

SPECIFICATION

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Device Name	:	Power MOSFET
Type Name	:	2SK3264-01MR
Spec. No.	:	MS5F4412

Fuji Electric Co.,Ltd.
Matsumoto Factory

	DATE	NAME	APPROVED	Fuji Electric Co.,Ltd.	
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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 _D pulse	± 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} = ± 35 V V _{DS} = 0V		10	100	nA
Drain-source on-state resistance	R _{DS(on)}	I _D = 3.5 A V _{GS} = 10 V		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)	$V_{CC} = 600V$ $V_{GS} = 10V$ $I_D = 7A$ $R_G = 10\Omega$		25	40	nS
	tr			90	140	
Turn-off time	td(off)			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		μC

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

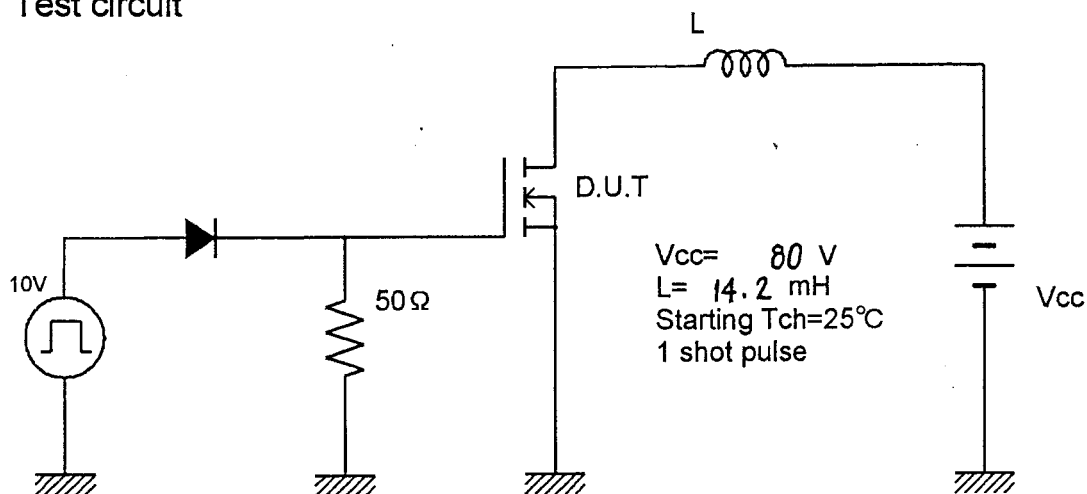
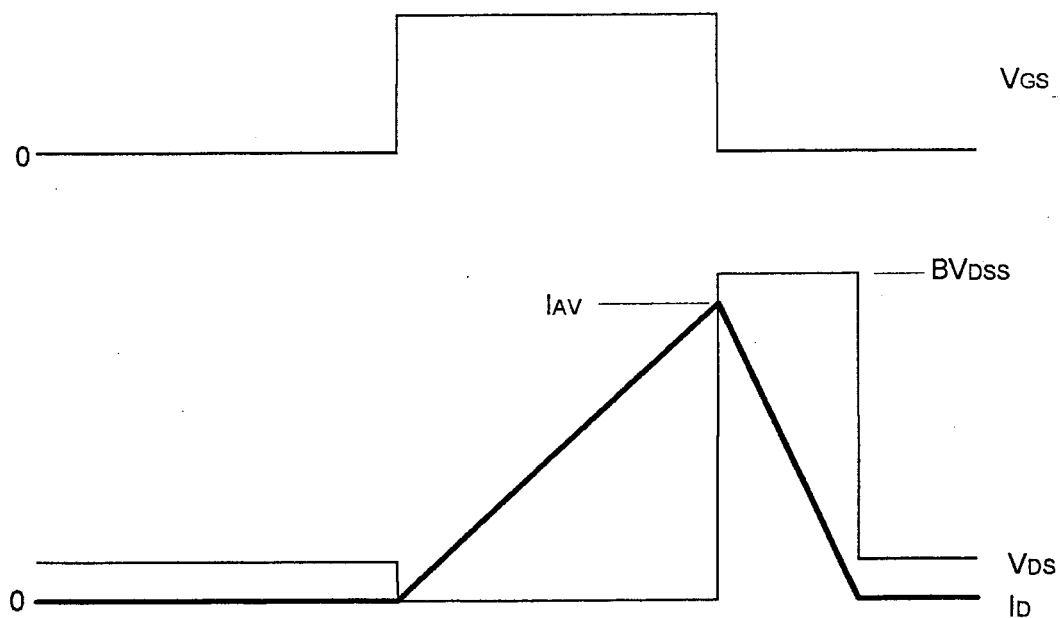


