Fast, convenient frozen food thawing that helps reduce home food waste

NXP Smart Defrost Application Reference Design

The NXP smart defrost application reference design consists of a group of sub-systems that provides the necessary functions required for fast, automated thawing of frozen foods. The reference design enables kitchen appliance OEMs to quickly adopt and integrate smart defrost functionality into their own end products.

CONSUMER BENEFITS

- Fast thawing for maximum convenience
- Ease of use with auto stop feature
- Thaws to an even temperature throughout
- Minimizes moisture and drip loss
- Helps reduce food waste with on-demand thawing

OEM BENEFITS

- Reduced time-to-market
- Programmable power for defrost operation and time
- Integrates into various kitchen appliance formats
- API simplifies communicating with appliance controller
- All solid state design for consistent and reliable operation

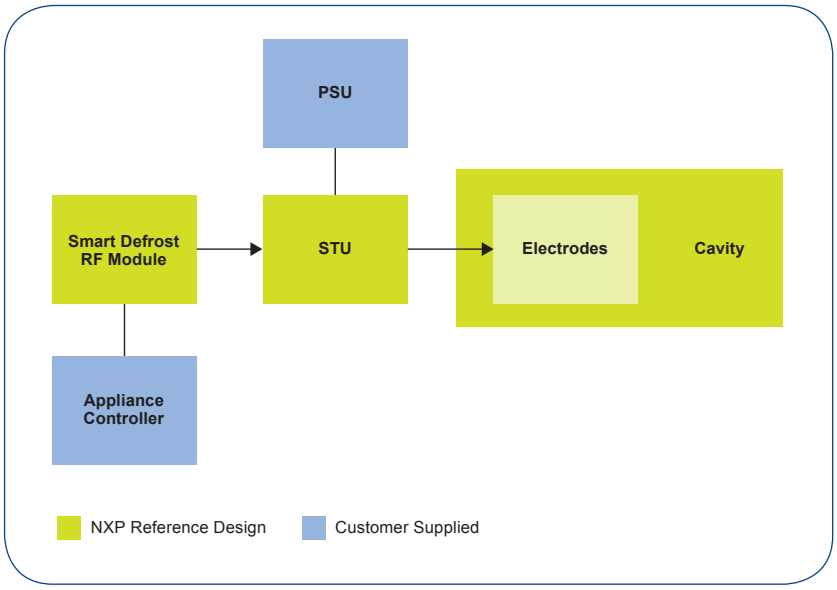
FEATURES

- Auto stop
- Temper or thaw presets
- Programmable for OEM defined recipes
- Programmable power levels
- Adaptive feedback functionality
- Integrated fault detection
- API for host appliance integration

TARGET APPLICATIONS

- Consumer kitchen appliances
- Commercial kitchen appliances

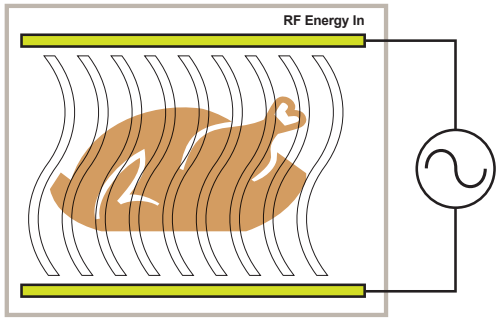
SMART DEFROST REFERENCE DESIGN BLOCK DIAGRAM



FEATURES

- PSU – power supply converts mains power to useable DC voltages. (Customer supplied)
- Smart Defrost RF Module – creates the warming energy used to raise food temperature
- Smart Tuning Unit (STU) – intelligently optimizes operation based on properties of food in the defrost chamber
- Electrodes – provide the delivery of energy into the defrost cavity
- Cavity – shielded, enclosed space for defrosting the frozen food
- Appliance controller – main appliance control and user input interface. (Customer supplied)

NXP Smart Defrost Standalone Concept



HOW IT WORKS

- Low frequency electromagnetic waves pass completely through food
- Food absorbs energy passing through food, raising its temperature
- Food properties are continuously monitored and conditions adapted to maximize energy transfer to food

www.nxp.com/SmartDefrost

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