

SPECIF CAT

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DRAWN
CHECKED

DATE

2-1998

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APPROVED

DWG. NO.

MS5 F 4292

1/2

Fuji Electric Co., Ltd.

Scope
This specifies Fuji

F 5 0 3 3

- 2 Construction
Self-Isolation Structure
Output Part; N-channel enhancement mode power MOSFET
- 3 Application
For switching
- 4 Outview
SOP-8(EIAJ SC-87) Outview See to 6/12 page)
- 5 Absolute maximum ratings (at $T_j=25^\circ\text{C}$, unless otherwise specified.)

Description	Symbol	Characteristics	Unit	Conditions
Drain-source voltage	V_{DSS}	4.0	V	DC
Gate-source voltage	V_{GS}	DC - 0.3 ~ 7.0	V	DC
Continuous drain current	I_D	1	A	————
Maximum power dissipation	P_D	1.5	W	‡
Operating junction temperature	T_j	150	$^\circ\text{C}$	————
Storage temperature range	T_{stg}	-55 ~ 150	$^\circ\text{C}$	————

‡ Surface Mounted on 1000mm²PCB(FR-4)

6. Electrical characteristics (at $T_j=25^\circ\text{C}$, unless otherwise specified.)

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Drain-source clamp voltage	V_{DSS}	$I_D = 1\text{ mA}$ $V_{GS} = 0\text{ V}$	4.0		6.0	V
Gate threshold voltage	$V_{GS(th)}$	$I_D = 10\text{ mA}$ $V_{DS} = 1.3\text{ V}$	1.0		2.8	V
Operation gate voltage	$V_{GS(op)}$		3.5		7.0	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 3.0\text{ V}$ $V_{GS} = 0\text{ V}$			1.0	mA
Gate-source leakage current	$I_{GS(on)}$	‡ $V_{GS} = 5\text{ V}$			500	μA
	$I_{GS(off)}$				800	μA
Drain-source on-state resistance	$R_{DS(on)}$	$I_D = 0.5\text{ A}$ $V_{GS} = 5\text{ V}$			600	m Ω

‡ Under normal operation †† Under self protection

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Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Turn-on time	t_{on}	$V_{DS} = 13\text{ V}$ $I_D = 0.5\text{ A}$			50	μS
Turn-off time	t_{off}	$V_{GS} = 5\text{ V}$			50	μS
Over-temperature protection	T_{trip}	$V_{GS} = 5\text{ V}$	150			$^{\circ}\text{C}$
Short circuit protection	I_{oc}	$V_{GS} = 5\text{ V}$	1			A
Single pulse inductive load switch-off energy dissipation	E_{CL}	$T_J = 150^{\circ}\text{C}$	25			mJ

7. Thermal resistance

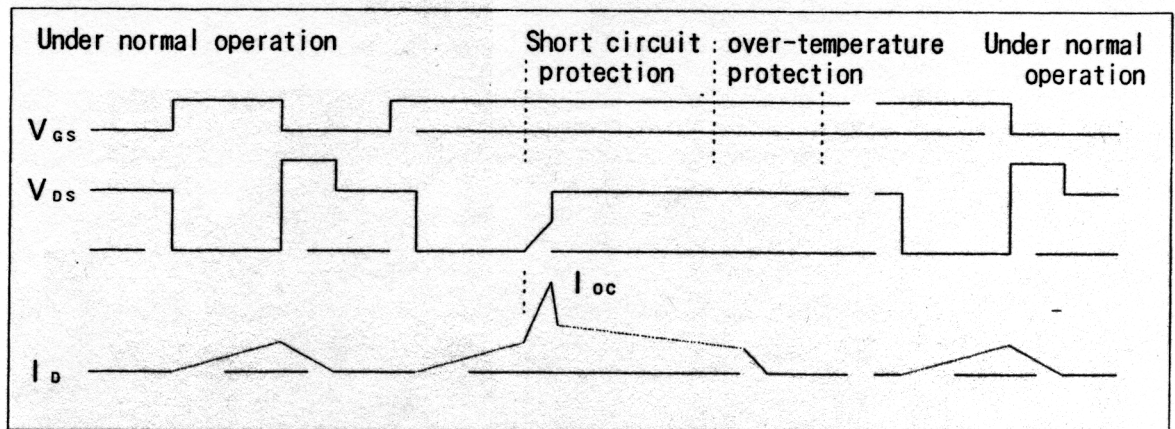
Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Thermal resistance	$R_{th(j-a)}$	Junction-ambient *			8.3	$^{\circ}\text{C}/\text{W}$

* Surface Mounted on 1000mm²PCB(FR-4)

8. Electrostatic discharge

Description	Conditions	Characteristics			Unit
		Min.	Typ.	Max.	
Drain-source	150 pF, 15.0 Ω	± 15			kV
Gate-source		± 0.5			kV

