



Vishay Intertechnology, Inc.

Avionics, Military, and Space (AMS)



One of the World's Largest Manufacturers of
Discrete Semiconductors and Passive Components





Avionics, Military, and Space (AMS)

AMS

Airborne Systems	2
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More information on the Engineer's Toolbox, including product datasheet links, can be found at www.vishay.com/ref/et3.

For inquiries, please contact your local sales representative.

Key components for AMS (AVIONICS, MILITARY, AND SPACE)

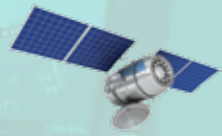


THE VISHAY ADVANTAGE
High Reliability
MIL-PRF Qualifications
CECC Approvals
S-Level Failure Rates
Hermetic Sealing
and more...

Airborne Systems



Satellite / GPS



Flight Control Computers



Cockpit Panels



Braking Systems



UAVs (Unmanned Aerial Vehicles) / Drones





Airborne Systems



RESISTORS
Lead (Pb)-Bearing MINI-MELF Resistors with Established Reliability
[MS1...EN803E8](#)

- Failure rate level 8, high stability over life time, proven reliability
- TCR and tolerance of 15 ppm/K and 0.1 % available, ohmic range from 1 Ω to 2.21 MΩ




MOSFETs
N-Channel 60 V (D-S) Power MOSFET
[IRFZ44](#)

- Rugged planar technology, maximum $R_{DS(on)}$ 28 mΩ
- Popular TO-220 packaging, maximum continuous current of 50 A




INDUCTORS
Custom Magnetics

- High-reliability custom designs for all types of AMS applications
- Many magnetic materials available with outstanding engineering design support




RESISTORS
Metal Film Resistors, Military / Established Reliability, MIL-PRF-55182 Qualified
[RNC](#)

- Very low noise (-40 dB)
- ERC (RNC) series has an operating temperature range of -65 °C to +175 °C



SENSORS
Precision Rotative Transducers, Conductive Plastic, Servo Mounting
[ROT SF](#)

- 8 diameters from 19 mm to 76 mm, redundant signals, tight linearity down to ± 0.015 %
- Excellent repeatability, life span up to 50M cycles, low current consumption




CERAMIC CAPACITORS
MIL-PRF-55681-Qualified Facility, Reliability Testing Done on Maintenance Basis
[MLCC Hi-Rel](#)

- Multiple screening options (group A, group C, voltage conditioning) available
- Customized certification available on request to meet your quality requirements



RESISTORS
Metal Film Resistors, Established Reliability, Hermetically Sealed, MIL-PRF-55182 Qualified
[RNR / RNN](#)

- Hermetic glass enclosure is impervious to harmful environments
- The glass enclosure will withstand in excess of 3000 psi external pressure




TANTALUM CAPACITORS
Solid Tantalum Chip Capacitors, TANTAMOUNT®, Hi-Rel COTS, Ultra-Low ESR
[T97](#)

- High capacitance, high-voltage tantalum capacitors with low ESR and low ESL
- Hi-rel screening in accordance with MIL-PRF-55365




RESISTORS
Thick Film Resistor Networks, Military, MIL-PRF-83401 Qualified
[MSM](#)

- Isolated, bussed, and dual-terminator schematics available
- Rugged molded case construction



CERAMIC CAPACITORS
MIL-PRF-55681-Qualified Facility, BP, BR, and BX Dielectrics
[DSCC](#)

- Multiple screening options (group A, group C, voltage conditioning) available
- Lead (Pb)-free termination code “M”, tin / lead termination code “Z”




RESISTORS
Thick Film Chip Resistors, Military / Established Reliability, MIL-PRF-55342 Qualified
[RCWPM](#)

- Construction is impervious to a high-sulfur environment
- Also qualified to Mil-PRF-32159 zero ohm jumper



TANTALUM CAPACITORS
SuperTan® Wet Tantalum Capacitors with Hermetic Seal
[STE / T16](#)

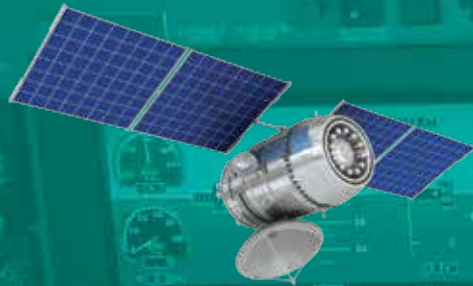
- Extended capacitance, 6 V_{DC} to 125 V_{DC}, -55 °C to +125 °C operation
- Axial leaded, industry-standard case sizes (T1, T2, T3, T4)



View datasheets for these products www.vishay.com/ref/et3as1a



Satellite / GPS



RESISTORS

Hi-Rel Thin Film Chip Resistors



[TNPS...ESCC](#)

