

SPECIFICATION


Device Name : Power MOSFET

Type Name : 2SK3264-01MR

Spec. No. : **MS5F4412**

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 express written consent of Fuji Electric Co., Ltd.

Fuji Electric Co., Ltd.
Matsumoto Factory

	DATE	NAME	APPROVED	Fuji Electric Co., Ltd.		
DRAWN	'98-09-29	C. Ota		DWG. NO	MS5F4412	1/12
CHECKED	'98-09-29	K. Yamaguchi				

1. Scope This specifies Fuji power MOSFET 2SK3264-01MR
2. Construction N -channel enhancement mode power MOSFET
3. Application for switching
4. Outview TO-220F Outview See to 5 / 12 page
5. Absolute maximum ratings at Tc=25°C (unless otherwise specified)

Description	Symbol	Characteristics	Unit	Remarks
Drain-source voltage	V _{DS}	800	V	
Continuous Drain current	I _D	± 7	A	
Pulse drain current	I _{Dpulse}	± 28	A	
Gate-source voltage	V _{GS}	± 35	V	
Repetitive or non-repetitive	I _{AR}	7	A	T _{ch} ≤ 150°C
Avalanche energy	E _{AS}	378.3	mJ	See page 12 / 12 *
Maximum power dissipation	P _D	60	W	
Operating and storage temperature range	T _{ch}	150	°C	
	T _{stg}	-55 ~ +150	°C	

*L= 14.2mH, V_{cc}= 80V

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

Static ratings

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Drain-source breakdown voltage	BV _{DSS}	I _D = 1 mA V _{GS} = 0V	800			V
Gate threshold voltage	V _{GS(th)}	I _D = 1 mA V _{DS} = V _{GS}	3.5	4	4.5	V
Zero gate voltage drain	I _{DSS}	V _{DS} = 800 V T _{ch} = 25°C		10	500	μA
	I _{DSS}	V _{GS} = 0V T _{ch} = 125°C		0.2	1	mA
Gate-source leakage current	I _{GSS}	V _{GS} = ± 35V V _{DS} = 0V		10	100	nA
Drain-source on-state resistance	R _{DS(on)}	I _D = 3.5A V _{GS} = 10V		1.62	2	Ω

Dynamic ratings

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Forward transconductance	gfs	$I_D = 3.5A$ $V_D = 25V$	2	4		S
Input capacitance	Ciss	$V_{DS} = 25V$ $V_{GS} = 0V$ $f = 1MHz$		900	1350	pF
Output capacitance	Coss			130	200	
Reverse transfer capacitance	Crss			70	110	
Turn-on time	td(on)	$V_{CC} = 600V$ $V_{GS} = 10V$		25	40	nS
	tr			90	140	
Turn-off time	td(off)	$I_D = 7A$ $R_G = 10\Omega$		80	120	
	tf			50	80	

Reverse diode

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Avalanche capability	I _{AV}	$L = 14.2mH$ $T_{ch} = 25^\circ C$ * See Fig1 and 2	7			A
Diode forward on-voltage	V _{SD}	$I_F = 2X I_D$ $V_{GS} = 0V, T_{ch} = 25^\circ C$		1	1.5	V
Reverse recovery time	trr	$I_F = I_D$ $V_{GS} = 0V$ $-di_F/dt = 100A/\mu s$ $T_{ch} = 25^\circ C$		900		ns
Reverse recovery charge	Q _{rr}				10	

7. Thermal resistance

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Thermal resistance	R _{thch -c}				2.083	$^\circ C/W$
	R _{thch -a}				62.5	$^\circ C/W$

Fig.1 Test circuit

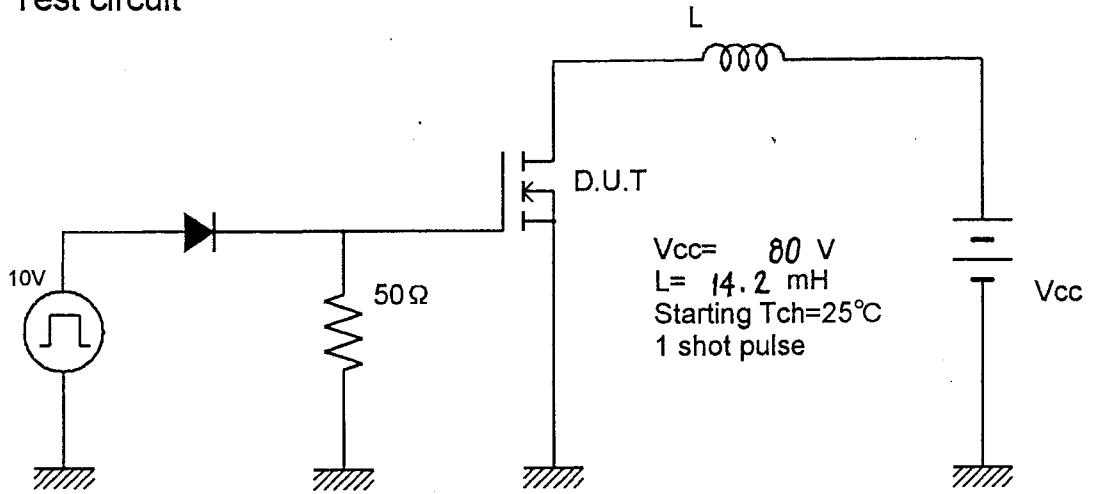
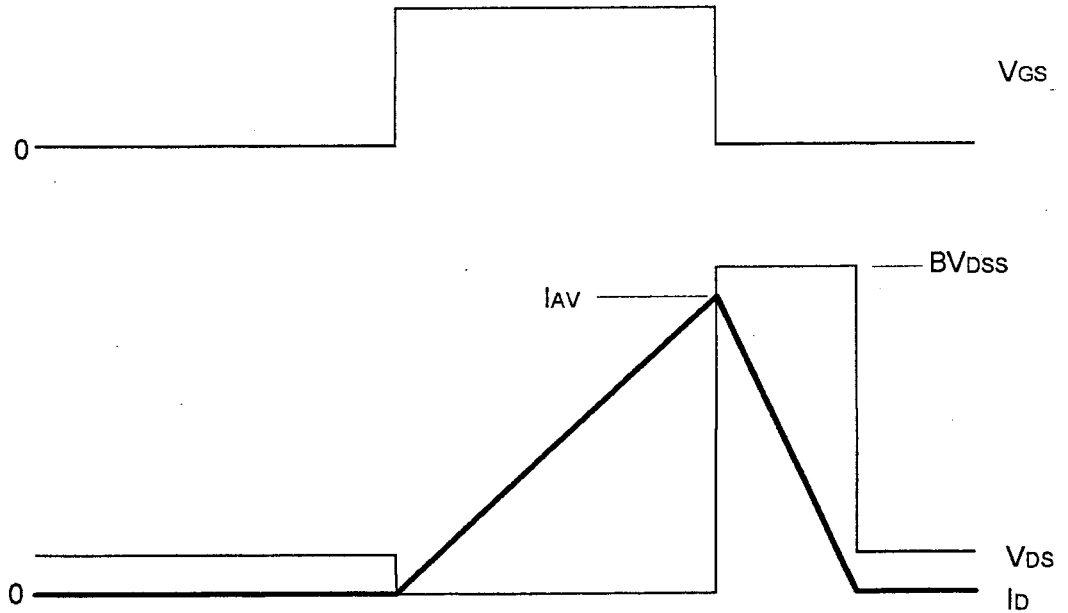