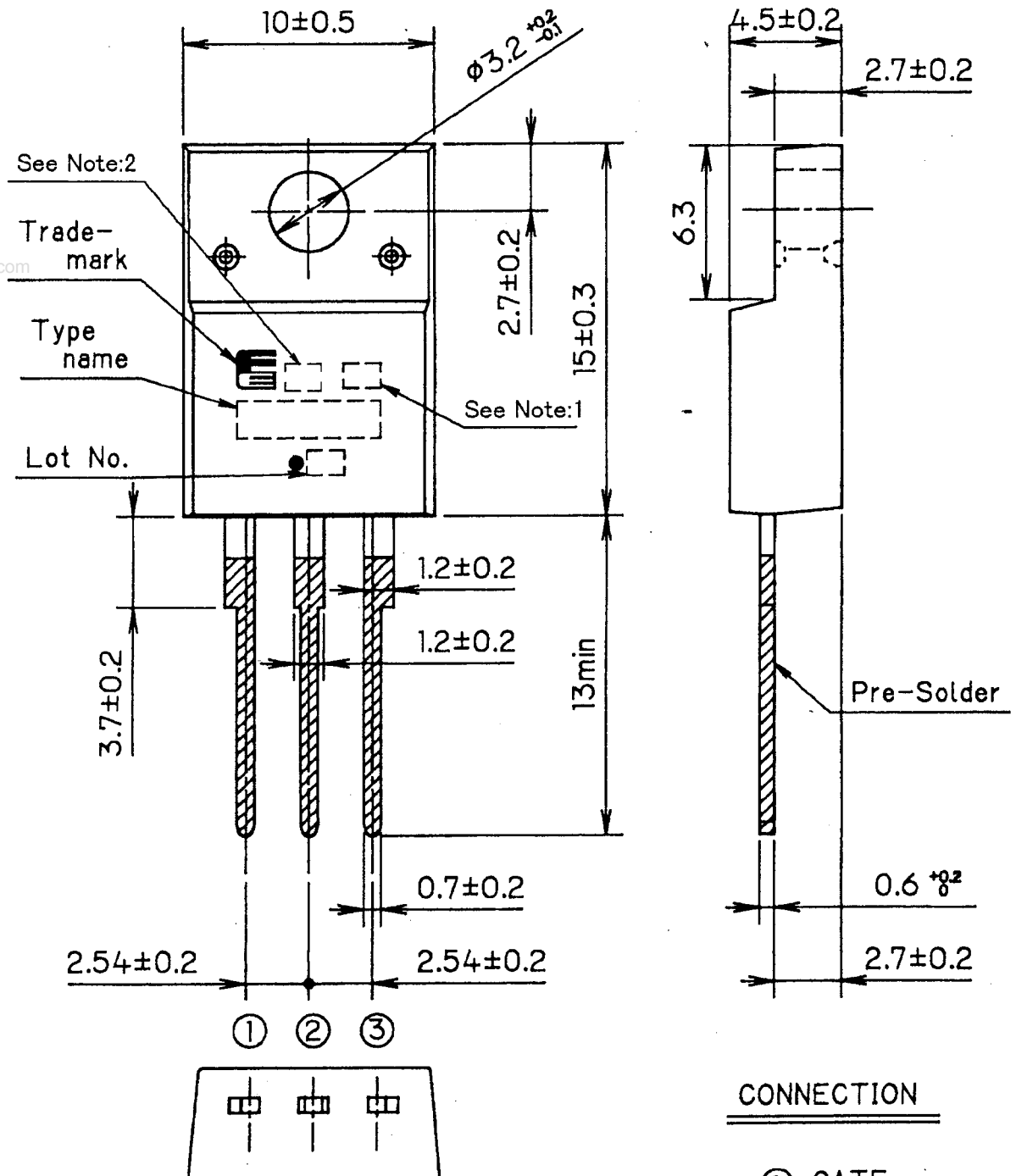
Fig.2 Operating waveforms



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FUJI POWER MOS FET

