

# 24V DRIVE, FTP-609 SERIES ULTRA HIGH SPEED (200mm/s) 2" TYPE MECHANISM (Cutter option) FTP-629MCL054/353/354-R

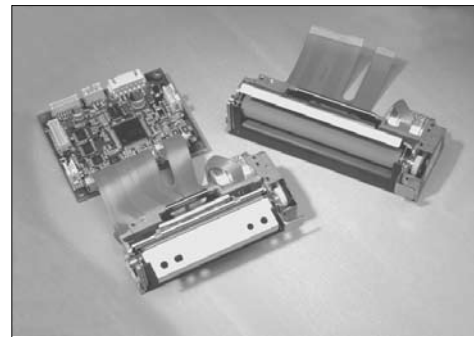
## ■ OVERVIEW

The FTP-609MCL Series thermal printer (driven by 24VDC) provides ultra-high speed printing (200mm/s) for 2-inch and 3-inch wide paper.

This series is suitable for a variety of applications, such as POS/ECR, kiosk terminals, ticket machines, label printers, banking machines, measuring devices, medical equipment, etc.

## ■ HIGHLIGHTS

- **Ultra high speed printing**  
It can print at 200 mm/s (1600 dotlines/s) maximum by using Fujitsu Components' unique head drive control.
- **Rear paper insertion mechanism with lock type**  
Fujitsu Components' unique platen release mechanism allows straight paper path and easy head maintenance.
- **Auto Cutter**  
Printer with auto cutter (full cut/ partial cut) is available. It can be mounted on top of the mechanism.
- **Multi-featuring diecast frame**  
By application of multi-featuring diecast frame, continuous print by function of heat-sink, high ESD with stand by function of earth frame and shock/vibration resistance by function of solid frame are valid.
- **Compact size**  
Depth: 40.5mm, width: 82.2mm, height: 20.5mm for the 2-inch model. The 3-inch model has a width of 104.2mm
- **High resolution**  
8 dots/mm head provides clear print out.
- **RoHS compliant**



FTP-6x9MCL054R with  
FTP-629DSL034R

# FTP-629MCL054/353/354-R

## ■ PART NUMBERS

| Name                         |                  | Part Number    |                 |                |
|------------------------------|------------------|----------------|-----------------|----------------|
| Printer mechanism            | Bottom insertion | FTP-629MCL054R | FTP-629MCL074R  | FTP-629MCL054R |
| Mechanism with cutter        | Front insertion  | FTP-629MCL353R | TBA             | FTP-629MCL353R |
|                              | Bottom insertion | FTP-629MCL354R | FTP-629MCL374R  | FTP-629MCL354R |
| LSI                          |                  | FTP-629CU101R  | FTP-629SR201    | FTP-629CU301R  |
| Interface board              | Parallel         | FTP-629DCL014R | FTP-629DSL181R* |                |
|                              | Serial (RS232C)  | FTP-629DSL034R | FTP-629DSL181R* | FTP-629DSL301R |
|                              | USB              | ---            | FTP-629DSL112R  | FTP-629DSL301R |
| Thermal head cable extension |                  | ---            | FTP-629Y001     | ---            |
| Interface cable              | Parallel         | FTP-628Y202    |                 | ---            |
|                              | Serial           | FTP-628Y302    | FTP-629Y302     |                |
|                              | USB              | ---            | FTP-629Y301     |                |
| Power supply cable           | Logic            | FTP-629Y401    | ---             |                |
|                              | Head, motor      | FTP-629Y601    |                 | FTP-629Y602    |