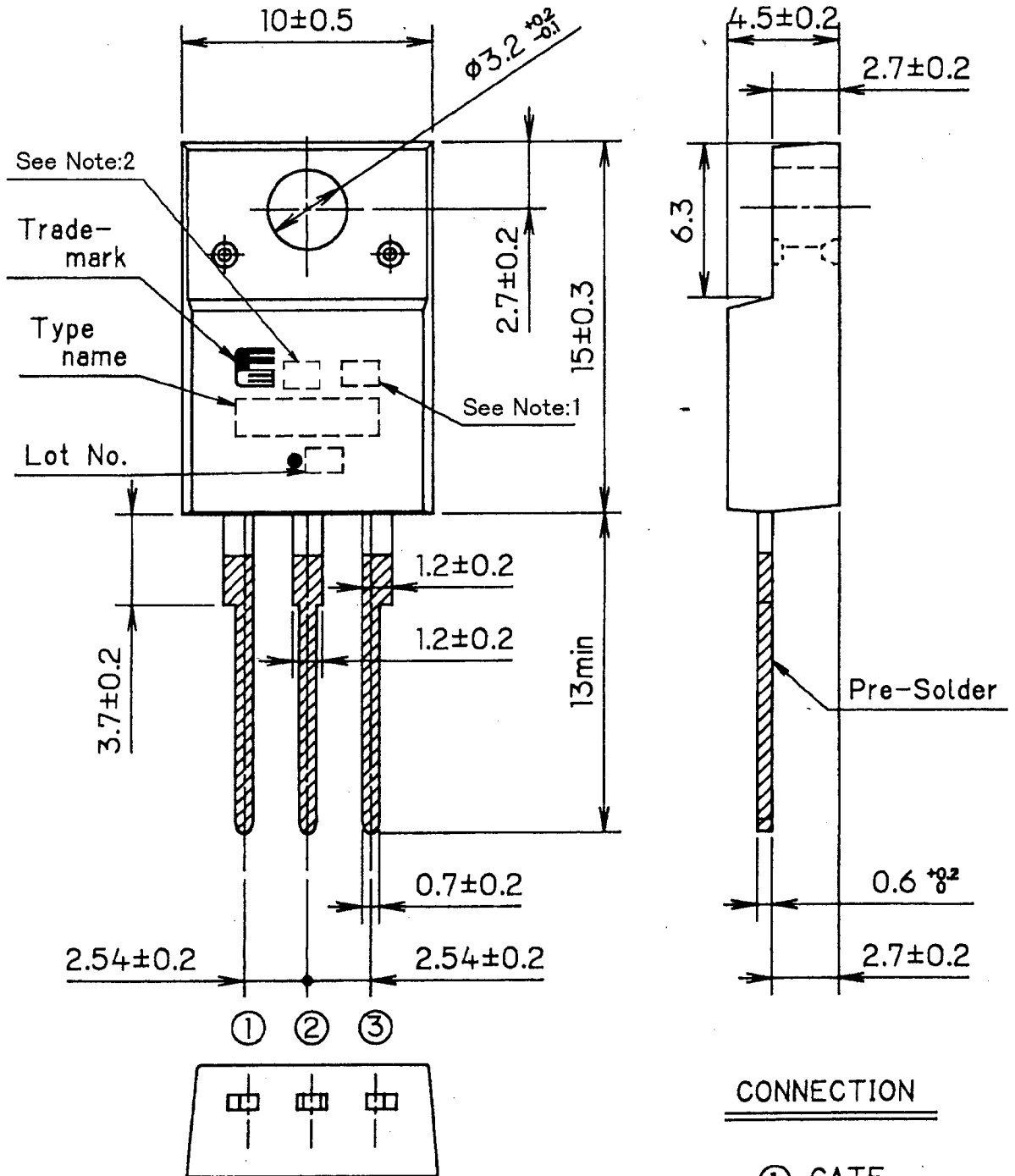
Fig.2 Operating waveforms



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 express written consent of Fuji Electric Co., Ltd.

FUJI POWER MOS FET

TYPE : 2SK3264-01MR



Note: 1. Guaranteed mark of avalanche ruggedness.
 2. Country of origin mark.
 No mark is Made in JAPAN.
 『P』is Made in PHILIPPINES.