9. Timing chart



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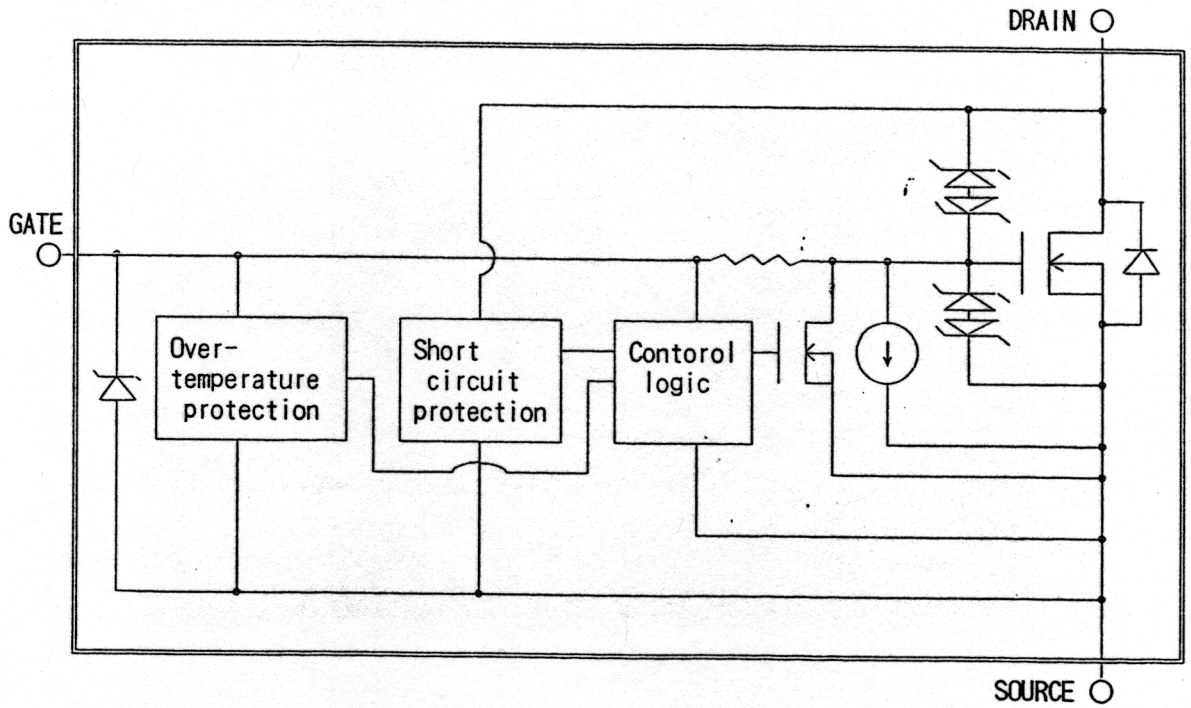
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4/12

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1 0. Block diagram



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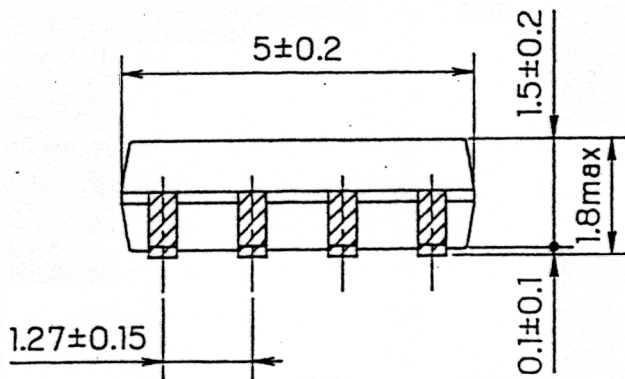
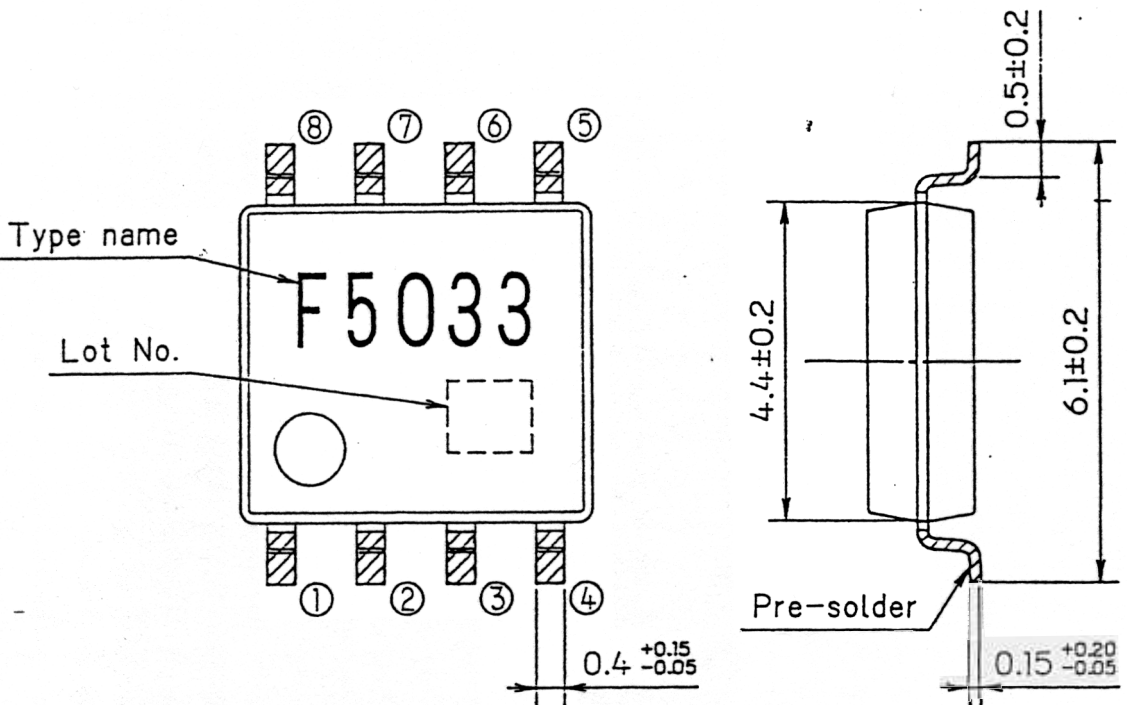
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5/2