\*: Interface is selectable by DIP switch

## ■ GENERAL SPECIFICATIONS

| Item                                           |                                                                                                                                          | Specifications                                                                                                                  |                                                                                                                                                              |
|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Part number                                    |                                                                                                                                          | FTP-629MCL054/074-R                                                                                                             | FTP-629MCL354/374-R                                                                                                                                          |
| Printing method                                |                                                                                                                                          | Thermal sensitive line dot method                                                                                               |                                                                                                                                                              |
| Dot structure                                  |                                                                                                                                          | 432 dots/line                                                                                                                   |                                                                                                                                                              |
| Dot pitch (horizontal)                         |                                                                                                                                          | 0.125mm (8dots/mm) - Dot density                                                                                                |                                                                                                                                                              |
| Dot pitch (vertical)                           |                                                                                                                                          | 0.125mm (8dots/mm) - Line feed pitch                                                                                            |                                                                                                                                                              |
| Effective printing area                        |                                                                                                                                          | 54 mm                                                                                                                           |                                                                                                                                                              |
| Number of columns                              |                                                                                                                                          | ANK 36 columns/line (12 x 24 dot font), OCR 18 columns (24x40)                                                                  |                                                                                                                                                              |
| Paper width                                    |                                                                                                                                          | 60 mm +0/-1                                                                                                                     |                                                                                                                                                              |
| Paper thickness                                |                                                                                                                                          | 60 to 150μm (there may be exceptions)                                                                                           | 60 to 100μm                                                                                                                                                  |
| Cutting type                                   |                                                                                                                                          | ---                                                                                                                             | full or partial                                                                                                                                              |
| Printing speed                                 |                                                                                                                                          | FTP-629DCL/DSL series                                                                                                           | FTP-629DSL100 series/<br>FTP-629DSL300 series                                                                                                                |
|                                                |                                                                                                                                          | 80mm/sec. (640 dot lines/sec.)<br>line mode<br>200mm/sec. (1600 dot lines/sec.)<br>image mode                                   | 125mm/sec. (1000 dot lines/sec.) line<br>mode<br>200mm/sec. (1600 dot lines/sec.)<br>page mode                                                               |
| Interface types                                |                                                                                                                                          | FTP-629DCL/DSL series<br>FTP-629DCL/DSL100 series                                                                               | FTP-629DSL300 series                                                                                                                                         |
| Character types                                | Alphanumeric, Kana:<br>International and special<br>OCRI<br>OCRIII<br>OCRIV<br>Extended numeric<br>JIS Kanji level 1, level 2, non-Kanji | 159 types<br>195 types<br><br><br><br><br>about 6,800 types                                                                     | 159 types<br>195 types<br>103 types<br>23 types<br>103 types<br>11 types<br>about 6,800 types                                                                |
| Character, dimensions (WxH), number of columns |                                                                                                                                          | (8x16 dots), 54 columns: ANK<br>(12x24 dots), 36 columns: ANK<br>(16x16 dots), 27 columns: ANK<br>(24x24 dots), 18 columns: ANK | (24 x 40 dots), 18 columns, OCRI<br>(24 x 48 dots), 18 columns, OCRII<br>(36 x 60 dots), 12 columns, OCRIV<br>(24 x 48 dots) 18 columns, extended<br>numeric |
| Interface standard                             |                                                                                                                                          | Centronics, RS-232C, USB                                                                                                        | Serial /USB                                                                                                                                                  |