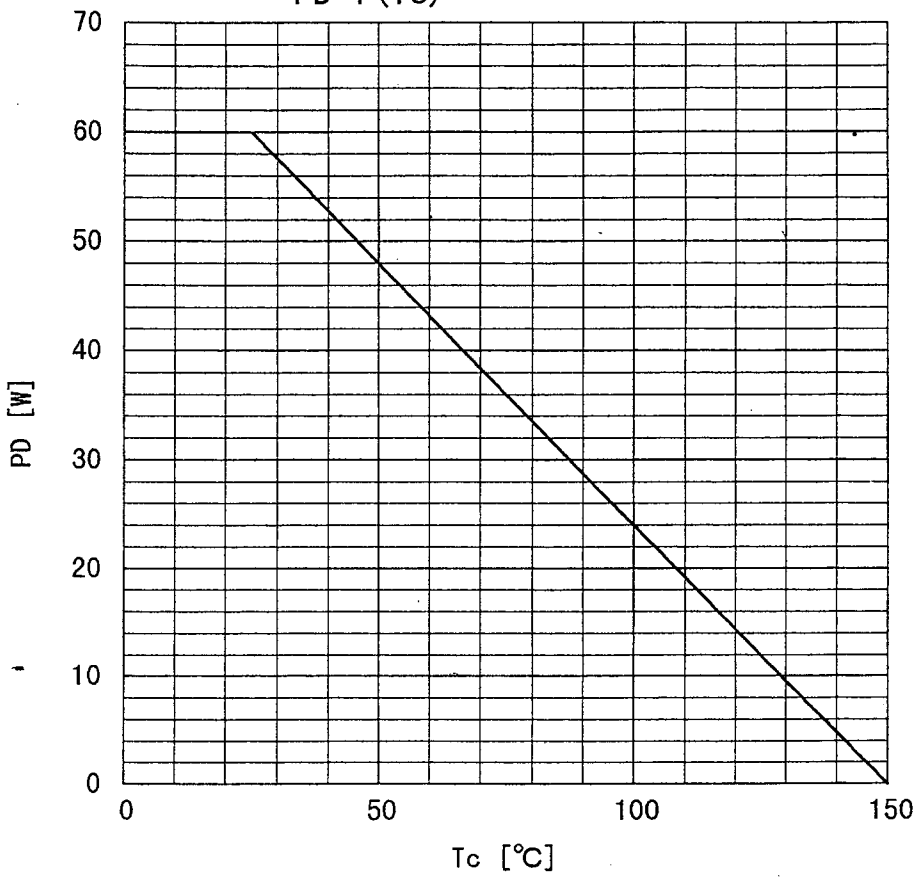
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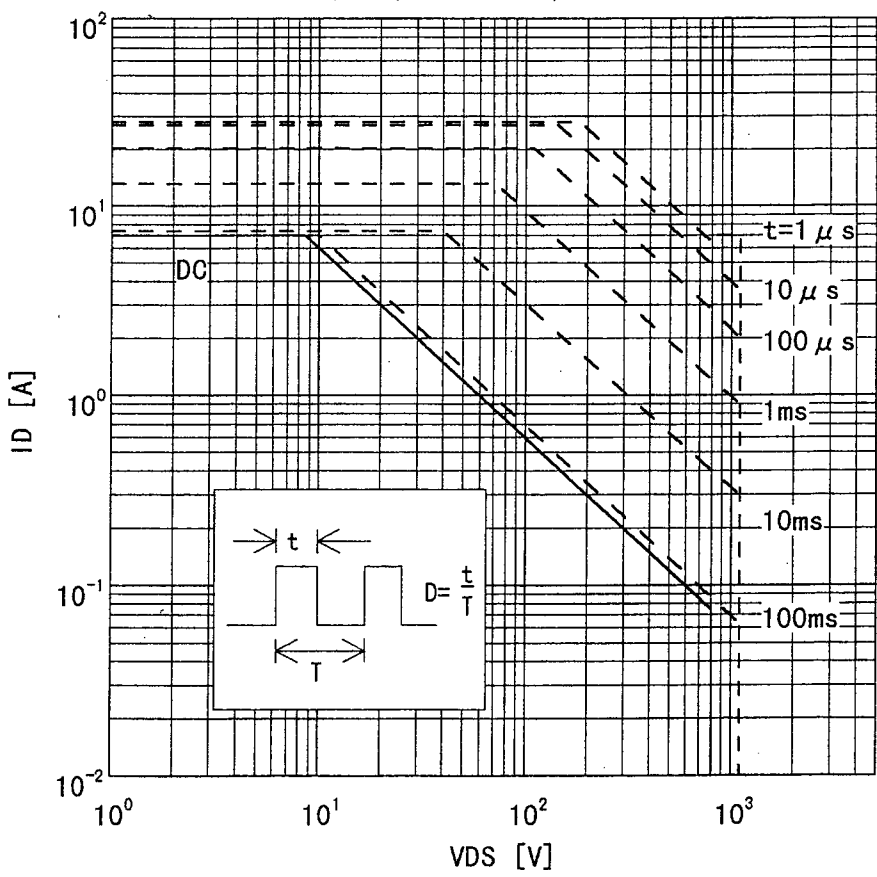
DIMENSIONS ARE IN MILLIMETERS.

