

Communications & Power Industries - Tracking Radar Transponders

The ultra-miniature, solid-state, lightweight transponder is designed for use as a tracking radar enhancement device in airborne applications such as missiles, unmanned air vehicles or manned aircraft operating at instrumented ranges.

CPI radar transponders are traditionally used by the manufacturers of target drones, missiles and test range operators where a common standard is desired. They provide a safe environment for equipment development trials and in-service training exercises. CPI Transponders provide a real-time solution that enhances any object's radar signature.



The 248G ultra-miniature, solid-state lightweight transponder

FEATURES:

- Single antenna port for receive and transmit
- Transmit and receive frequencies preset within the 5.4 to 5.9 GHz band
- Synthesised transmit frequency source
- Typical transmitter peak power of 25 W
- Sensitive receiver, versions up to -60 dBm
- Preset single or double pulse code setting
- Displacement volume of 94 cm³ / 5.7 in³
- Typical weight of 200 g / 7.1 oz
- Operates from unregulated 28 VDC

Specification

Receiver

Type	RF amplifier
Frequency range	5400 to 5900 MHz
Tuning	Preset to a specified frequency via a two-port preselector filter
Duplexer	Circulator
Sensitivity	-55 dBm min. at 90 % reply -60 dBm typical
Max. signal input	+20 dBm (Pulse interrogation) +15 dBm CW
Stability	± 2 MHz
Bandwidth (3 dB)	>10 MHz
Bandwidth (40 dB)	<120 MHz
Pulse width	0.3 to 1.0 μ s
Interrogation mode	Preset to either Single-pulse or double-pulse
Double-pulse range	3.0 to 12.0 μ s Preset to a specified value
Double pulse accept	± 150 ns
Double pulse reject	± 300 ns
False triggers	10 Hz max

Transmitter

Type	PLL Solid-state
Frequency range	5400 to 5900 MHz
Tuning	Preset to a specified frequency
Stability	± 1 MHz
Peak power	20 W min
Pulse width	500 ns nominal
Spectral purity	Amplitude of 1st lobe ≤ -9 dB Depth of the 1st null ≤ -14 dB

Repetition rate	Preset up to 4 KHz (2500 Hz standard)
Recovery time	< 25 μ s
Delay range	2.0 To 15.0 μ s Preset to a specified value
Delay variation	< ± 50 ns (0 dBm to -40 dBm)
Jitter at -40 dBm	< 25 ns p to p (0 dBm to -40 dBm)

Power Requirements

Voltage	28 VDC range 20 - 32 VDC
Current at 28 V (standby)	45 mA max. 37 mA typical
Current at 28 V (at 1 KHz)	60 mA max. 52 mA typical
Current at 28 V(at 2.5KHz)	80 mA max. 68 mA typical

Mechanical

Displacement volume	94 cm ³ / 5.7 in ³ (Transponder chassis)
Form	Rectangular
Dimensions	8.1 cm x 5.3 cm x 2.7 cm Ref. outline datasheet 2095
Weight	200 g / 7.1 oz nominal

Connectors

Antenna	SMA female (OSM 208A)
Power	MS27476Y8E35P, standard

Environmental

Operating temperature -40° C to +80° C

Storage temperature -40° C to +85° C

Altitude Unlimited

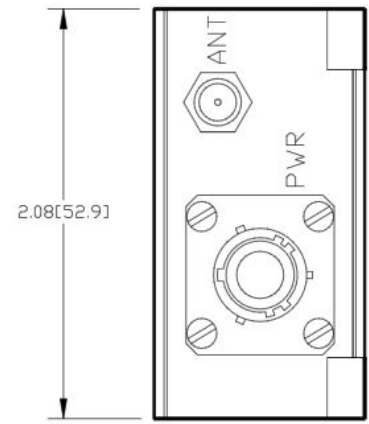
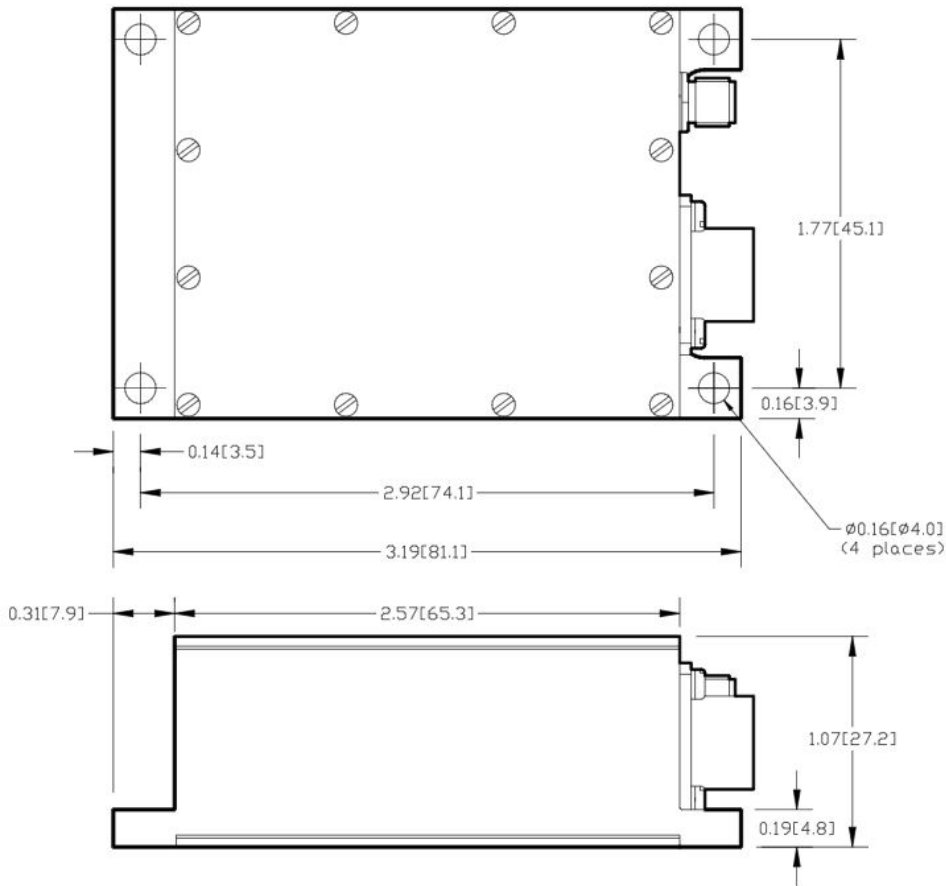
Shock 100 g for 6 ms half sine,
each direction on each axis

Vibration 100 to 1000 Hz, 16g rms

Humidity 100%, condensing

Acceleration 30 g applied
along any axis for 1 minute

RFI/EMI Designed to meet
MIL-STD-461B Class A1a



All dimensions in inches [mm].
Drawing not to scale.