- ESA approved according to ESCC 4001/029, high-reliability product
- Advanced thin film technology, SnPb plating with Pb content > 6 %

MOSFETs

N-Channel 80 V (D-S) MOSFET



[SiR880DP](#)

- Medium-voltage ThunderFET® technology, maximum $R_{DS(on)}$ down to 5.9 mΩ
- Thermally enhanced PowerPAK® SO-8 packaging

RESISTORS

ESCC 4001/023 Qualified, High-Precision Thin Film Chip Resistors




[PHR](#)

- ESA qualified, failure rate E7, down to 0.01 % tolerance and 5 ppm/°C (-55 °C to +155 °C)
- Process QML certified, screening tests: 100 % overload, 100 % burn In

RESISTORS

Metal Film Resistors, Military / Established Reliability, MIL-PRF-39017 Qualified, Type RLR




[RLR](#)

- Epoxy-coated construction provides superior moisture protection
- Very low noise (-40 dB)

DIODES

Small-Signal Zener Diodes




[1N5235B](#)

- Standard Zener voltage tolerance is ± 5 %
- AEC-Q101 qualified

INDUCTORS

Low-Profile, High-Current IHLP® Inductors



[IHLP-2525CZ](#)

- Compact, high-current power inductor for DC/DC conversion, filter applications
- High-frequency operation up to 5 MHz, high-temperature and gold terminations available

CERAMIC CAPACITORS

Body Sizes: 0402 to 3838, Excellent Power Handling Capabilities



[MLCC RF Capacitors](#)

- Non-magnetic available with copper or epoxy bondable termination
- Lead-bearing termination available for high-reliability applications

RESISTORS

QPL MIL-PRF-55342-Qualified Thin Film Resistor, Surface-Mount Chip




[M55342](#)

- Case sizes 0201 to 2512 with reliability level T (space level) available
- Both short-side and long-side terminations available

TANTALUM CAPACITORS

Solid Tantalum Surface-Mount Capacitors, TANTAMOUNT®, Military MIL-PRF-55365/4 Qualified




[CWR06](#)

- MIL-PRF-55365 established reliability failure rate style
- High capacitance, conformal coated, 8 case sizes

MELF RESISTORS

MELF Resistors with Established Reliability




[MM...VG03](#)

- Approved to EN 140401-803, version E, single lot date code
- Established reliability, failure rate level E6, advanced thin film technology

RESISTORS

Wirewound Resistor, Military / Established Reliability, MIL-PRF-39007 Qualified Type RWR



[RWR](#)

- High energy pulse capability, all welded construction, “S” failure rate
- Non-inductive Ayrton-Perry winding available, high-temp. silicone coating

RESISTORS

Thick Film Resistor Networks, Military, MIL-PRF-83401 Qualified, Type RZ030, Flat Pack



[DFM](#)

- 0.065 in (1.65 mm) height for high-density packaging

View datasheets for these products www.vishay.com/ref/et3as1b

Flight Control Computers



RESISTORS

CECC High-Precision Wraparound Thin Film Chip Resistors



[RV \(0503 to 1206\) / P \(0302 to 2512\)](#)

- Low TCR down to 5 ppm/°C (-55 °C to +155 °C), tight tol. down to 0.01 %
- Sulfur resistant, failure rate E7 level, from 10 Ω up to 200 MΩ

DISPLAYS

High-Quality Displays Offer Excellent Human-to-Machine Interface Solutions



[LCD, Color TFT, OLED](#)

- Standard and custom display / modules for flight control and monitoring
- High-brightness options for LCD, OLED, and color TFT

NON-LINEAR RESISTORS

NTC Thermistors, SMD 0603 Chip



[NTHS0603N03N1001JE](#)

- Standard series
- Glass protected

INDUCTORS

Custom Magnetics



- Custom designed to customer requirements, focus on reliability and performance
- Internal test lab can perform almost any electrical and environment test

RECTIFIERS

Surface-Mount Schottky Barrier Rectifier

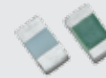


[SS32HE3](#)

- Low-profile package ideal for automated assembly process
- Low power losses, high efficiency

RESISTORS

QPL MIL-PRF-55342-Qualified Thin Film Resistor, Surface-Mount Chip



[M55342](#)

- Case sizes 0201 to 2512 with reliability level T (space level) available
- Tantalum nitride and nichrome resistive film available

INDUCTORS

MIL-PRF-15305 Qualified, Type LT, Molded Axial Leaded Inductors



[MS7508x](#)

- Axial inductors for RF filter applications

NON-LINEAR RESISTORS

SMD PTC – Nickel Thin Film Linear Thermistors



[TFPT](#)

- Standard R_{25} tolerances of $\pm 0.5 \%$, $\pm 1 \%$ available
- cUL-recognized component: file E148885

