FUJITSU

24V DRIVE, FTP-609 SERIES
ULTRA HIGH SPEED (200mm/s)
3" TYPE MECHANISM (Cutter option)
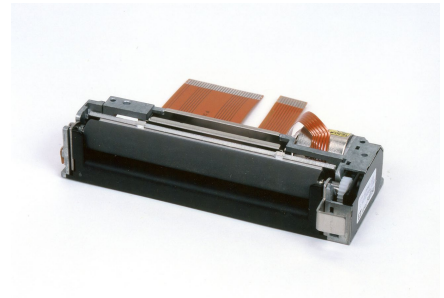
FTP-639MCL054/354#70/373#70/374#70

■ 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.
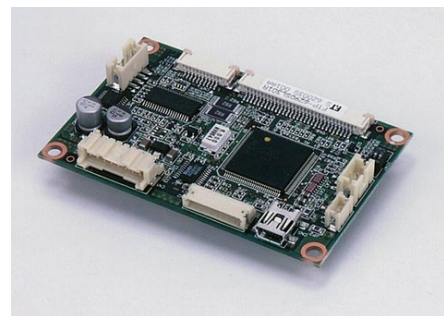
■ HIGHLIGHTS

- **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 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, continous 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: 104.2mm, height: 20.5mm

- **High resolution**
  8 dots/mm head provides clear print out.

- **RoHS compliant**

FTP-639MCL054

FTP-639MCL354#70

FTP-629DSL301

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■ PART NUMBERS

Name		Part Number	
Printer mechanism	bottom insertion	FTP-639MCL054	-
Mechanism with cutter	front insertion	Under development	FTP-639MCL373#70 (with adapter board)
	bottom insertion	FTP-639MCL354#70	FTP-639MCL374#70 (with adapter board)
LSI		FTP-629CU301	-
Interface board	Serial (RS232C)	FTP-629DSL301	-
	USB	FTP-629DSL301	-
Thermal head cable extension		-	FTP-629Y001
Interface cable	Serial	FTP-628Y302	-
	USB	FTP-629Y301	-
Power supply cable	Head, motor	FTP-629Y602	-

*: Interface is selectable by DIP switch

■ GENERAL SPECIFICATIONS

Item		Specifications	
Part number		FTP-639MCL054	FTP-639MCL354#70/373#70/374#70
Printing method		Thermal sensitive line dot method	
Dot structure		576 dots/line	
Dot pitch (horizontal)		0.125mm (8dots/mm) - Dot density	
Dot pitch (vertical)		0.125mm (8dots/mm) - Line feed pitch	
Effective printing area		72 mm	
Number of columns		ANK 48 columns/line (12 x 24 dot font), OCR 24 columns (24x40	
Paper width		82.5 mm +0/-1	
Paper thickness		60 to 100µm	
Cutting type		---	full or partial
Printing speed		200mm/sec. (1600 dot lines/sec.)	
Character types	Alphanumeric, Kana: International and special OCRI OCRIII OCRIV Extended numeric JIS Kanji level 1, level 2, non-Kanji	159 types 195 types 103 types 23 types 103 types 11 types about 6,800 types	
Character, dimensions (WxH), number of columns		(8x16 dots), 72 columns: ANK (12x24 dots), 48 columns: ANK (16x16 dots), 36 columns: ANK (24x24 dots), 24 columns: ANK	(24 x 40 dots), 24 columns, OCRI (24 x 48 dots), 24 columns, OCRII (36 x 60 dots), 16 columns, OCRIV (24 x 48 dots) 24 columns, extended numeric
Interface standard		RS-232C, USB	

