


SPECIFICATION

DEVICE NAME : IGBT
 TYPE NAME : F5024
 SPEC. No. : MS5F4193
 DATE : Nov. - 10 - 1997

Fuji Electric Co., Ltd.

This Specification is subject to change without notice.

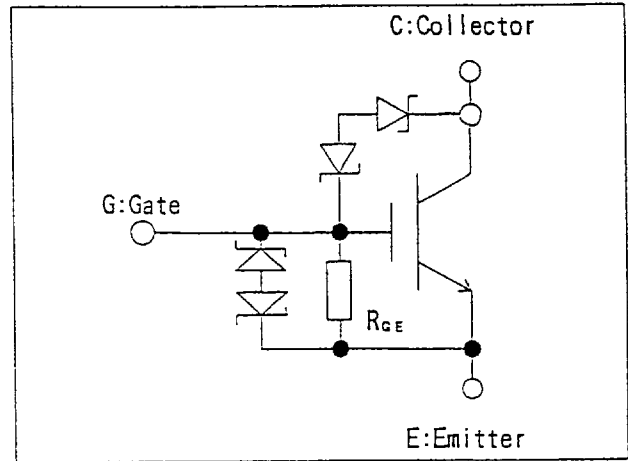
	DATE	NAME	APPROVED	Fuji Electric Co., Ltd.	
DRAWN	Nov. - 10 - '97	S. Takeuchi		DWG. NO.	MS5F4193
CHECKED	Nov. - 10 - '97	S. Furukata			

F 5 0 2 4

1. Outline Drawing

TO-220

2. Equivalent circuit



3. Absolute maximum ratings (Tc=25°C)

Items	Symbols	Ratings	Units
Collector-Emitter Voltage	V_{CER}	410	V
Gate-Emitter Voltage	V_{GES}	± 6	V
Collector Current	I_C	10	A
Reverse Collector Current ($P_w \leq 100 \mu s$)	$-I_C$	12	A
Power Dissipation	P_D	80	W
Electrostatic Voltage (150pF, 150Ω)	Gate - Emitter	2	KV
	Collector - Emitter	25	
Operating Temperature	T_j	+150	°C
Storage Temperature	T_{stg}	-55 ~ +150	°C

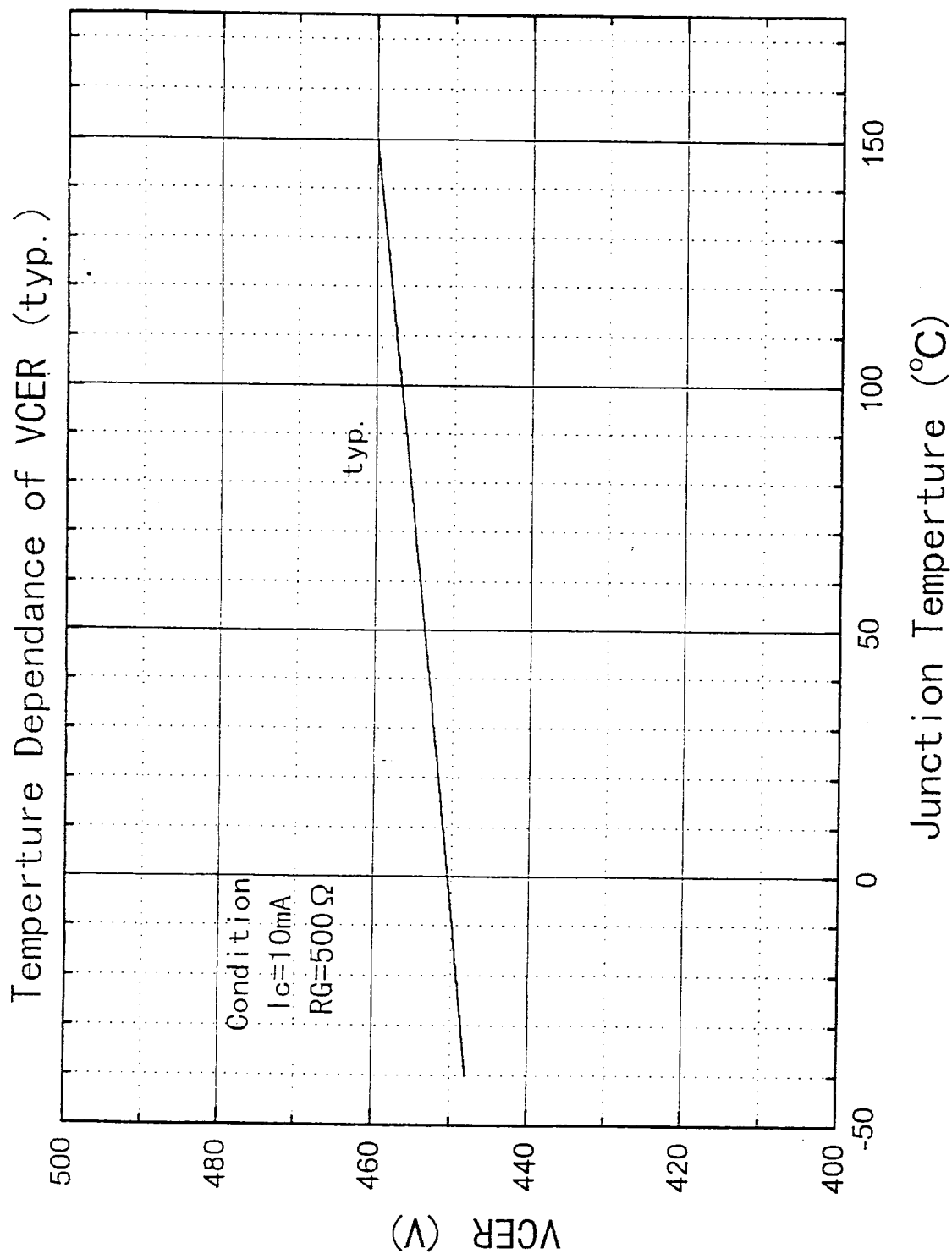
4. Electrical Characteristics (at Tc=25°C unless otherwise specified)