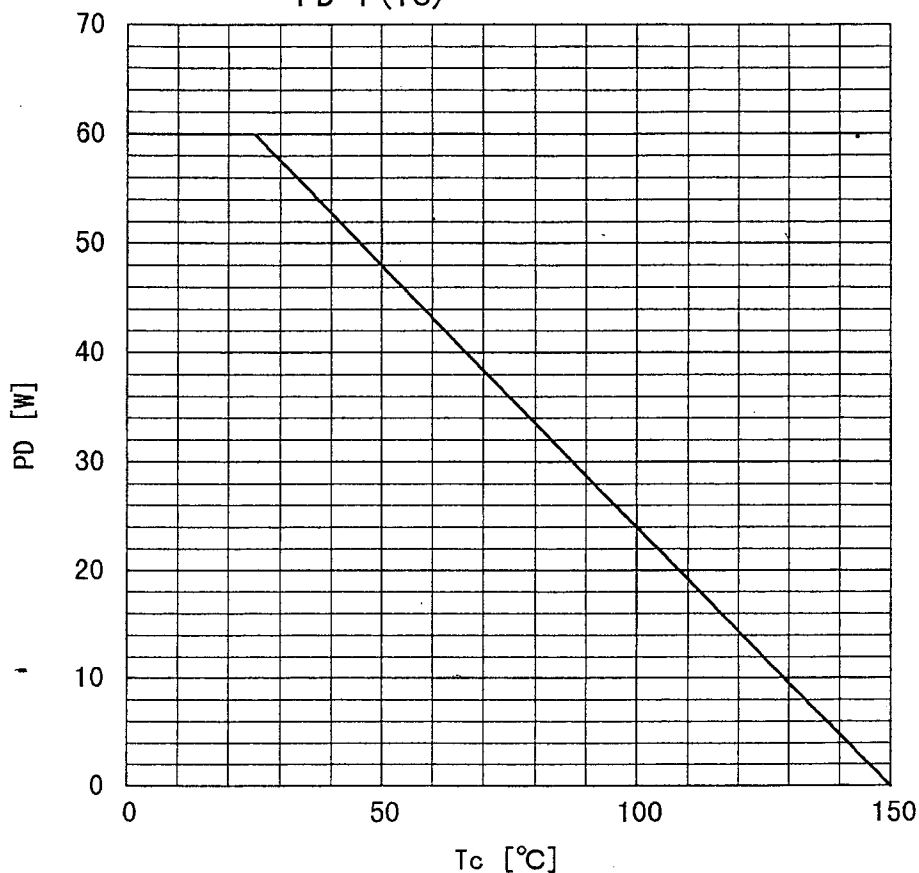
CONNECTION

- ① GATE
- ② DRAIN
- ③ SOURCE

DIMENSIONS ARE IN MILLIMETERS.