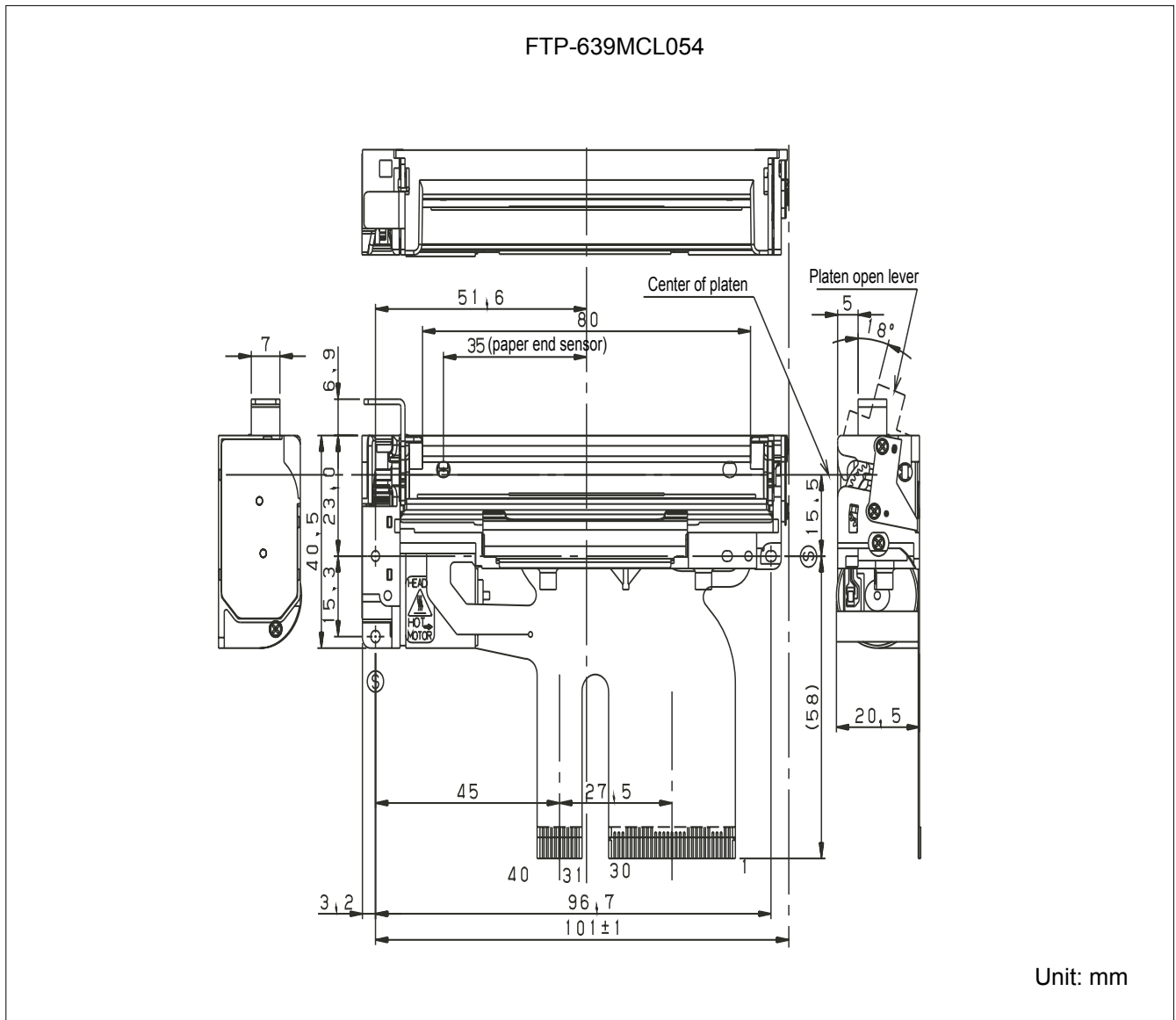| Item		Specifications	
Part number		FTP-639MCL054/074	FTP-639MCL354#70/373#70/374#70
Power supply	For head	24 VDC ±5% 1.9A (4A,)(24V , 25% printing ratio)	
	For printer motor	24VDC ±5% 1A maximum	
	For cutter motor	---	24VDC±5% 1.2A maximum
	For logic	5VDC±5% 0.2 A maximum	
Dimensions W x D x H	Printer Mechanism	104.4 × 40.5 × 20.5mm	---
	Printer Mech with cutter	---	110.4 × 62.5 × 37.7mm
	Interface board	77 x 50 x 21.5mm	
Weight	Printer Mechanism	Approximately 125g	---
	Printer Mech with cutter	---	Approximately 300g
	Interface board (standard)	Approximately 30g	
Life	Head	Pulse durability: 100 million pulse/dot (using Fujitsu Components' standard driving method) Wear resistance: 100 km (at 12.5% print ratio)	
	Cutter	---	1,000,000 cuts
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 +70°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	
	Cutter position	By microswitch (inside cutter)	
Recommended thermal sensitive paper	High sensitivity paper	TF50KS-E4 (Nippon paper)	
	Standard paper	TF60KS-E (Nippon paper), FTP-030P0104 (80mm), PD150R (Oji paper), FTP-030P0701 (80mm)	
	Medium term paper	TP60KS-F1 (Nippon paper), FTP-030P0102(80mm), 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)	
	Label paper	HW54T (Nippon paper)	

