

ARMORCELL

SOLAR MODULES

The ARMORCELL advantage

Unmatched durability

ETFE top layer withstands hail, foot traffic, extreme heat and deep cold. No cracking. No delamination. No compromise — rated for -40°F to +185°F operating range.

Superior shade performance

CIGS thin-film generates power in overcast, diffuse, and partial-shade conditions where crystalline silicon panels stall. More solar harvest. Every day.

Built for mobile life

Flexible enough for curved roofs. Sealed to IP68. Low-profile, adhesive-mount design fits vehicles, vessels, and trailers where rigid glass panels simply can't.

Materials matter

See how our panels stack up to flexible and rigid monocrystalline

FEATURE	ARMORCELL	FLEX MONO	RIGID MONO
Strong solar cells	✓	×	×
IP68 rating	✓	IP65-67	IP65-67
Walkable surface	✓	×	×
Hail-proof	✓	×	Limited
20 years delamination-free	✓	Reduced lifespan	Glass-sealed
Curved roof mount	✓	Limited	×
Low-light output	★★★	★★☆	★★☆
Bends when cold without cracking	✓	Limited	×

Top layer armor

Our ETFE fluoropolymer vs. PET polyester film

UV transparent — doesn't degrade

ETFE passes UV without absorbing it. Maintains 90%+ light transmission after 20+ years in the field.

Budget panels: UV absorption causes micro-cracking within 3-5 years

Near-zero moisture permeability

Protects the adhesive interface, eliminating the hydrolysis that drives delamination.

Budget panels: Moisture permeates and edge delamination bubbles appear within 3-5 years of harsh-environment use

Flexes under impact — doesn't shatter

Absorbs IK10 (20J) strikes. Returns to shape. No subsurface delamination bubbles.

Budget panels: Brittle impact response, failing IK07 and below

-40°F to +185°F operating range

Matched thermal expansion with CIGS stack — no interfacial stress during thermal cycling.

Budget panels: Thermal cycling fatigues the bond

Purpose-built applications



Emergency

Proven durability & battery health

Ambulances · Fire apparatus
Police vehicles



RV & van

Silent power & walk-on capable

Curved roofs
Off-grid vehicles



Marine

Saltwater-proof & deck-flush mount

Offshore boats · Cruisers
Liveaboards · Runabouts



Equestrian

Texas heat-proven

Curved roof horse trailers

Estimated service life

In a mobile/harsh environment

ARMORCELL

10-20 years

PET THIN-FILM

3 years

FLEX MONO

5-8 years

PET delamination typically begins at edges within 36 months under ambulance / marine roof conditions.

Bend profile

Curved roof compatibility

ARMORCELL

5" min radius

FLEX MONO

18" min

>30° = microcracks

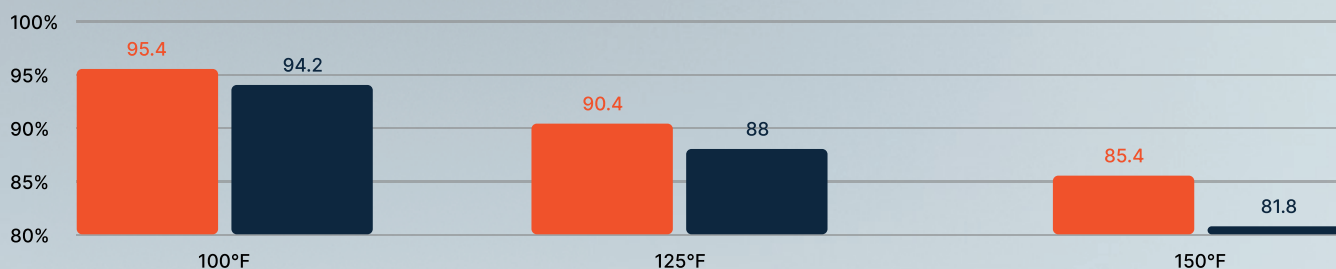
RIGID MONO

No flex – cracks

ArmorCell's 5" radius fits any curved mobile surface. Flex mono's 18" minimum and 30° bend limit causes microcracks and cell failure on most RV end-caps and horse trailer roofs.

Output vs. panel temperature (% of rated power)

ARMORCELL MONO PERC



At 150°F, ArmorCell retains 85.4% vs. 81.8% for Mono PERC. Coefficients: CIGS $-0.36\%/^{\circ}\text{C}$, Mono PERC $-0.45\%/^{\circ}\text{C}$ (STC = 77°F).

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by **CHARGE+SYS**

www.chargesys.solar