FUJITSU THE POSSIBILITIES ARE INFINITE

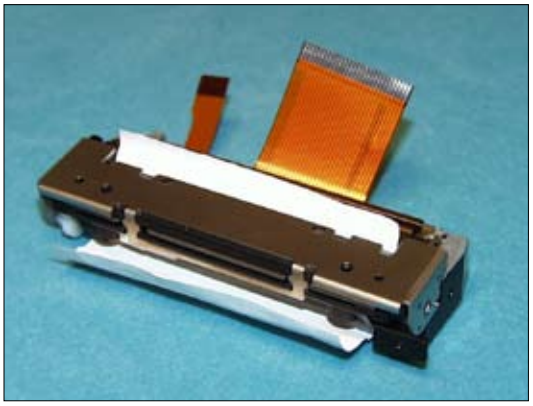
BATTERY DRIVEN, FTP-608 Series 3” HIGH SPEED THERMAL PRINTER

FTP-638MCL401

■ OVERVIEW

The FTP-638 MCL Series are 5V driven high-speed printers with a ultra low profile auto cutter and long life.

The FTP-638 MCL Series can be used for a variety of applications, such as POS terminals, banking terminals, and measurement and medical equipment.



FTP-638MCL401

FTP-638DSL291

■ HIGHLIGHTS

- **Ultra low profile**
  Height 21.8 mm, width 103.2 mm, depth 42.2 mm
- **High speed printing**
  It can print at 60 mm/s (480 dotlines/s) maximum by using Fujitsu's unique head drive control.
- **Auto Cutter**
  Long life and high reliable guilotine with dedicated motor.
- **Easy paper loading**
  Our lever platen release mechanism allows a wide paper route, so paper can be easily inserted. Conventional auto loading is also available.
- **Multifunctional die-cast frame**
  Wide operating temperature range, long continuous printing, high ESD absorbtion and discharge of static electricity vibration and shock resistant.
- **RoHS compliant**

■ PART NUMBERS

		Part Number
Printer mechanism with Cutter		FTP-638MCL401 (Easy Load Model with low profile cutter)
LSI for driving		FTP-628CU451R
Interface Board for Mech/Cutter	Cutter supported	FTP-628DSL490R Parallel/Serial without Flash & SRAM FTP-628DSL491R (Centronics) / Serial (RS-232C) with SRAM FTP-628DSL493R Parallel/Serial with Flash & SRAM
Interface cables	Parallel (Centronics)	FTP-628Y202
	Serial (RS232C)	FTP-628Y302
Power cables	Head, motor, logic	FTP-628Y402

■ SPECIFICATIONS

Item	Specifications
Part number	FTP-638MCL401
Printing method	Thermal-line dot method
Dot structure	576 dots/line
Dot pitch (Horizontal)	0.125 mm (8 dots/mm)—Dot density
Dot pitch (Vertical)	0.125 mm (8 dots/mm)—Line feed pitch
Effective printing area	72 mm
Number of columns	ANK 48 columns/line (maximum 12 x 24 dot font)
Paper width	80 mm
Paper thickness	60 to 100 μ m (some paper in this range may not be used because of paper characteristics)
Printing Speed	Maximum 60mm/sec. (480 dot line/sec.) at 8.5V
Character types	Alphanumeric, kana: 159 types International characters: 195 types JIS Kanji (Kanji CG loaded board): about 6800 types
Character, dimensions (W×H), number of columns	12 × 24 dots, (1.5 × 3.0 mm), 48 columns: ANK 24 × 24 dots, (3.0 × 3.0 mm), 24 columns: ANK 8 × 16 dots, (1.0 × 2.0 mm), 72 columns: ANK 16 × 16 dots, (2.0 × 2.0 mm), 36 columns: ANK