Items	Symbols	Characteristics			Conditions	Unit
		min.	typ.	max.		
Collector-Emitter Voltage	V_{CEr}	410		490	Tj=-40~150 °C RGE=500 Ω Ic=10mA	V
Zero gate voltage Collector Current	I_{CES}			100	Tj= 125 °C VGE = 0V VCE =300V	μA
Gate-Emitter Resistance	R_{GE}	10		30	Tj=-40~150 °C	KΩ
Gate-Emitter Voltage	V_{GES}	± 6		±10	Ig = ±2mA	V
Collector Emitter Reverse Leakage	- Ic			100	Tj=-40~150 °C -VCE= 15V	mA
Collector Emitter Reverse Breakdown Voltage	- VCE	36		60	-Ic =75mA	V
Gate-Emitter Threshold Voltage	$V_{GE(th)}$	0.7		2.6	Tj=-40~150 °C VCE = 36V Ic = 1mA	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		1.3	2.5	Tj= 150 °C VGE = 3.2V Ic = 10A	V
Input capacitance	Cies		800		VGE = 0V VCE = 15V f = 1MHz	pF
Output capacitance	Coes		120			
Reverse transfer capacitance	Cres		45			

5. Unclamped Inductive Switching Characteristics

Items	Characteristics			Conditions	Unit
	min.	typ.	max.		
Single Pulse Collector Emitter Avalanche Energy	230			Starting Tj= 150°C L = 5mH	mJ

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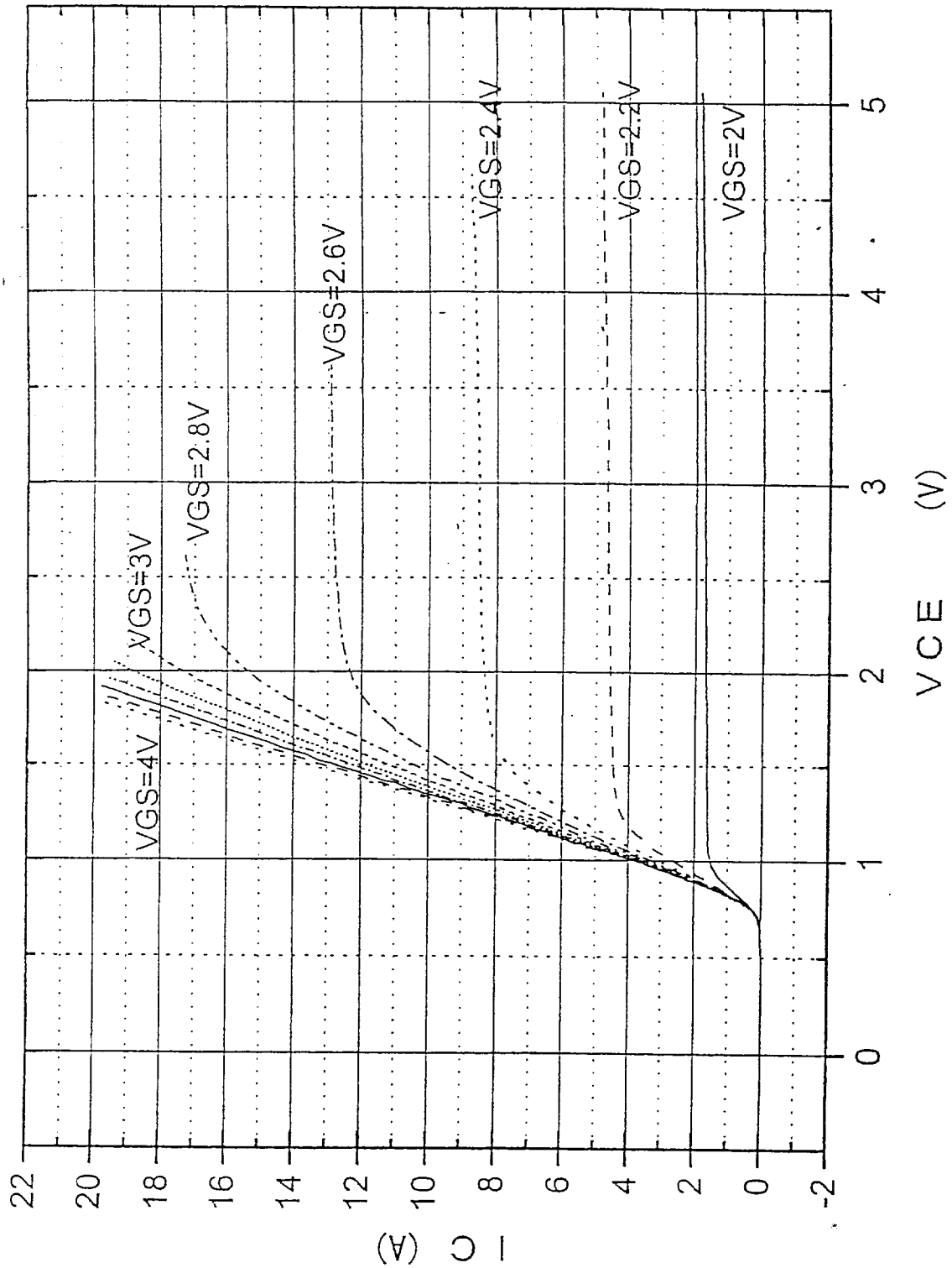
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F5024 Output Characteristics (T_C=25°C, Typ.)



