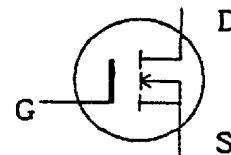


1. Scope
This specifies Fuji power MOSFET 2SK1511

2. Outline
I) Construction N-channel enhancement mode power MOSFET
II) Application for switching
III) Outview TO-3P (MK5C25623)



3. Absolute maximum ratings at $T_c=25^\circ\text{C}$ (unless otherwise specified)

Description	Symbol	Characteristics	Unit	Remarks
Drain-source voltage	V_{DS}	1000	V	
Drain-gate voltage	V_{DGR}	1000	V	$R_{GS}=20\text{K}\Omega$
Continuous Drain current	I_D	5	A	
Pulsed drain current	I_{Dpulse}	15	A	
Gate-source voltage	V_{GS}	± 30	V	
Maximum power dissipation	P_D	100	W	
Operating and storage temperature range	T_{ch}	150	$^\circ\text{C}$	
	T_{stg}	$-55 \sim +150$	$^\circ\text{C}$	

4. Electrical characteristics at $T_c=25^\circ\text{C}$ (unless otherwise specified)
Static ratings

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Drain-source breakdown voltage	BV_{DSS}	$I_D = 1\text{mA}$ $V_{GS} = 0\text{V}$	1000			V
Gate threshold voltage	$V_{GS(th)}$	$I_D = 1\text{mA}$ $V_{DS} = V_{GS}$	2.5	3.5	5.0	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 1000\text{V}$ $T_{ch} = 25^\circ\text{C}$		10	500	μA
	I_{DSS}	$V_{GS} = 0\text{V}$ $T_{ch} = 125^\circ\text{C}$		0.2	1.0	mA
Gate-source leakage current	I_{GSS}	$V_{GS} = \pm 30\text{V}$ $V_{DS} = 0\text{V}$		10	100	nA
Drain-source on-state resistance	$R_{DS(on)}$	$I_D = 2.5\text{A}$ $V_{GS} = 10\text{V}$		2.3	3.0	Ω

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REVISIONS	DATE	NAME	APPROVED	Fuji Electric Co., Ltd.	DWG. NO.	MT5F1796	1/1	
	DRAWN	Aug. 20 '90	T. SHIOTANI					
	CHECKED	Aug. 21 '90	T. Arai					
		Aug. 21 '90	S. Furukata					

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Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Forward transconductance	g_{fs}	$I_D = 2.5A$ $V_{DS} = 25V$	1.5	3.0		S
Input capacitance	C_{iss}	$V_{DS} = 25V$ $V_{GS} = 0V$ $f = 1MHz$		800	1200	pF
Output capacitance	C_{oss}			100	150	pF
Reverse transfer capacitance	C_{rss}			60	90	pF
Turn-on time	$t_{d(on)}$	$V_{CC} = 600V$ $V_{GS} = 10V$ $I_D = 5A$ $R_{GS} = 25\Omega$		35	53	ns
	t_r			45	68	ns
Turn-off time	$t_{d(off)}$			130	195	ns
	t_f			60	90	ns

Reverse diode

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Continuous reverse drain current	I_{DR}	$T_C = 25^\circ C$			5	A
Pulsed reverse deain current	I_{DRM}	$T_C = 25^\circ C$			15	A
Diode forward on-voltage	V_{SD}	$I_F = 2 \times I_{DR}$ $V_{GS} = 0V, T_{CH} = 25^\circ C$		0.96	1.44	V
Reverse recovery time	t_{rr}	$I_F = I_{DR}$ $di_F/dt = 100A/\mu S$ $T_{CH} = 25^\circ C$				ns
Reverse recovery charge	Q_{rr}					μC

5. Thermal resistance

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Thermal resistance	$R_{th_{ch-c}}$				1.25	$^\circ C/W$
	$R_{th_{ch-a}}$				35.0	$^\circ C/W$

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6. 御注意 (Attention)