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■ 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

FTP-639MCL054

Unit: mm

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Printer with cutter

FTP-639MCL354#70
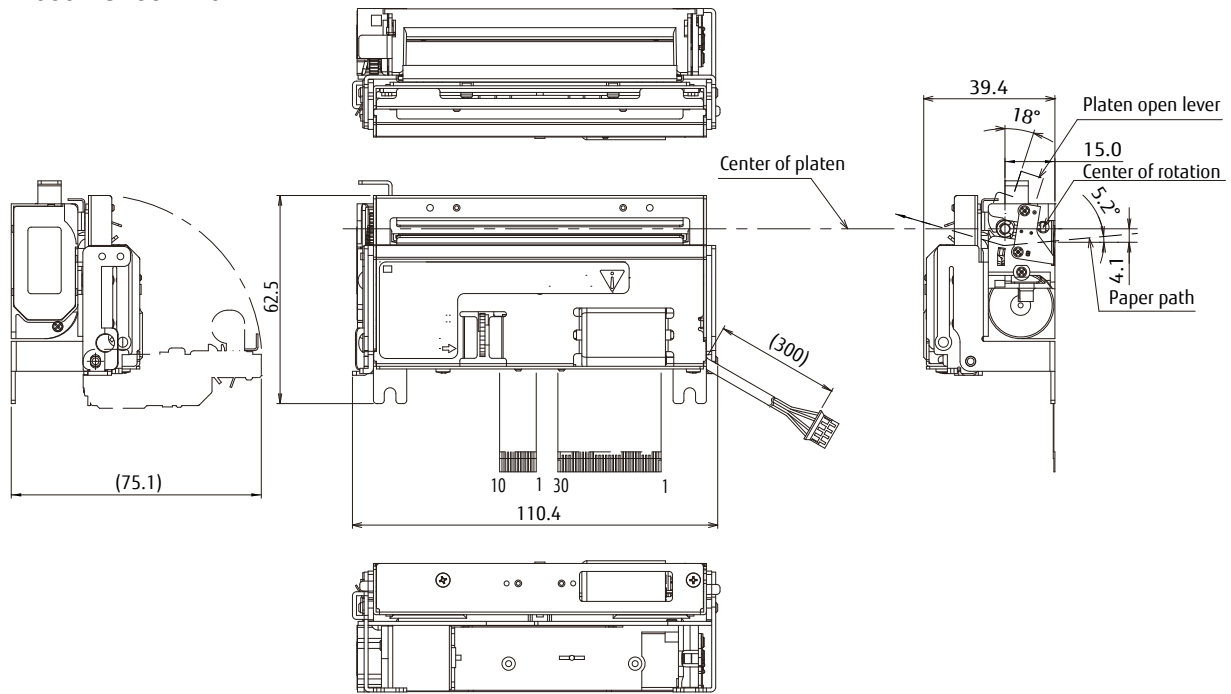
39.4

18°

Platen open lever

15.0
Center of rotation

5.2°

4.1

Paper path

Center of platen

62.5

(75.1)