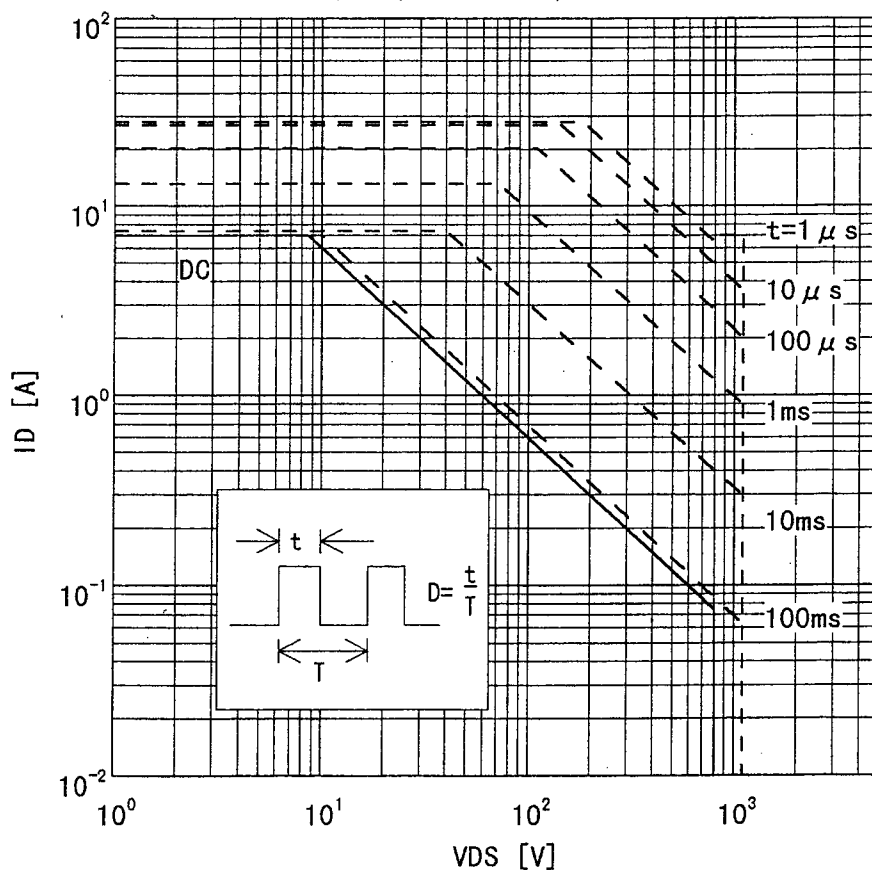
Power Dissipation

$PD=f(T_c)$



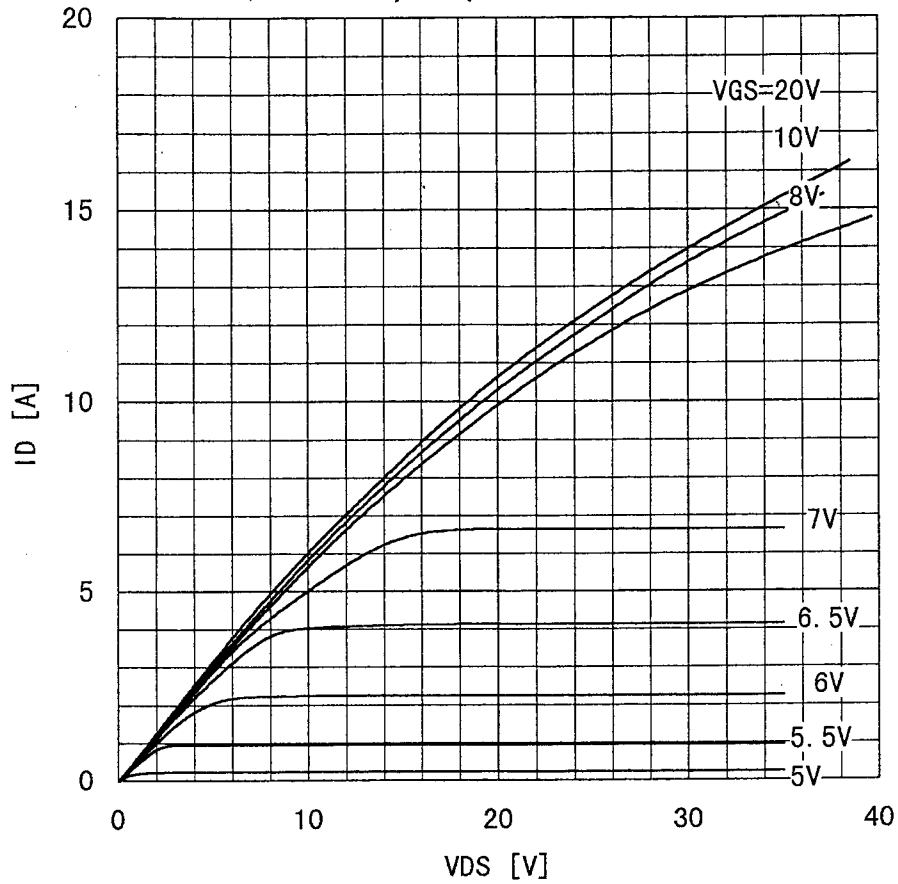
Safe operating area

$ID=f(V_{DS}) : D=0.01, T_c=25^\circ C$

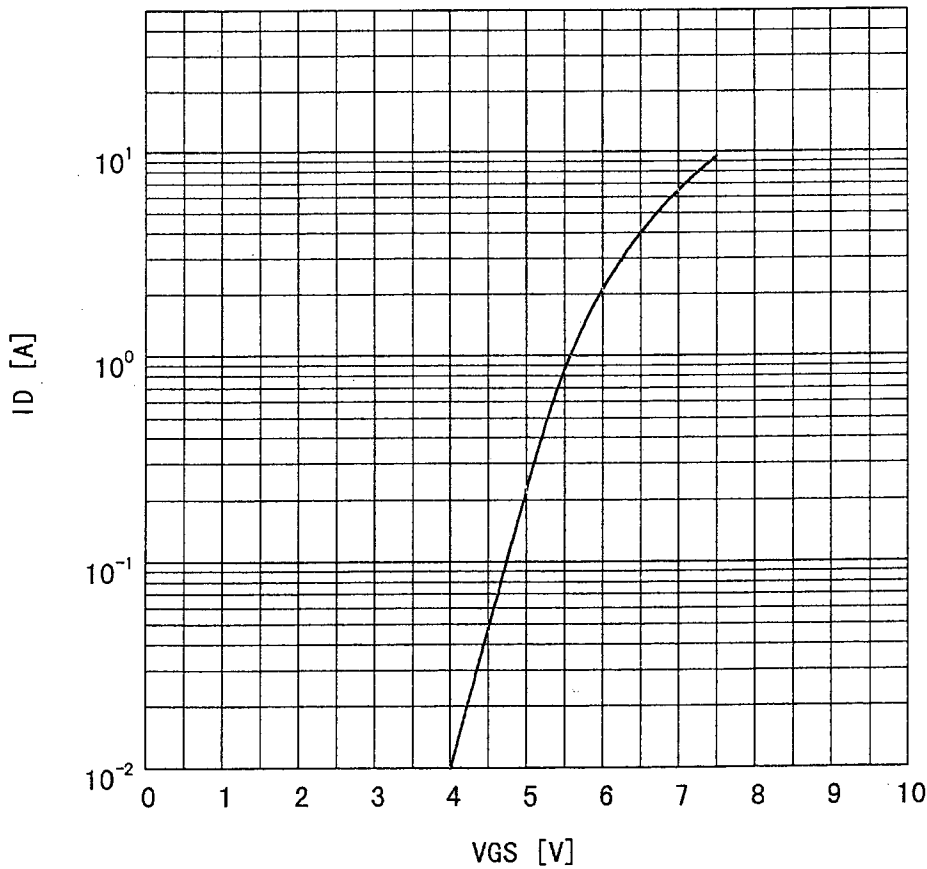


This material and the information herein is the property of Fuji Electric Co.,Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatsoever for the use of any third party nor used for the manufacturing purposes without the express written consent of Fuji Electric Co.,Ltd.

Typical output characteristics
 $I_D = f(V_{DS})$: 80 μ s pulse test, $T_c = 25^\circ\text{C}$

