NXP contact smart card interfaces for PayTV

Contact reader ICs for PayTV from the world leader

These software-compatible smart card reader ICs, optimized for Pay TV applications, offer security and protection of the contact smart card on a single chip. They are ISO 7816 and NDS compliant, and support contact smart cards operating at 5, 3 or 1.8 V.

Key features

- ISO 7816 and NDS compliant
- Support 5, 3 and 1.8 V smartcards
- Security and protection on a single chip
- RoHS compliant packages
- One-slot interfaces

Applications

- Set-top boxes
- IPTV
- Digital TV
- DVD players & recorders
- Broadband access gateways

NXP, the world leader in contact reader ICs, supports the Pay TV market with a series of optimized solutions that deliver high-level protection to the smartcard and the system.

The TDA8024, TDA8034, and TDA8035 are low-cost, contact-based smartcard reader ICs that read the majority of viewing cards issued by broadcasters. They are NDS and ISO 7816 compliant, so they offer high levels of design flexibility and support all three levels of smartcard classes.

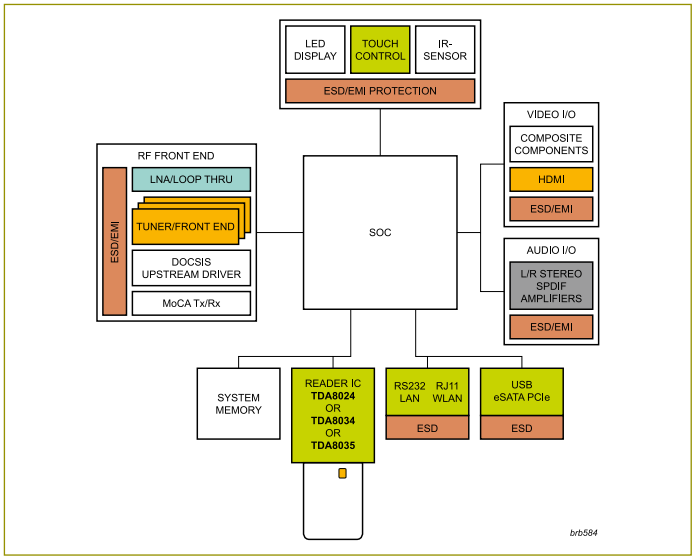
Designed for multiple regions, they support use worldwide. They consume less power than similar products in active and power-down modes, and require a minimum of external components.

The available supply voltage in the platform influences the device choice as some interface devices have an embedded DC/DC converter and other just a low drop output voltage regulator (LDO). In order to support a precise 5 V generation

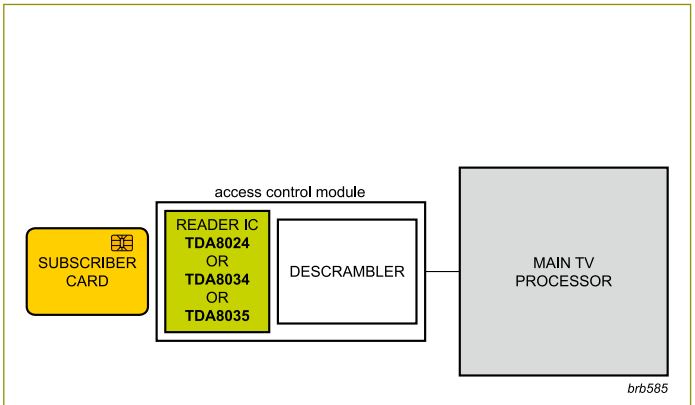
for the smart card operating in Class A, TDA8024 can be used when a minimum voltage of 4 V is present in the system, whereas TDA8035 can operate already from 2.7 V. The price competitive TDA8034 has only a LDO and needs a 5 V (-3% to +10%) minimum supply voltage.

NXP has shipped more than 500 million reader ICs and its product architecture has become the reference standard across the industry. NXP's strength in cryptography and security has enabled smartcard readers that support the high data rates and security required by advanced applications.

Application example: STB



Application example: TV



Selection guide

Feature	Condition	TDA8024T or TDA8024TT	TDA8034HN	TDA8034T	TDA8034AT	TDA8035HN
Package		SO28 or TSSOP28	HVQFN24	SO16	SO16	HVQFN32
Smartcard supply voltage		5, 3 V	5, 3,1.8 V	5, 3 V	5, 3 V	5, 3,1.8 V
Power block type		DC/DC	LDO	LDO	LDO	DC/DC
Supply voltage (power) V_{DDP}	V_{cc} = 5 V ±5%	4 to 6.5 V	4.85 to 5.5 V	4.85 to 5.5 V	4.85 to 5.5 V	2.7 to 5.5 V
	I_{cc} = 80 mA					
	V_{cc} = 5 V ±5%	3.3 to 6.5 V	4.85 to 5.5 V	4.85 to 5.5 V	4.85 to 5.5 V	2.7 to 5.5 V
	I_{cc} = 30 mA					
Supply voltage (interface V_{DDI})		2.7 to 6.5 V	1.6 to 3.6 V	1.6 to 3.6 V	1.6 to 3.6 V	1.6 to 3.6 V
Supply voltage (interface & or digital) V_{DD}		2.7 to 6.5 V	2.7 to 3.6 V	2.7 to 3.6 V	2.7 to 3.6 V	NA
Supervision of supplies		V_{DD}	V_{DDI} & V_{DD}	V_{DDI} & V_{DD}	V_{DDI} & V_{DD}	V_{DDI}, V_{DD}
Number of bidirectional IO lines		3	3	1	1	3
Number of presence detection pins		2 (PRES & PRESN)	1 (PRESN)	1 (PRESN)	1 (PRESN)	1 (PRESN)
Clock source		XTAL or external	XTAL or external	XTAL or external	XTAL or external	XTAL or external
Clock division ratio		1/2/4/8	1/2/4/8	2/4	1/2	1/2/4/8
Automatic shutdown mode		no	yes	yes	yes	yes
RST enabled in the activation sequence	activation sequence, t5	220 µs max	3.4 ms (wake-up time)	3.4 ms (wake-up time)	3.4 ms (wake-up time)	3.4 ms (wake-up time)
PORadj pin		yes	yes	no	no	yes
NDS certification		yes	yes	no	no	yes
EMV4.2 compliance		yes with filter on I/O line	yes	yes	yes	yes

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