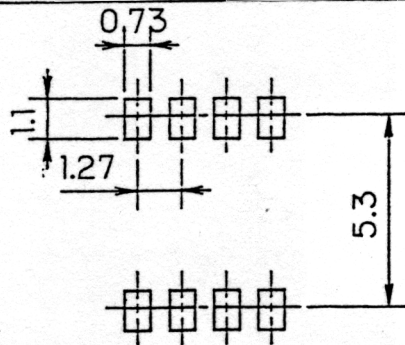
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FUJI INTELLIGENT POWER MOS FET

TYPE : F5033



RECOMMENDED PATTERN OF SOLDERING PADS.



CONNECTION

- ① SOURCE 1
- ② GATE 1
- ③ SOURCE 2
- ④ GATE 2
- ⑤ ⑥ DRAIN 2
- ⑦ ⑧ DRAIN 1

EIAJ : SC-87

DIMENSIONS ARE IN MILLIMETERS.

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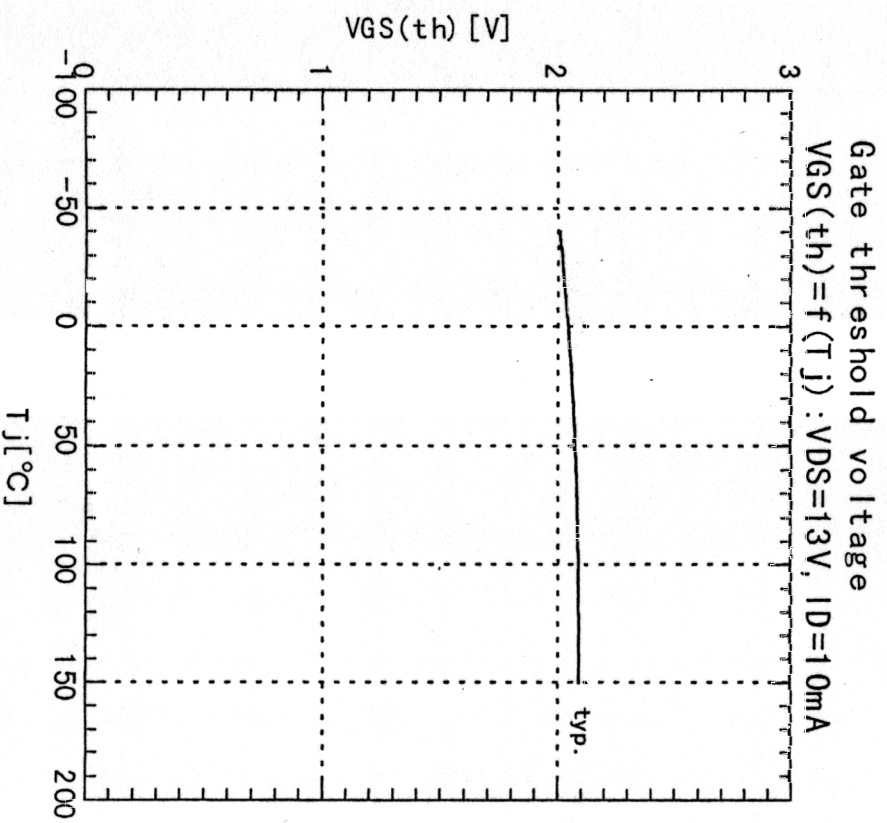
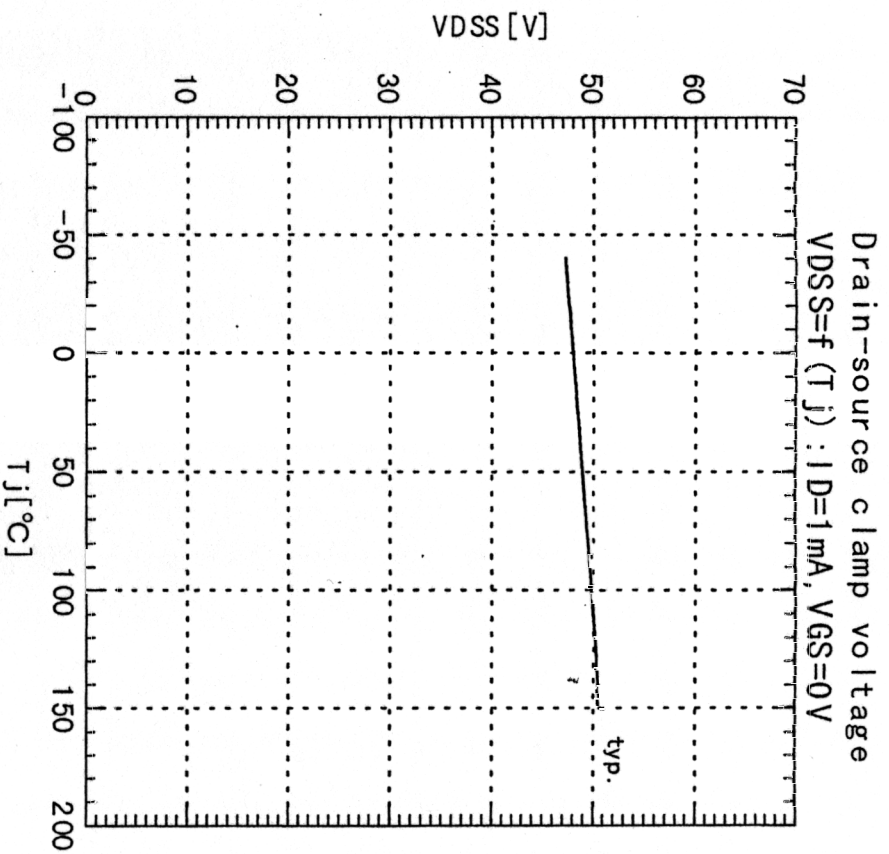
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6/12

