

# SPECIFICATION

## (TENTATIVE)

Device Name : High-Side Intelligent Power Switch(IPS)

Type Name : F5044H

Spec. No. : MT5F 9488

This material and the information herein is the property of Fuji Electric Co., Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatsoever for the use of any third party nor used for the manufacturing purposes without the written consent of Fuji Electric Co., Ltd.

Fuji Electric Co., Ltd.  
Matsumoto Factory

	DATE	NAME	APPROVED	
DRAWS	Nov-5-78	R. Sogawa		Fuji Electric Co., Ltd.
CHECKED	Nov-5-78	S. Furukawa	<i>[Signature]</i>	MT5F 9488 1/5
				096.12

This material and the information herein is the property of Fuji Electric Co., Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatsoever for the use of any third party are used for the manufacturing purpose without the express authorization of Fuji Electric Co., Ltd.

- 1.Scope** This specifies Fuji High-Side Intelligent Power Switch F5044H
- 2.Construction** Self-Isolation structure  
Output part; N-channel enhancement mode
- 3.Application** For switching
- 4.Outview** SOP-8 (EIAJ SC-87) Outview See to 5/5 Page

**5.Absolute maximum ratings (at Tc=25°C. unless otherwise specified.)**

Description	Symbol	Characteristics	Unit	Conditions
Supply voltage	V <sub>CC</sub>	50	V	Pulse 0.25 sec
Supply voltage	V <sub>CC</sub>	33	V	DC
Continuous Drain current	I <sub>D</sub>	3	A	
Input voltage	V <sub>IN</sub>	-0.3 ~ V <sub>CC</sub> +0.3	V	DC
Status current	I <sub>ST</sub>	5	mA	
Maximum power dissipation	P <sub>D</sub>	1.5	W	*
Operating junction temperature	T <sub>J</sub>	150	°C	
Storage temperature range	T <sub>stg</sub>	-55 ~ 150	°C	

\* Surface Mounted on 1000mm<sup>2</sup> PCB(FR-4)

**6.Electrical characteristics (at Tc=25°C. unless otherwise specified.)**

Description	Symbol	Conditions	Characteristics			Unit
			min.	typ.	max.	
Operating voltage	V <sub>CC</sub>		6		28	V
Standby current	I <sub>CC</sub>	V <sub>CC</sub> =13V R <sub>L</sub> =10Ω V <sub>IN</sub> =0V			3	mA
Input voltage	V <sub>IN(H)</sub>	V <sub>CC</sub> =13V	3.5			V
	V <sub>IN(L)</sub>	V <sub>CC</sub> =13V			1.5	V
Input current	I <sub>IN(H)</sub>	V <sub>CC</sub> =13V V <sub>N</sub> =5V			12	μA
On-state resistance	R <sub>DS(on)</sub>	V <sub>CC</sub> =13V L=1.25A			0.11	Ω
Output leakage current	I <sub>OL</sub>	V <sub>CC</sub> =13V			0.5	mA

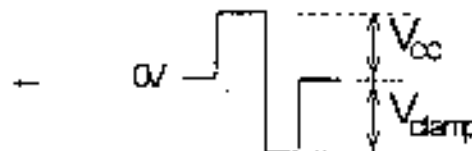
This manual and the information herein is the property of Fuji Electric Co., Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way elsewhere for the use of any third party nor used for the manufacturing purposes without the express permission of Fuji Electric Co., Ltd.

Description	Symbol	Conditions	Characteristics			Unit
			min.	typ.	max.	
Over-current detection **	$I_{OC}$	$V_{CC}=13V$	3		6	A
Peak-current under Over-current detection	$P_{peak}$	$V_{CC}=13V$		10		A
Over-temperature shutdown	$T_{TTP}$	$V_{CC}=13V$	150		200	$^{\circ}C$
Over-voltage shutdown	$V_{OV}$		26		33	V
Turn-on Time	$t_{on}$	$V_{CC}=13V$			100	$\mu S$
Turn-off Time	$t_{off}$	$R_L=10\Omega$			40	$\mu S$
Status voltage	$V_{SRL}$	$V_{CC}=13V$ $R_L=10\Omega$ $V_{IN}=0V$ $I_{BT}=1mA$			0.4	V
Status leakage current	$I_{SLEAK}$	$V_{CC}=13V$ $R_L=10\Omega$ $V_{IN}=5V$			10	$\mu A$
Output-clamp voltage ***	$V_{CLAMP}$	$V_{CC}=13V$ $I_L=1.0A$ $V_{IN}=0V$ $L=10mH$	$-(50-V_{CC})$		$-(60-V_{CC})$	V
Diode forward on-voltage	$V_{SD}$	$V_{IN}=0V$ $I_{SD}=-6A$			1.5	V
Open-load detection	$R_{LOPEN}$	$V_{CC}=13V$ $V_{IN}=0V$	5		30	$k\Omega$

\*\* At Over-current detection, the device moved switching mode.

