



ST25DV-PWM product presentation





Main ST25DV-PWM market segments

Smart industry



Industrial lighting, motor control

Smart city



Street lighting, building lighting



ST25DV-PWM key use cases

Product configuration



- Parameter **settings**
- **Simple** and **flexible**

Servicing & maintenance



- **Update** parameter in the field
- **Easy to use** and **adaptable**



ST25DV-PWM in lighting market

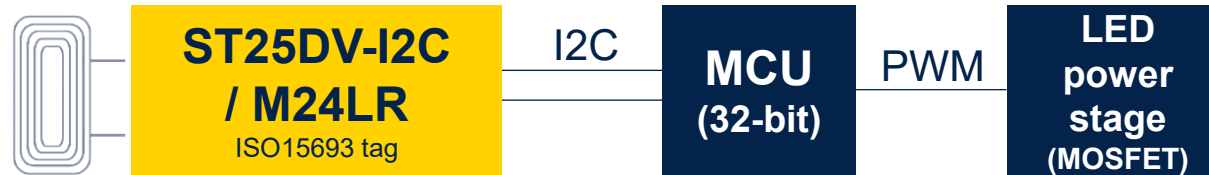
High-end segment

Previous



With MCU on board

New



Low-end segment

Previous



Without MCU on board

New





Typical NFC type 5 range

NFC phone



ISO15693 (26kb/s)



ST25DV-PWM

EEPROM

Up to 7 cm (3 in.)



RFID reader

ISO15693 (26kb/s)



ST25DV-PWM

EEPROM

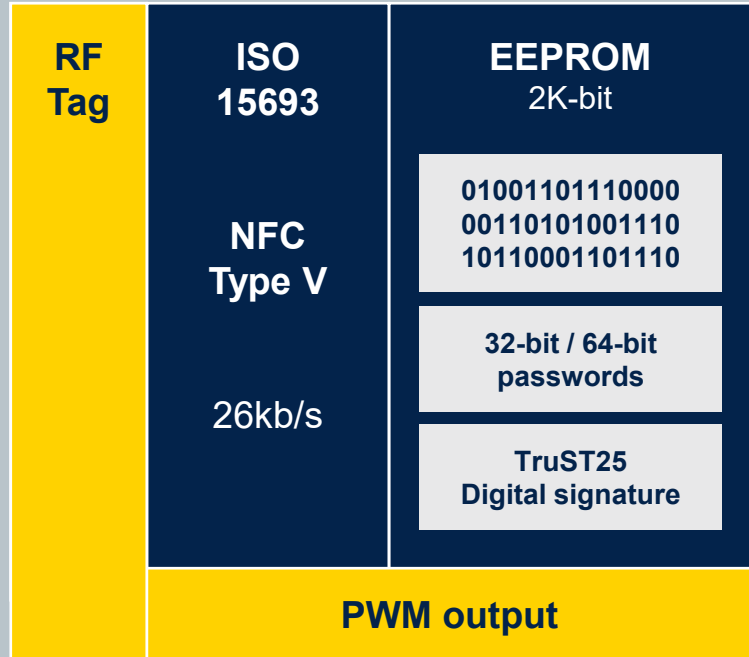
Up to 1 m (3 ft)



ST25DV-PWM dynamic NFC tag



ST25DV02K-W1 / -W2



SO8



TSSOP8

Use cases

- Targeted industrial applications such as lighting LED driver, motor control, power supply unit

Key features

- ISO15693 and NFC Type V
- 2K-bit memory
- Up to 2 PWM signal (push pull)
- Up to 15-bit resolution (62.5 ns resolution step)
- Power supply 1.8V - 5.5 V
- 40°C to +105°C (PWM) temperature range
- TruST25 digital signature

Key benefits

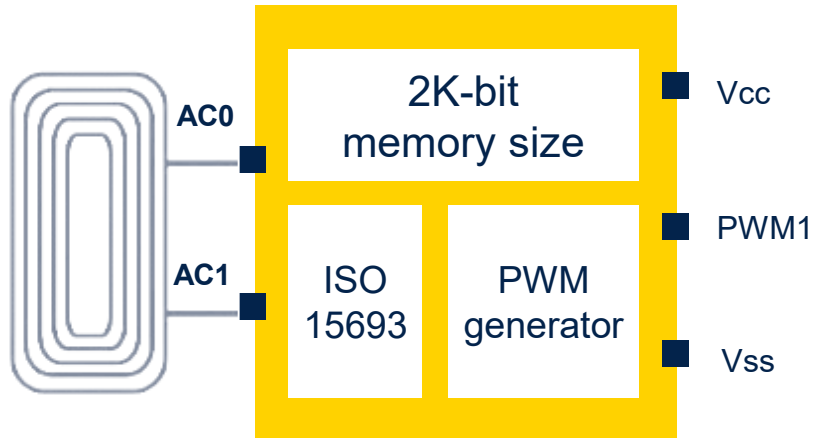
- 2-in-1 chip, putting NFC connectivity with PWM functionality
- Cost-optimized solution to address low end Lighting market
 - Significant BOM reduction as no MCU is required to drive the system