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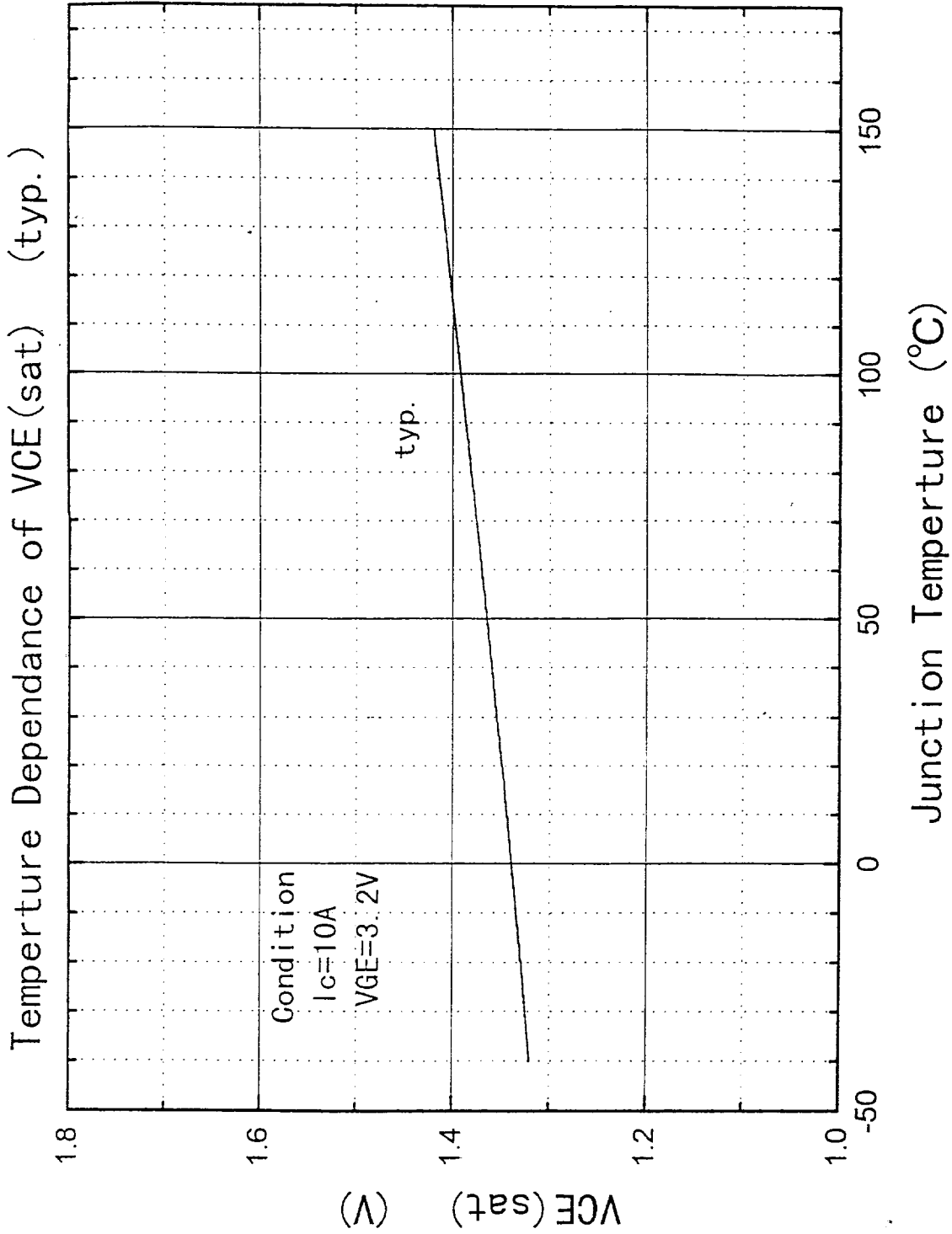
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