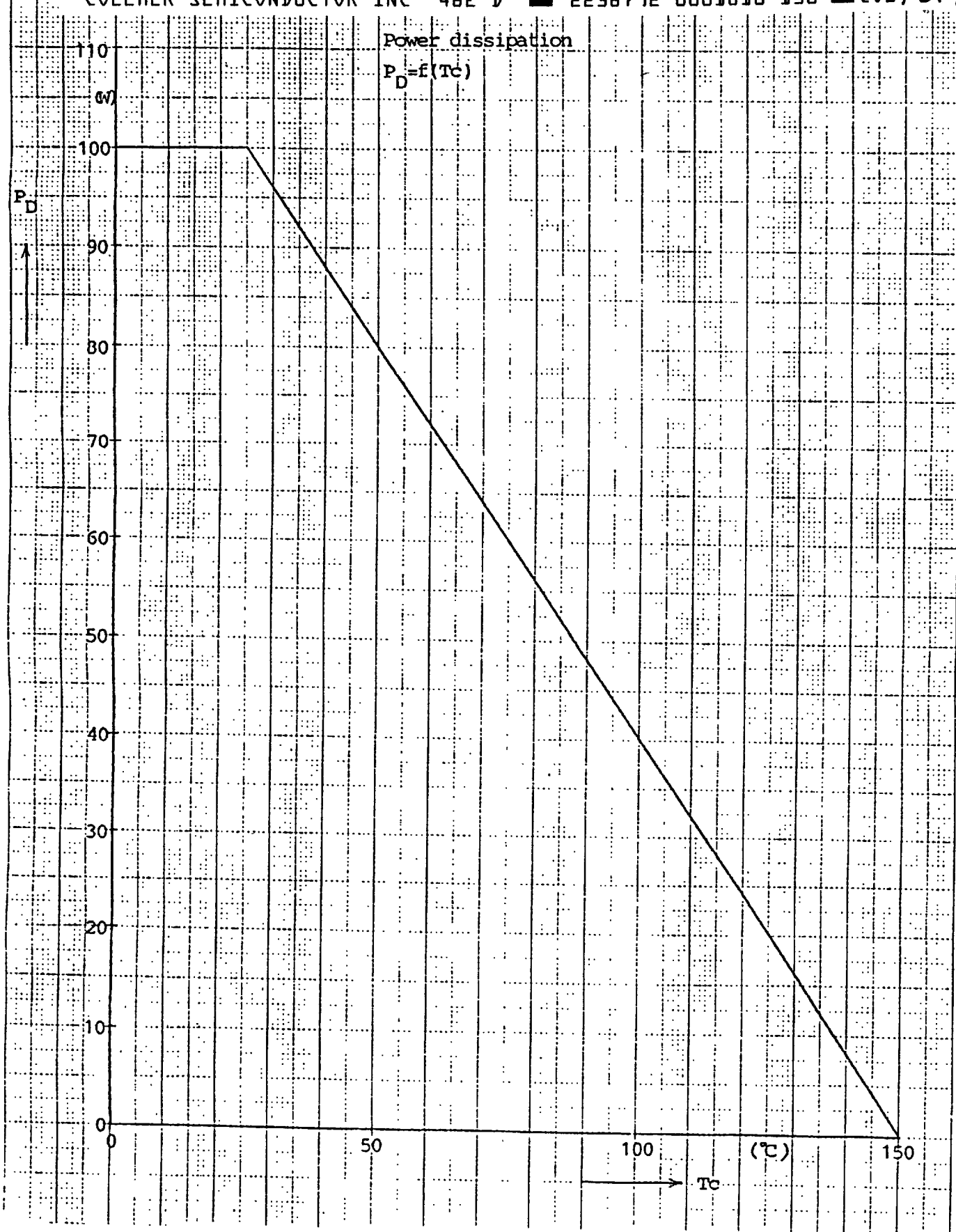
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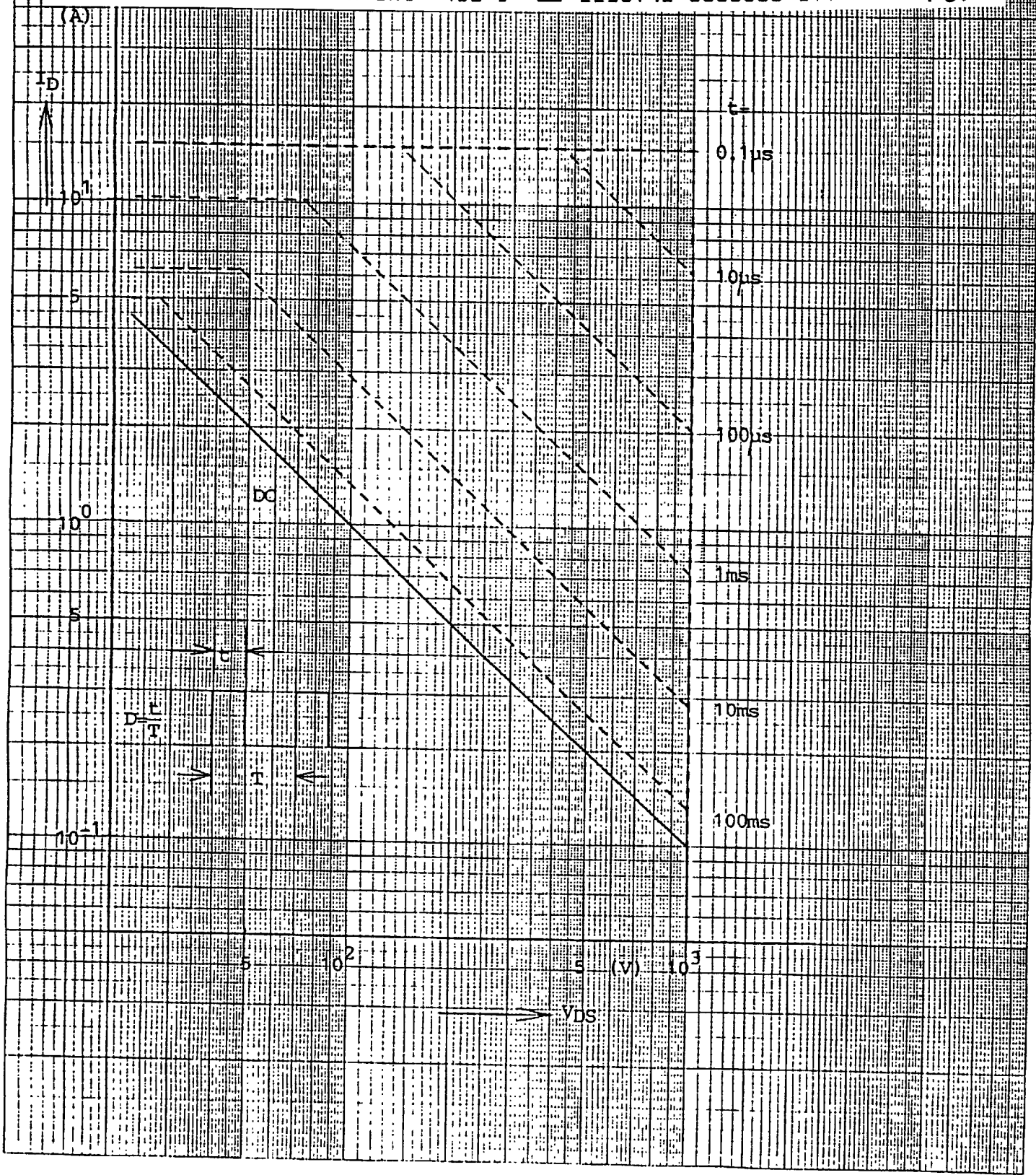
4

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Safe operating area
 $I_D = f(V_{DS}) : D=0.01, T_c=25^\circ\text{C}$