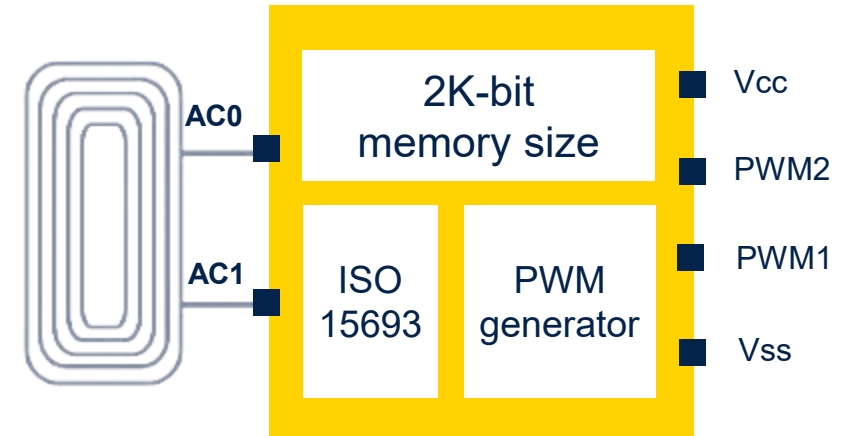
2 product options

1x PWM version

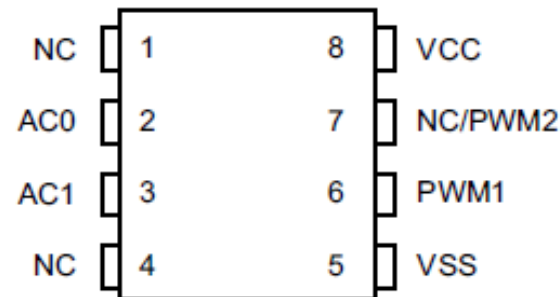


ICRef = 0x38 for 1x PWM

2x PWM version



ICRef = 0x39 for 2x PWM

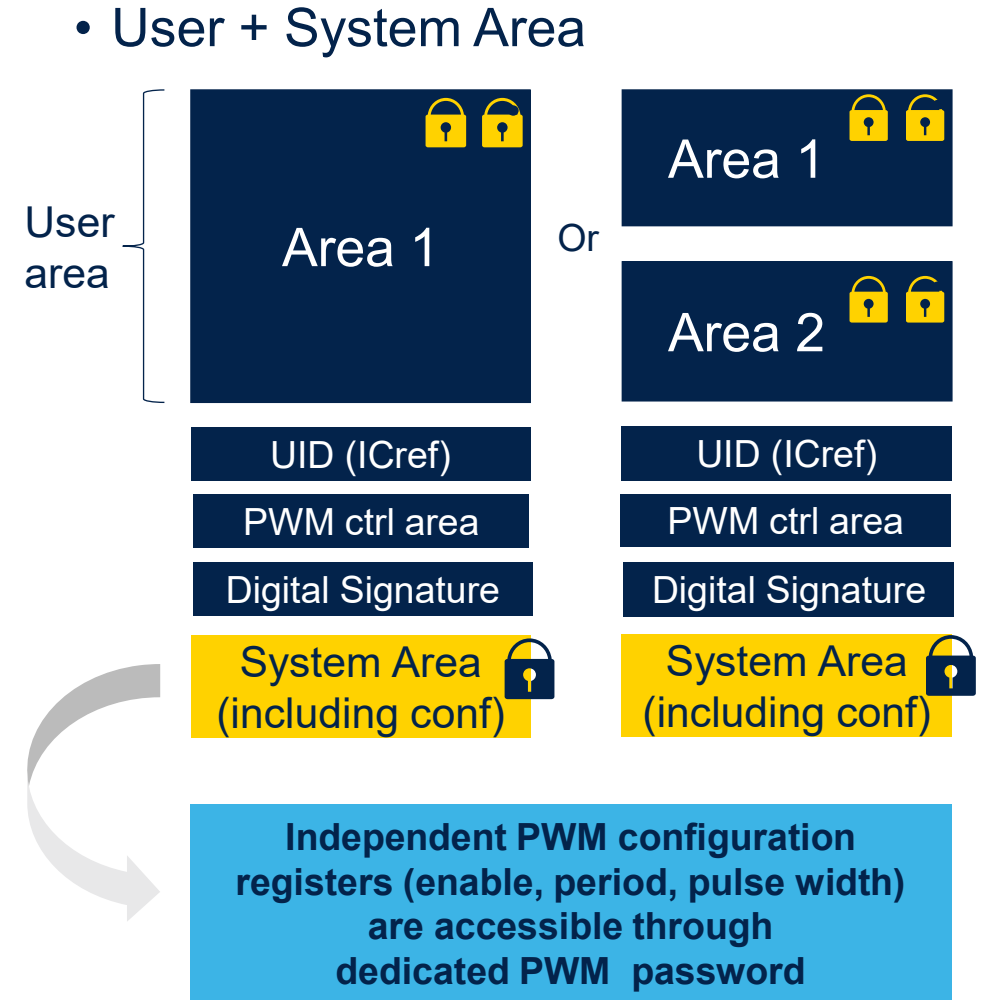


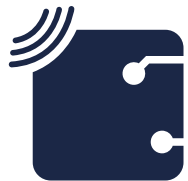
8-pin packages for both versions → pin to pin compatibility



Memory mapping & password management

- EEPROM density
 - 2k-bit
- User EEPROM area configurable in 1 or 2 areas
 - Each area is individually read-/write- protected by password command
 - **64-bit password 1 area**
 - **2x 32-bit password 2 areas**
- PWM control area
 - Individually read/write protected by **32-bit password**
- System EEPROM area
 - Access protected by **32-bit password**
- Specific block used to store a **64-bit UID**
 - Its value is written by ST on the production line
- Dedicated area to store the **Digital Signature**





Dynamic NFC / RFID tags series

	M24LR series	ST25DV-I2C series	ST25DV-PWM series
Contactless Interface	ISO15693 NFC compatible	ISO15693 NFC Type 5	ISO15693 NFC Type 5
RF range	Long range (up to 1 m)	Long range (up to 1 m)	Long range (up to 1 m)
RF speed	26 kbps	26 kbps	26 kbps
Serial Interface	I2C @400 kHz	I2C @1 MHz	No
Fast Transfer mode	No	Yes (256B buffer)	No
Energy Harvesting	Yes	Yes	No
Digital output	Open-Drain GPO	OD or CMOS GPO	2x PWM
Extra features	-	Low Power mode	-
Memory format	EEPROM data	EEPROM data	EEPROM data
Memory size	4k / 16k / 64k-bit	4k / 16k / 64k-bit	2k-bit