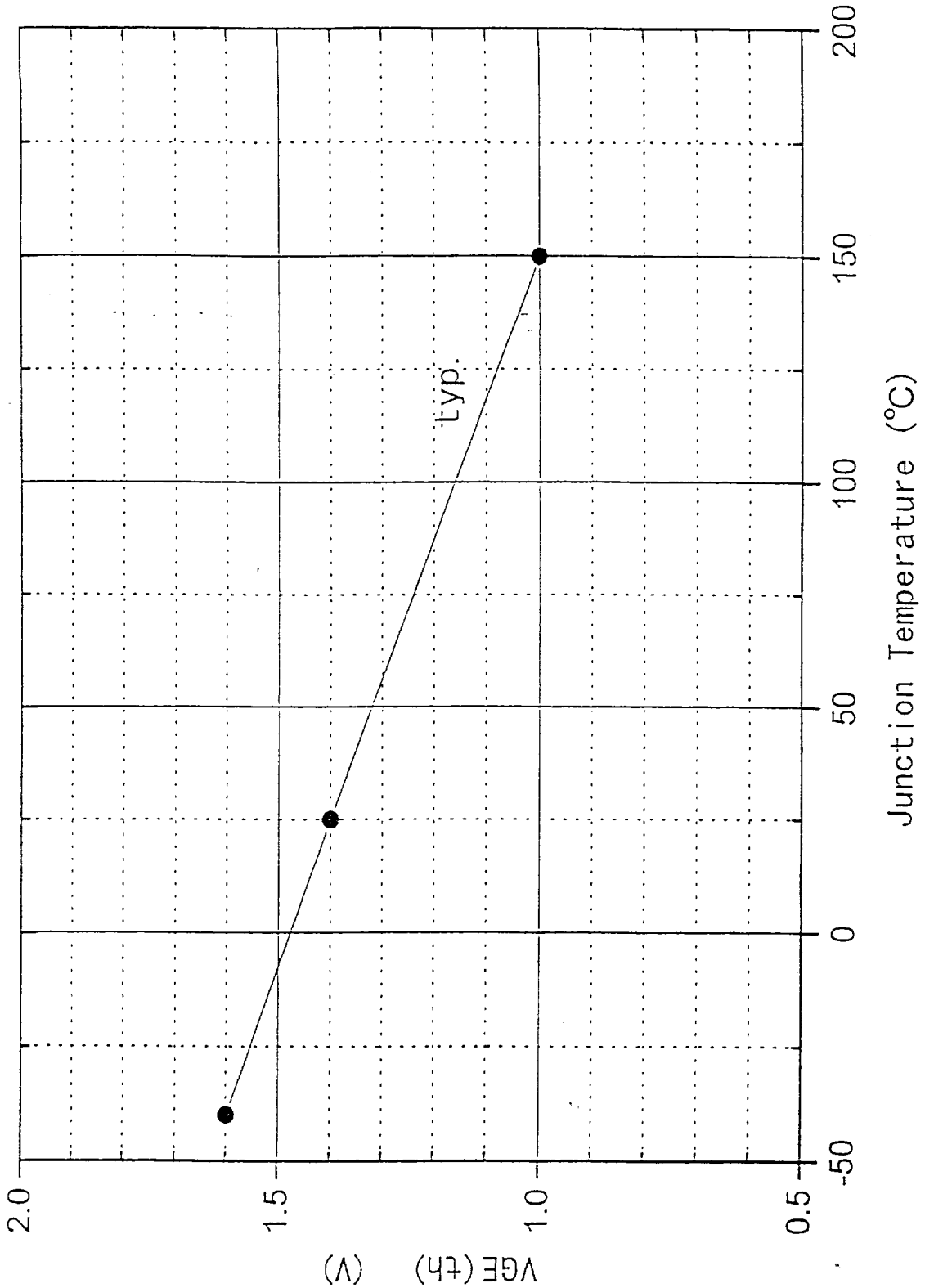
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Temperature Dependence of VGE (th)