# FTP-629MCL054/353/354-R

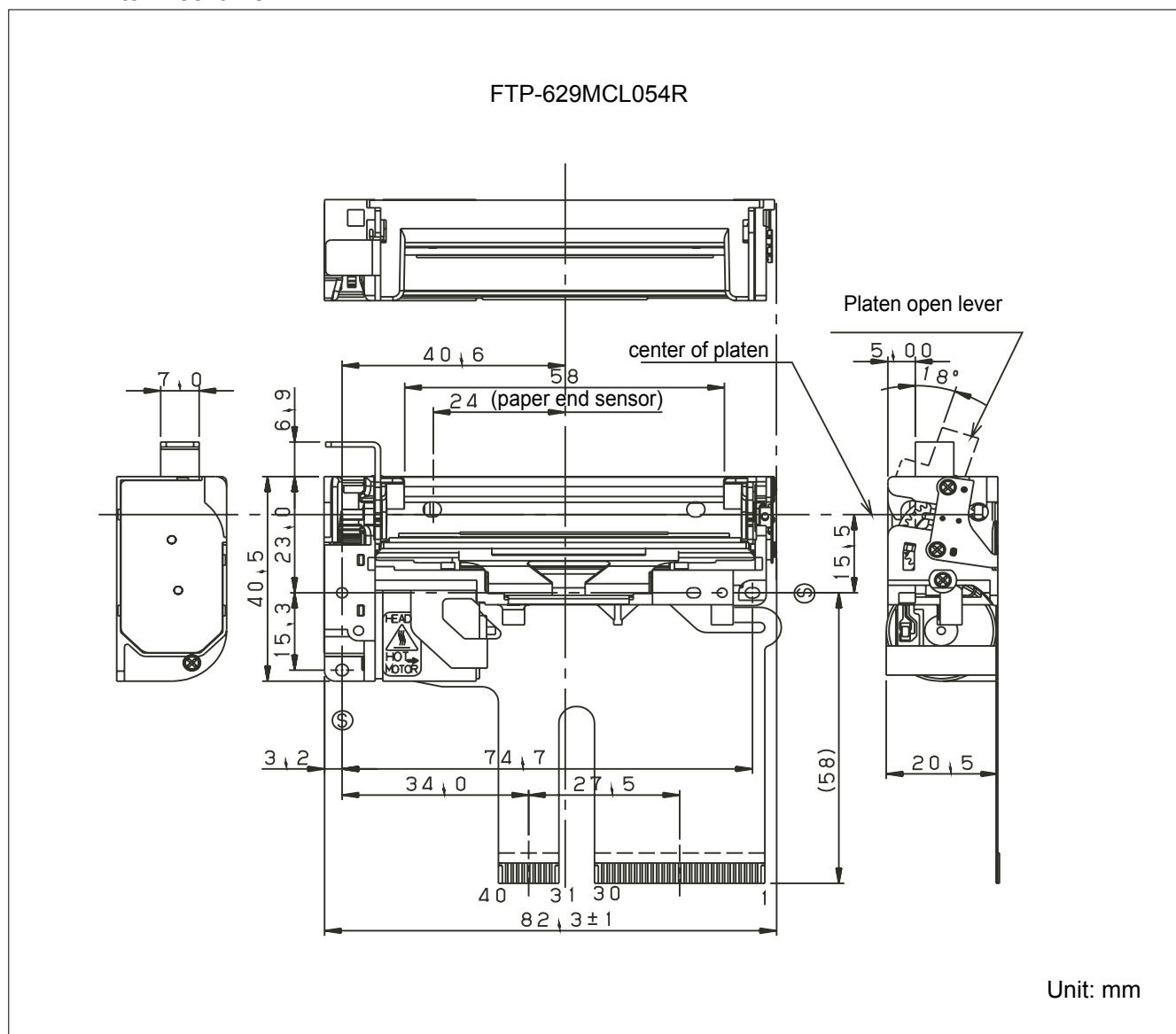
| Item                                |                             | Specifications                                                                                                                               |                                    |
|-------------------------------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| Part number                         |                             | FTP-629MCL054/074-R                                                                                                                          | FTP-629MCL354/374-R                |
| Interfaces                          |                             | Centronics / RS-232C standard / USB                                                                                                          |                                    |
| Power supply                        | For head                    | 24 VDC $\pm 5\%$ 1.4A (3A) (24V , 25% printing ratio)                                                                                        |                                    |
|                                     | For printer motor           | 24VDC $\pm 5\%$ 1A maximum                                                                                                                   |                                    |
|                                     | For cutter motor            | ---                                                                                                                                          | 24VDC $\pm 5\%$ 1.2 A maximum      |
|                                     | For logic                   | 5VDC $\pm 5\%$ 0.2 A maximum                                                                                                                 |                                    |
| Dimensions<br>W x D x H             | Printer Mechanism           | 82.3 $\times$ 40.5 $\times$ 20.5 mm                                                                                                          | ---                                |
|                                     | Printer Mechanism w/cutter  | ---                                                                                                                                          | 90.6 $\times$ 62.5 $\times$ 37.2mm |
|                                     | Interface board (DCL/DSL)   | 70 $\times$ 60 $\times$ 21.6mm                                                                                                               |                                    |
|                                     | Interface board (DSL100)    | 95 $\times$ 73.5 $\times$ 11.6mm                                                                                                             |                                    |
|                                     | Interface board (DSL300)    | 77 $\times$ 50 $\times$ 215mm                                                                                                                |                                    |
| Weight                              | Printer mechanism           | Approximately 100/110g                                                                                                                       | ---                                |
|                                     | Printer mechanism w/cutter  | ---                                                                                                                                          | Approximately 270g                 |
|                                     | Interface board (standard)  | Approximately 25g                                                                                                                            |                                    |
