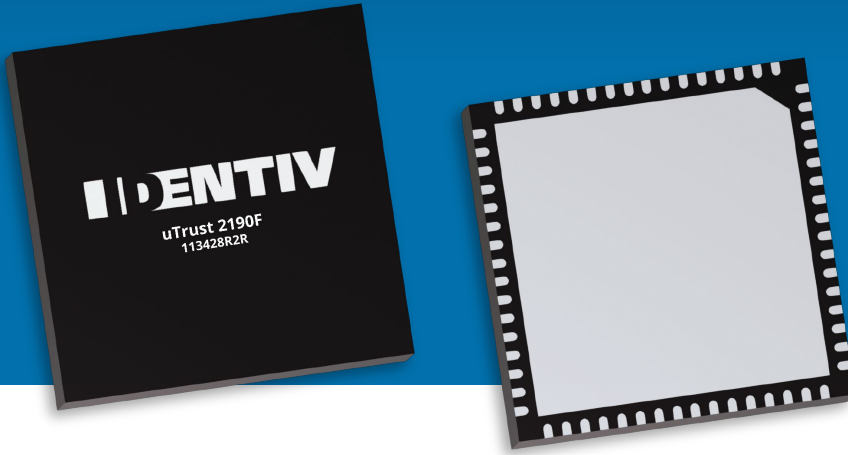


# uTrust 2190 F

## QFN64 Smart Card Reader Microcontroller



Hirsch's uTrust 2190 F is the small but mighty backbone of contact and contactless smart card readers and keyboards.

Hirsch's uTrust 2190 F Smart Card Reader Microcontroller is the market leading chip for keyboards and smart card reader integration and designs. Interface with a variety of smart card form factors. Fully Compliant with ISO/IEC 7816, EMV L1, and PC/SC Standards. Full Support of both T=0 and T=1 Synchronous/Asynchronous Protocols. Supports Class A, Class B, Class C. Hardware Watchdog, plus, Power-on Reset and Brown-out Detection.

Fully compliant ESD protection as per JESD22-A114D (March 2006) and JESD22-A115A "Machine Model" from AN1181 on card pins. 4kV on smart card pins and 1.5kV on remaining pins. Supports 3 single color LED ports to indicate keyboard functionality.

### Keyboard Interface

- 18 outputs and 8 inputs with Wake-Up on Key Pressed Event
- Microsoft Copilot supported
- Support Secure PIN Entry (SPE) on the numeric pad

### High Performance, Low Power

- 64K Bytes of In-System Programmable Flash with Endurance: 10,000 Write/Erase Cycles
- 4K Bytes EEPROM with Endurance: 100,000 Write/Erase Cycles
- 4K Bytes Internal SRAM

