43



**6 KO-CAP®**  
T520, T521



**7 RADIAL SUPERCAPACITOR**  
FG, FE, FM, FR



## FREQUENTLY ASKED QUESTIONS

Are you using an inverter to drive the motors in this application?

Are you using an inverter to drive the motors?

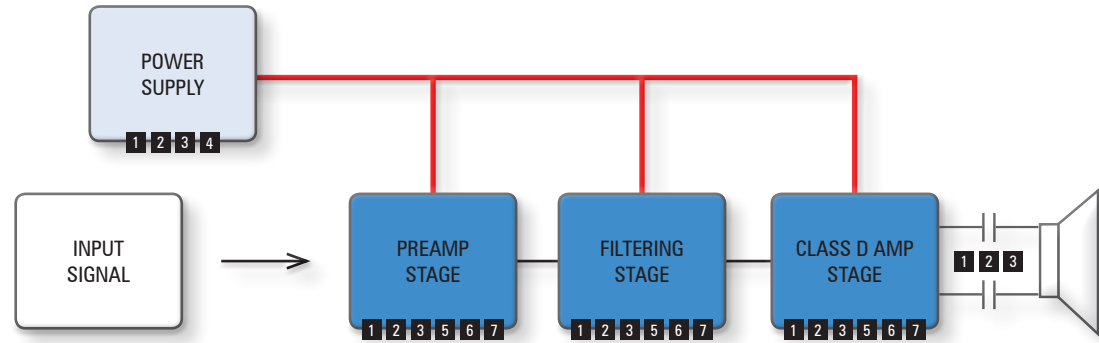
What are the operating voltages of the controller and the motors?

What is the application of the system?

# AUDIO EQUIPMENT



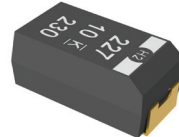
POWER BLOCKS    DIGITAL BLOCKS



**1 MLCC**  
X7R, X5R



**2 KO-CAP®**  
T520, T521, T530



**3 SMT ALUMINUM ELECTROLYTIC**  
EDH, EDK, EEV, EXV



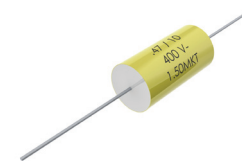
**4 POWER INDUCTOR**  
MPC, CPI, HDI, PLC, MPL, MPLC, MPGH



**5 LEADED CERAMIC**  
GoldMax



**6 LEADED FILM**  
A50



**7 SNAP-IN ALUMINUM ELECTROLYTIC**  
ALC10S



## FREQUENTLY ASKED QUESTIONS

Is this a solid state device?

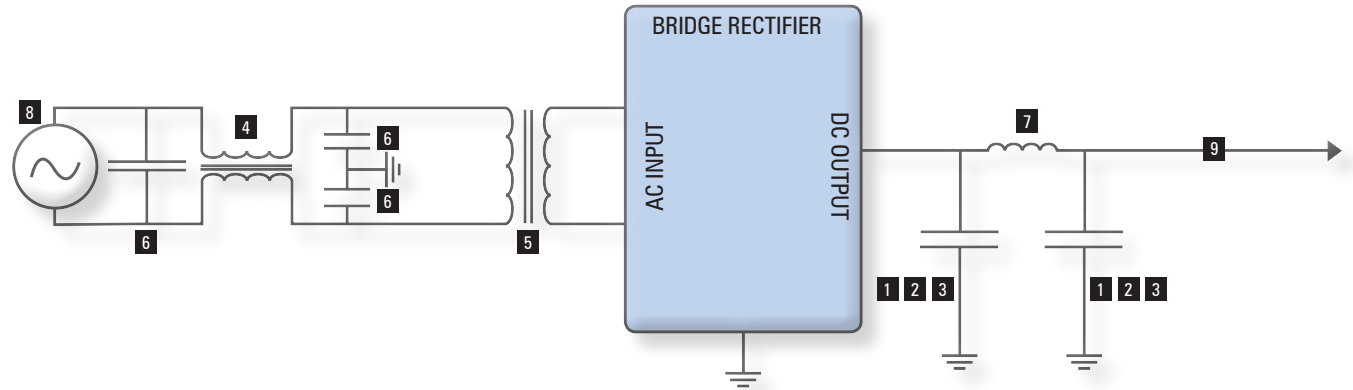
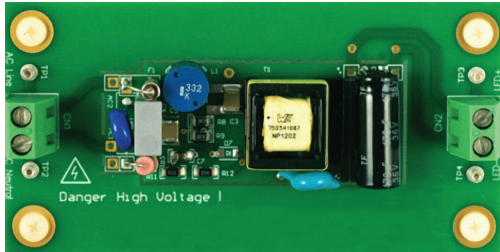
What connectivity options does the unit have?