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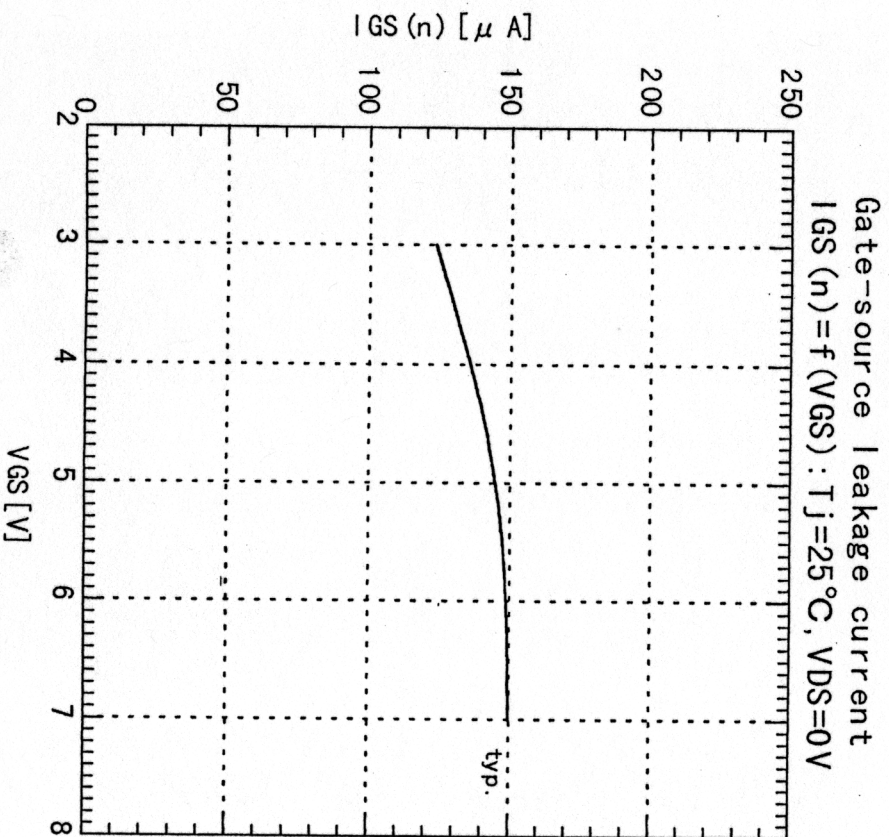
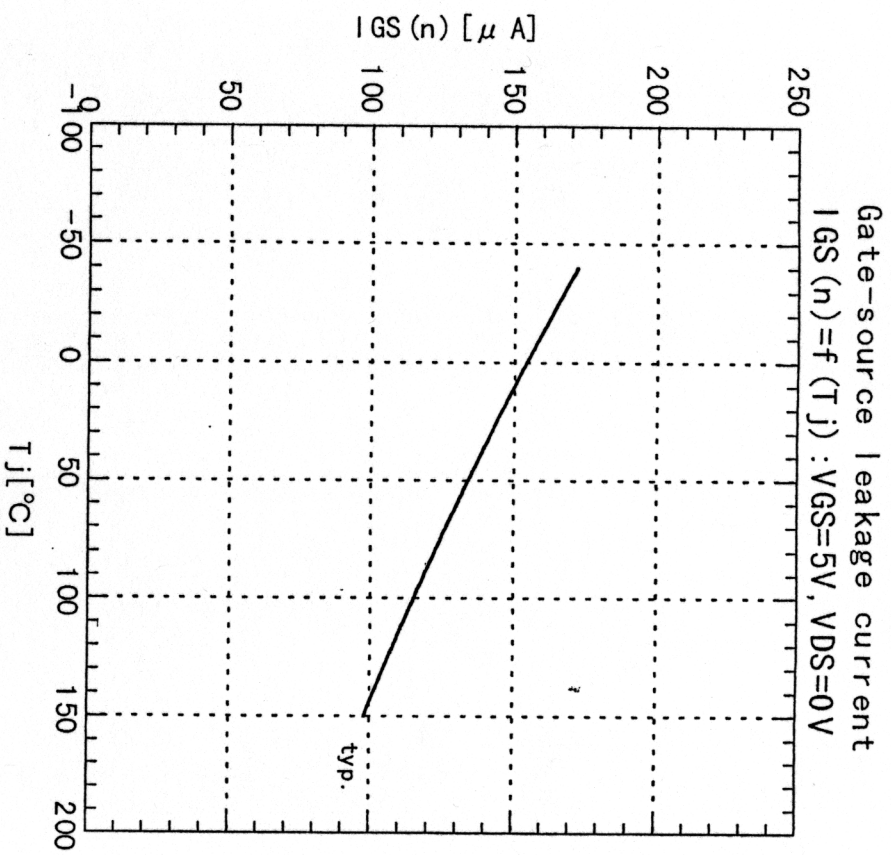
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7/2