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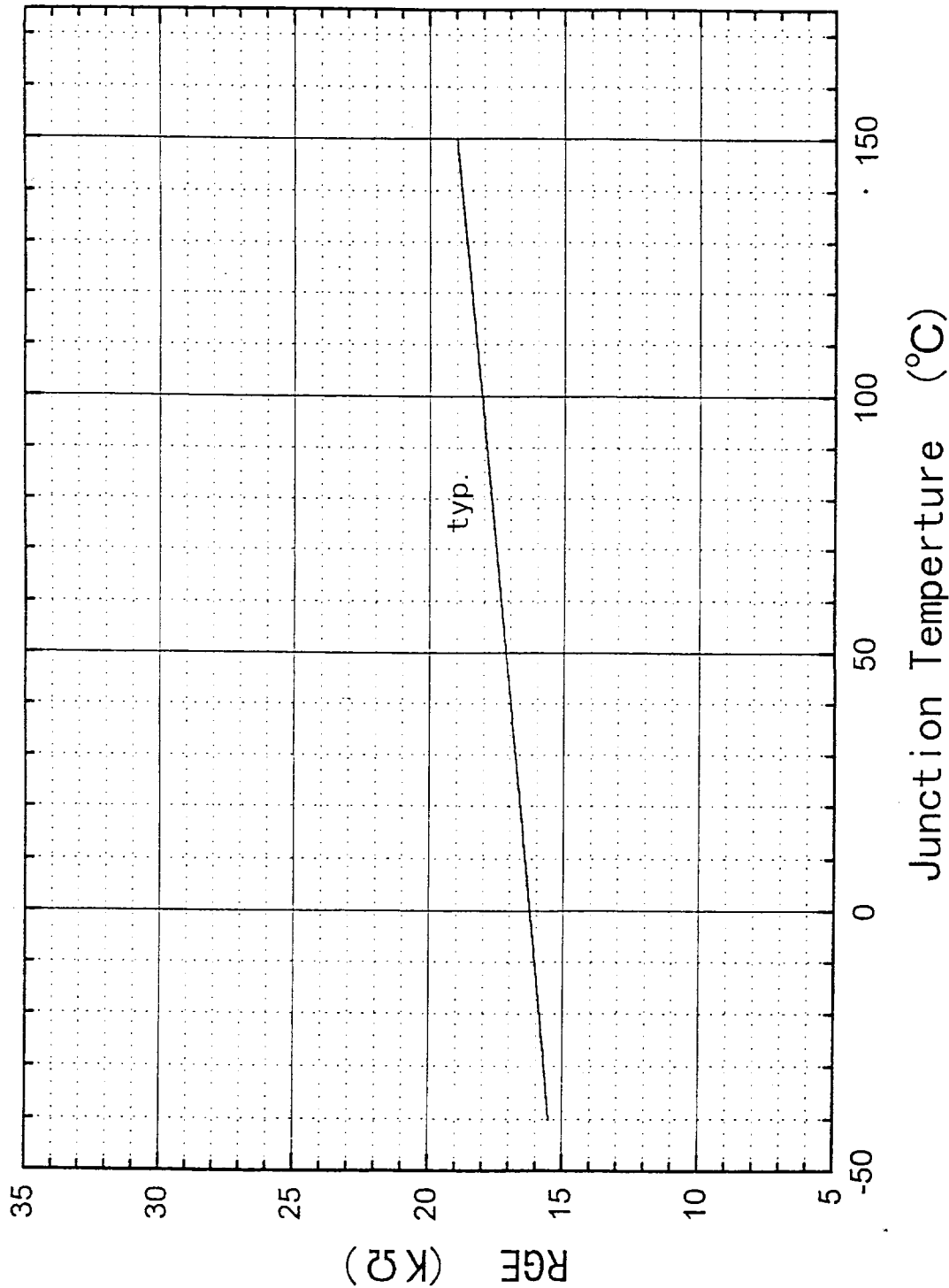
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Temperature Dependence of RGE (typ.)