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Power Dissipation
 $PD=f(T_c)$

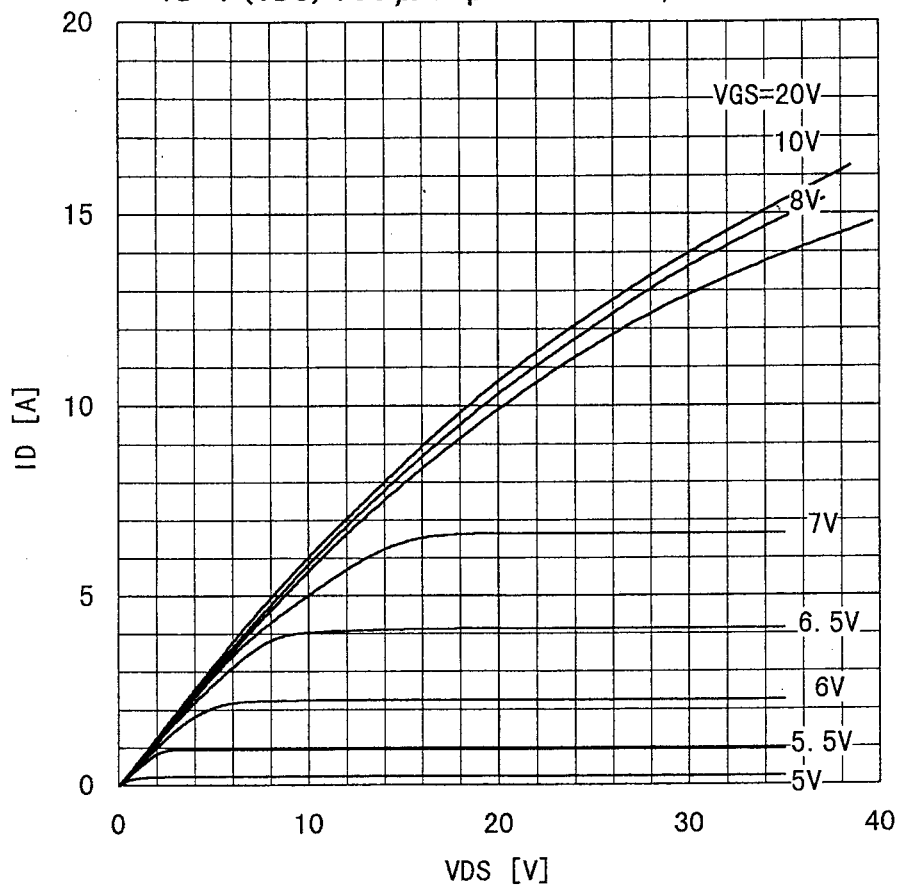


Safe operating area
 $ID=f(V_{DS}) : D=0.01, T_c=25^{\circ}C$

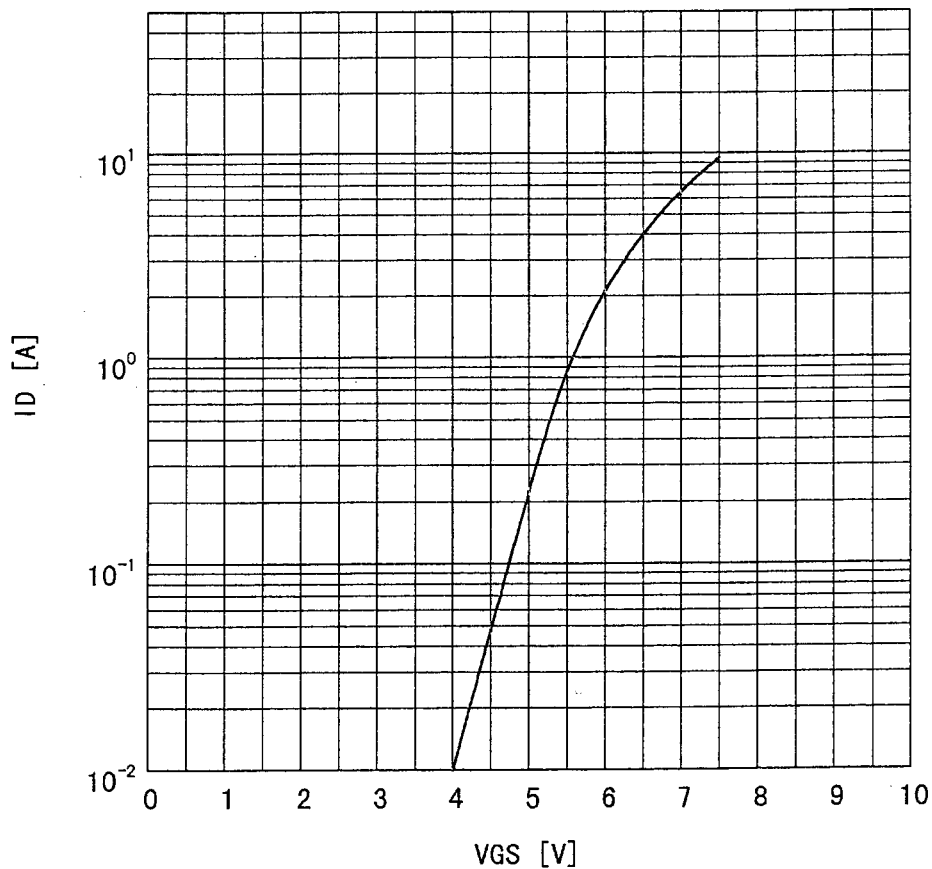


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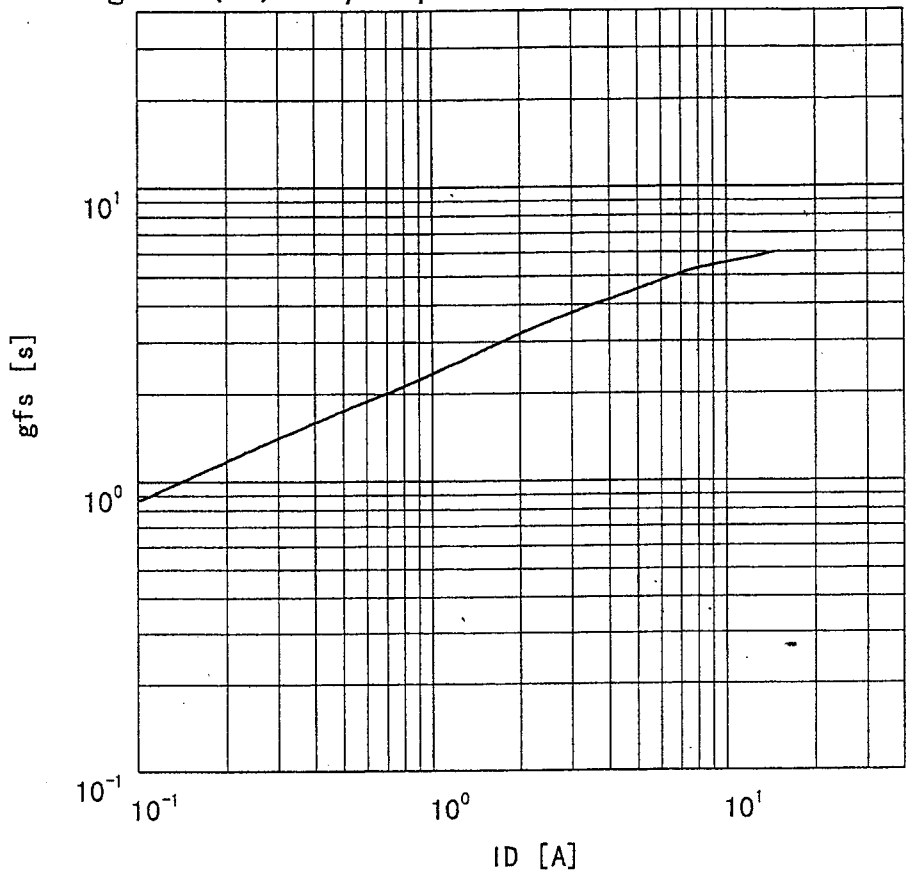