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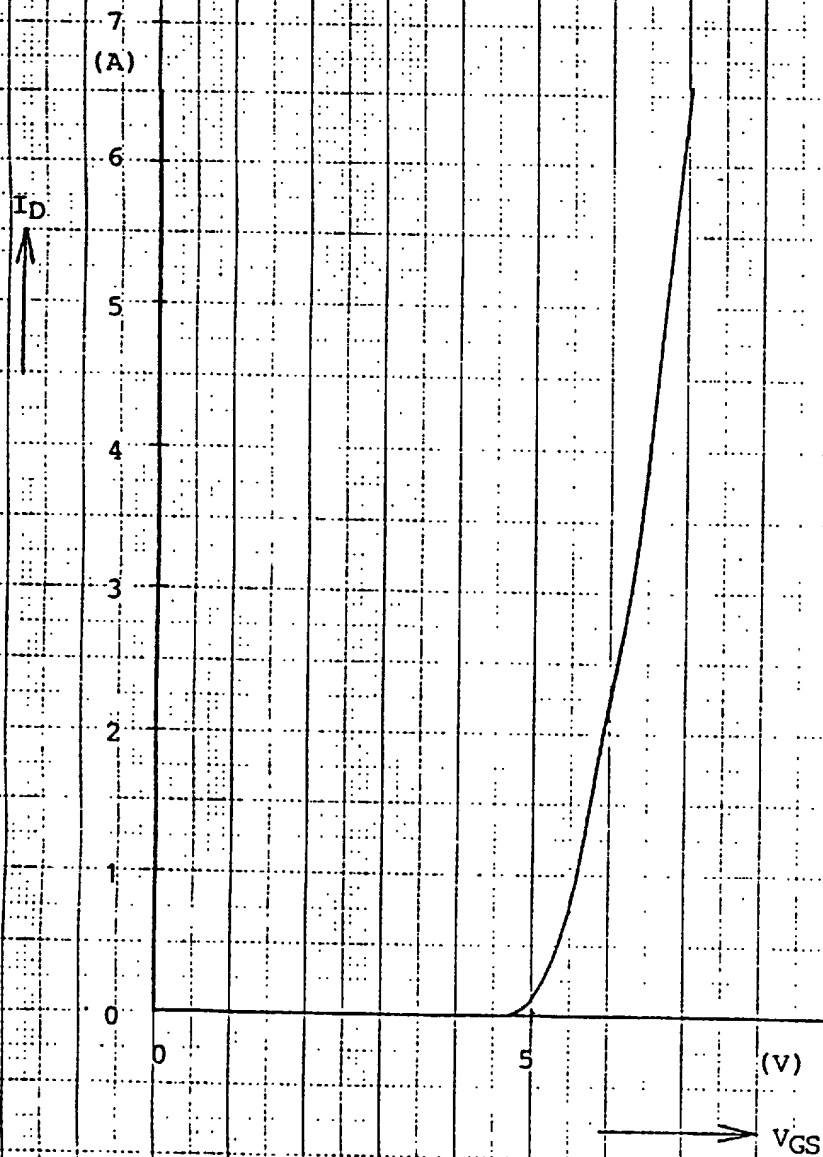


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Typical transfer characteristic
 $I_D = f(V_{GS})$: 80 μ s pulse test, $V_{DS} = 25V$