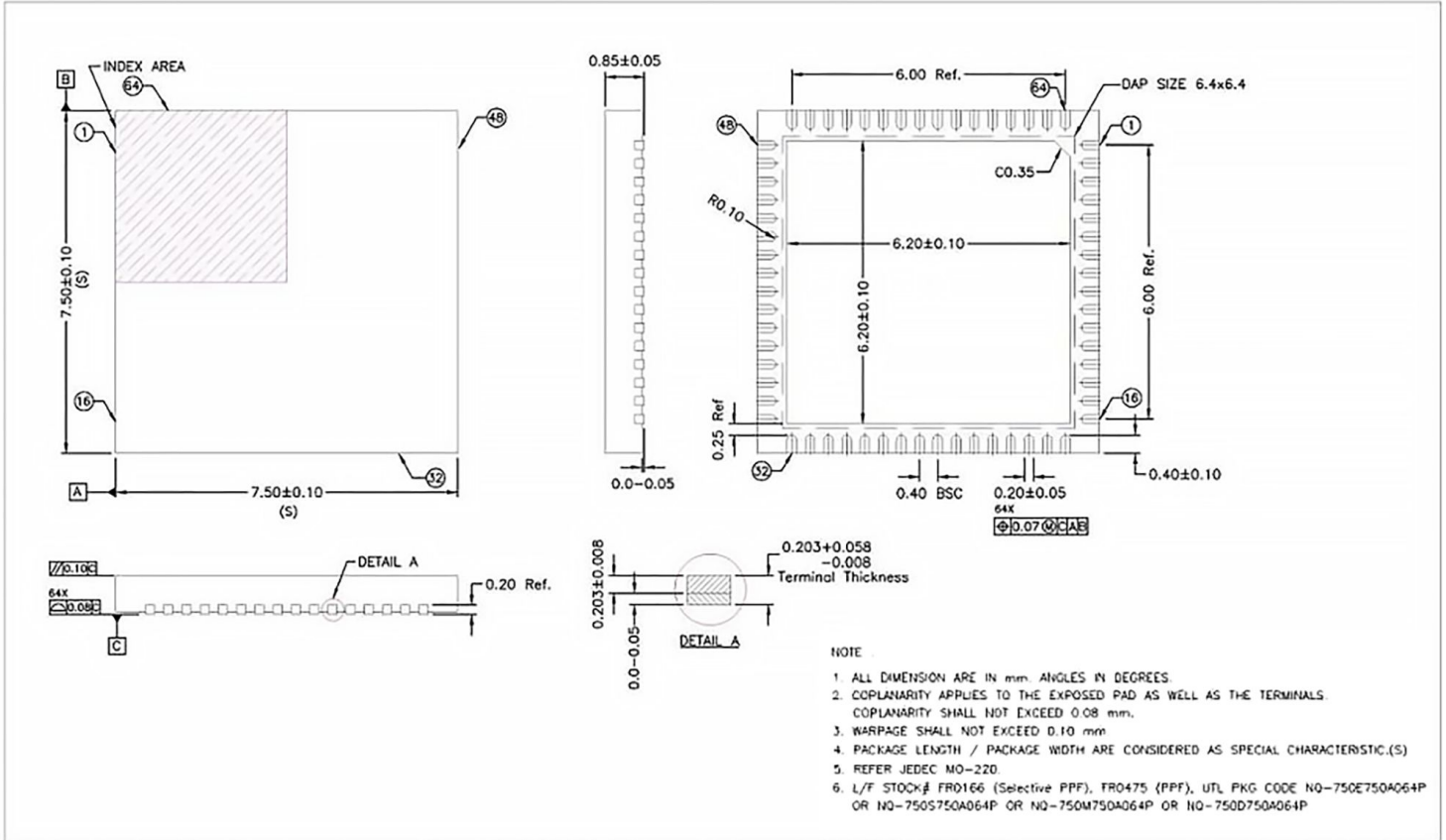
### UART Interface

- Programmable smart card clock from 1 MHz to 12MHz
- Card insertion/removal detection with automatic deactivation sequence

## Specifications

PARAMETER	
Storage Temperature	-65°C to 150°C
Operating Temperature	-40°C to 85°C (Ambient temperature in air)
5.0 V supply voltage	4.9V to 5.5V
Power consumption during operation (without smart card; LED)	< 10mA
Power consumption during suspend/standby	< 1mA
General	8 MHz crystal oscillator
	4 KV ESD (MIL/STD 833 Class 3) protection on Smart Card Interface
	1.5 KV ESD on keyboard interface pins
	WHQL certified driver
	64 QFN, 7.5x7.5 mm
	RoHS3 and REACH compliant
USB	CCID and HID interfaces
	Suspend/Resume/USB Reset Interrupts
	Remote Wake-up Support
	48 MHz internal clock
	Internal 1.5K pull up on DPLUS
	USB TID 40001509
Part Number	113428R2R

## Specifications



Pitch : 0.40 mm  
 Package size: 7.50mm x 7.50mm (tolerance  $\pm 0.10$ mm)  
 Lead size: 0.40mm (tolerance  $\pm 0.10$ mm)  
 DAP size: 6.40mm x 6.40mm  
 Exposed pad: 6.20mm x 6.20mm (tolerance  $\pm 0.10$ mm)