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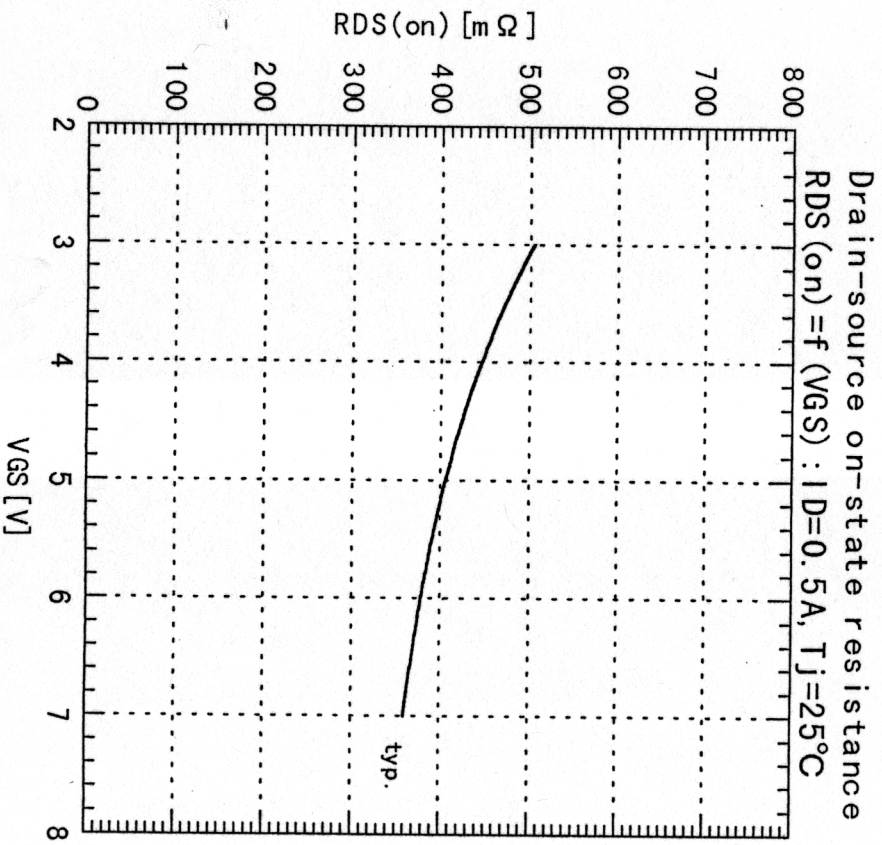
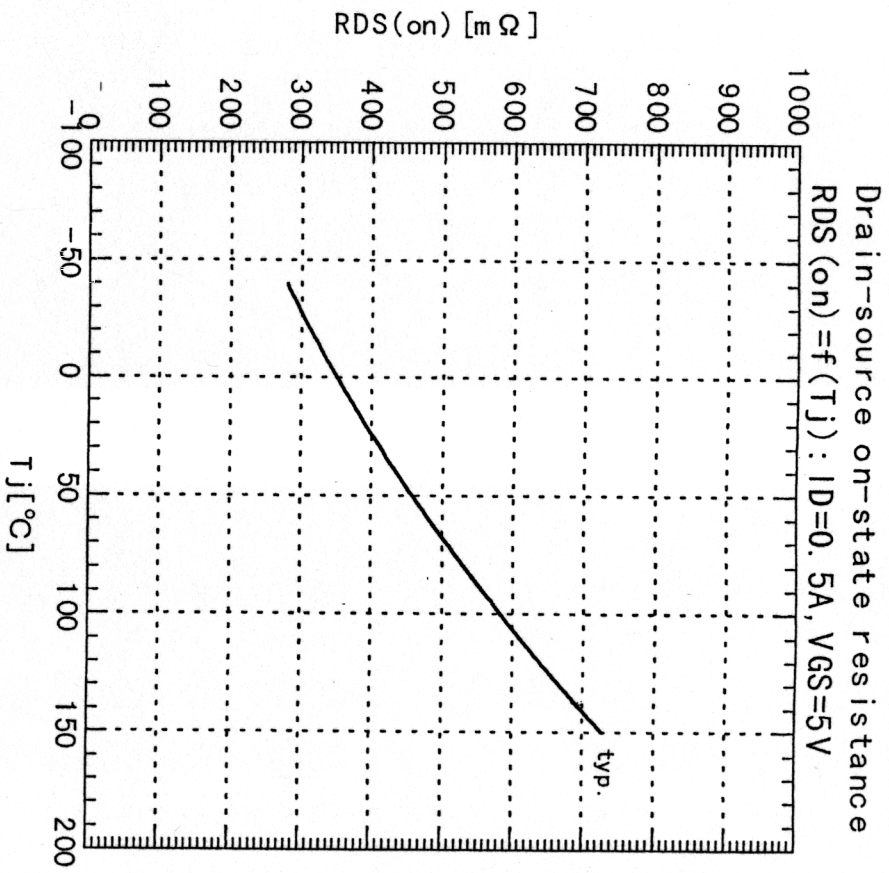
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8/12