|                                     | Interface board (med speed) | Approximately 45g                                                                                                                            |                                    |
|                                     | Interface board (hi speed)  | Approximately 20g                                                                                                                            |                                    |
| Life                                | Head                        | Pulse durability: 100 milion pulse/dot (using Fujitsu Components' standard driving method)<br>Wear resistance: 100 km (at 12.5% print ratio) |                                    |
|                                     | Cutter                      | ---                                                                                                                                          | 500,000 cuts min.                  |
| Environmental conditions            | Operating temperature       | -10°C to +60°C (Guarantee)                                                                                                                   | 0°C to +50°C (Guarantee)           |
|                                     | Operating humidity          | 20 to 85% RH (no condensation)                                                                                                               |                                    |
|                                     | Storage temperature         | -40°C to +75°C (excluding paper)                                                                                                             | -20°C to +60°C                     |
|                                     | Storage humidity            | 5 to 95% RH (no condensation)                                                                                                                |                                    |
| Detection                           | Head temperature            | By thermistor                                                                                                                                |                                    |
|                                     | Paper out/Mark detect       | By photointerrupter                                                                                                                          |                                    |
|                                     | Head release                | By slide switch                                                                                                                              |                                    |
| Recommended thermal sensitive paper | High sensitivity paper      | TF50KS-E4 (Nippon paper)                                                                                                                     |                                    |
|                                     | Standard paper              | TF60KS-E (Nippon paper), FTP-020P0104 (58mm), PD150R (Oji paper), FTP-020P020P0701 (58mm)                                                    |                                    |
|                                     | Medium term paper           | TP60KS-F1 (Nippon paper), FTP-020P0102(58mm), PD170R (Oji paper) P220VBB-1 (Mitsubishi paper) PD160R-N (Oji paper)                           |                                    |
|                                     | Long term paper             | AFP-235 (Mitsubishi paper) TP50KJ-R (Nippon paper) HA220AA (Nippon paper)                                                                    |                                    |