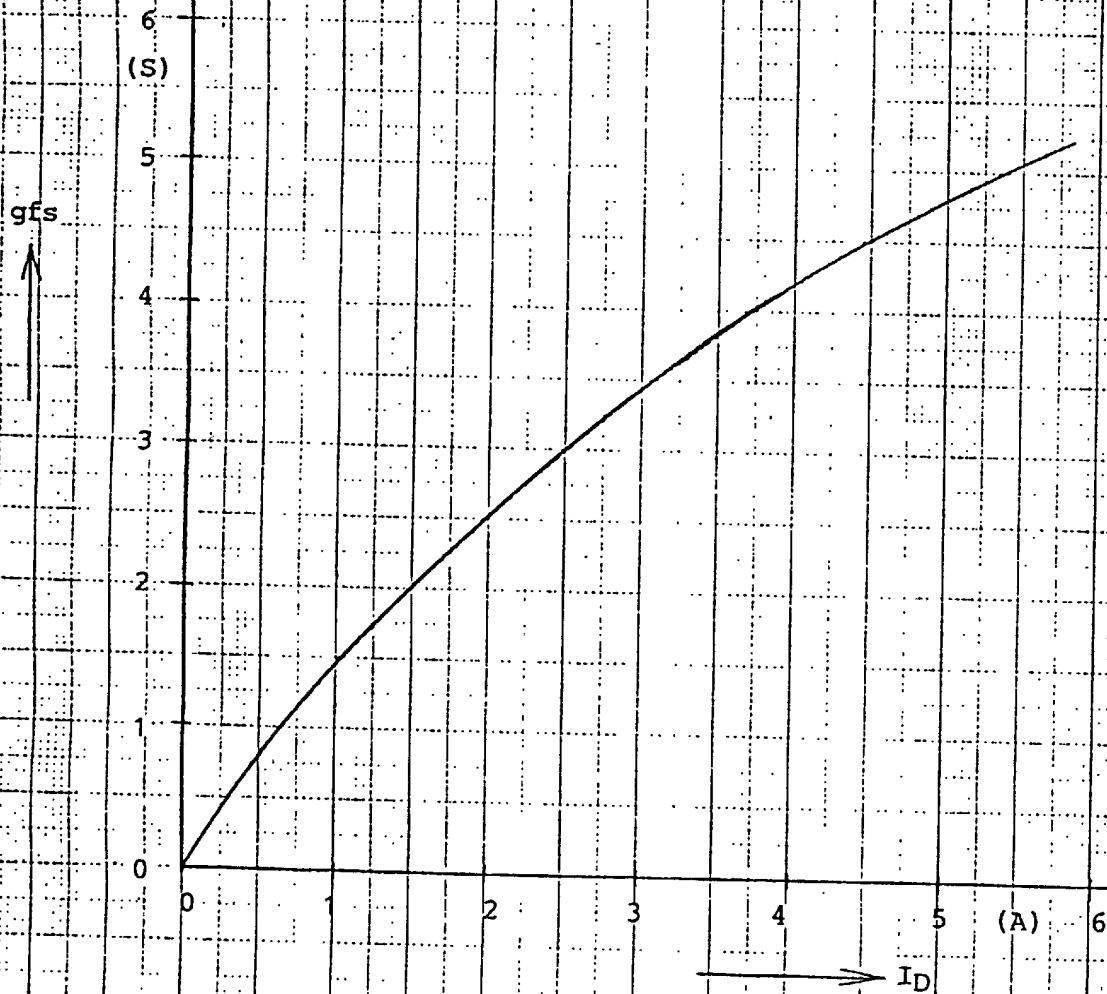


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6

Typical transconductance
 $g_{fs} = f(I_D)$: 80 μ s pulse test, $V_{DS} = 25V$

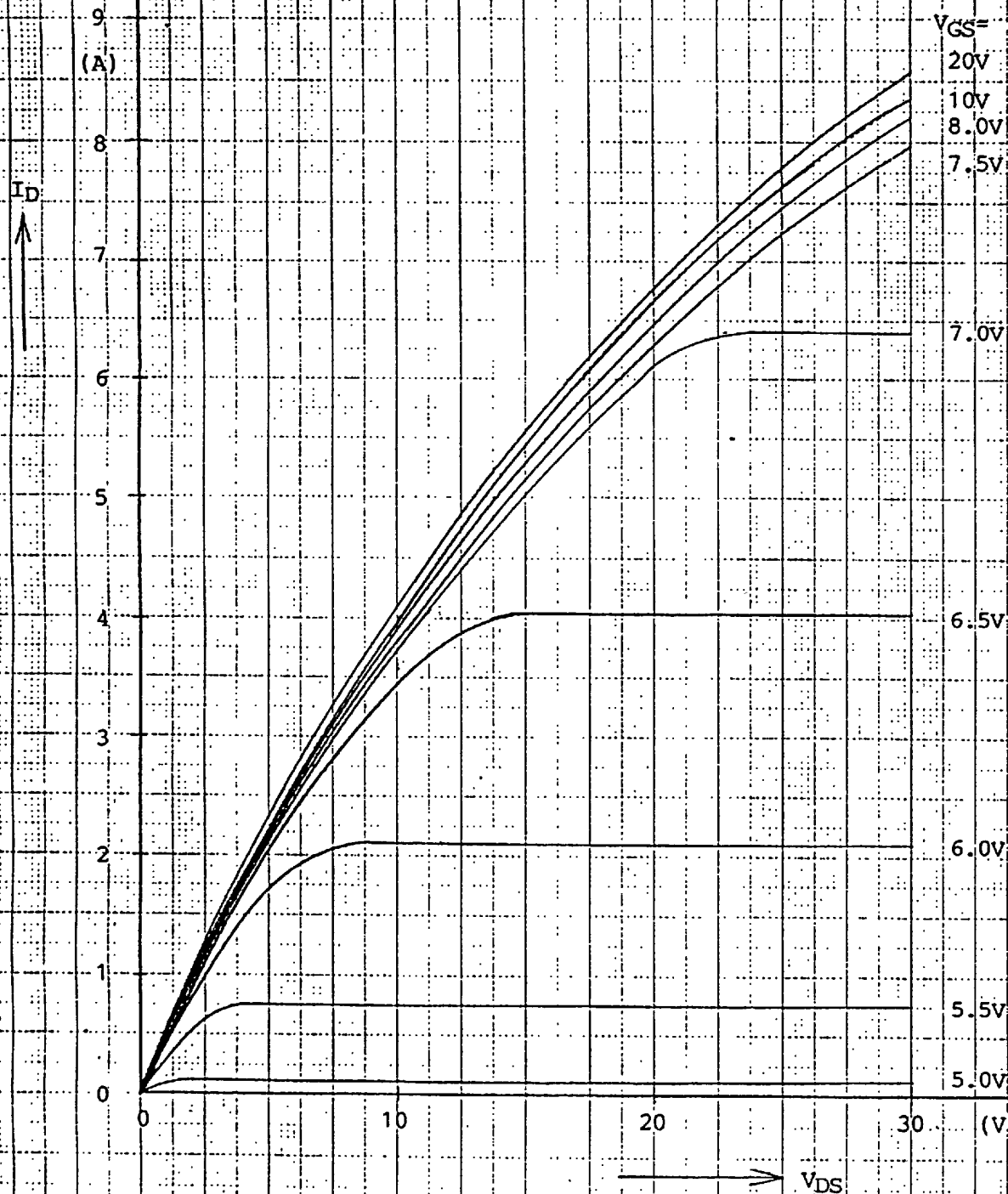


7

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Typical output characteristics
 $I_D = f(V_{DS})$: 80us pulse test $T_{ch} = 25^\circ\text{C}$