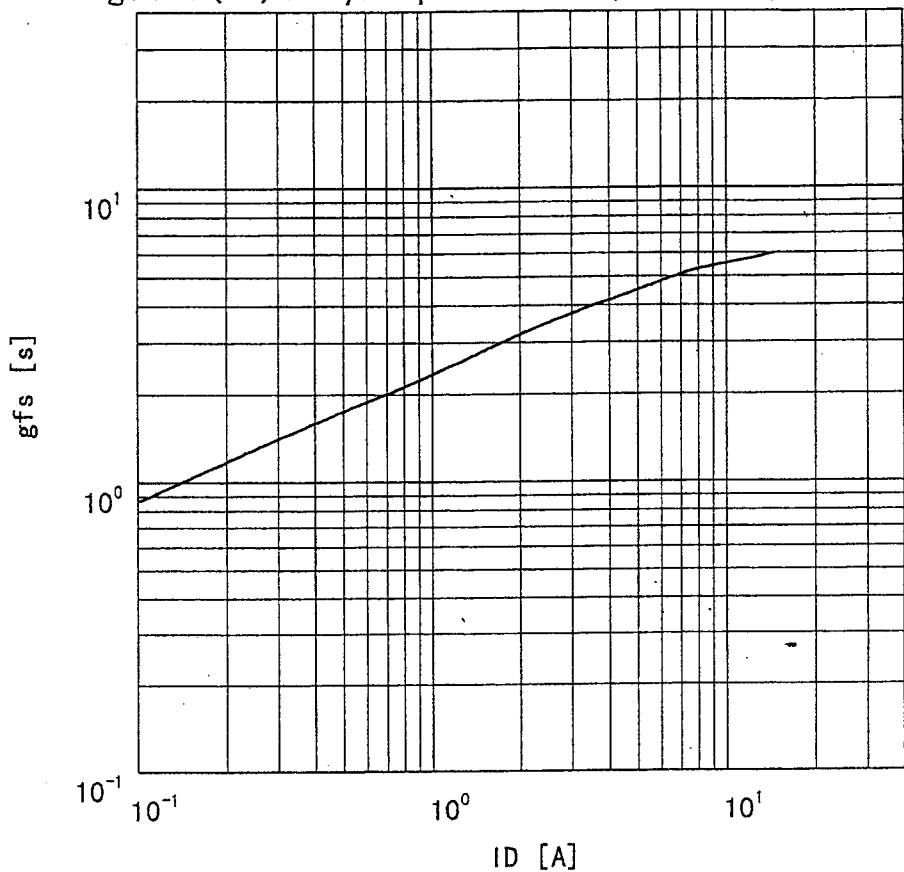


Typical transfer characteristic
 $I_D = f(V_{GS})$: 80 μ s pulse test, $V_{DS} = 25\text{V}$, $T_{ch} = 25^\circ\text{C}$

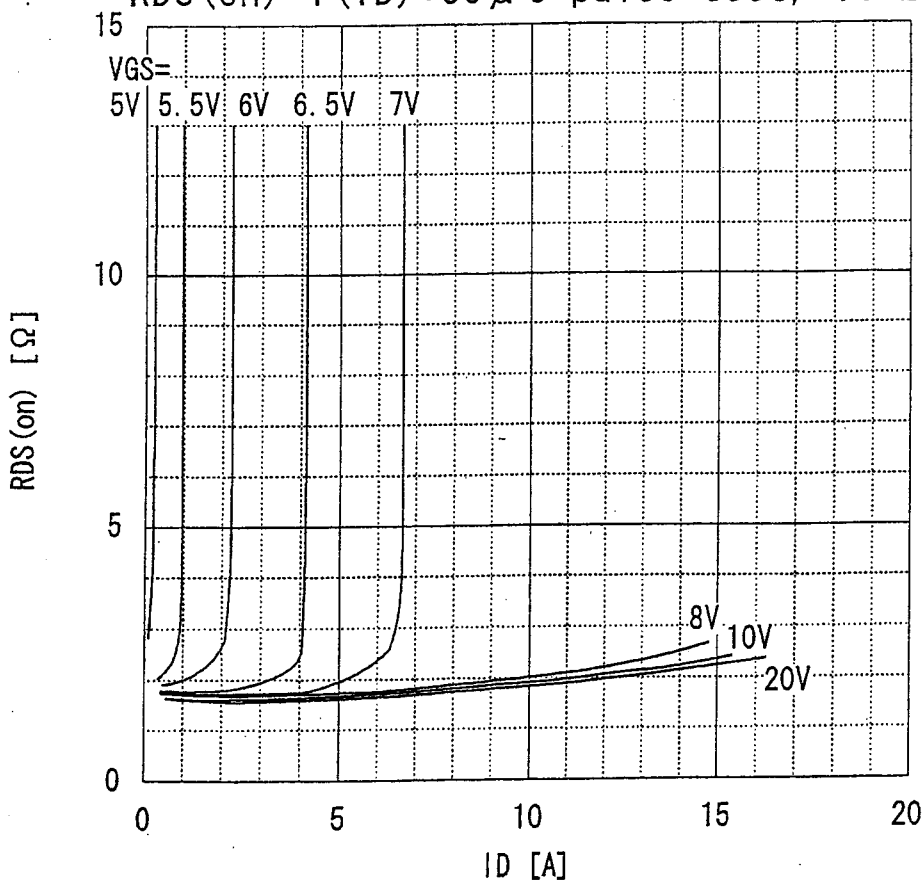


This material and the information herein is the property of Fuji Electric Co., Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatsoever for the use of any third party nor used for the manufacturing purposes without the express written consent of Fuji Electric Co., Ltd.

Typical forward transconductance
 $g_{fs}=f(I_D)$: 80 μ s pulse test, $V_{DS}=25V$, $T_{ch}=25^\circ C$



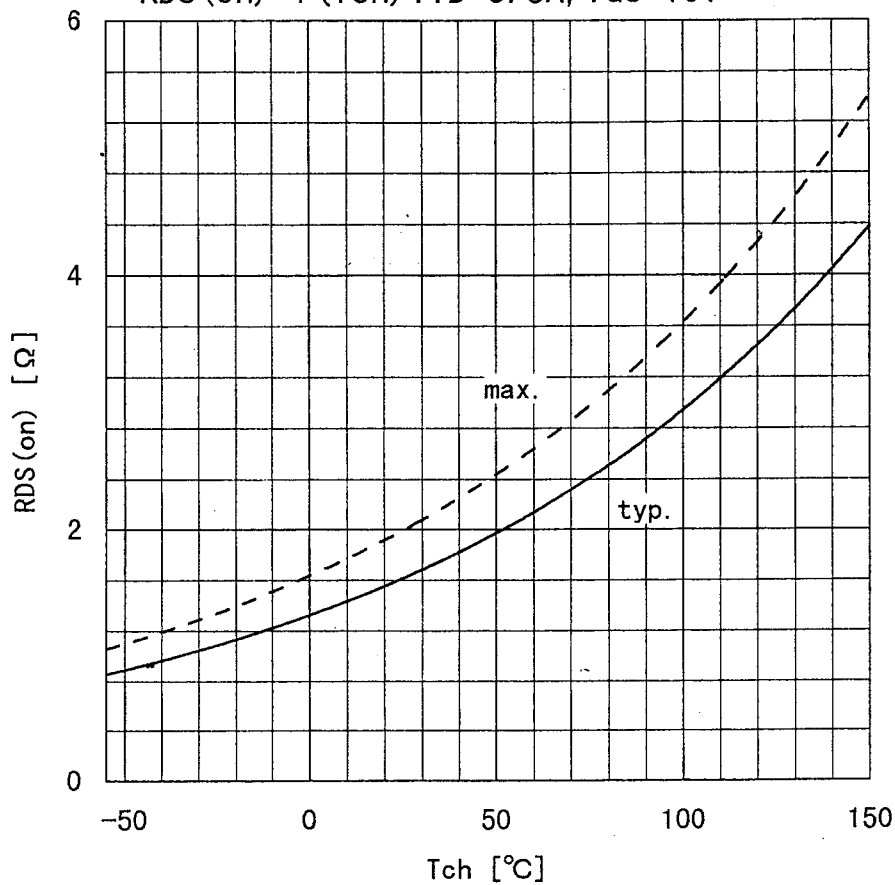
Typical drain-source on-state resistance
 $R_{DS(on)}=f(I_D)$: 80 μ s pulse test, $T_c=25^\circ C$



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 express written consent of Fuji Electric Co., Ltd.