DIODES

6-Line ESD Protection Diode Array in LLP75



[VESD05A6A-HAF](#)

- 6-line ESD protection
- Low load capacitance $C_D = 40 \text{ pF}$

INDUCTORS

Inductors, Military, MIL-PRF-15305 Qualified, Type LT, Molded, Shielded, Miniature, Axial Leaded



[MS21426](#)

- Axial inductors for RF filter applications

TANTALUM CAPACITORS

SuperTan® Wet Tantalum Capacitors with Hermetic Seal

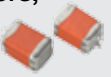


[ST / STE](#)

- Extended capacitance, $6 V_{DC}$ to $125 V_{DC}$, -55 °C to $+125 \text{ °C}$ operation
- Axial leaded, industry-standard case sizes (T1, T2, T3, T4)

TANTALUM CAPACITORS

Solid Tantalum Chip Capacitors, TANTAMOUNT®, Hi-Rel COTS, Ultra-Low ESR



[T97](#)

- High-capacitance, high-voltage tantalum capacitors with low ESR and low ESL
- Hi-rel screening in accordance with MIL-PRF-55365

View datasheets for these products
www.vishay.com/ref/et3as1c



Cockpit Panels



MOSFETs

N-Channel 100 V (D-S) MOSFET




[SiS892ADN](#)

- Medium-voltage ThunderFET® technology, maximum $R_{DS(on)}$ down to 33 mΩ
- Thermally enhanced PowerPAK® 1212-8 is 1/3 the size of an SO-8

DISPLAYS

High-Quality Displays Offer Excellent Human-to-Machine Interface Solutions



[LCD, Color TFT, OLED](#)

- Standard and custom display / modules for flight control and monitoring
- High-frequency operation up to 5 MHz, high temperature available

RESISTORS

Leaded Metal Film Resistors with Established Reliability




[MB / SMA VG06](#)

- IECQ-CECC approved to EN 140101-806, version E, est. reliability, level E7
- Advanced thin film technology, fused pure tin (Sn) plating on copper (Cu) wire, single lot date code

RESISTORS

Power Metal Strip® Resistors, Low Value (Down to 0.0005 Ω), Surface-Mount




[WSL2512](#)

- Extremely low resistance values from 0.0005 Ω to 0.5 Ω and tolerance of 1 %
- High power of 1 W in 2512 size resistor

RESISTORS

Long-Life Cermet Potentiometer




[P11L](#)

- Long life of 2M cycles, 12.5 mm square single-turn panel control, versatile options
- Compliant to RoHS, tested according to CECC, value added and customs available

RESISTORS

QPL MIL-PRF-55342-Qualified Thin Film Resistor, Surface-Mount Chip




[M55342](#)

- Case sizes 0201 to 2512 with reliability level T (space level) available
- Tantalum nitride and nichrome resistive film available

CERAMIC CAPACITORS

MIL-PRF-55681-Qualified Facility, BP, BR, and BX dielectrics




[DSCC](#)

- Multiple screening options (group A, group C, voltage conditioning) available
- Lead (Pb)-free termination code “M”, tin / lead termination code “Z”

INDUCTORS

Low-Profile, High-Current IHLP® Inductors




[IHLP-6767GZ](#)

- Very high current SMD inductor for DC/DC conversion and filtering
- High-frequency operation up to 5 MHz, high temperature available

RECTIFIERS

High-Performance Schottky Rectifier, 8 A



[8TQ100SPBF](#)

- 175 °C T_j operation
- AEC-Q101 qualified and halogen-free

MOSFETs

N-Channel 400 V (D-S) Power MOSFET



[IRF740AS](#)

- Rugged planar technology, maximum $R_{DS(on)}$ 550 mΩ
- Popular D²PAK packaging, maximum continuous current of 10 A

TANTALUM CAPACITORS

Solid Tantalum Chip Capacitors, MICROTAN®, High Reliability, Low DC Leakage



[TM8](#)

- Hi-rel devices with maximum capacitance in case sizes as small as 0402
- Hi-rel screening in accordance with MIL-PRF-55365

MELF RESISTORS

Hi-Rel Thin Film MINI-MELF Resistors




[MS1...ESCC](#)

- ESA approved to ESCC 4001/022, high-reliability product
- Advanced thin film technology, SnPb plating with Pb content > 6 %


View datasheets for these products www.vishay.com/ref/et3as1d

Braking Systems




RESISTORS
High-Stability, High-Temperature 230 °C Thin Film Wraparound Chip Resistors 
[PHT](#)


- Operating temp. up to 215 °C, low TCR down to 15 ppm/°C (-55 °C to +215 °C)
- Sulfur resistant, from 10 Ω up to 7.5 MΩ, tight tolerance down to 0.05 %