\*\*\* <Output-clamp voltage :  $V_{CLAMP}$ >

$$50V \leq V_{CC} + V_{CLAMP} \leq 60V$$



### 7. Thermal resistance

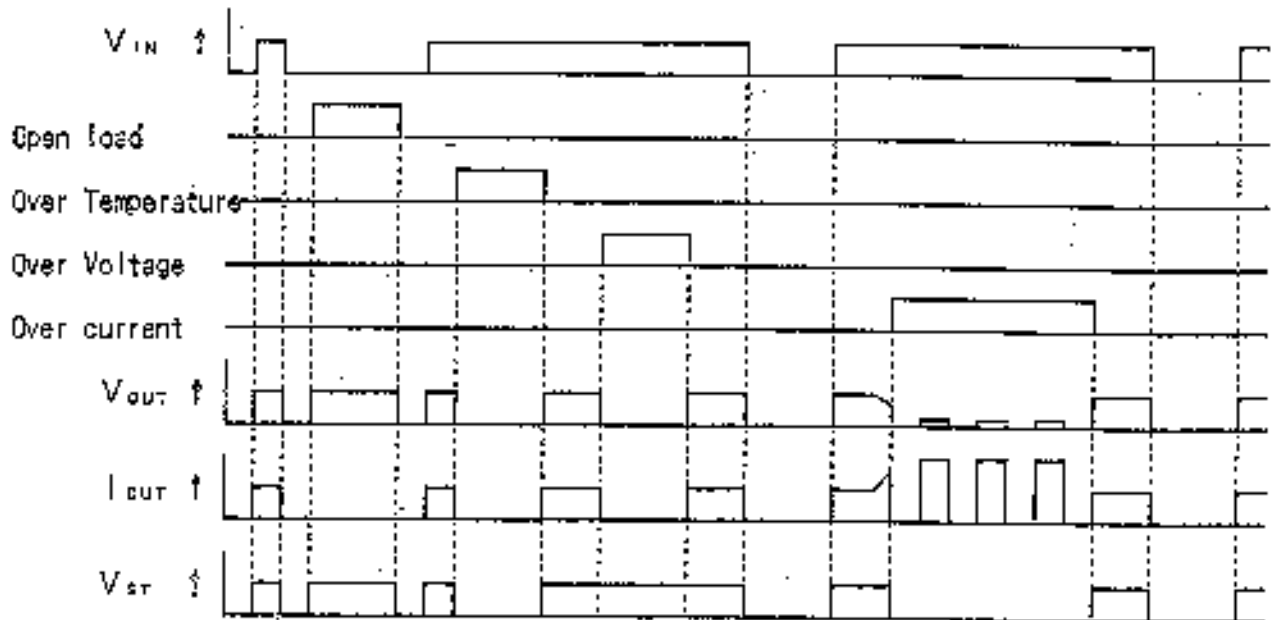
Description	Symbol	Conditions	Characteristics			Unit
			min.	typ.	max.	
Thermal Resistance	$R_{th(j-c)}$	Junction - case			4.17	$^{\circ}C/W$
	$R_{th(j-a)}$	Junction - ambient ***			83.0	$^{\circ}C/W$

\*\*\* Surface Mounted on 1000mm<sup>2</sup> PCB (FR-4)

8. Truth Table

	Input voltage	Status voltage	Output voltage	Remarks
Normal operation	L H Open	L H L	L H L	
Open load	L	H	H	Auto-restart
Over current	L H	L L	L L	swtting mode Auto-restart
Over Temperature	L H	L L	L L	Auto-restart
Over Voltage	L H	L H	L L	Auto-restart