Typical output characteristics
 $I_D = f(V_{DS})$: 80 μ s pulse test, $T_c = 25^\circ\text{C}$



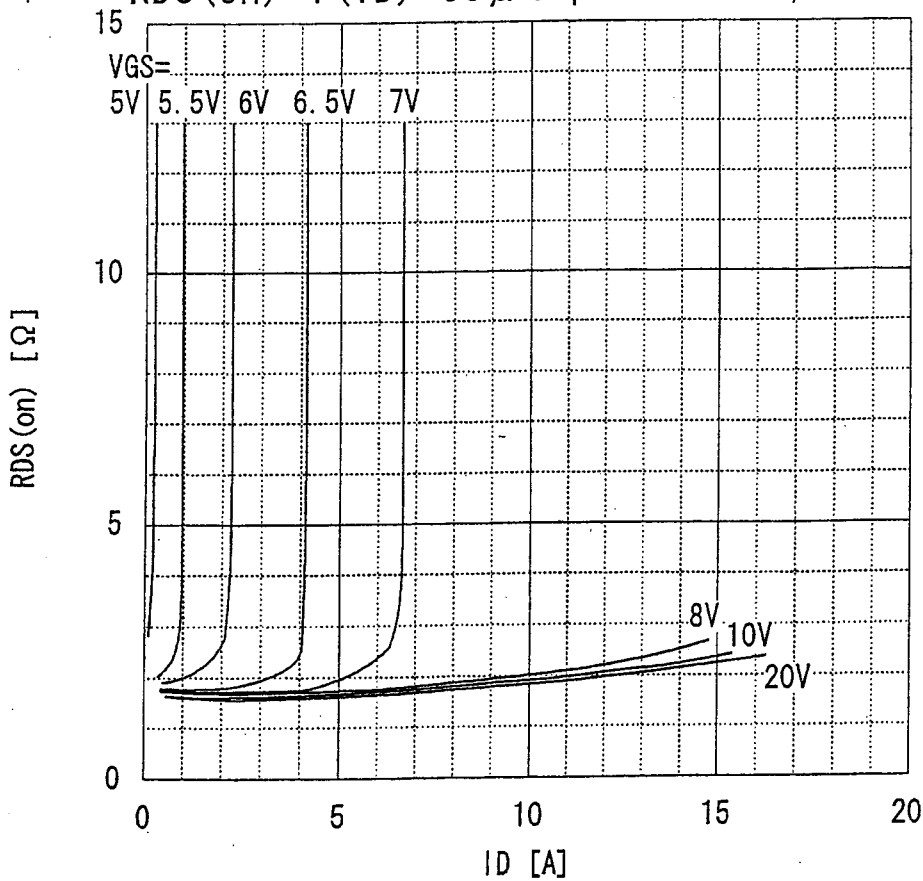
Typical transfer characteristic
 $I_D = f(V_{GS})$: 80 μ s pulse test, $V_{DS} = 25V$, $T_{ch} = 25^\circ\text{C}$