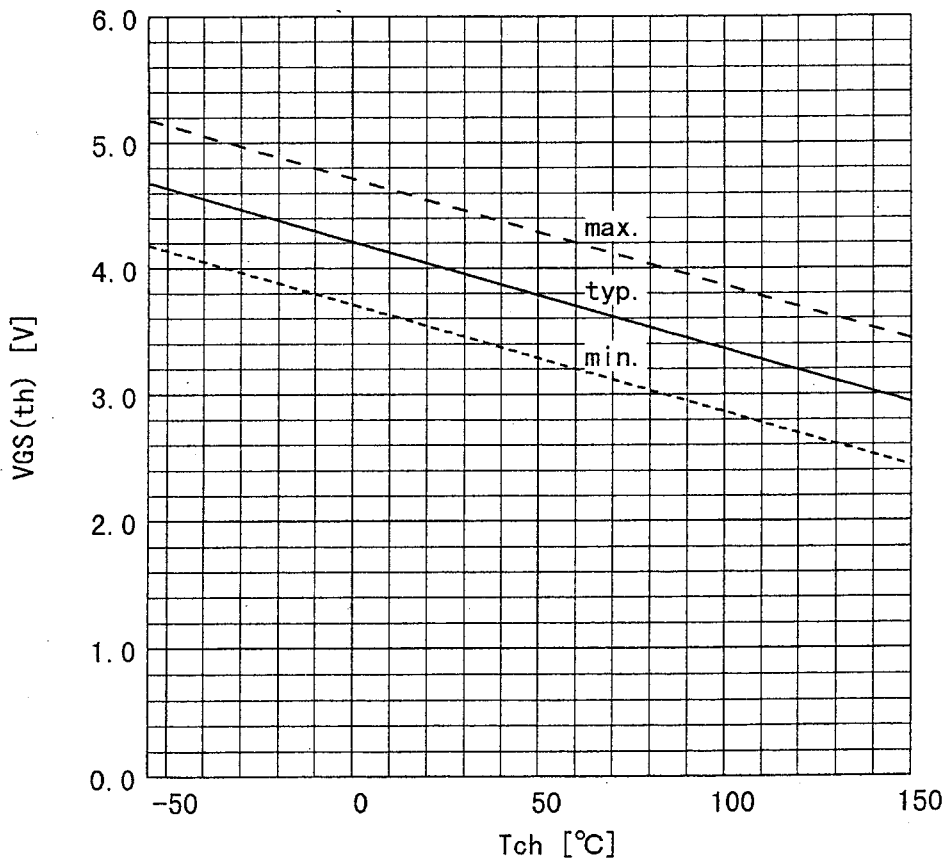
Drain-source on-state resistance

$R_{DS(on)} = f(T_{ch}) : I_D = 3.5A, V_{GS} = 10V$



Gate threshold voltage

$V_{GS(th)} = f(T_{ch}) : I_D = 1mA, V_{DS} = V_{GS}$



Fuji Electric Co.,Ltd.

DWG.NO.

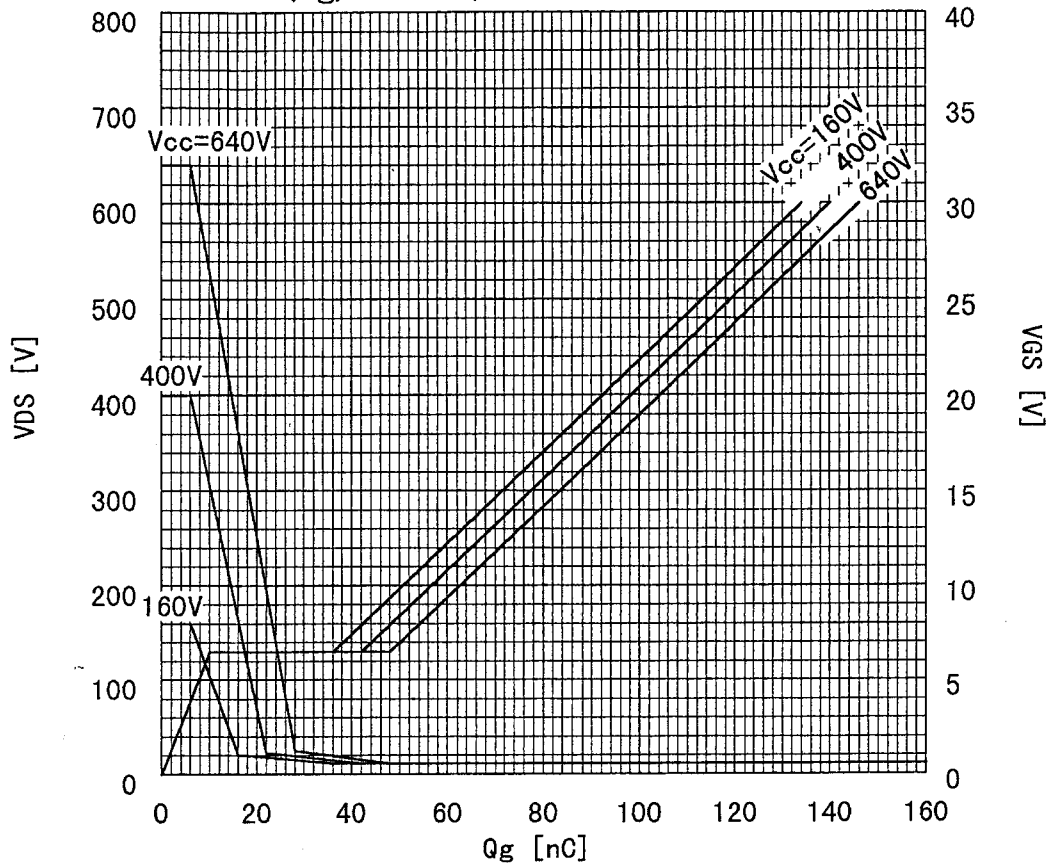
MS5F4412

9/12

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 nor used for the manufacturing purposes without the express written consent of Fuji Electric Co.,Ltd.