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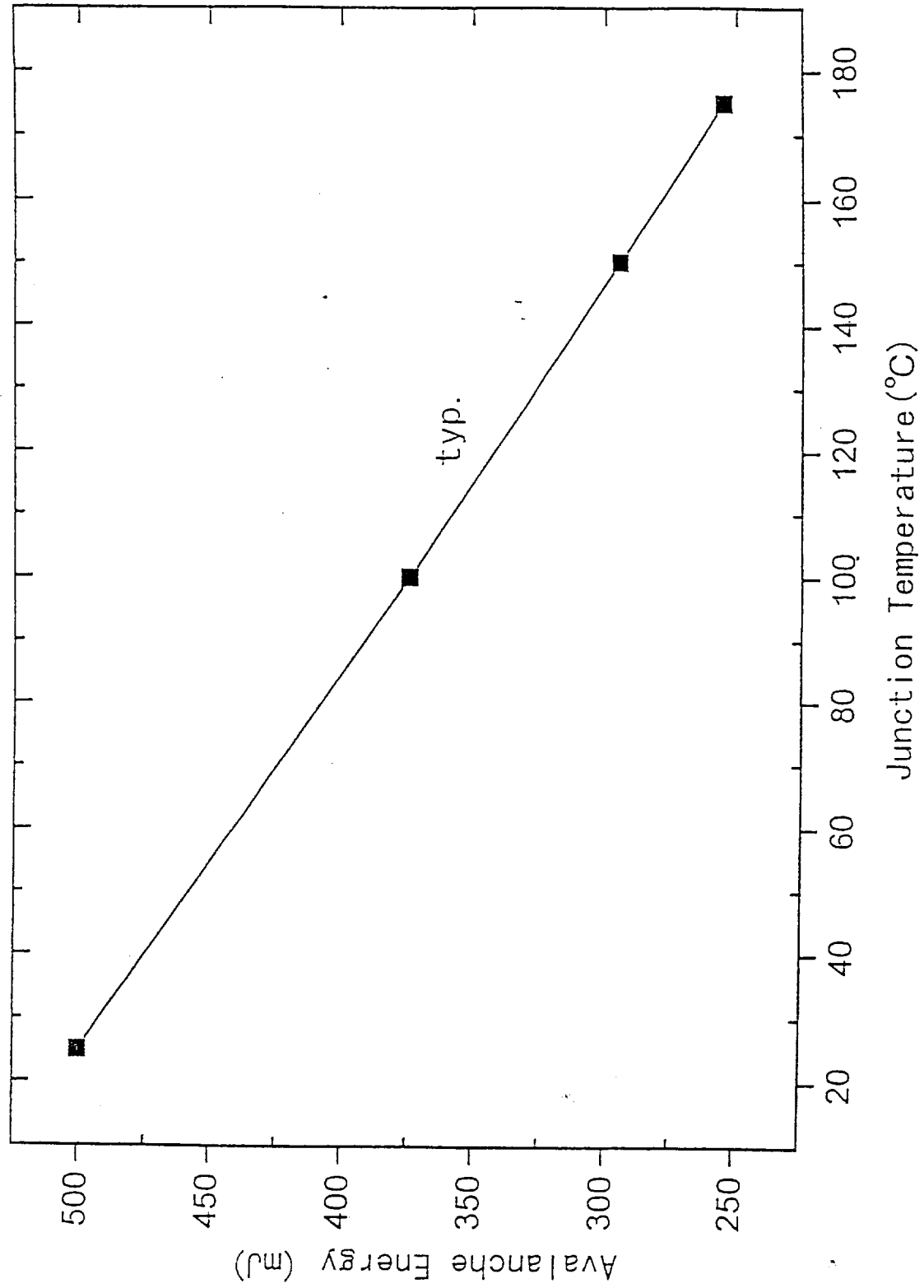
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Single Pulse Collector Emitter Avalanche Energy