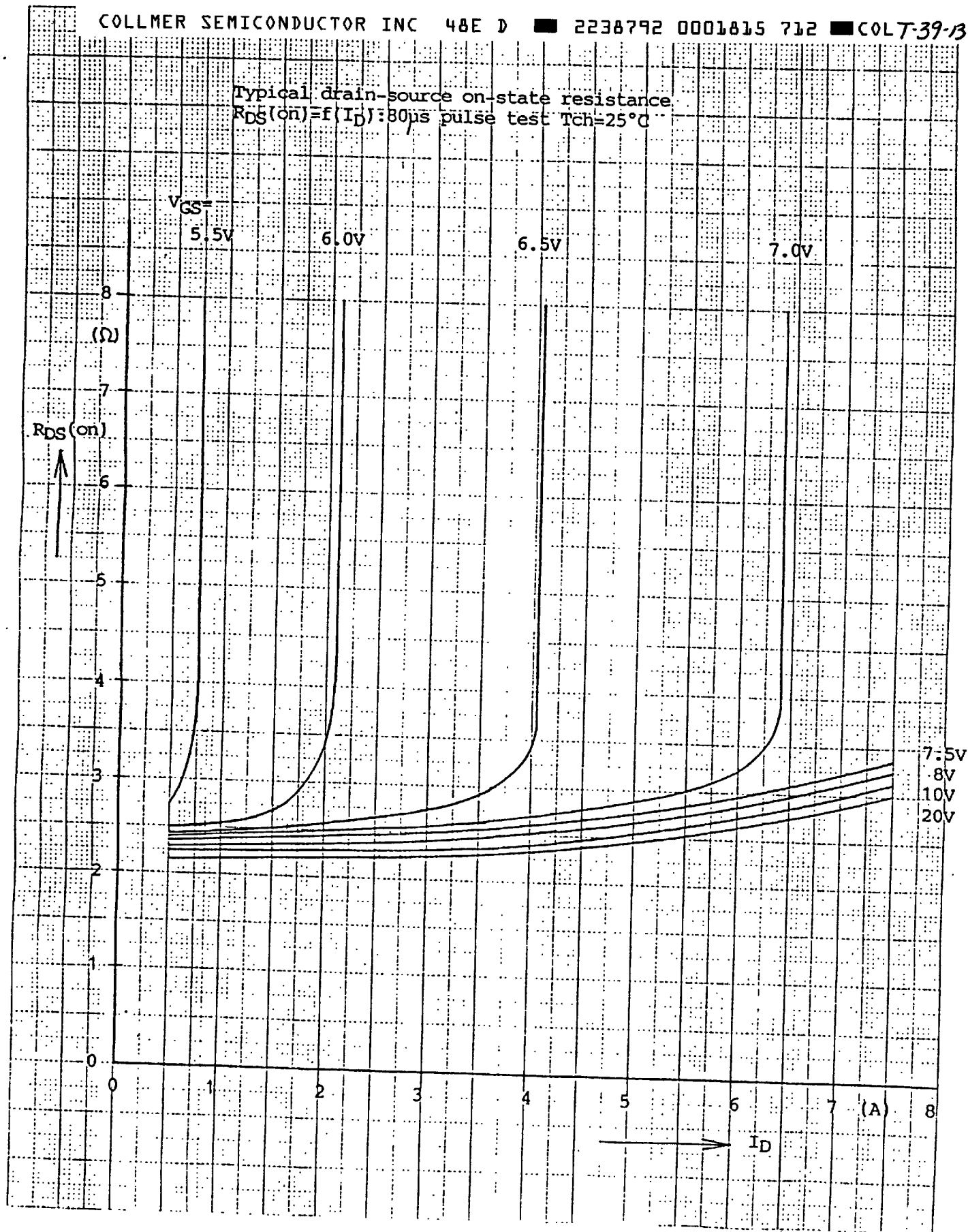


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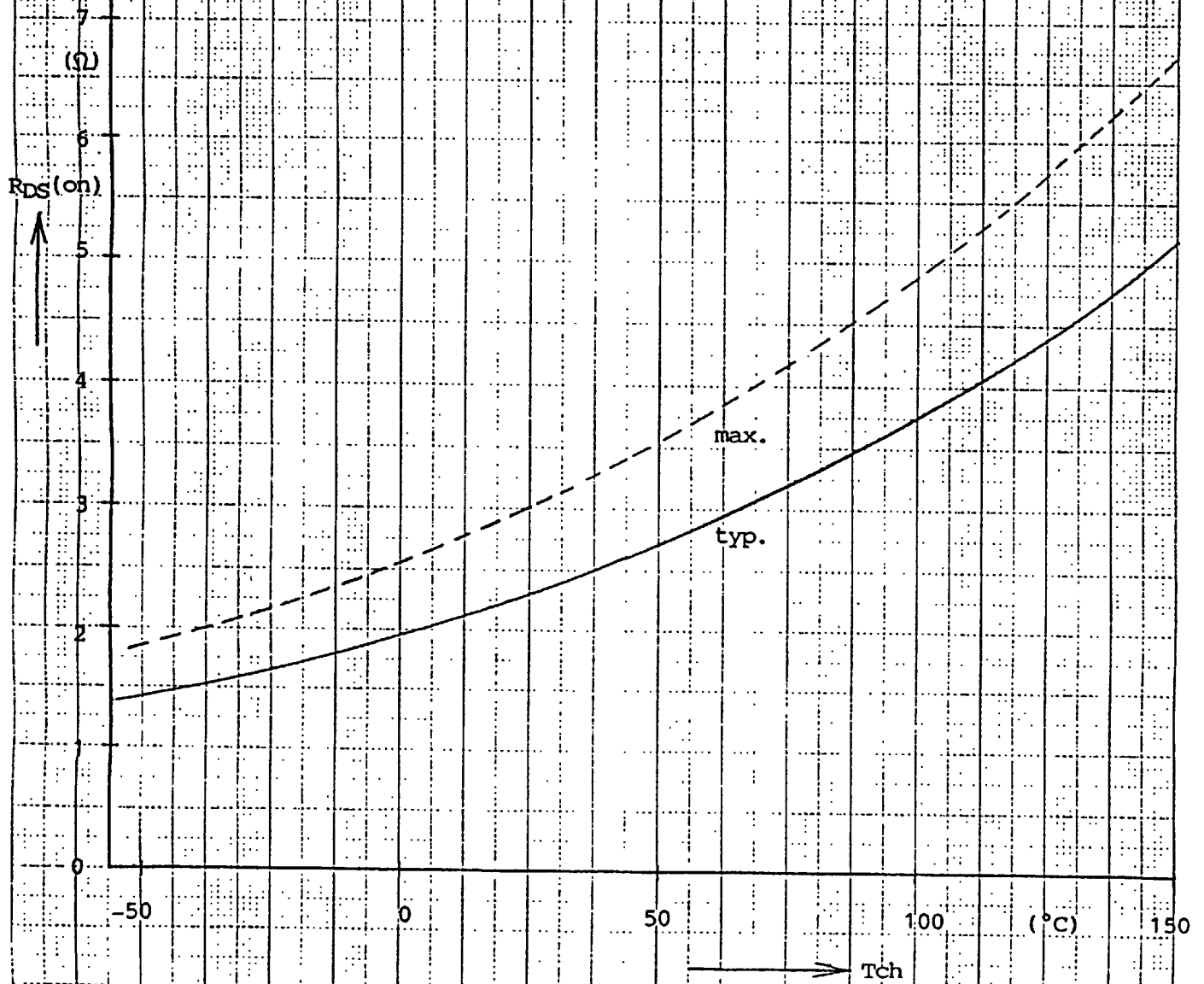
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Typical drain-source on-state resistance
 $R_{DS(on)} = f(I_D)$: 80 μ s pulse test $T_{ch} = 25^\circ C$