What is the power and output impedance of the amp?



# AC and Power Applications

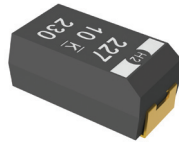
# AC TO DC CONVERTER



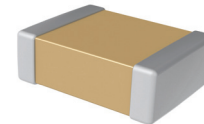
**1 ALUMINUM ELECTROLYTIC**  
EDH, EDK, ESK, ESH, ELH, ELG



**2 KO-CAP®**  
T520, T521, T530



**3 MLCC**  
X7R, X5R



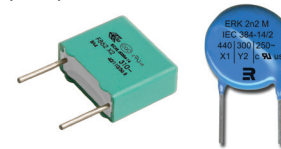
**4 AC LINE FILTER**  
SS, SU, SC



**5 TRANSFORMER**  
CUSTOM



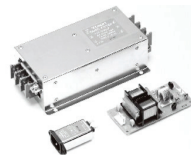
**6 X/Y SAFETY CAP**  
C900, R46, R47



**7 POWER INDUCTOR**  
MPC, CPI, HDI, PLC, MPL, MPLC, MPGH



**8 FB INLET FILTER**  
GL-C, GL-FVP, GL-H, GL-M, DECTRON FB



**9 EMI CORE**  
ESD



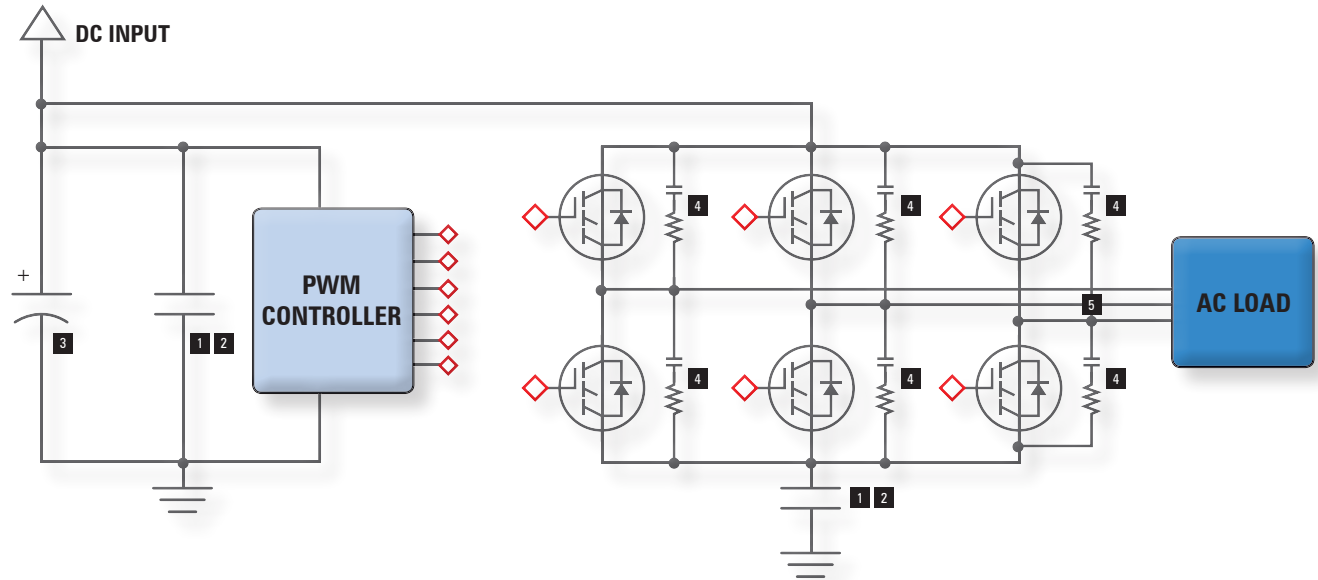
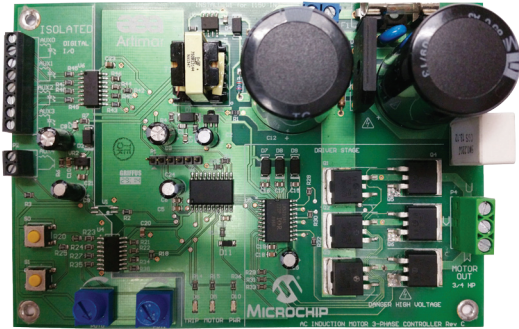
## FREQUENTLY ASKED QUESTIONS