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

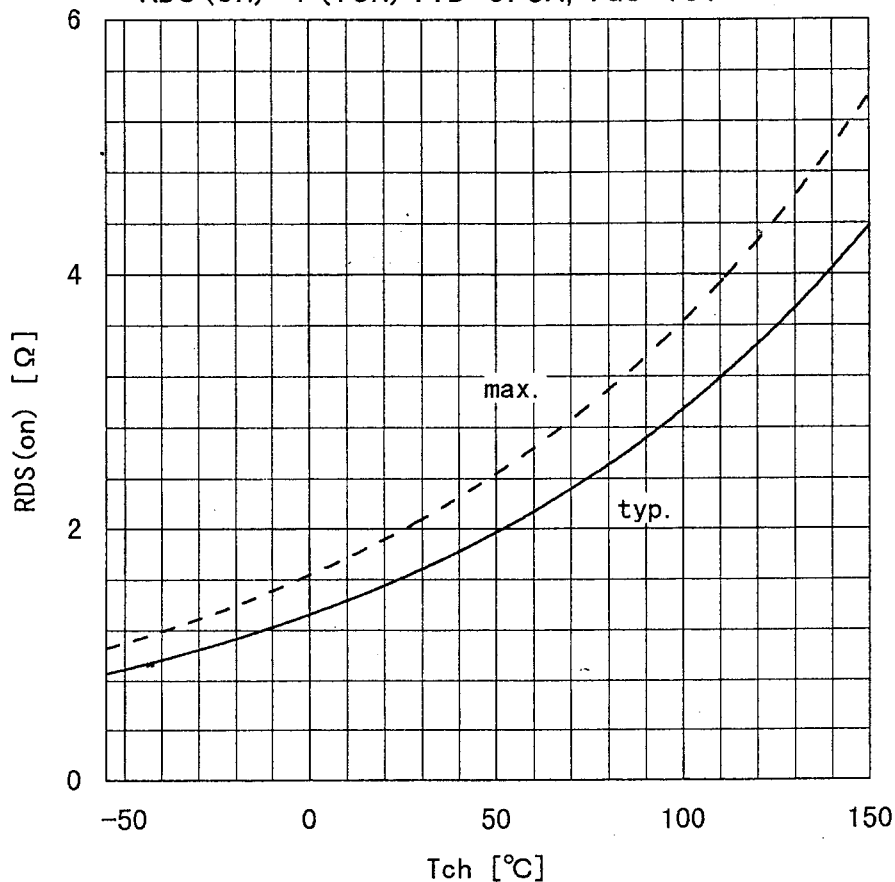


Typical drain-source on-state resistance
 $R_{DS(on)}=f(I_D)$: 80 μ s pulse test, $T_c=25^{\circ}C$