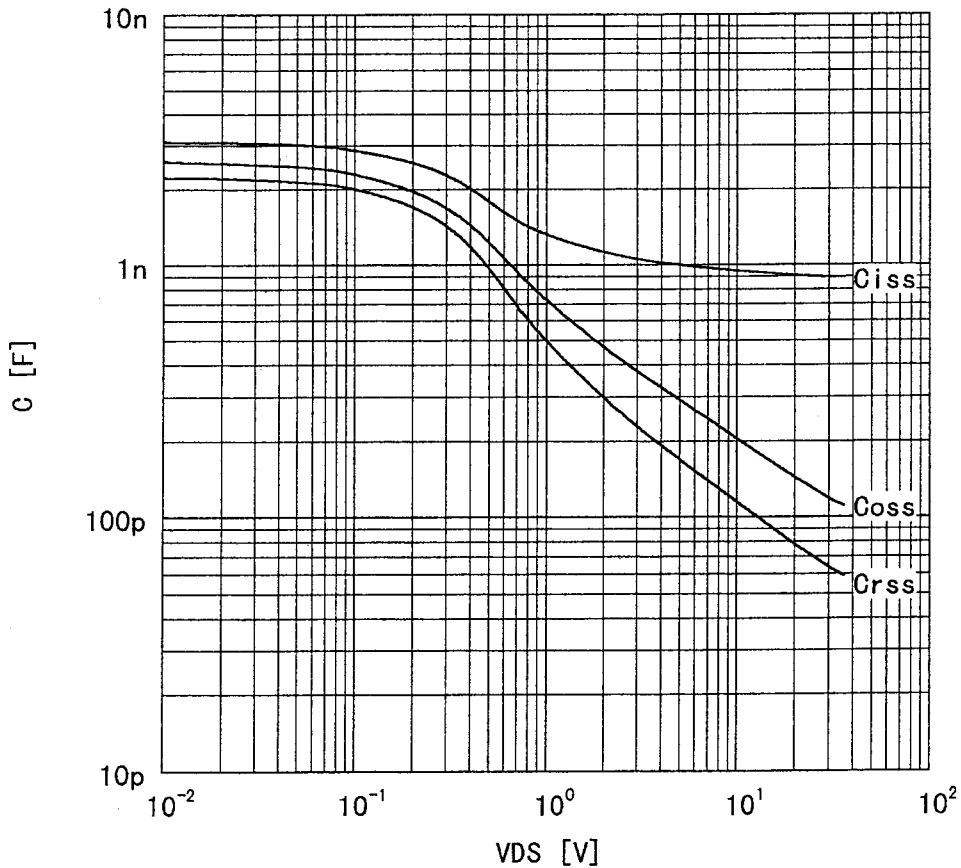
This material and the information herein is the property of Fuji Electric Co.,Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatsoever for the use of any third party nor used for the manufacturing purposes without the express written consent of Fuji Electric Co.,Ltd.

Typical gate charge characteristic
 $V_{GS}=f(Q_g) : I_D=7A, T_c=25^\circ C$



Typical capacitances

$C=f(V_{DS}) : V_{GS}=0V, f=1MHz$



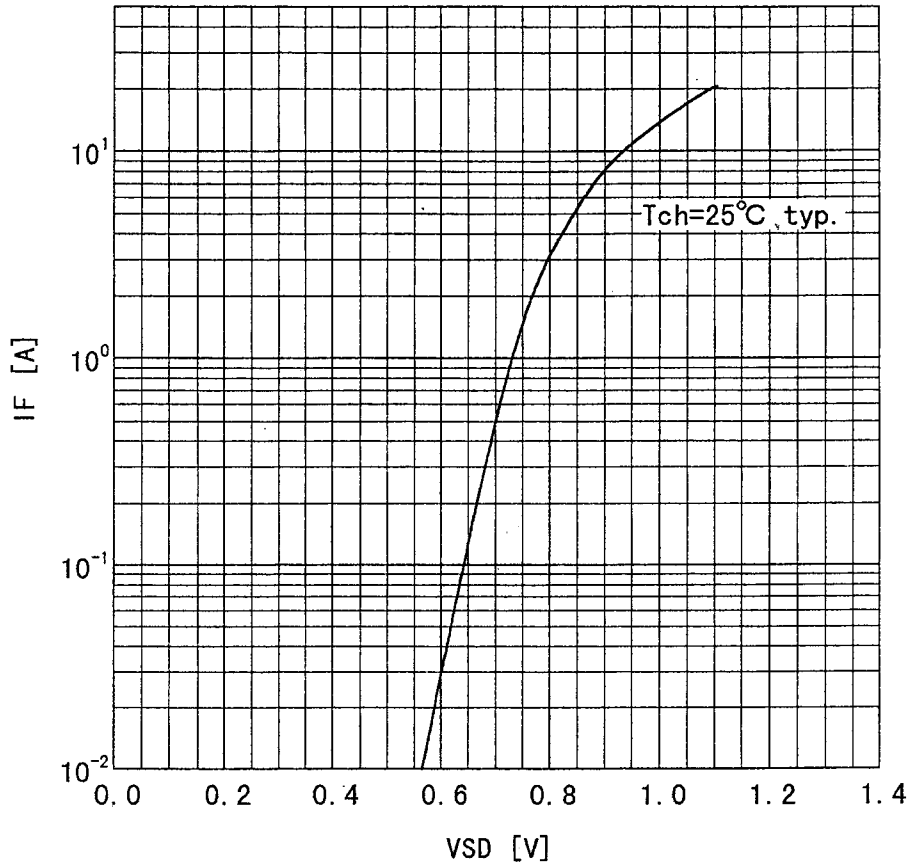
Fuji Electric Co.,Ltd.