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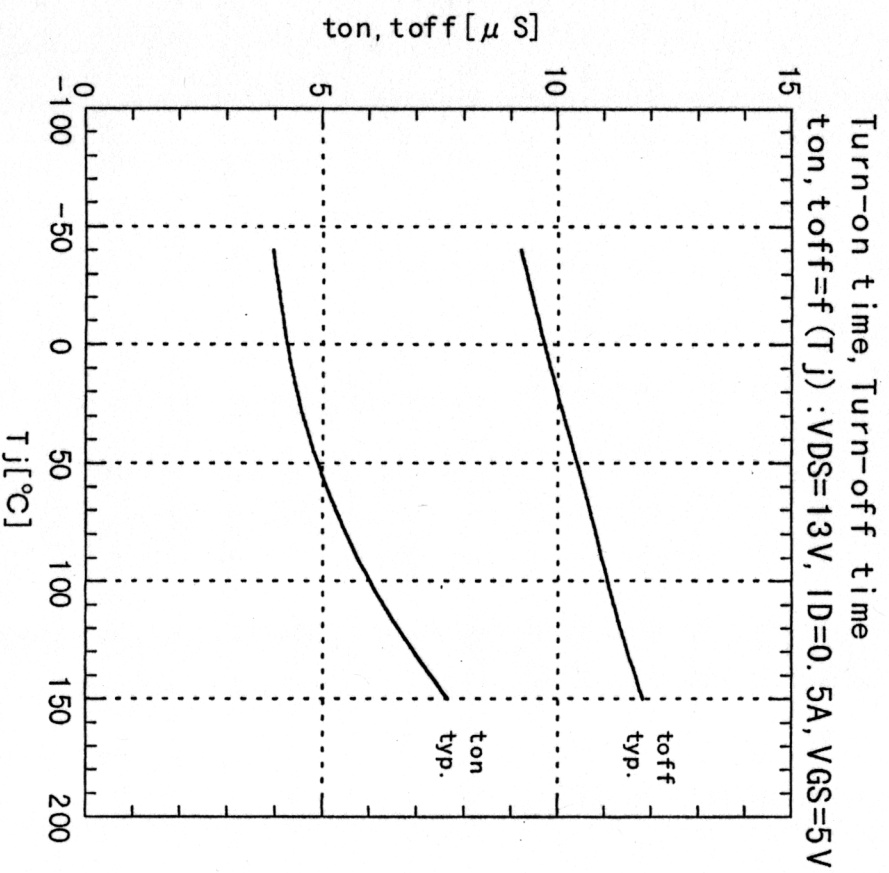
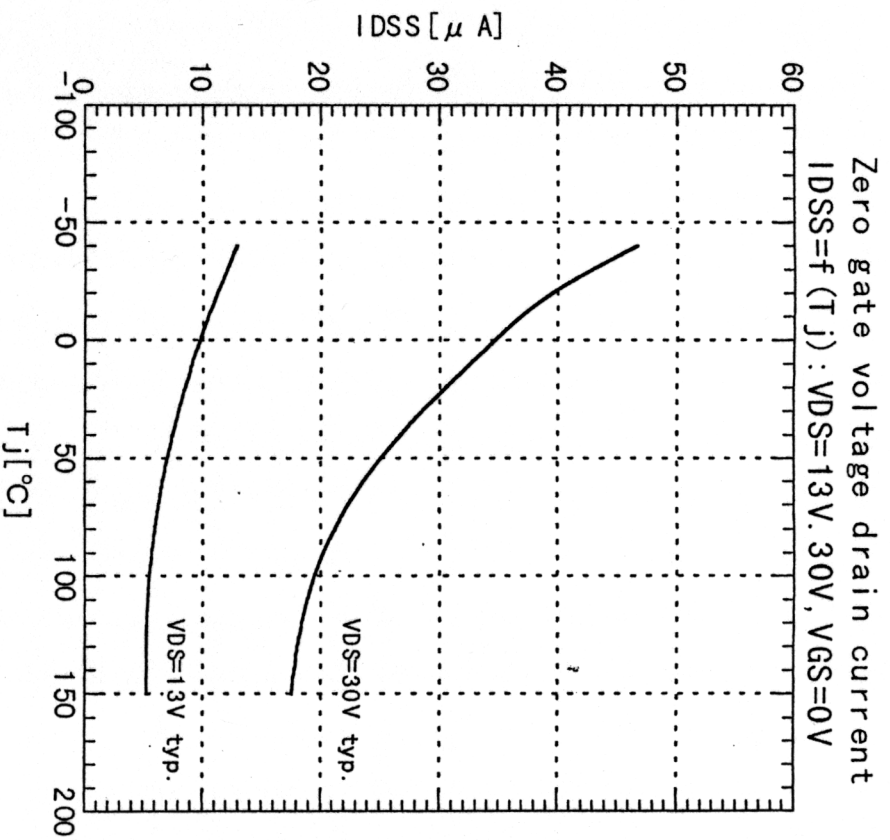
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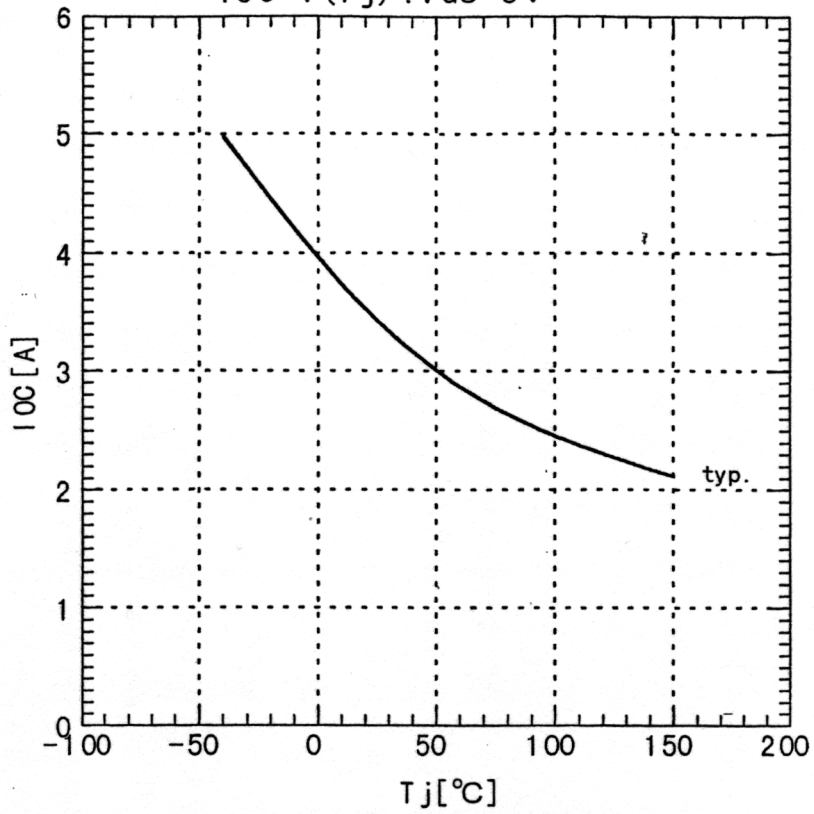
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10/2