What output voltages are you using?

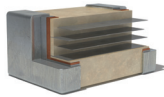
How much current for the design?

What input AC voltages?

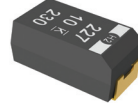
# H-BRIDGE INVERTER



**1 CERAMIC**  
X7R, X5R



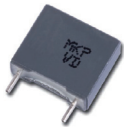
**2 KO-CAP®**  
T520, T521



**3 POWER FILM**  
C44H, C44P, C93



**4 RC SNUBBER**  
F43



**5 CURRENT SENSOR**  
CT



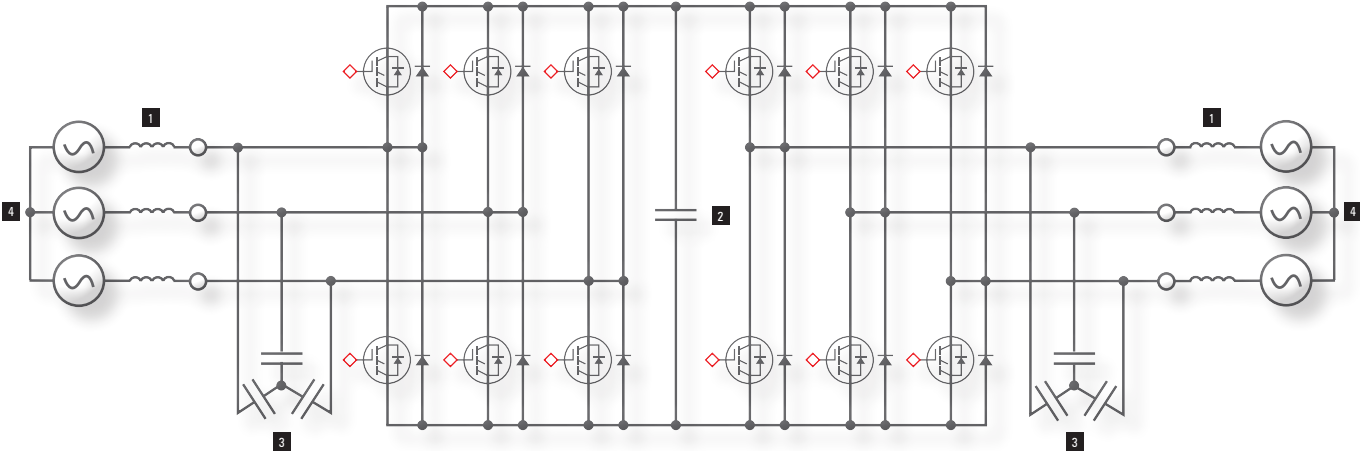
## FREQUENTLY ASKED QUESTIONS

What are the input and output voltages?