DWG.NO.

MS5F4412

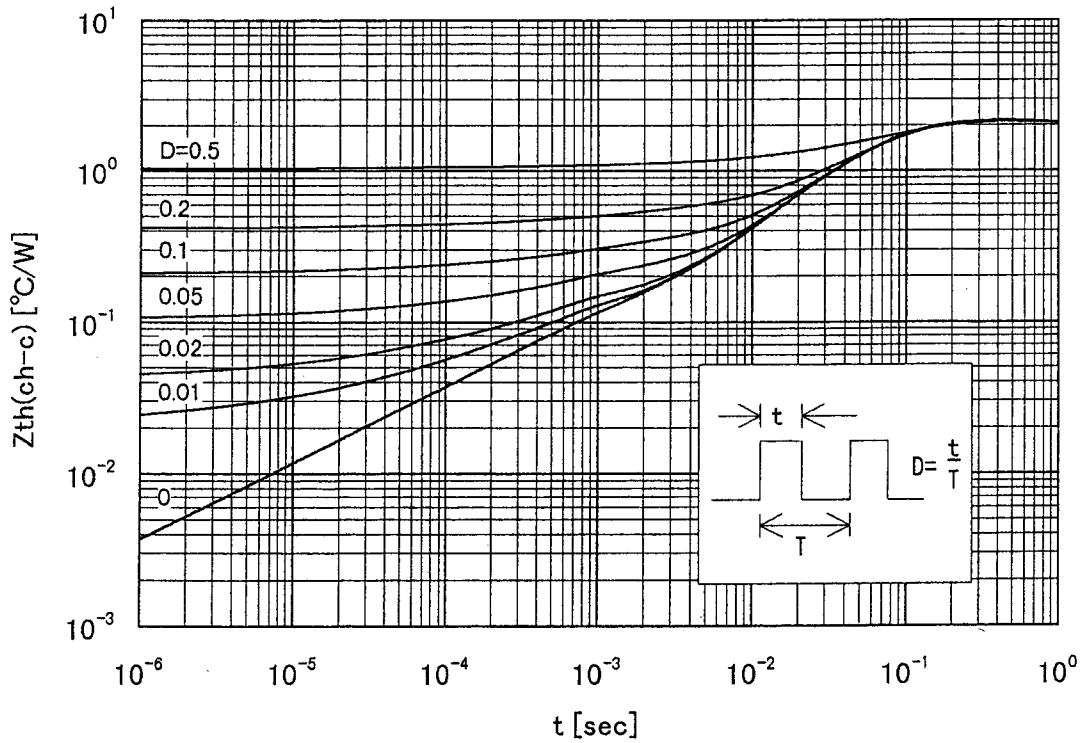
10/12

Forward characteristic of reverse of diode
 $I_F = f(V_{SD}) : 80 \mu s$ pulses test, $V_{GS} = 0V$

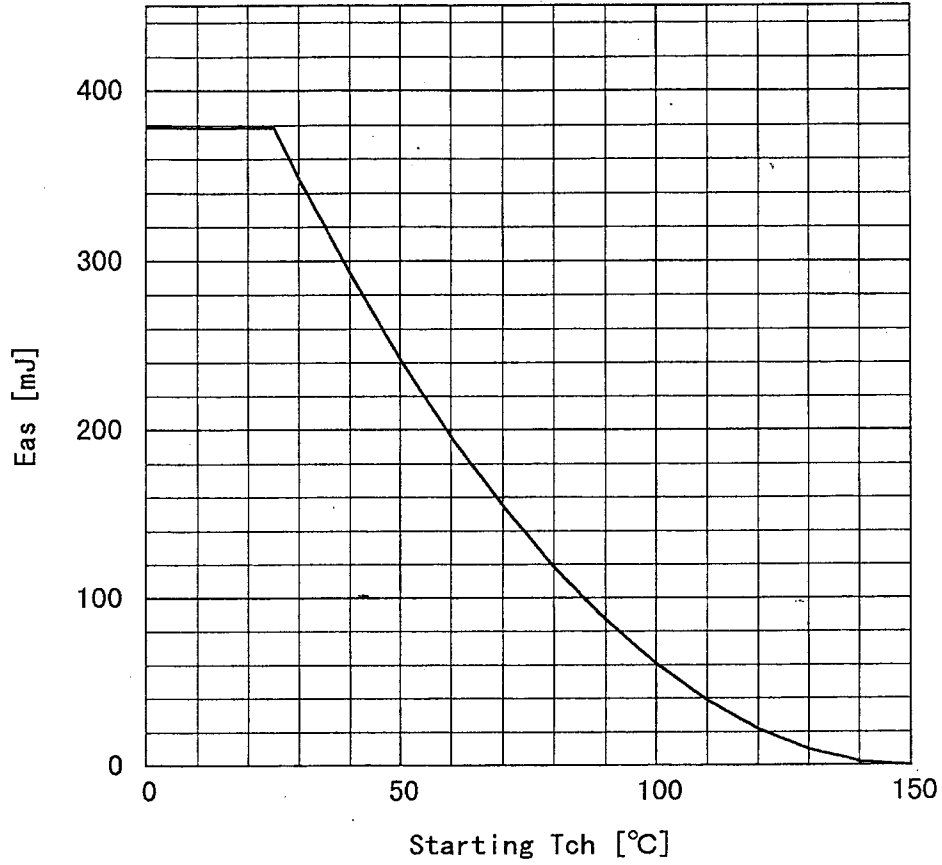


This material and the information herein is the property of Fuji Electric Co., Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatsoever for the use of any third party nor used for the manufacturing purposes without the express written consent of Fuji Electric Co., Ltd.

Transient Thermal Impedance
 $Z_{th}(ch-c) = f(t) : D = t/T$



Avalanche energy derating
 $E_{as} = f(\text{starting } T_{ch}) : V_{cc} = 80V, I_{AV} = 7A$



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 express written consent of Fuji Electric Co., Ltd.

Fuji Electric Co., Ltd.

DWG. NO.

MS5F4412

12/12