

Automotive-grade 1200 V, 30 & 60 A standard diodes for input bridge circuits



These 1200 V automotive-grade standard rectifiers make input Bridges more efficient thanks to its low forward voltage drop

Available in a DO-247, high power package, the STBR3012WY and STBR6012WY automotive-grade rectifiers are suitable for automotive input bridges in stationary and on-board battery chargers.

Based on 1500 V technology, these 1200 V diodes offer superior performance in forward voltage drop (typical $V_F = 0.95$ V at $I_0 / 150$ °C), surge current handling and high-surge voltage withstanding capability ($V_{RSM} = 1500$ V).

They make AC/DC converters safer by limiting the inrush current when combined with TN3050H-12WY or TN5050H-12WY thyristors.

KEY FEATURES

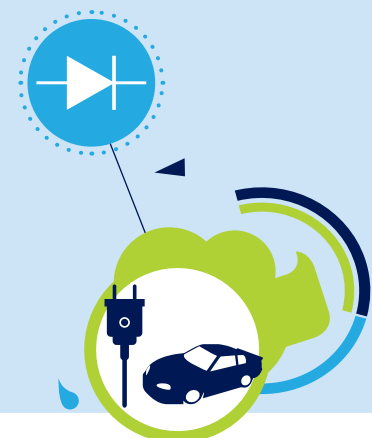
- Ultra-low forward voltage drop
- Ultra-low leakage current
- V_{RRM} guaranteed from -40 to +175 °C
- V_{RSM} guaranteed up to 1500 V
- AEC-Q101 qualified
- PPAP capable
- ECOPACK®2 component

KEY BENEFITS

- Reduces conduction losses
- Reduces reverse losses
- Provides high-quality performance
- Limits inrush current when associated with SCRs

KEY APPLICATIONS

- Automotive input bridges
 - On-board battery chargers
 - Stationary battery chargers



STEVAL-ISF003V1 EVALUATION BOARD

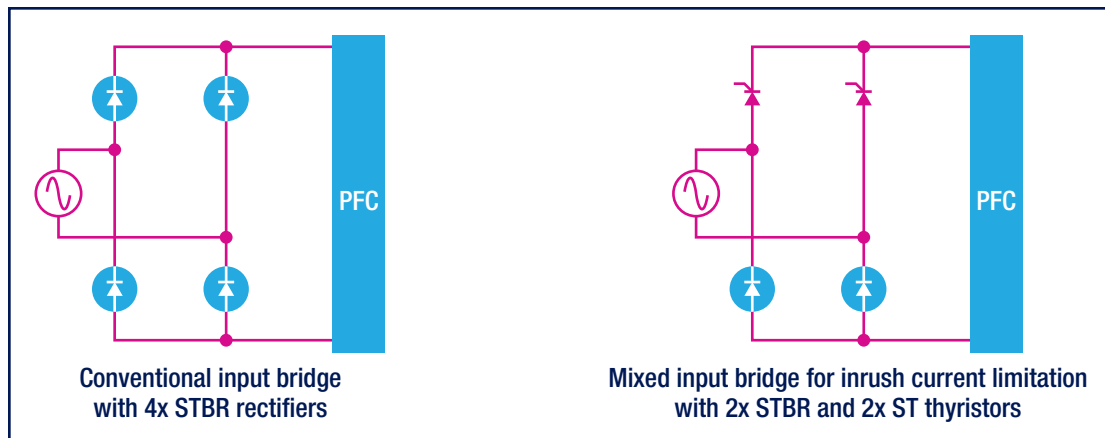
Try STBR diodes in low standby losses power front-end with inrush current limitation

The STEVAL-ISF003V1 evaluation board limits the inrush current charging a DC bus capacitor to comply with IEC 61000-3-3 standards. This inrush current limitation is based on a soft-start procedure of the mixed bridge with STBR6012WY diodes and SCR rectifiers using progressive phase control at board start-up.

This solution drastically reduces standby losses as the DC bus can be totally disconnected from the AC mains when it does not have to operate. DC bus deactivation is simply achieved by turning off the SCRs, without requiring an additional relay to open the circuit in standby.

The steady-state losses are also reduced, thanks to the removal of the NTC / PTC resistor traditionally used to limit the inrush current, which in turn removes the need for a relay to bypass it.

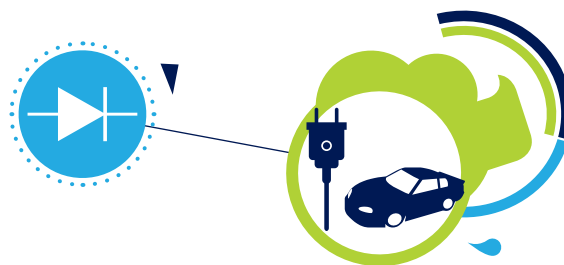
BLOCK DIAGRAM



Note: For designs combined with a thyristor, Application Note AN4606 provides additional information about the inrush current limiter function on st.com

PRODUCT PORTFOLIO OFFER

Part number	Current rating (A)	Voltage rating (V)	Packages	Associated SCR for mixed input bridge
STBR3012WY	30	1200	D0-247	TN3050H-12WY
STBR6012WY	60	1200	D0-247	TN5050H-12WY



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