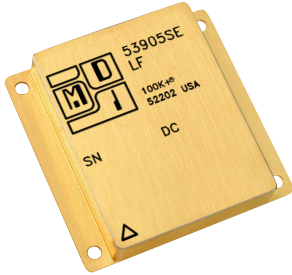


# Model 53905

## Battery Charger DC-DC Converter



This 100 watt DC-DC converter operates from a nominal 28 VDC bus and delivers an isolated and user adjustable 20 VDC to 36 VDC output to charge a Lithium Ion Battery. Other uses include RF Amplification, Capacitor Charging, Electric Propulsion or any other use where a wide adjustable output range is needed.

The output voltage command is referenced to the output side. 1 VDC commands 20 VDC output. 3.3 VDC commands a 36 VDC output.

### Features:

- Output voltage user controlled from 20 to 36 VDC
- Rad Hard, TID>100 kRads(Si)
- GaN HEMT design
- No SEE LET > 82MeV\*cm<sup>2</sup>/mg
- Proton resistant Magnetic coupled feedback design
- Specifically designed for Lithium Ion battery charging
- Hermetic thick film hybrid construction
- No external filter capacitors needed
- Fully Input/Output isolated
- "inhibit not" function
- Turn on soft start
- Built in EMI Filter meets MIL-STD-461C
- Short circuit and overvoltage protectopn
- External sync and BIT pin

### Specifications:

#### Input:

Input voltage 28 VDC nominal  
Range 20 VDC to 45 VDC

#### Output:

20 VDC ±0.5 VDC with 1 VDC command  
36 VDC ±0.5 VDC with 3.3 VDC command  
Delivers 100 watts at 36 VDC  
Maximum Output Current 2.77A  
Ripple 100 mV p-p typical,  
300 mV p-p maximum at 36 VDC  
Ripple 50 mV p-p typical,  
200 mV p-p maximum 20 VDC

#### Isolation:

Input to case: 500 VDC  
Input to output: 500 VDC  
Output to case: 100 VDC

#### Environment:

Storage temperature: -55°C to +150°C  
Shock: 50G's  
Acceleration: 500G's  
Vibration: 30G's

#### Grades EU, L, & S:

Full Power Output at T<sub>case</sub> = +85°C  
Lineary derates to zero at T<sub>case</sub> = +115°C

#### Grades LE & SE:

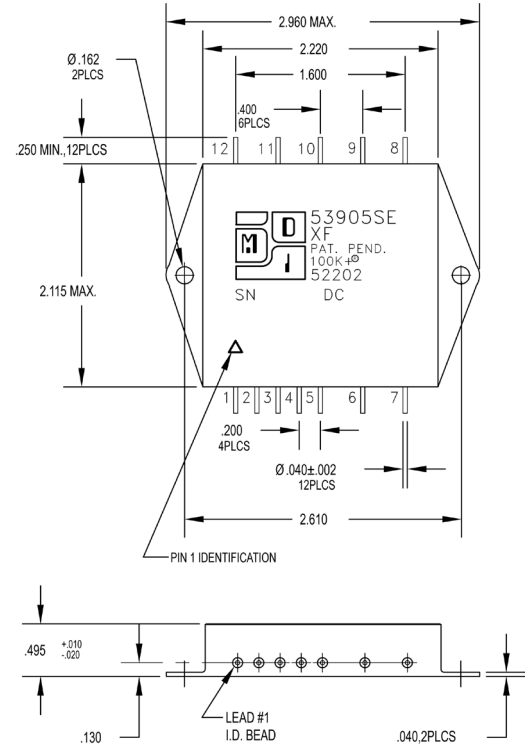
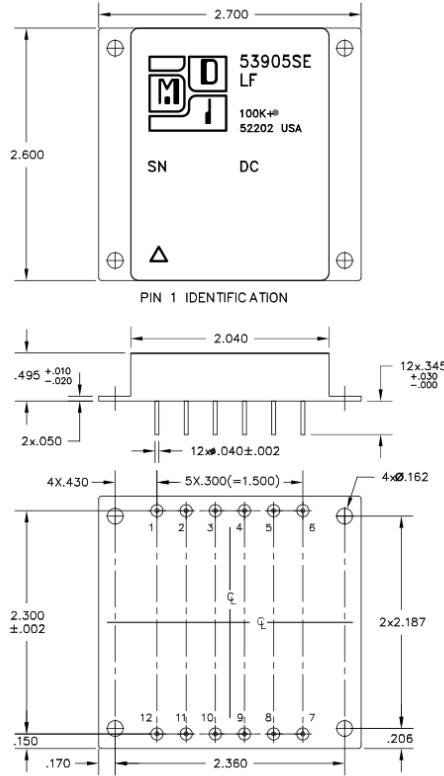
Full Power Output at T<sub>case</sub> = +125°C  
Lineary derates to zero at T<sub>case</sub> = +135°C

#### Grades L & LE:

TID up to 45kRad(Si)  
No SEE up to 60MeV\*cm<sup>2</sup>/mg

#### Weight:

160 grams typical



TOLERANCES: Drawings in Inches. All dimensions ±0.01 except F = max, C = +0.01/-0.020. For Custom Packages, Contact MDI Engineering

Pin #	Designation
1	BIT
2	Inhibit-Not
3	Soft Start
4	Sync
5	Program: 1VDC to 3.3VDC
6	Input Return
7	+20VDC – 45VDC Input
8	N/C
9	N/C
10	Positive Output
11	N/C
12	Output Return

Similar Models available for 28, 50, 70 and 100VDC Bus Voltage.



**Modular Devices, Inc.**  
Power Conversion for Space and Military/Aerospace

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