What is the frequency of AC Output?

How many phases is the output?

# VOLTAGE SOURCE INVERTER



**1 POWER INDUCTOR**

MPC, CPI, HDI, PLC, MPL, MPLC, MPGH



**2 DC LINK**

C4AE



**3 POWER FILM**

C44H, C44P, C93



**4 CURRENT SENSOR**

CT



**FREQUENTLY ASKED QUESTIONS**

What is the lifetime needed?

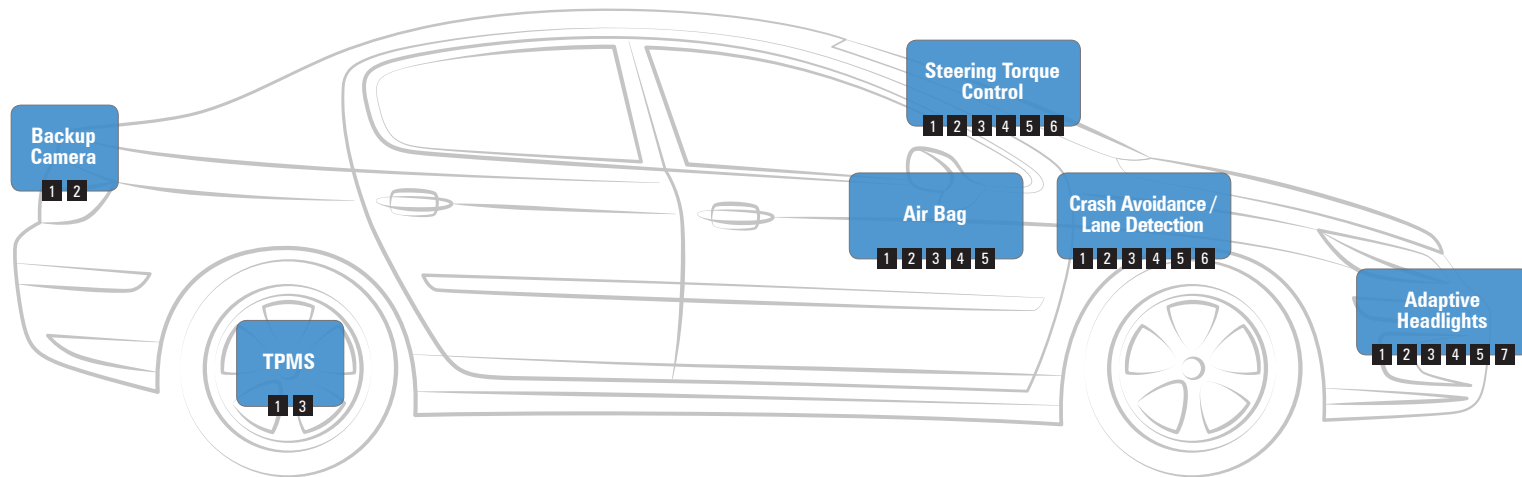
What is the operating temperature?

What is the mounting system?