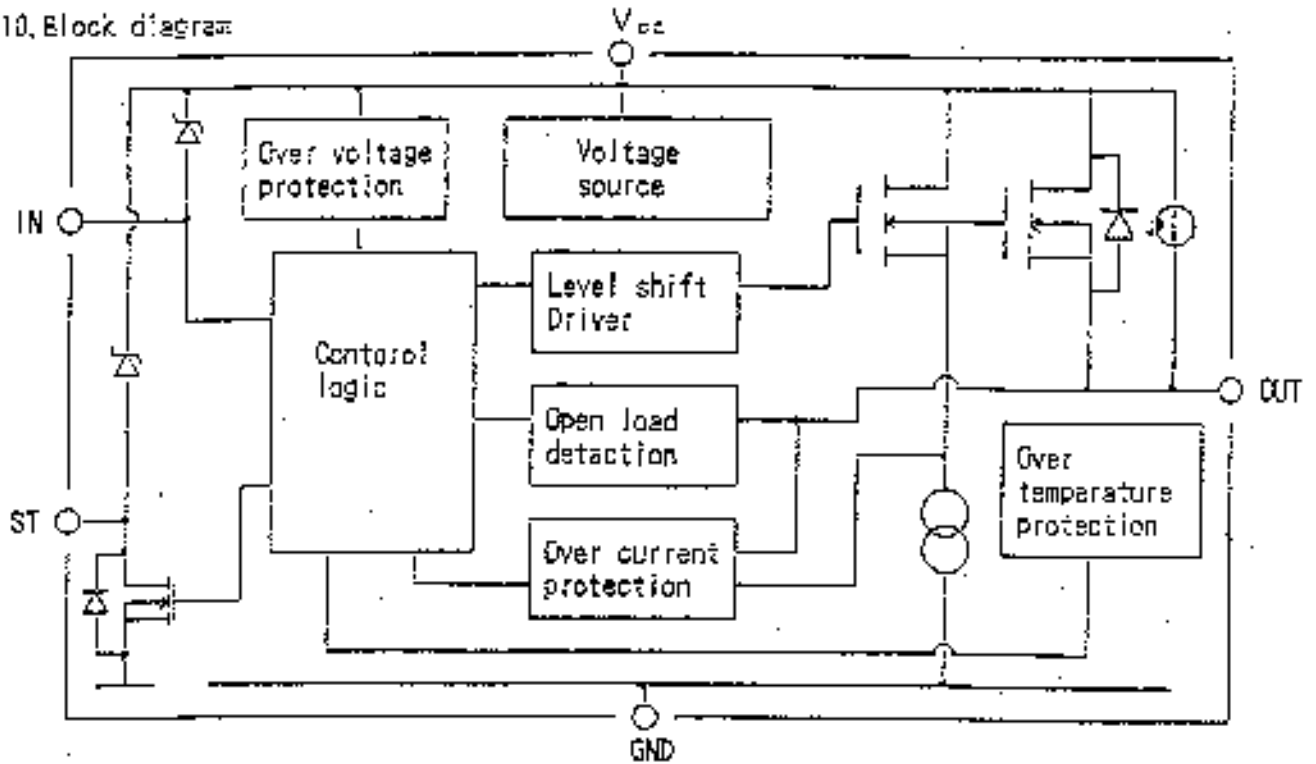
9. Timing Chart



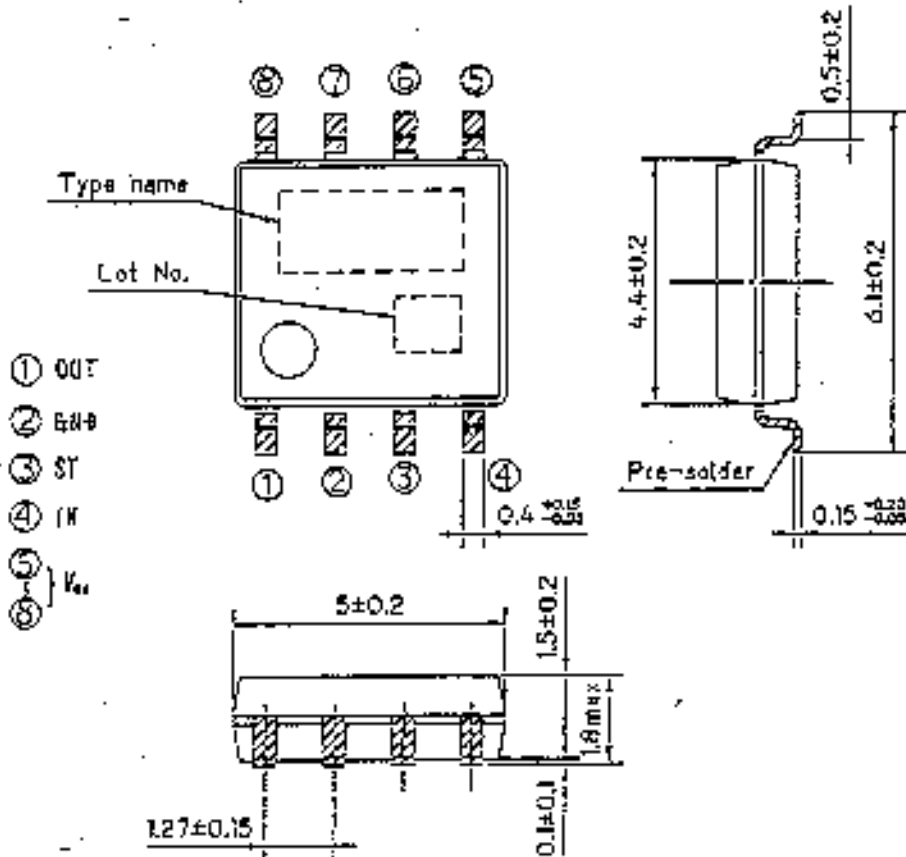
This material and the information herein is the property of Fuji Electric Co., Ltd. They shall neither be reproduced, copied, lent, or disclosed in any way whatsoever for the use of any part nor used for the manufacturing purposes without the express written consent of Fuji Electric Co., Ltd.

This manual and the information herein is the property of Fuji Electric Co., Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatsoever for the use of any third party nor used for the manufacturing purposes without the express written consent of Fuji Electric Co., Ltd.

10. Block diagram



11. Out View



Fuji Electric Co., Ltd

DWG. NO.

MT5F 9488

5/5