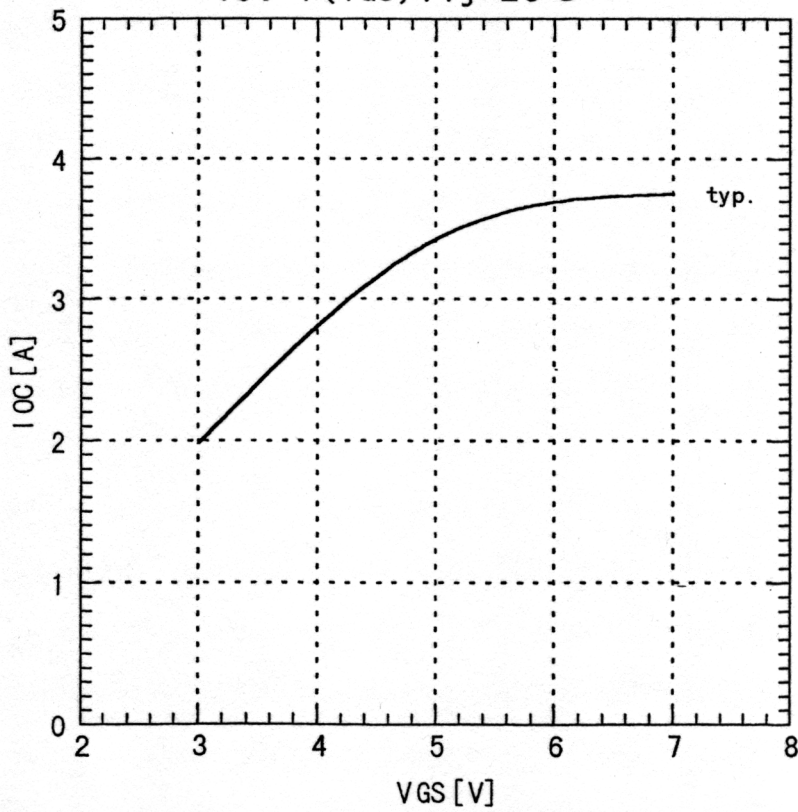
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Short circuit protection
 $I_{OC} = f(T_j) : V_{GS} = 5V$