10 1 30   1

110.4

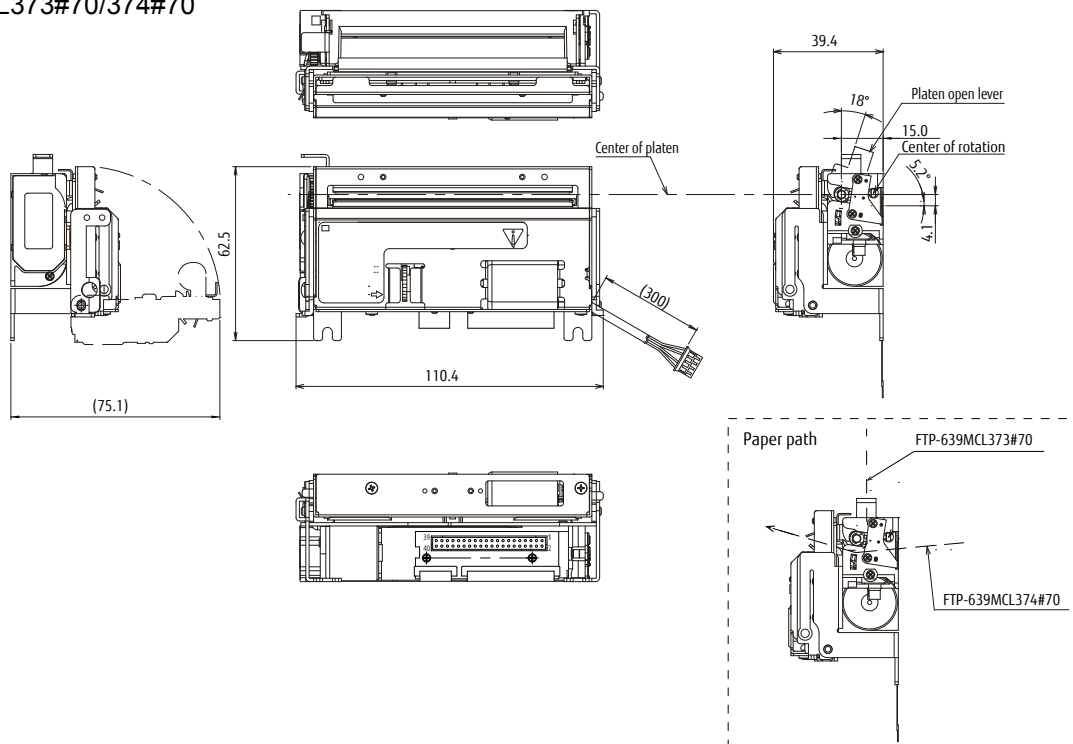(300)

Notes: 1. Nominal value (Tolerance +0.5, -0.5)
        2. S is the base line of installing (Tolerance +0.5, -0.5)

Unit: mm

FTP-639MCL373#70/374#70

39.4

18°

Platen open lever

15.0
Center of rotation

5.2°

4.1

Center of platen

62.5

(75.1)

110.4

(300)

Paper path   FTP-639MCL373#70

FTP-639MCL374#70

Notes: 1. Nominal value (Tolerance +0.5, -0.5)
        2. S is the base line of installing (Tolerance +0.5, -0.5)

Unit: mm

■ CONNECTOR PIN ASSIGNMENT OF PRINTER MECHANISM (FPC)

1. Thermal head, motor, sensor

* FPC type (FTP-639MCL054/354#70)

　No 1 to 30: 52610-3071 (Molex), No 31 to 40: 52610-1071 (Molex)

* Cable extension type (FTP-639MCL074/373#70/374#70) LY20-DC40 (JAE)

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	$\overline{STB3}$	I	Print enable 3
9	$\overline{STB4}$	I	Print enable 4	10	VDD	-	Power for logic
11	TM	-	Head 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	19	GND	-	Head GND
19	GND	-	Head GND	20	GND	-	Head GND
121	TH	-	Thermistor	22	$\overline{STB1}$	I	Print enable 1
23	$\overline{STB2}$	I	Print enable 2	24	$\overline{LAT}$	I	Print data latch
25	CLK	I	Clock	26	DO	O	Data out
27	VH	-	Power for thermal head	28	VH	-	Power for thermal head
29	VH	-	Power for thermal head	30	VH	-	Power for thermal head
31	NC	-	Not connected	32	TM	O	Motor temperature sensor
33	TM	-	Motor temperature sensor	34	MT $\overline{A}$	I/O	Motor coil excitation /A
35	MT A	I	Motor coil excitation A	36	MT $\overline{B}$	I/O	Motor coil excitation /B
37	MT B	I	Motor coil excitation B	38	PHK	-	Paper out sensor cathode
39	VSEN	I	Power for paper sensor	40	$\overline{PHE}$	O	Paper out sensor emittor

2. Cutter

　　With cutter type (FTP-639MCL354#70/373#70/374#70)

　　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-629DSL301 series datasheet.

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