

# BATTERY DRIVE, FTP-608 Series

## 3" HIGH SPEED THERMAL PRINTER

### FTP-638MCL101/103

### Easy Loading Method

#### ■ OVERVIEW

The easy loading FTP-608 MCL Series is ultra compact high speed, battery driven thermal printer, printing 3-inch wide paper (80mm) where platens are removable. Our original platen removal mechanism improved paper loading and maintenance.

The FTP-608 MCL series can be used for a variety of applications, such as portable terminals, POS, ticket issuing terminals, label printers, banking terminals, and measurement and medical equipment.

#### ■ HIGHLIGHTS

- **Easy loading type**  
Our unique platen removal mechanism improved paper loading and maintenance.
- **Ultra compact**  
Height 15.5 mm, width 92.3mm, depth 33.0 mm for the 3 inch model.
- **High speed printing**  
It can print at 60 mm/s (480 dotlines/s) maximum by using Fujitsu's unique head drive control.
- **High resolution printing**  
8 dots/mm of resolution printing is possible.
- **RoHS compliant**



## ■ PART NUMBERS

Item		Part Number
Printer mechanism		FTP-638MCL101 (3-inch wide paper: 80mm) without platen open detect switch FTP-638MCL103 (3-inch wide paper: 80mm) with platen open detect switch
LSI for driving		FTP-628CU30 1R (ANK only) FTP-628CU601R
Interface Board	Parallel	FTP-628DCL300R (Centronics)
	Serial	FTP-628DSL305R (RS-232C)
	USB	FTP-628DSL602R (V 2.0)
Cables	Parallel	FTP-628Y202
	Serial	FTP-628Y30 2
	USB	FTP-629Y301
	Power	FTP-628Y402

## ■ SPECIFICATIONS

Item	Specifications
Part number	FTP-638MCL101/103
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 32 columns/line (maximum 12x 24 dot font)
Paper width	80 mm <sup>+0</sup> <sub>-1</sub>
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 8.5 V
Character types	Alphanumeric, katakana: 159 types International and special characters: 195 types JIS Kanji level 1, level 2, non-Kanji (supported only when Kanji CG is mounted): about 6800 types
Character, dimensions (H×W), number of columns	12 x 24 dots, 48 columns: ANK 24 x 24 dots, 28 columns: ANK, Kanji 8 x 16 dots, 72 columns: ANK 16 x 16 dots, 36 columns: ANK, Kanji

## ■ SPECIFICATIONS

Item		Specification
		FTP-638MCL101/103
Interface		Conforms to RS232C / Centronics
Operating Voltage	For print head	4.2 VDC to 8.5 V, average current 1.37A (1.53) peak value Printing ratio: 12.5%, printing speed 50mm/sec., 7.2 V
	For motor	4.2 VDC to 8.5 V, 1 A maximum
	For logic	3.0 to 5.25 VDC, 0.1 A maximum
Dimensions	Printer mechanism	92.3 x 33.0 x 15.5 mm (WxDxH)
	Interface board	69.3 x 52.0 x 15.0 mm (WxDxH)
Weight	Printer mechanism	Approximately 52g
	Interface board	Approximately 20g
Head life		Pulse resistance: 100 million pulses/dot (under our standard conditions). Abrasion resistance: paper traveling distance 50km (print ratio: 25% or less)
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
Recommended thermal sensitive paper		High sensitive paper: TF50KS-E4 (Nippon Paper)
		Standard paper: TK50KS-E (Nippon Paper) PD150R (Oji Paper) FTP-030P0701 (80mm)
		Medium life storage paper: TK60KS-F1 (Nippon Paper) PD170R (Oji Paper) AFP220VBB-1 (Mitsubishi) FTP-030P0102 (80mm)
		Long life storage paper: PD160R-N (Oji Paper) AFP-235 (Mitsubishi Paper) TP50KJ-R (Nippon Paper) HA220AA (Nippon Paper)

