

### KEY FEATURES

- Embedded Stand-alone Fingerprint Identification Module (FIModule)
- Verification (One-To-One) and Identification (One-To-Many)
- Onboard Template & Record Data Storage
- Simple Serial RS-232C/CMOS Interface
- Downloading/Uploading Template from/to Host
- Easy to integrate giving minimal Time-To-Market

### APPLICATION

- Fingerprint based access control systems & door-lock
- Fingerprint personal identification system
- Time attendance system using fingerprint
- Fingerprint based machine control

### DESCRIPTION

**IZZIXFingerENGINE** in FIModule follows the commonly accepted fingerprint identification scheme, which uses a set of specific fingerprint feature points (minutiae). However, it contains many powerful algorithmic solutions, which enhance the system performance and reliability. Some of them are listed below:

- Quality Check of Fingerprint Image
- Efficient Feature Extraction
- Fingerprint Enroll Mode with Feature Collection
- Classification Feature by Global Feature Vector
- Suitable Algorithm to 1:1 and 1:N Mode

And, FIModule acts as a biometric subsystem with template & record data storage. FIModule can be used to any fingerprint application and be controlled by a host sending/receiving command via the standard serial interface. FIModule makes fingerprint templates and stores directly in flash memory.

### QUICK SPECIFICATION

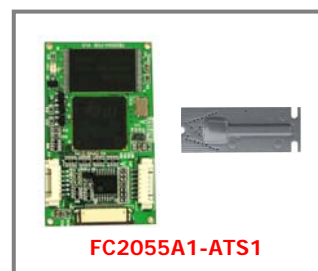
Response Time(sec)	1:1 Mode	Enrolled Fingerprints	Matching OK			
	1:N Mode	500	< Tc + 0.65			
		1,000	< Tc + 0.9			
		2,000	< Tc + 1.3			
FAR(False Acceptance Rate)	< 0.0001 %					
FRR(False Rejection Rate)	< 0.1 %					
Matching Mode	Verification(1:1 Mode), Identification(1:N Mode)					
Times of Enrollment (E <sub>T</sub> )	Feature Collection Mode, FCMode	3 times ⇒ 1 feature data/1 user				
	Feature Exclusive Mode, FEMode	n times (normally n = 5) ⇒ n feature data/1 user				
Memory Size	2Mbytes FlashROM					
Number of User & Record	FCMode	2,000	40,000			
	FEMode	400 (if E <sub>T</sub> = 5)				
User Data Size	512 Bytes (= 480 Bytes Template Data + 32 Bytes Header Data)					
Record Data Size	16 Bytes					
Start-up Time	Reset Time	420 msec	420 msec			
Digital Signal Processor	TI TMS320VC5502					
Fingerprint Board	FB2055A1-SWP1					
Fingerprint Sensor	ATS1, AT77C102B FingerChip Thermal Fingerprint Sensor (Atmel)					
Active Area Size	14 × 0.4 mm					
Array Size(Pixels) & Resolution	280 × 8 & 500 DPI					
Dimensions & Weight	FB2055A1-SWP1	51 × 30 × 8.5 mm	< 11 gr			
	ATS1	26.6 x 9.85 x 4.2	< 2 gr			
Operating Voltage	5VDC					
Power Consumption (5VDC)	Standby	87mA	Sensing	90mA	PowerDisable	<6uA
	PowerDown1	65mA	PowerDown2	60mA	PowerDown3	28mA
Temperature/Humidity	0°C ~ 70°C / 15% ~ 80 %					
External Interface	7Pin Connector : RS232C Level UART					

**Note) Image Capture Time T<sub>c</sub>** ; The T<sub>c</sub> timing (normally, 2 sec) depends on user's sweeping speed.

= Tia(Image Acquisition Time + Image Reconstruction Time) + Tqc(Image Quality Checking Time)

*This specification is subject to change without prior notice.*

*October 6, 2006*



### Ordering Information

#### •FC2055A1 Module Series

FC2055A1 – x1 – x2 x3 x4 x5

FC20	Algorithm Version V20 series	
55A1	DSP TMS320VC5502(BGA)	
① x1	FingerChip Fingerprint Slide Sensor	ATS1 by UPEK
② x2	Communication Interface (Hardware)	R : RS232C
③ x3	Flash Memory Capacity (Number of Fingerprints)	M2 : 2M Byte (2000 Fingerprints)
④ x4	Supply Voltage	V50 : 5.0 Volt
⑤ x5	Total Length of FPC Cable : L100 -> 100mm (Basic) (The cable length is changeable ; discussion)	

FIModule	Fingerprint Board
FC2055A1 – ATS1 – RM2V50L100 ⇒ FC2055A1 – ATS1	FB2055A1 – SWP1

#### •FC2055A1 SDK

FC20 SDK-E2 (55A1-ATS1)