■ SPECIFICATIONS

Item		Specification	
Interface		Conforms to RS232C / Centronics	
Power supply	For print head	4.2 - 8.5 VDC average current, 0.30A (2.4A peak) at 7.2V (print ratio: 12.5%, print speed: 60mm/sec.)	
	For motor	4.2 - 8.5 VDC ± 5%, 1.0A maximum	
	For cutter	7.2 - 8.5 VDC ± 5%, 1.1A maximum	
	For logic	3.0 -5.25 VDC, 0.1 A maximum	
Dimensions	Mechanism with cutter	103.2 x 42.2 x 21.8 mm (WxDxH)	
	Interface board	70 x 60 x 12mm	
Weight	Mechanism with cutter	Approximately 118g	
	Interface board	Approximately 25g	
Life	Head	Pulse resistance: 100 million pulses/dot (under our standard conditions); Abrasion resistance: paper traveling distance 50km (print ratio: 12.5% or less)	
	Cutter	500,000 cuts (20 cuts/minute)	
Operating environment	Operating temperature*	0˚ C to 50˚ C	
	Operating humidity	20 to 85% RH (no condensation)	
	Storage temperature	-20˚ C to +60˚ C (paper not included)	
	Storage humidity	5 to 90% RH (no condensation)	
Detection function	Head temperature detection	Detected by thermistor	
	Paper out/mark detection	Detected by photo-interrupter	
	Platen release	Detected by sliding switch	
Recommended thermal sensitive paper		High Sensitive Paper	TF50KS-E4 (Nippon Paper)
		Standard paper:	TF60KS-E(Nippon Paper), FTP-020PU001 (58mm), PD105R (Oji Paper), FTP-020P0701 (58mm)
		Medium Life Paper	TF60KS-F1, FTP-020P0102 (58mm), PD170R (Oji Paper), P220VBB-1 Mitsubishi Paper)
		Long Life Paper	PD160R-N (Oji Paper), AFB-235 (Mitsubishi Paper), TP50KJ-R (Nippon Paper), HA220AA (Nippon Paper)

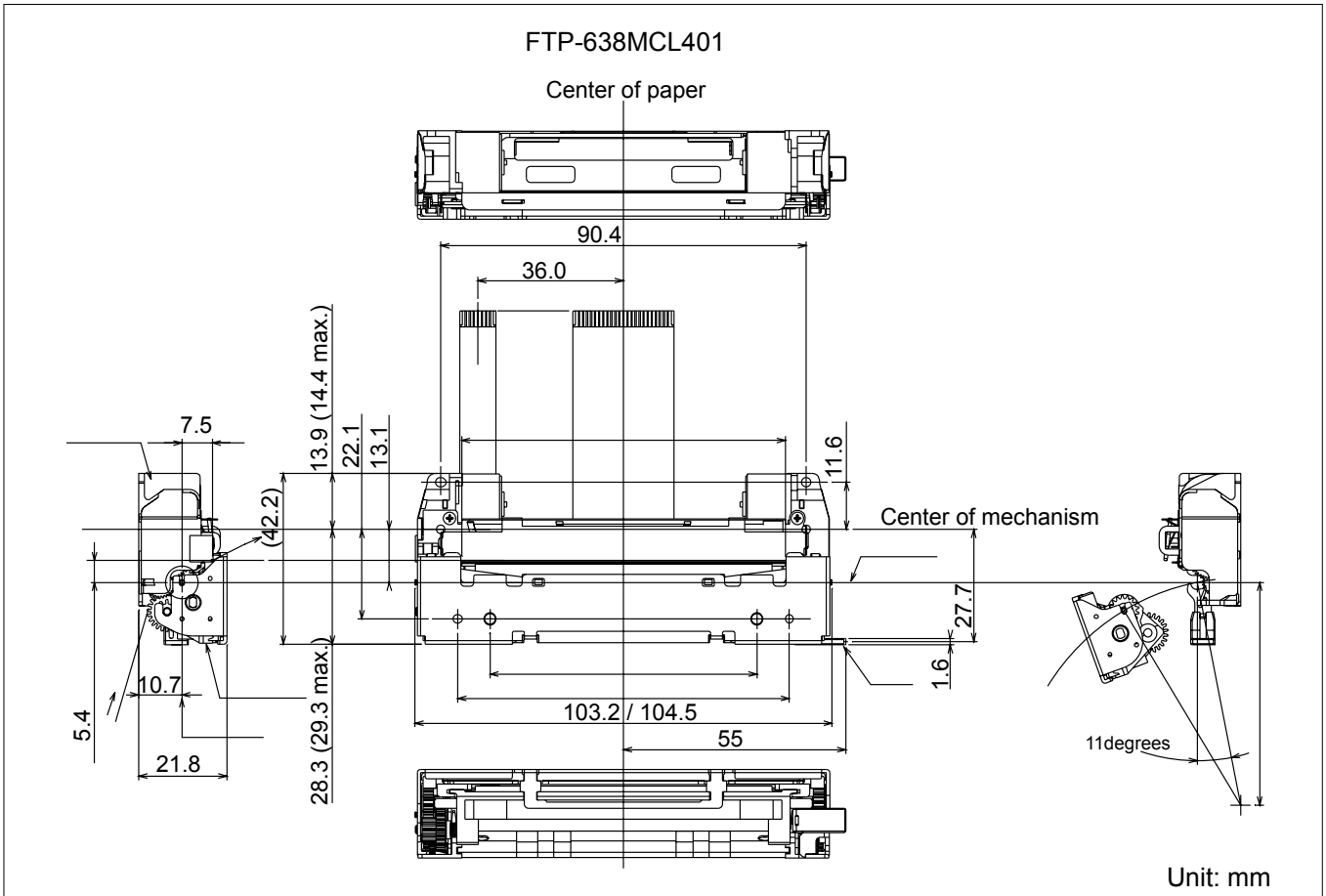
*+5˚C to +40˚C printing density assurance rance.