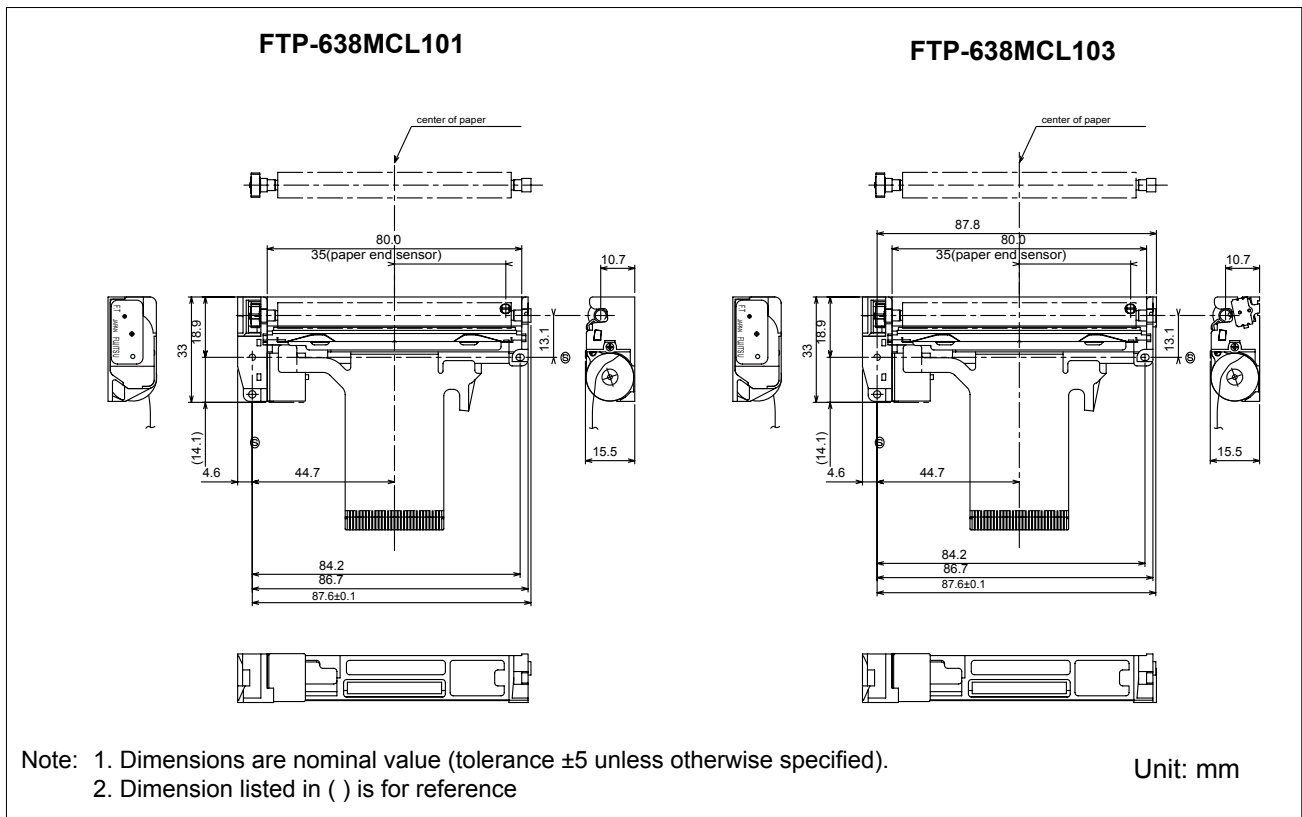
\*+5°C to +40°C printing density assurance range (-25 to 70°C capability)

## FUNCTION

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

## DIMENSIONS

### 1. Printer mechanism: 3 inch



## FTP-638 MCL101/103

Thermal head, control circuit side connector: 52610-3071 Molex or equivalent product

No	Signal	I/O	Contents
1	PHK	—	Cathode for photo interruptor
2	VSEN	I	Paper sensor power
3	PHE	O	Emittor for photo interruptor
4	N.C. (101)/ SW1 (103)	—/O	Platen release switch
5	N.C. (101)/ SW2 (103)	—/I	Platen release switch
6	VH	—	Head drive power
7	VH	—	
8	DI	I	Data in
9	CLK	I	Synchronous clock for communication
10	GND	—	Ground power supply for thermal head
11	GND	—	
12	STB5	I	Thermal head energizing control signal
13	STB4	I	
14	STB3	I	
15	VDD	I	Logic power
16	TM	O	Thermally sensitive resistor input termnial 1
17	STB2	I	Thermal head energizing control signal
18	STB1	I	
19	$\overline{\text{AEO2}}$	I	---
20	$\overline{\text{AEO1}}$	I	
21	GND	—	Ground power supply for thermal head
22	GND	—	
23	$\overline{\text{LAT}}$	I	Data latch
24	DO	O	Data out
25	VH	I	Power supply for thermal head
26	VH	I	
27	MT A	I	Stepping motor excitation signal
28	$\overline{\text{MT A}}$	I	
29	MT B	I	
30	$\overline{\text{MT B}}$	I	

## Fujitsu Components International Headquarter Offices

### Japan

Fujitsu Component Limited  
Gotanda-Chuo Building  
3-5, Higashigotanda 2-chome, Shinagawa-ku  
Tokyo 141 8630, Japan  
Tel: (81-3) 5449-7010  
Fax: (81-3) 5449-2626  
Email: [promothq@fcl.fujitsu.com](mailto:promothq@fcl.fujitsu.com)  
Web: [www.fcl.fujitsu.com](http://www.fcl.fujitsu.com)

### North and South America

Fujitsu Components America, Inc.  
250 E. Caribbean Drive  
Sunnyvale, CA 94089 U.S.A.  
Tel: (1-408) 745-4900  
Fax: (1-408) 745-4970  
Email: [components@us.fujitsu.com](mailto:components@us.fujitsu.com)  
Web: <http://us.fujitsu.com/components/>

### Europe

Fujitsu Components Europe B.V.  
Diamantlaan 25  
2132 WV Hoofddorp  
Netherlands  
Tel: (31-23) 5560910  
Fax: (31-23) 5560950  
Email: [info@fceu.fujitsu.com](mailto:info@fceu.fujitsu.com)  
Web: [emea.fujitsu.com/components/](http://emea.fujitsu.com/components/)

### Asia Pacific

Fujitsu Components Asia Ltd.  
102E Pasir Panjang Road  
#01-01 Citilink Warehouse Complex  
Singapore 118529  
Tel: (65) 6375-8560  
Fax: (65) 6273-3021  
Email: [fcac@fcal.fujitsu.com](mailto:fcac@fcal.fujitsu.com)  
Web: <http://www.fujitsu.com/sg/services/micro/components/>

©2009 Fujitsu Components America, Inc. All rights reserved. All trademarks or registered trademarks are the property of their respective owners.

Fujitsu Components America or its affiliates do not warrant that the content of datasheet is error free. In a continuing effort to improve our products Fujitsu Components America, Inc. or its affiliates reserve the right to change specifications/datasheets without prior notice.  
Rev. February 27, 2009.