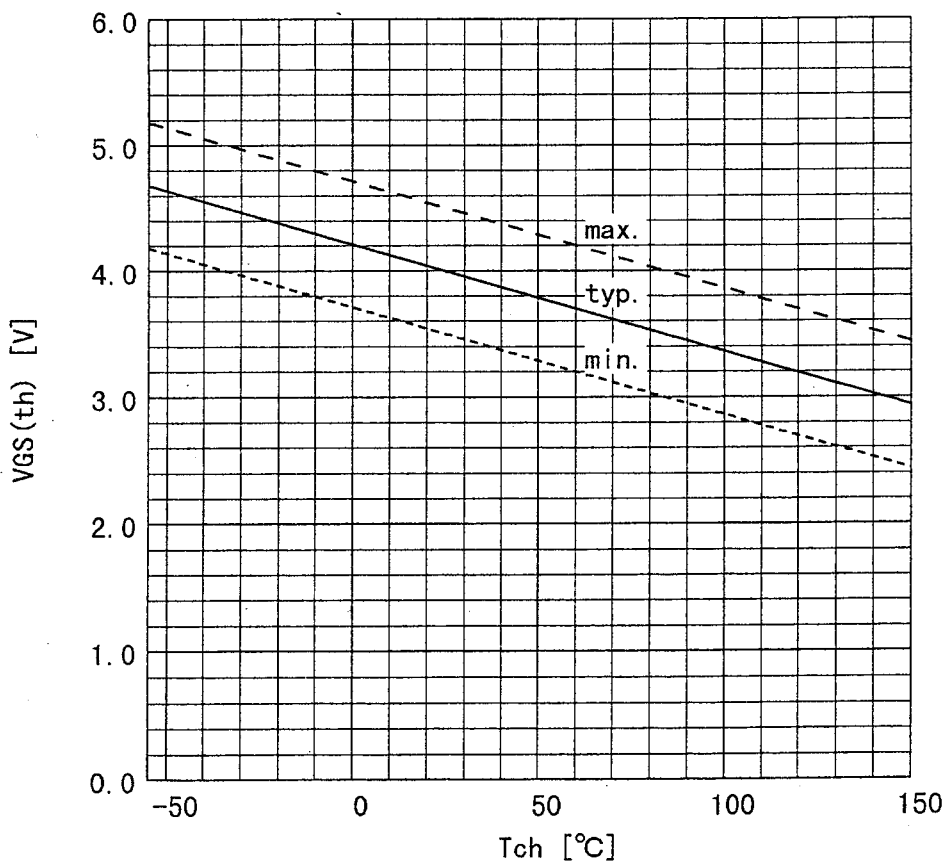
Drain-source on-state resistance

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



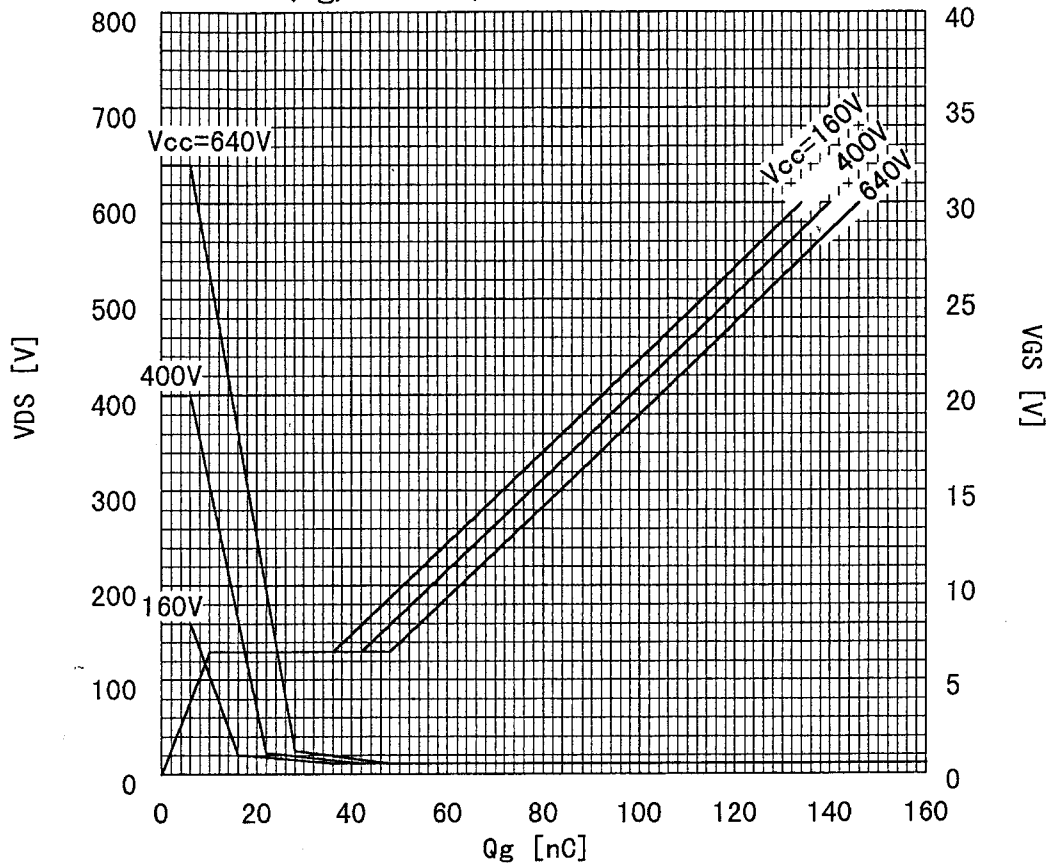
Gate threshold voltage