■ FUNCTION OF INTERFACE BOARD

	Item		Item
1.	Test print function	8.	Cutter trouble detect
2.	Paper out detection	9.	Motor power saving function
3.	Paper near end detection	10.	Mark detection function
4.	Platen open detection	11.	MCU operation abnormality detection
5.	Thermal head temperature abnormality detection	12.	Power ON/OFF sequence protection
6.	Blow-out fuse detection	13.	Motor over-current protection
7.	Head voltage abnormality detection	14.	Hardware timer

■ DIMENSIONS

1. Printer mechanism



Note: 1. Dimensions are nominal value (tolerance ±5 unless otherwise specified).
2. Platen unit (lever, platen, etc) moves by approximately 0.7mm toward paper insertion direction when platen is open.

1. Connector (FPC) specification (CN4)

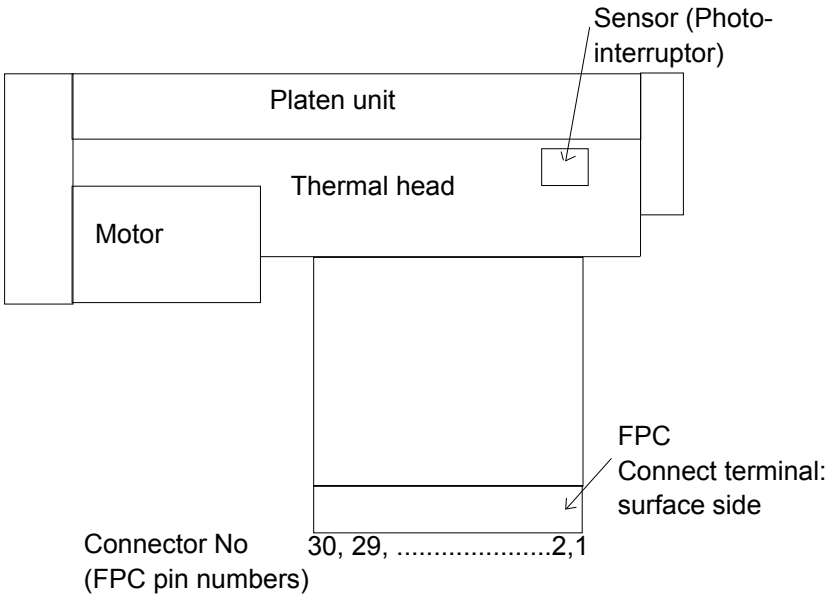
(1) Connector

Mechanical unit side: FPC connector

Remote side (housing site): 52610-3071 (made by Molex)

(2) Pin assignment on the mechanical side

No	Signal	I/O	Contents
1	PHK	—	Photointerrupter (Cathode)
2	VSEN	I	Ground power supply for paper sensor
3	PHE	O	Photointerrupter (Emittor)
4	VH	I	Head drive power
5	VH	I	Head drive power
6	DI	I	Data in
7	CLK	I	Clock
8	GND	—	Head ground
9	GND	—	Head ground
10	STB5	I	Strobe 5
11	STB4	I	Strobe 4
12	STB3	I	Strobe 3
13	VDD	I	Logic Power
14	TM	O	Thermistor
15	STB2	I	Strobe 2
16	STB1	I	Strobe 1
17	$\overline{AE2}$	O	Enable 2
18	$\overline{AE1}$	O	Enable 1
19	GND	—	Head ground
20	GND	—	Head ground
21	$\overline{LAT}$	I	Data latch
22	DO	O	Data out
23	VH	I	Head drive power
24	VH	I	Head drive power
25	SW	|	Platen open switch
26	SW	O	Platen open switch
27	MT $\overline{A}$	I	Motor excite signal $\overline{A}$
28	MT A	I	Motor excite signal A
29	MT $\overline{B}$	I	Motor excite signal $\overline{B}$
30	MT B	I	Motor excite signal B



2. Cutter (CN5)

Connector on control circuit side: 52610-0871 Molex or equivalent

No.	Signal	I/O	Contents	No.	Signal	I/O	Contents
1	VSEN	I	Paper sensor power	2	PHE	O	Photo interruptor (emittor)
3	PHK	—	Photo interruptor (cathode)	4	MT $\overline{A}$	I	Motor excite signal $\overline{A}$
5	MT A	I	Motor excite signal A	6	MT $\overline{B}$	I	Motor excite signal $\overline{B}$
7	MT B	I	Motor excite signal B	8	NC	—	Not connected

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