Short circuit protection
 $I_{OC} = f(V_{GS}) : T_j = 25^\circ C$



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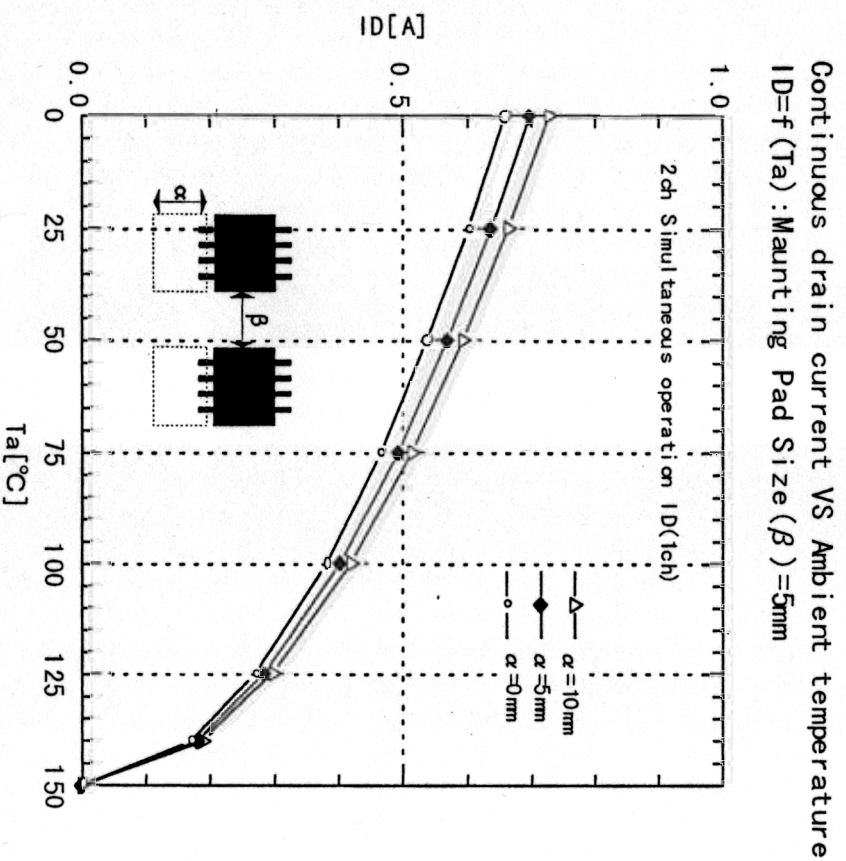
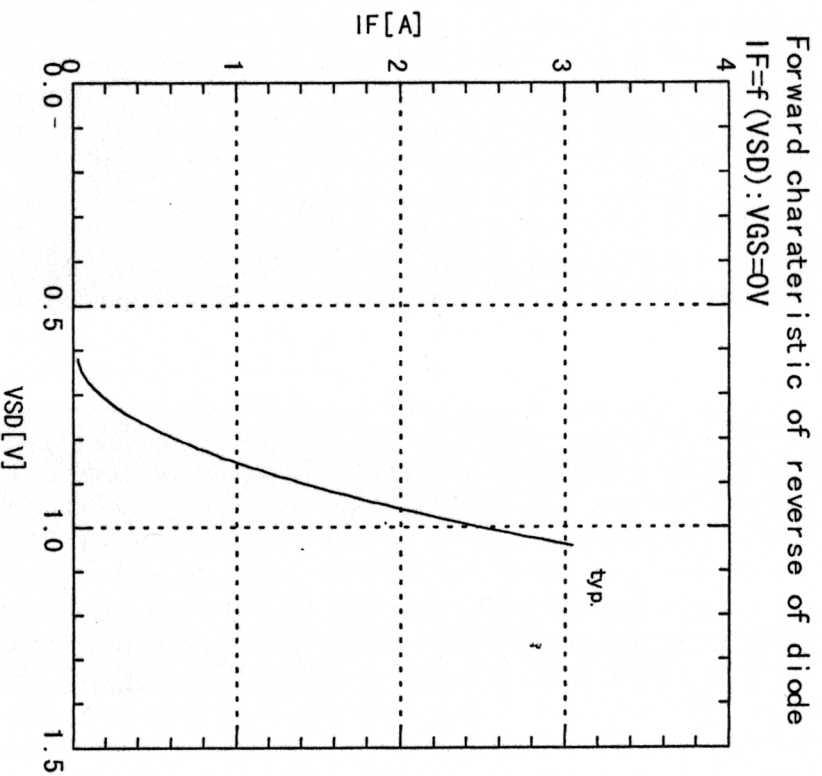
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12/12

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