## ■ FUNCTION

|    | ITEM                                     |     | ITEM                             |
|----|------------------------------------------|-----|----------------------------------|
| 1. | Test printing                            | 8.  | Cutter trouble detection         |
| 2. | Paper-out detection                      | 9.  | Motor power save                 |
| 3. | Paper near end detection                 | 10. | Mark detection                   |
| 4. | Head-up detection                        | 11. | MCU trouble detection            |
| 5. | Abnormal temp. of thermal head detection | 12. | Power on/off sequence protection |
| 6. | Blown fuse detection                     | 13. | Motor protection                 |
| 7. | Abnormal voltage detection of head       | 14. | Hardware timer                   |

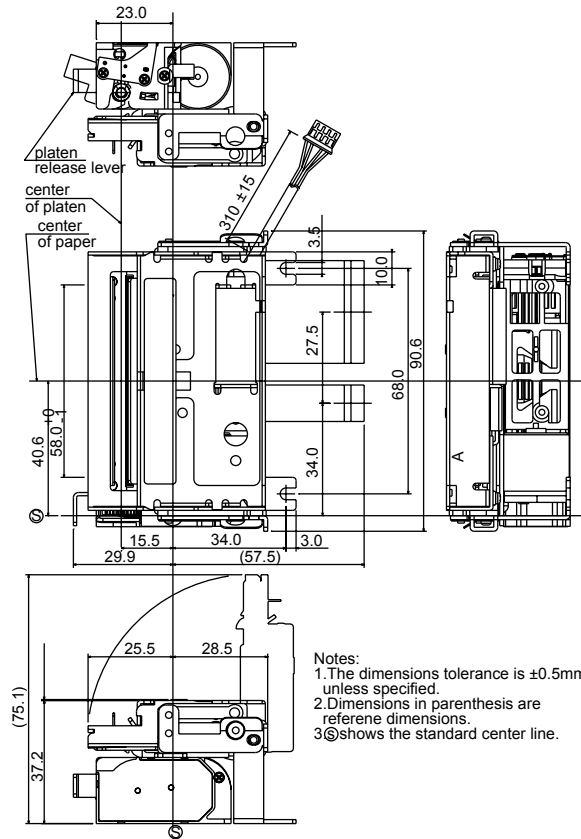
## ■ DIMENSIONS

### 1. Printer mechanism



## 2. Printer mechanism with cutter

FTP-629MCL353/354-R



Unit: mm

## ■ CONNECTOR PIN ASSIGNMENT OF PRINTER MECHANISM (FPC)

### 1. Thermal head control circuit side

Part number : 52610-3071 (Molex) or equivalent

| No | Signal                   | I/O | Contents               | No | Signal                   | I/O | Contents               |
|----|--------------------------|-----|------------------------|----|--------------------------|-----|------------------------|
| 1  | SW                       | O   | Platen open switch     | 2  | SW                       | -   | Platen open switch     |
| 3  | VH                       | -   | Power for thermal head | 4  | VH                       | -   | Power for thermal head |
| 5  | VH                       | -   | Power for thermal head | 6  | VH                       | -   | Power for thermal head |
| 7  | DI                       | I   | Data in                | 8  | $\overline{\text{STB2}}$ | I   | Print enable 2         |
| 9  | $\overline{\text{STB3}}$ | I   | Print enable 3         | 10 | VDD                      | -   | Power for logic        |
| 11 | TM                       | -   | Thermistor             | 12 | GND                      | -   | Head GND               |
| 13 | GND                      | -   | Head GND               | 14 | GND                      | -   | Head GND               |
| 15 | GND                      | -   | Head GND               | 16 | GND                      | -   | Head GND               |
| 17 | GND                      | -   | Head GND               | 18 | GND                      | -   | Head GND               |
| 19 | GND                      | -   | Head GND               | 20 | GND                      | -   | Head GND               |
| 21 | TH                       | O   | Thermistor             | 22 | $\overline{\text{STB1}}$ | I   | Print enable 1         |
| 23 | NC                       | I   | Not connected          | 24 | $\overline{\text{LAT}}$  | I   | Print data latch       |
| 25 | CLK                      | I   | Clock                  | 26 | DO                       | O   | Data output            |
| 27 | VH                       | -   | Power for thermal head | 28 | VH                       | -   | Power for thermal head |
| 29 | VH                       | -   | Power for thermal head | 30 | VH                       | -   | Power for thermal head |

### 2. Motor, Sensor

Connector on circuit side : 52610-1071 (Molex) or equivalent

| No. | Signal | I/O | Contents                 | No. | Signal                   | I/O | Contents                 |
|-----|--------|-----|--------------------------|-----|--------------------------|-----|--------------------------|
| 1   | NC     | -   | Not connected            | 2   | TM                       | O   | Motor temperature sensor |
| 3   | TM     | -   | Motor temperature sensor | 4   | MT $\overline{\text{A}}$ | I/O | Motor coil excitation A  |
| 5   | MTA    | I/O | Motor coil excitation A  | 6   | MT $\overline{\text{B}}$ | I/O | Motor coil excitation B  |
| 7   | MTB    | I/O | Motor coil excitation B  | 8   | PHK                      | -   | Paper out sensor cathode |
| 9   | VSEN   | -   | Power for paper sensor   | 10  | $\overline{\text{PHE}}$  | O   | Paper out sensor emittor |

### 3. Cutter

Connector type: B4B-PH-SM4-TB (J.S.T.) or equivalent

| No. | Signal | I/O | Contents                    | No. | Signal | I/O | Contents                    |
|-----|--------|-----|-----------------------------|-----|--------|-----|-----------------------------|
| 1   | SW1    | -   | Cutter home position switch | 2   | SW2    | O   | Cutter home position switch |
| 3   | M+     | O   | Cutter motor drive          | 4   | M-     | I   | Cutter motor drive          |

## ■ INTERFACE, COMMAND, OPTIONS

Please refer to the FTP-629DCL/DSL or FTP-629DCL/DSL100/300 series datasheet.

## 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: [fcsl@fcsl.fujitsu.com](mailto:fcsl@fcsl.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.