# **Automotive Applications**

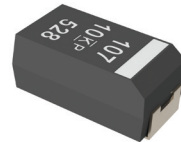
# AUTOMOTIVE: SAFETY



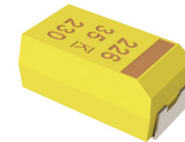
**1 MLCC**  
COG, X7R, X5R



**2 KO-CAP®**  
T591, T598



**3 TANTALUM MnO<sub>2</sub>**  
T491, T495, T498



**4 SNAP-IN ALUMINUM ELECTROLYTIC**  
ALC10S



**5 POWER INDUCTOR**  
DPCV



**6 TORODIAL COIL**  
HHBC, PHBC



**7 FILM CAPACITOR**  
F161, SMC, SPC



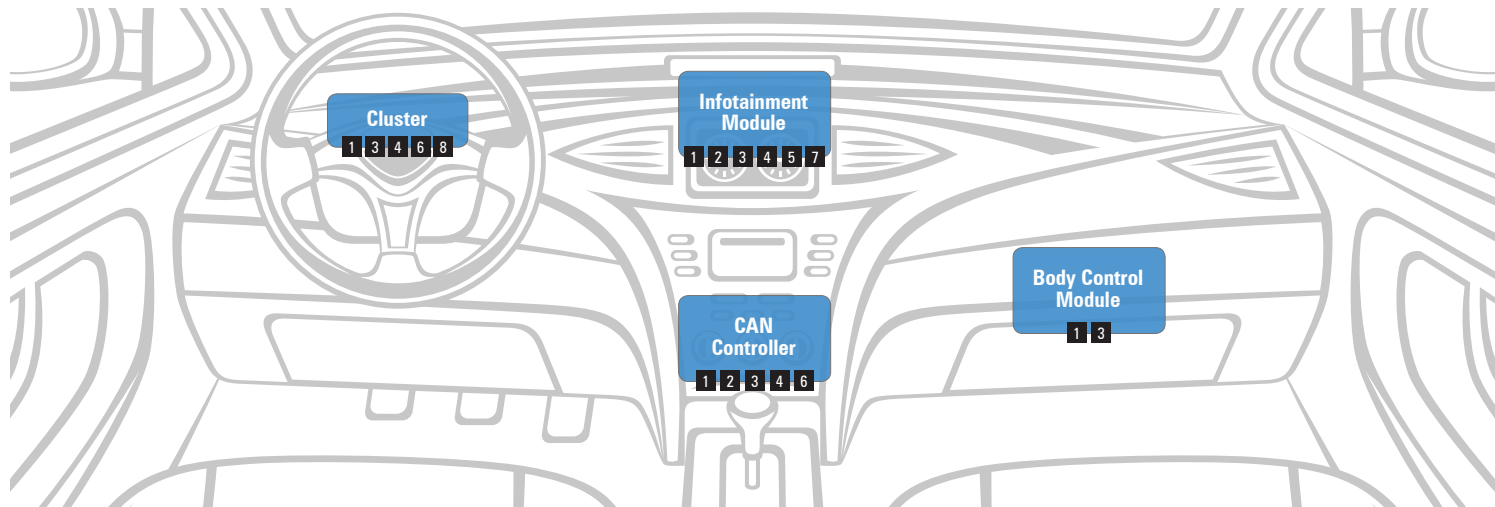
## FREQUENTLY ASKED QUESTIONS

Under what conditions must the power locks and windows operate (under water)?

How many air bags does the vehicle have?

Are there any advanced driver assist systems?

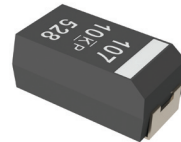
# AUTOMOTIVE: INFOTAINMENT/CONTROL



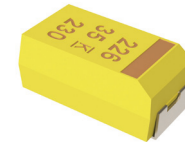
**1 MLCC**  
COG, X7R, X5R



**2 KO-CAP®**  
T591, T598



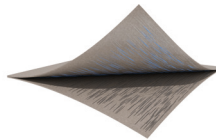
**3 TANTALUM MnO<sub>2</sub>**  
T491, T495, T498