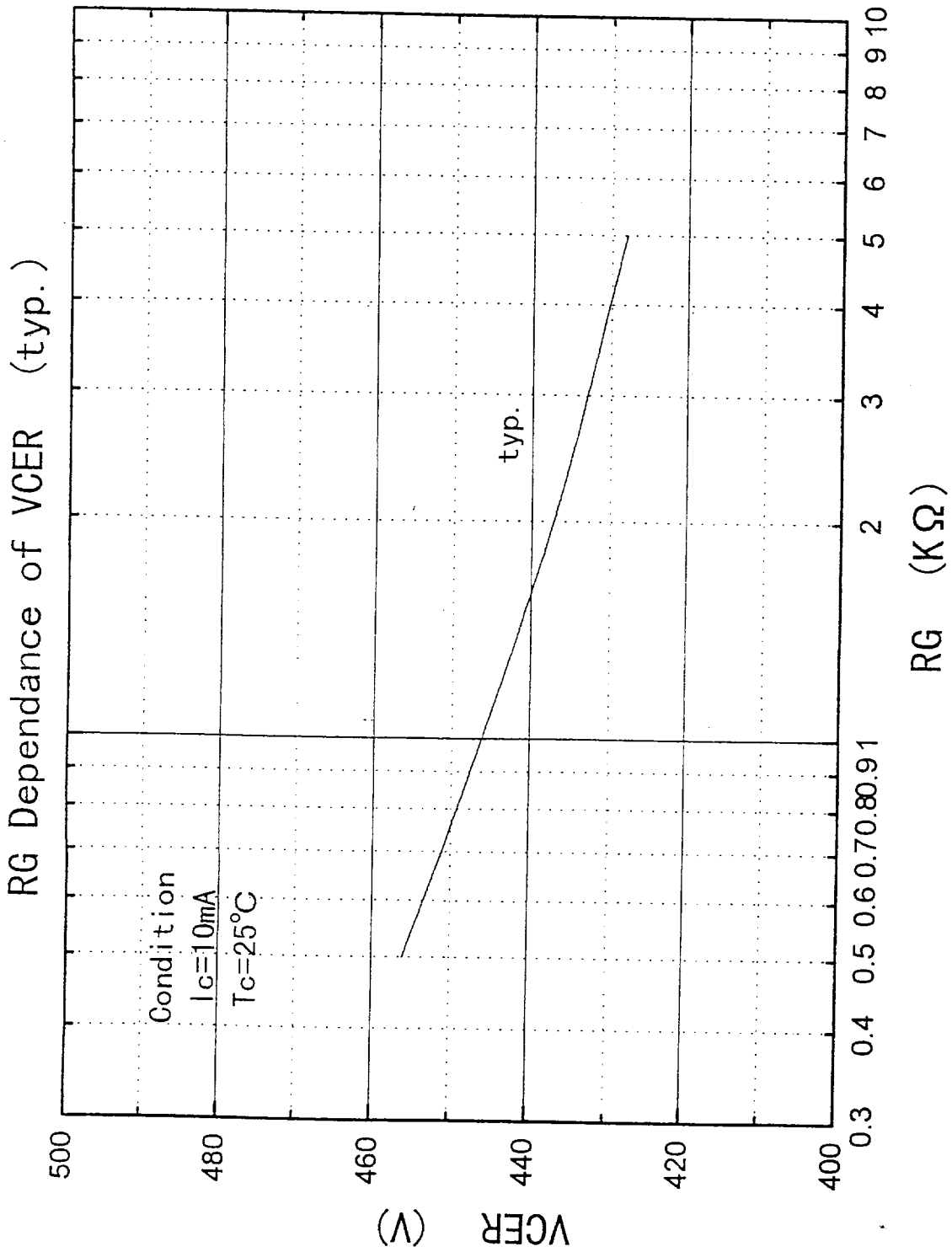
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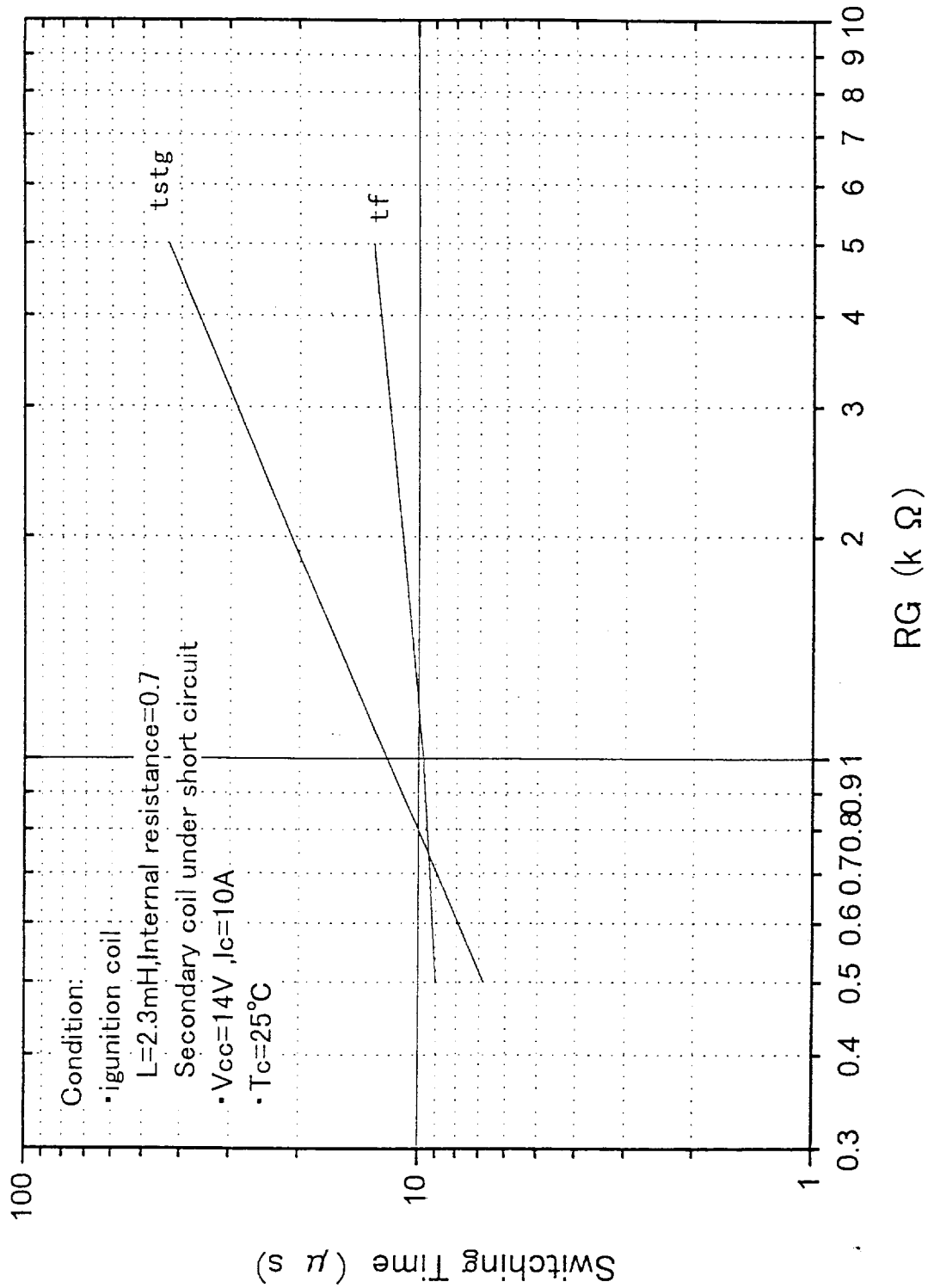
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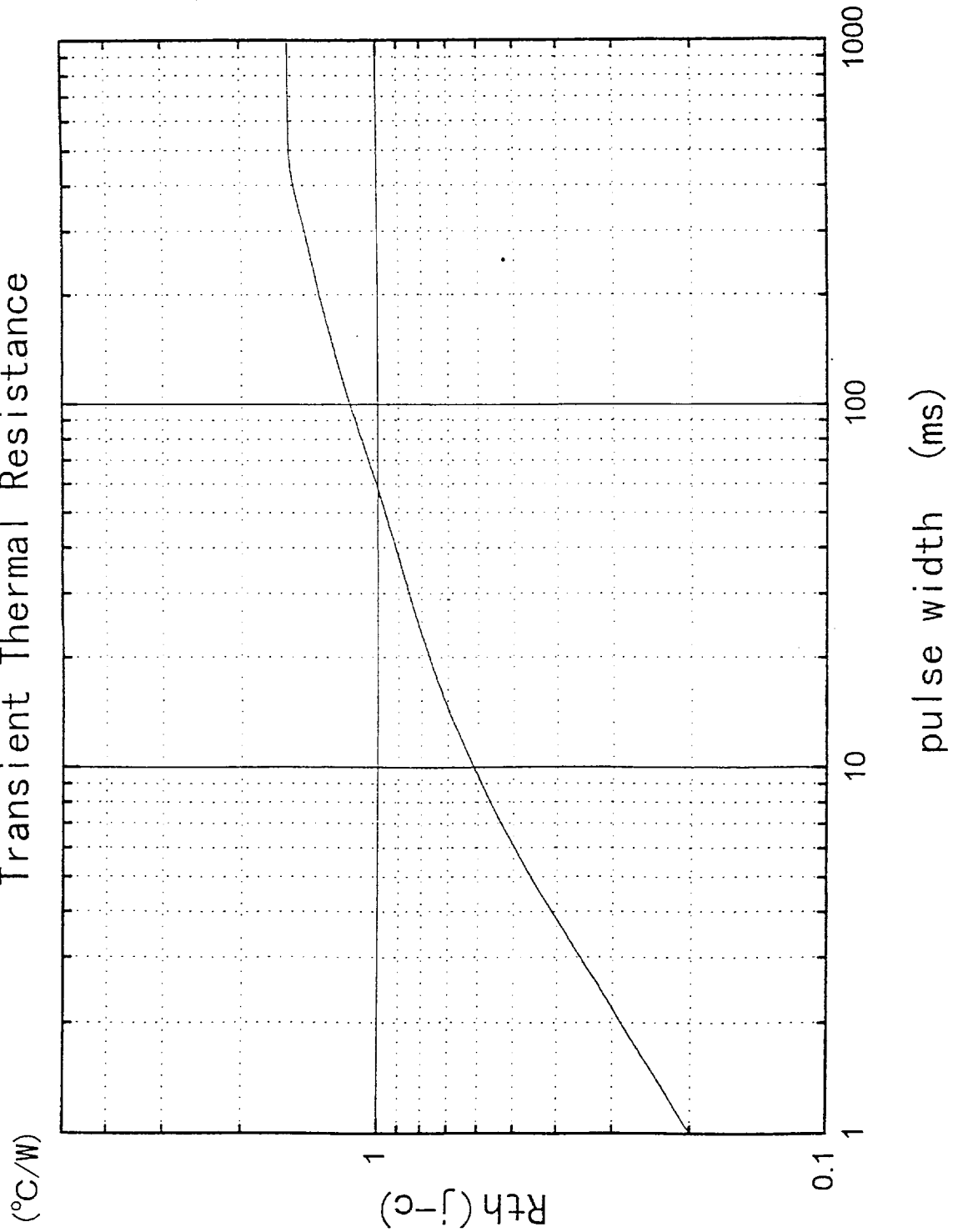
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RGE Dependence of Switching Time (typ.)



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Transient Thermal Resistance



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