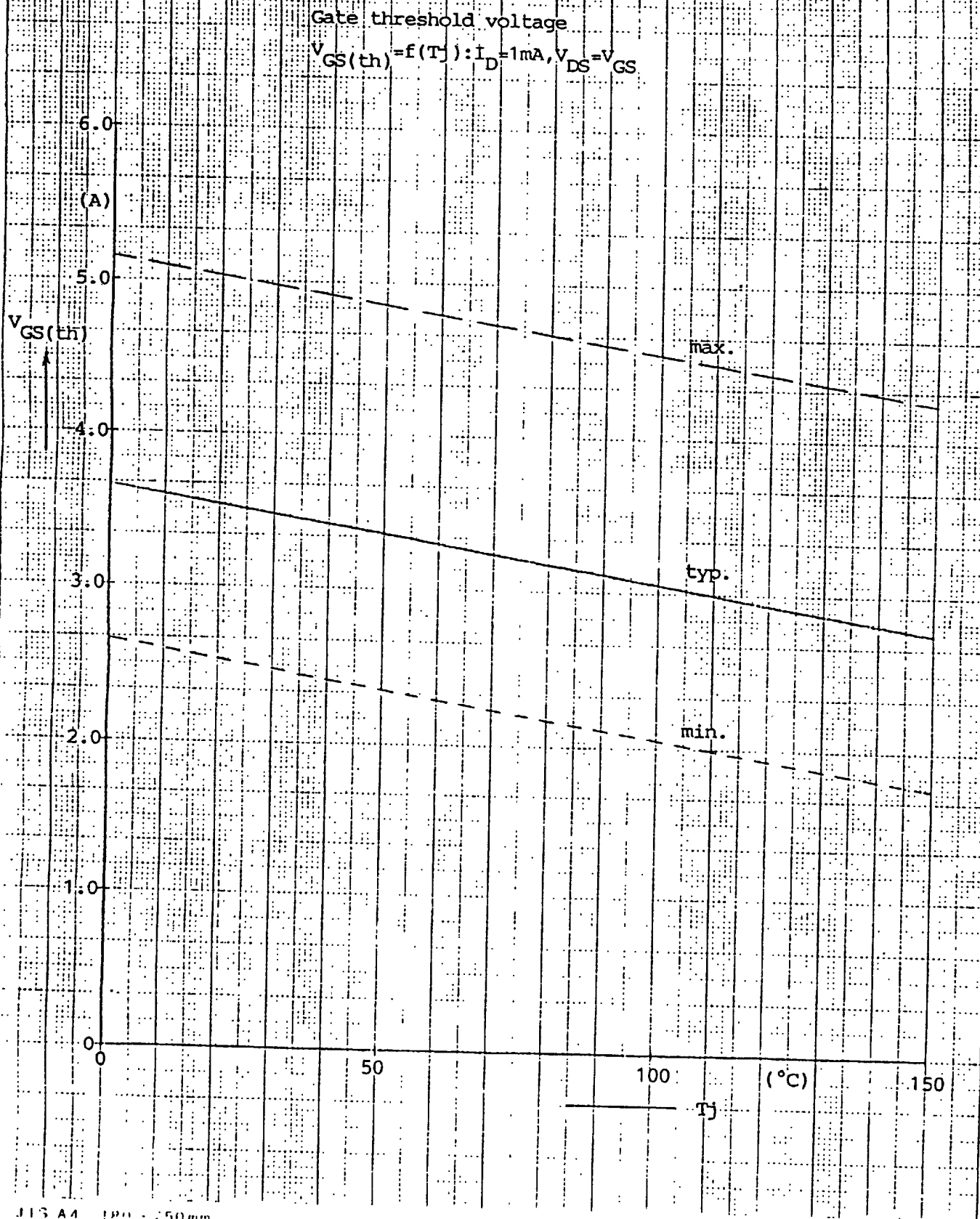
Drain-source on-state resistance
 $R_{DS(on)} = f(T_{ch}) : I_D = 2.5A, V_{GS} = 10V$



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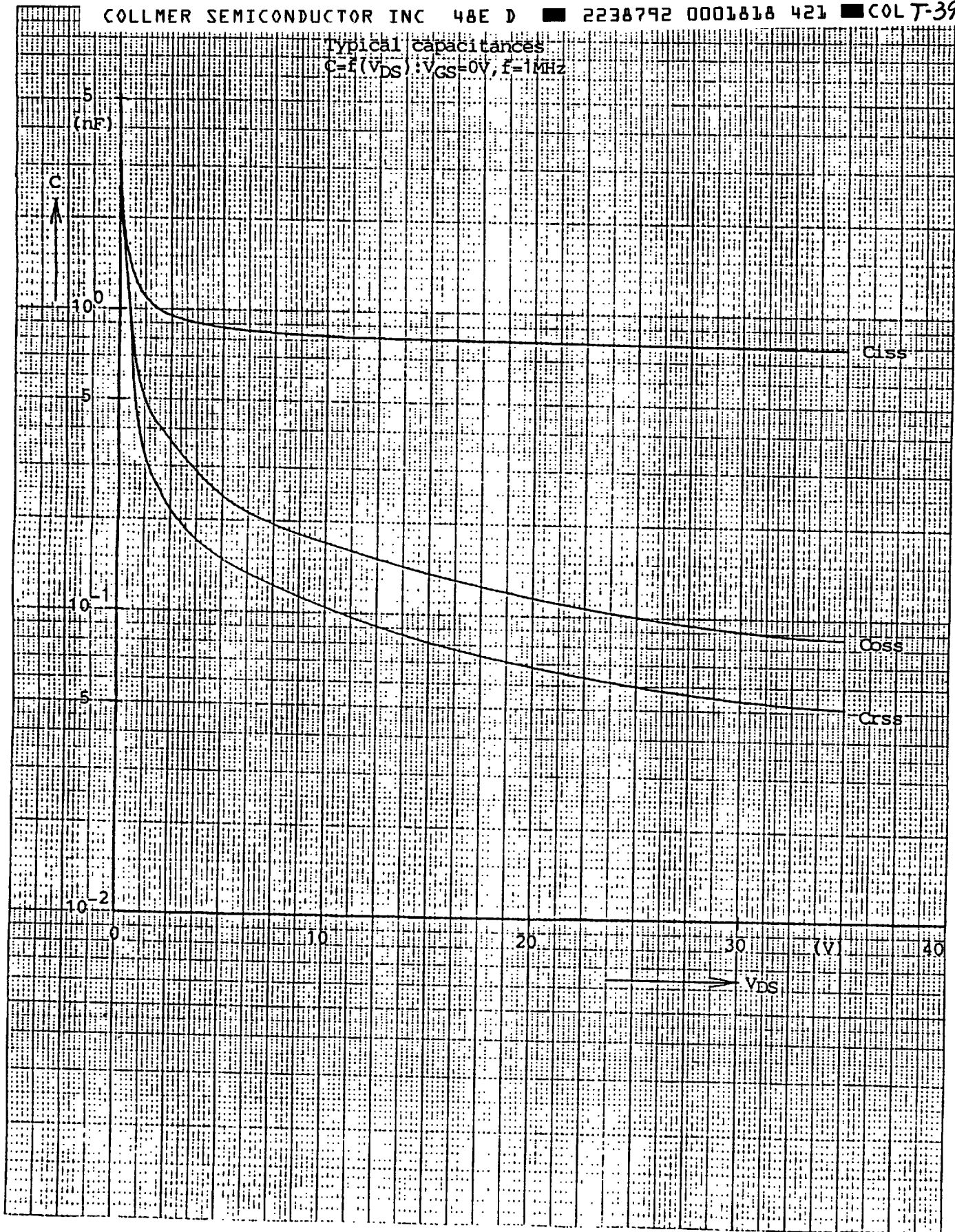
JIS A4 190 × 250mm