INDUCTORS
MIL-PRF-15305 Qualified, Type LT, Molded Axial Leaded Inductors 
[MS7508x](#)


- Axial inductors for RF filter applications

TANTALUM CAPACITORS
Wet Tantalum Capacitors, Tantalum Case with Glass-to-Tantalum Hermetic Seal 
[135D](#)


- High capacitance, 6 V to 125 V, -55 °C to +200 °C operation, high vibration
- Axial leaded, industry-standard case sizes (T1, T2, T3, T4)

INDUCTORS
Inductors, Military, MIL-PRF-15305 Qualified, Type LT, Molded, Shielded, Miniature, Axial Leaded 
[MS21426](#)


- Axial inductors for RF filter applications

RESISTORS
Thick Film Resistor Networks, Military, MIL-PRF-83401 Qualified, Type RZ030, Flat Pack 
[DFM](#)


- 0.065 in (1.65 mm) height for high-density packaging

TANTALUM CAPACITORS
SuperTan® Wet Tantalum Capacitors with Hermetic Seal 
[ST / STE](#)


- Extended capacitance, 6 V_{DC} to 125 V_{DC}, -55 °C to +125 °C operation
- Axial leaded, industry-standard case sizes (T1, T2, T3, T4)

CERAMIC CAPACITORS
MIL-PRF-55681-Qualified Facility, Cage Code SHV71BP, BR and BX Dielectrics 
[CDR](#)

- Tin / lead termination codes “Z” and “U”
- Lead (Pb)-free termination codes “W,” “Y,” and “M”

INDUCTORS
Custom Magnetics 

- Custom designed to customer requirements, focus on reliability and performance
- Internal test lab can perform almost any electrical and environment test

RESISTORS
Wirewound Resistors, Military / Established Reliability MIL-PRF-39009 Qualified, Type RER, R Level 
[RER](#)

- Heat sink / chassis mount, rated power up to 30 W, all welded construction
- Aluminum housing, molded construction for total environmental protection


View datasheets for these products
www.vishay.com/ref/et3as1e

UAVs (Unmanned Aerial Vehicles) / Drones

SENSORS

Precision Rotative Transducers, Conductive Plastic, Servo Mounting

[ROT SF](#)



- 8 diameters from 19 mm to 76 mm, redundant signals, tight linearity down to $\pm 0.015\%$
- Excellent repeatability, lifespan up to 50M cycles, low current consumption

RESISTORS

QPL MIL-PRF-55342-Qualified Thin Film Resistor, Surface-Mount Chip




[M55342](#)

- Case sizes 0201 to 2512 with reliability level T (space level) available
- Tantalum nitride and nichrome resistive film available

DISPLAYS

High-Quality Displays Offer Excellent Human-to-Machine Interface Solutions




[LCD, Color TFT, OLED](#)

- Standard and custom display / modules for flight control and monitoring
- High-brightness options for LCD, OLED, and color TFT

TANTALUM CAPACITORS

SuperTan® Wet Tantalum Capacitors with Hermetic Seal




[ST / STE](#)

- Extended capacitance, $6 V_{DC}$ to $125 V_{DC}$, $-55\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$ operaton
- Axial leaded, industry standard case sizes (T1, T2, T3, T4)

MOSFETs

N-Channel 35 V (D-S) MOSFET




[2N6659, 2N6659-2](#)

- Military qualified, low on-resistance: $1.3\ \Omega$, low input and output leakage
- Low threshold: 1.7 V, low input capacitance: 35 pF, fast switching speed: 8 ns

CERAMIC CAPACITORS

MIL-PRF-55681-Qualified Facility BP, BR and BX Dielectrics



[DSCC](#)

- Multiple screening options (group A, group C, voltage conditioning) available
- Lead (Pb)-free termination code "M", tin / lead termination code "Z"

MELF RESISTORS

Hi-Rel Thin Film MINI-MELF Resistors



[MS1...ESCC](#)

- ESA approved to ESCC 4001/022, high-reliability product
- Advanced thin film technology, SnPb plating with Pb content $> 6\%$

TANTALUM CAPACITORS

Solid Tantalum Chip Capacitors, TANTAMOUNT®, Hi-Rel COTS, Ultra-Low ESR




[T97](#)

- High-capacitance, high-voltage tantalum capacitors with low ESR and low ESL
- Hi-rel screening in accordance with MIL-PRF-55365

MELF RESISTORS

MELF Resistors with Established Reliability



[MM...VG03](#)

- Approved to EN 140401-803, version E, single lot date code
- Established reliability, failure rate level E6, advanced thin film technology

View datasheets for these products
www.vishay.com/ref/et3as1f



Vishay Intertechnology, Inc.



A *WORLD OF*
SOLUTIONS