Data protection	Password 32-bit	Password 64-bit	Password 64-bit TruST25 digital signature
Temperature range	-40°C to +85°C	-40°C to +85°C -40°C to +125°C (105°C RF)	-40°C to +85°C (105°C RF)
Package	SO8 / TSSOP8 / FPN8	SO8 / TSSOP8 / FPN8 / FPN12 / WLCSP10 / SBN12 *	SO8N / TSSOP8



* SBN12: Die form, sawn and Bumped wafer, 120µm thickness, inkless 8" wafer



PWM features summary

PWM characteristics	
Clock frequency	Target 16 MHz
Clock accuracy	+/- 10% (over temperature range)
PWM signal output	1 port or 2 ports product version
PWM frequency	from 488Hz to 31.25 kHz
PWM resolution	62.5 ns (step) { from 9-bits @ 31.25 kHz ... 12-bits @ 3.9 kHz ... to 15-bits @ 488 Hz
Vcc supply	1.8 V to 5.5 V
PWM sinking current	up to 4 mA output driver across Vcc supply range
Start uptime	< 3 ms



ST25DV-PWM rich ecosystem



- Antenna e-design tool
- Schematic, BOM, Gerber
- Applications notes



- PC software tool ST25 SDK
- Mobile Apps ST25 SDK (Android & iOS)
- Discovery kits



- Documentation
- ST Community
- Videos
- Webinar



ST25DV-PWM evaluation board



ST25DV-PWM-eSET

Kit features

- ST25DV02K-W2 NFC/RFID tag IC in SO8N package
- 22 x 38 mm² single layer inductive antenna, etched on the PCB
- Two LEDs illustrating duty cycle of PWM outputs



ST25DV-PWM part numbers



ST25DV-PWM	Package	# of PWM outputs	Part number
Dynamic NFC Type 5 Tag ISO15693 Extended temp. range 2k-bit of EEPROM	SO8N	X1	ST25DV02K-W1R8S3
		X2	ST25DV02K-W2R8S3
	TSSOP8	X1	ST25DV02K-W1R8T3
		x2	ST25DV02K-W2R8T3



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