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

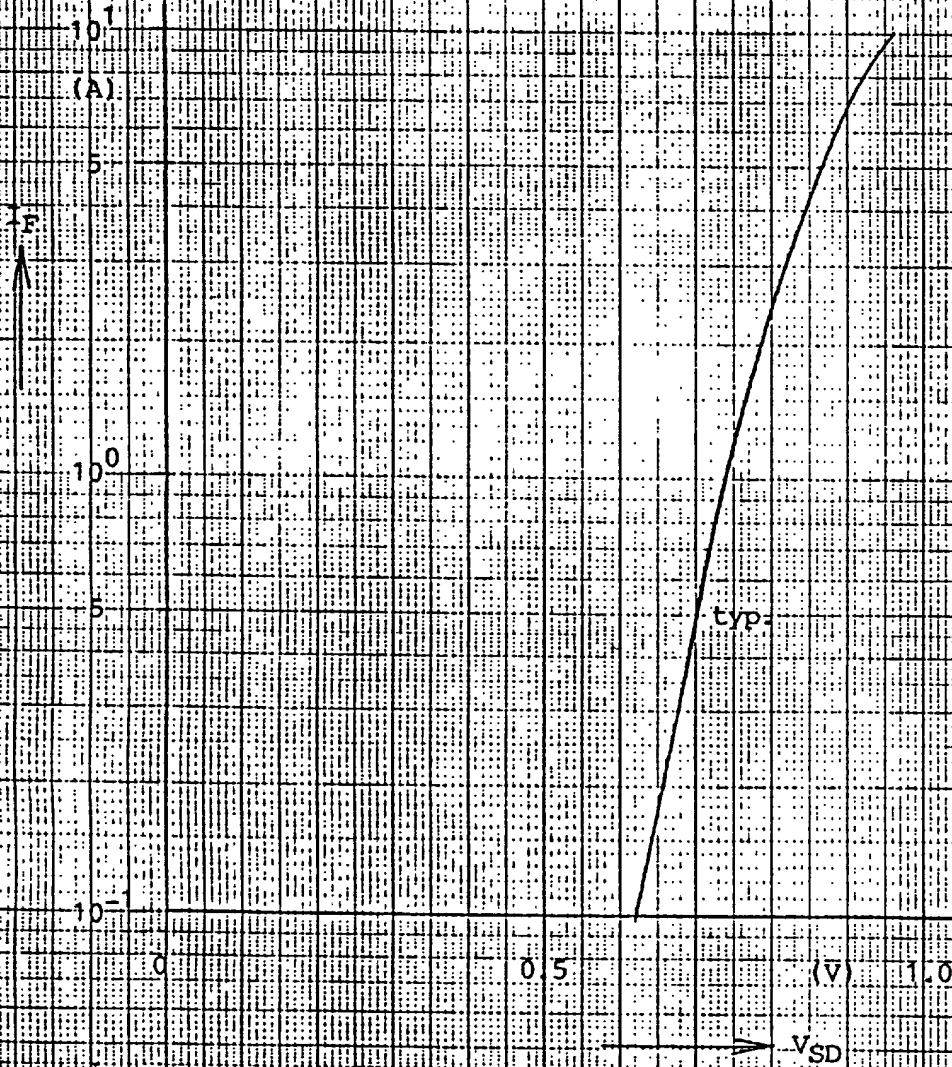


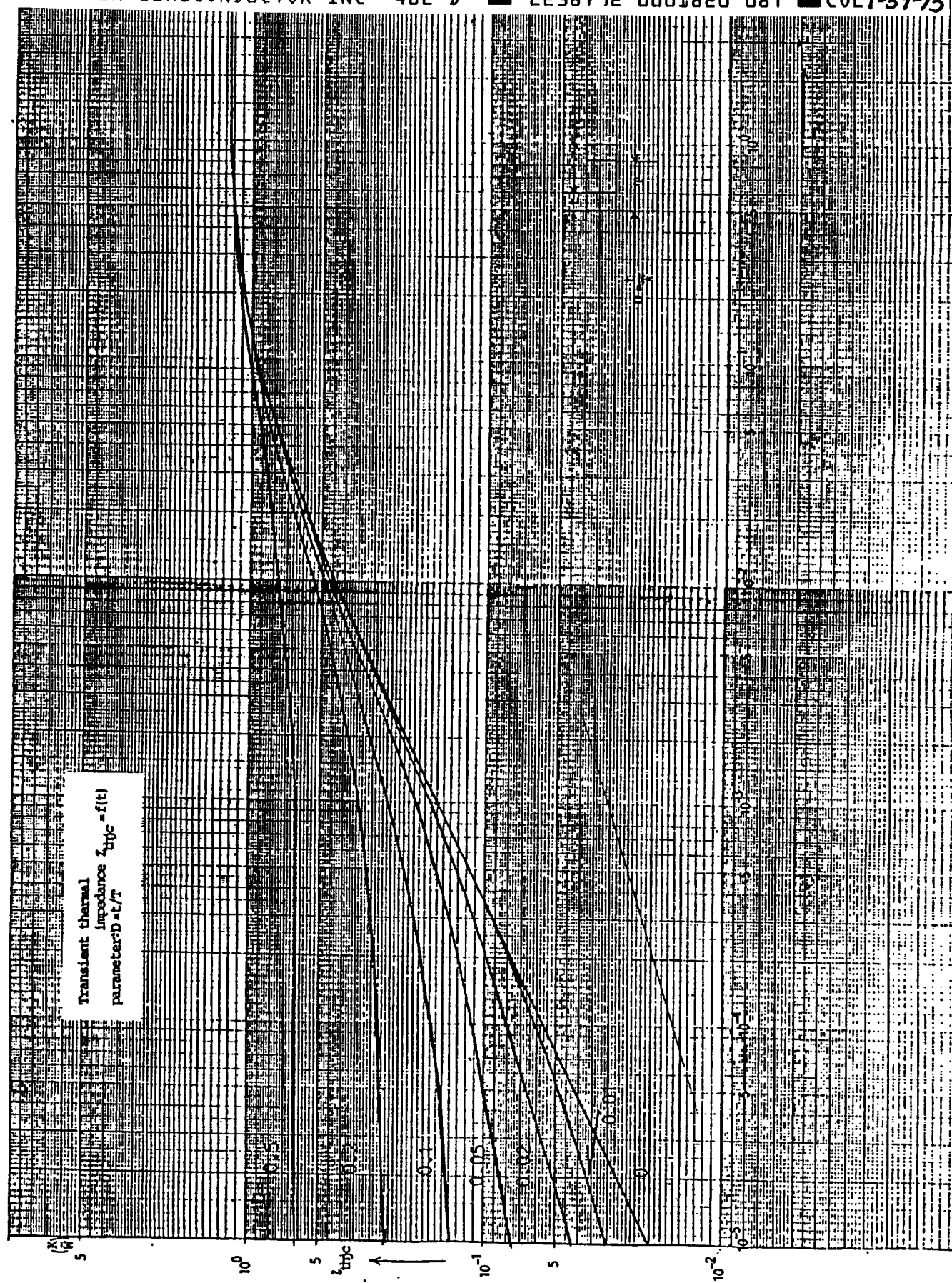
12

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Forward characteristic of reverse diode
 $I_F = f(V_{SD})$: 80 μ s pulse test $T_{ch} = 25^\circ\text{C}$

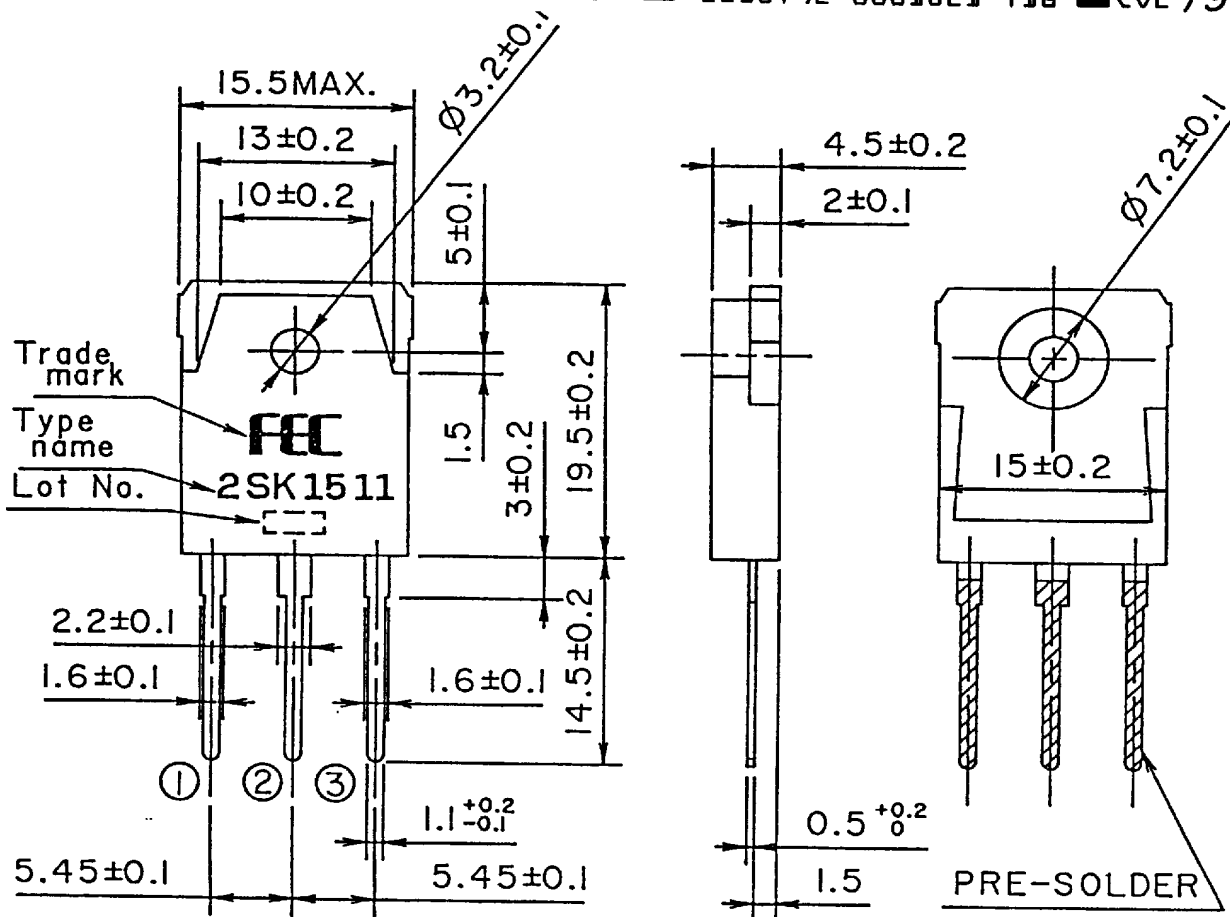




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MT5F1796

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DIMENSIONS ARE IN MILLIMETERS.

CONNECTION

- ① GATE
- ② DRAIN
- ③ SOURCE

JEDEC : TO-228AA

EIAJ : SC-65

MS.T03P.2SK1511 -E

Fuji Electric Co.,Ltd.

DWG.NO.

MK5C25623

	DATE	NAME	APPROVED
DRAWN	1990-05-26	NARUYAMA	M. Nijagi
CHECKED	1990-05-26	ARA	

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