**4 ALUMINUM ELECTROLYTIC**  
EDH, EDK, ESK, ESH



**5 FLEX SUPPRESSOR®**  
EF



**6 POWER INDUCTOR**  
DPCV



**7 TORODIAL COIL**  
HHBC, PHBC



**8 EMI CORE**  
ESD



## FREQUENTLY ASKED QUESTIONS

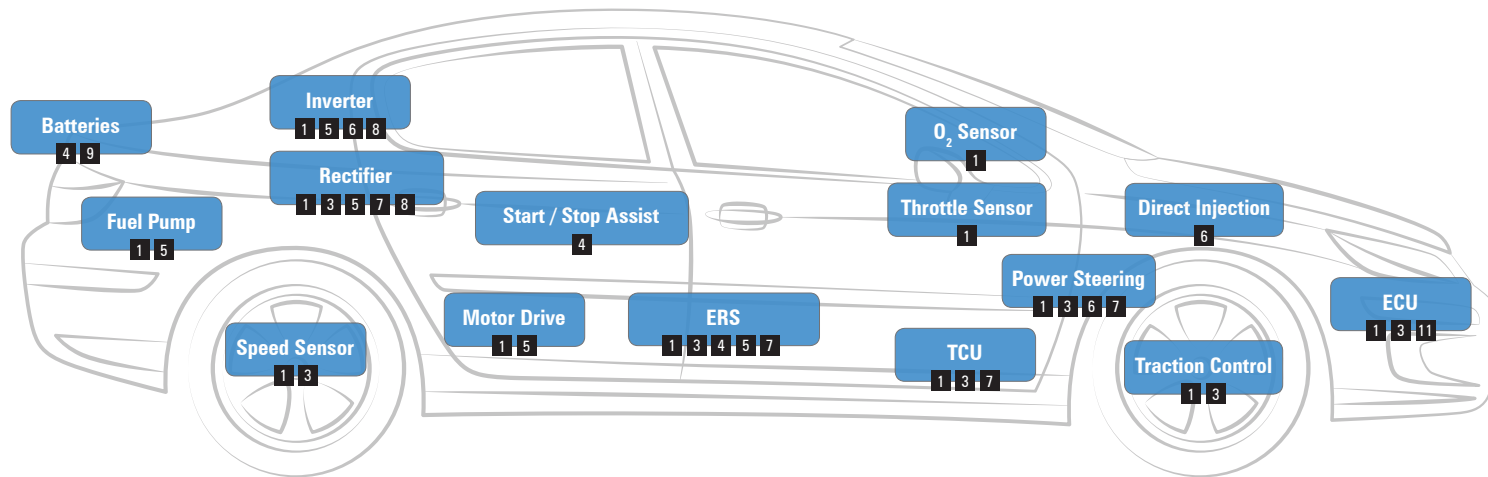
What type of user interface does the vehicle have?

What type of external sensors does the vehicle have?

What temperature ranges do the cabin components need to withstand?

Is AEC-Q200 qualification necessary?

# AUTOMOTIVE: POWERTRAIN



**1 MLCC**  
COG, X7R, X5R



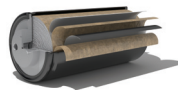
**2 KO-CAP®**  
T591, T598



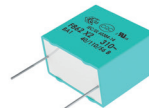
**3 TANTALUM MnO<sub>2</sub>**  
T491, T495, T498



**4 SUPERCAPACITOR**  
FE, FG



**5 FILM CAPACITOR**  
F161, SMC, SPC



**6 SNAP-IN ALUMINUM ELECTROLYTIC**  
ALC10S



**7 POWER INDUCTOR**  
DPCV



**8 TRANSFORMER**  
CUSTOM



**9 TORODIAL COIL**  
HHBC, PHBC



**10 AC LINE FILTER**  
SS, SU, SC



**11 EMI CORE**  
ESD



## FREQUENTLY ASKED QUESTIONS

Is this vehicle a hybrid or electrical?

What emissions standards does this vehicle need to meet?

Is this going to be marketed as a luxury vehicle?



## Corporate Headquarters

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Countries and Areas listed below represent KEMET operations throughout the world.

Bulgaria	Italy	South Korea
China	Japan	Sweden
Finland	Macedonia	Taiwan
Germany	Malaysia	United Kingdom
Hong Kong	Mexico	USA
India	Portugal	
Indonesia	Singapore	