

Qstar-5X(53/54/55/56)

Overview:

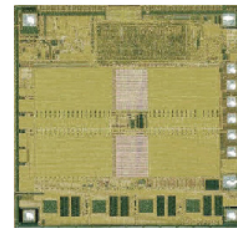
1. Qstar-53, Qstar-54, Qstar-55 and Qstar-56 belong to Quanray's Qstar-5X UHF RFID tag ICs family.
2. Fully compatible to EPCglobal Class 1 Gen 2/ISO 18000-6C with 512bits, 1Kbits, 1.5Kbits and 2Kbits user memory.
3. Outstanding data retention of up to 30 years at 85°C (Qstar-5XE[1] only).

Features

- Superior read sensitivity of up to -19 dBm
- Industry leading write sensitivity of up to -11dBm
- Extended storage temperature range (-55°C ~150°C)
- Operation temperature range(-40°C ~ +85°C)
- Electronic Article Surveillance (EAS) capability integrated
- EPCglobal Gen 2(V1.2.0) and ISO/IEC 18000-6C Compatible
- Up to 528 bits of EPC area
- Up to 256 bits of TID area
- Up to 2K bits of USER memory
- Up to 30 years of data retention time in 85°C (Qstar-5XE only)
- Area Management Function(Qstar-56 only)
- Support BlockPermaLock: minimum lock size is 1 word
- Support BlockWrite: maximum 8 words
- Supplying form: wafer, tape&reel in WLCSP, DFN2L

Key Applications

- Item Level Tagging (Apparel tagging)
- Logistics/supply chain management
- Warehouse management
- Asset management
- Identification
- Air baggage tagging
- Pallet/Case tracking
- Anti-counterfeit



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Operating conditions and electrical characteristics

Conditions	Conditions	Min	Typ	Max	Unit Comments
Read Sensitivity	Reading		-19dBm		[2]
Write Sensitivity			-11 dBm		[2]
Max Operating Power				20dBm	
Equivalent input parallel resistance			1500Ω		[3][4]
Equivalent input parallel capacitance			1.0 pF		[3][4]
Data retention(Qstar-5X)	55°C	15 years			
Data retention(Qstar-5XE[1])	85°C	30 years			
Operating Temperature		-40°C		85°C	
Surviving Temperature		-55°C		125°C	
ESD				±2KV	Human body model

[1] Qstar-5XE is the extended version of Qstar-5X

[2] Sensitivity on a dipole antenna.

[3] At minimum operating power and at 915MHz operating frequency point.

Memory Map

Bank	Address	Description	Memory	Bits
USER (Qstar-53)	00h- 1FFh	USER bank	NVM	512
USER (Qstar-54)	00h- 3FFh	USER bank	NVM	1K
USER (Qstar-55)	00h- 5FFh	USER bank	NVM	1.5K
USER (Qstar-56)	00h- 7FFh	USER bank	NVM	2K
TID	00h-FFh	UID and Manufacturer Data block	ROM-NVM	256
EPC	00h-0Fh	CRC-16	RAM	16
	10h-1Fh	PC	NVM	16
	20h-20Fh	EPC	NVM	496
Reserved	00h-1Fh	Kill password	NVM	32
	20h-3Fh	Access password	NVM	32

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