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

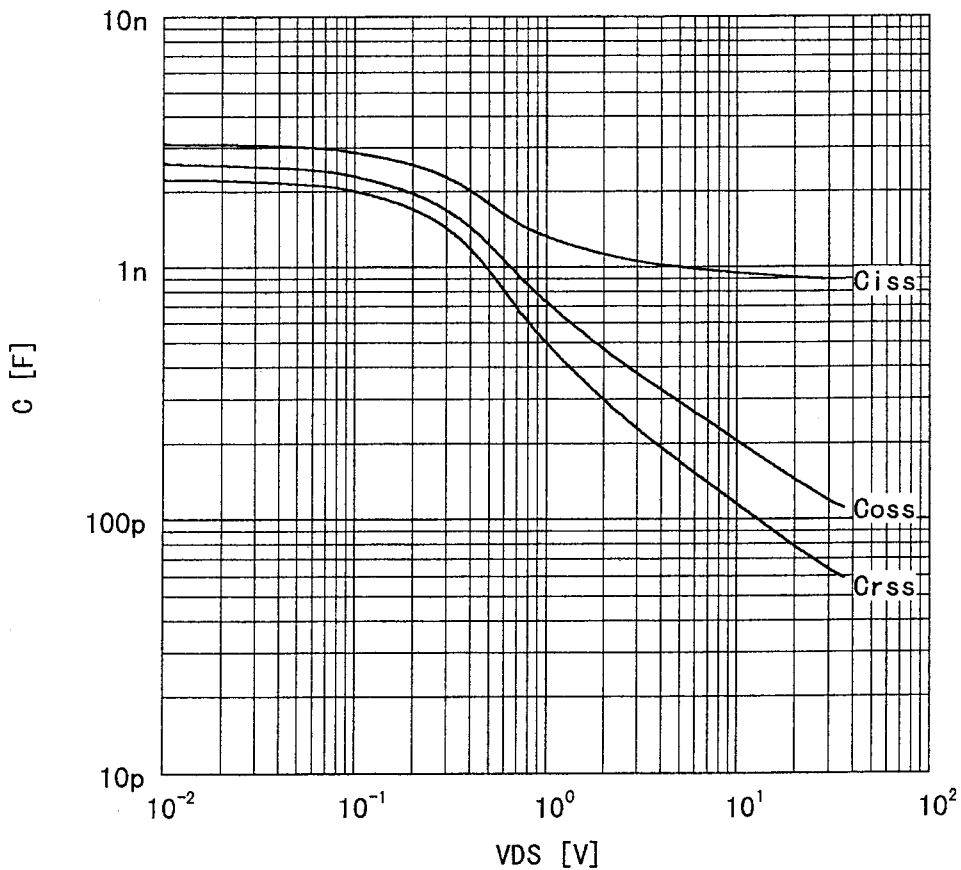


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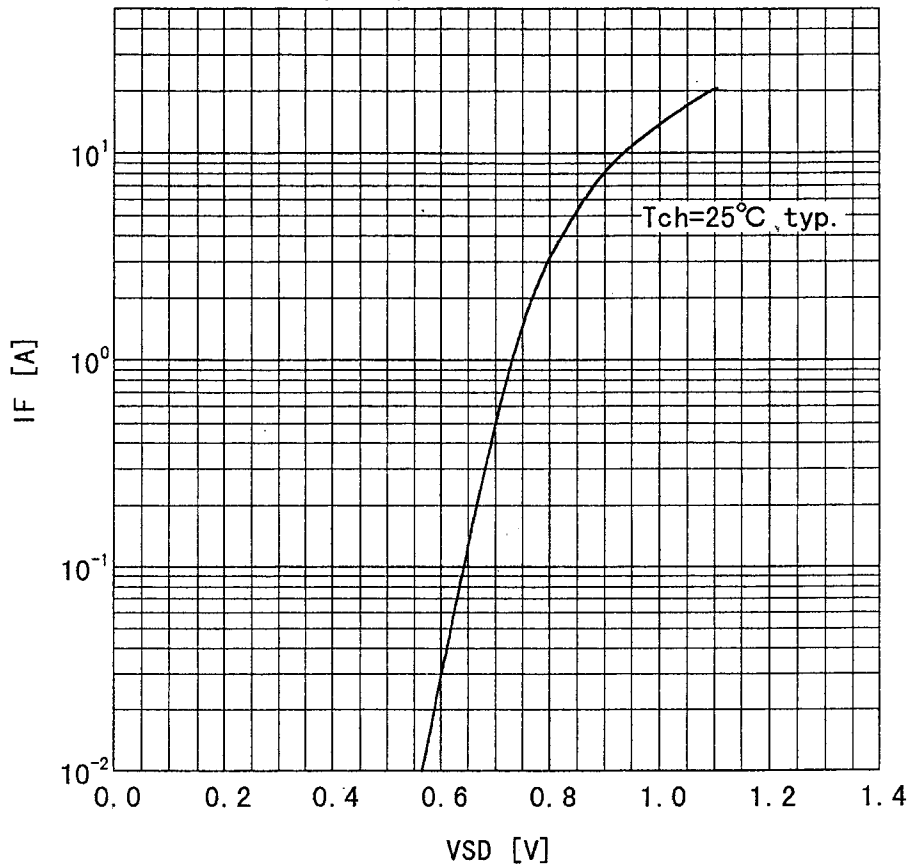
Typical gate charge characteristic
 $V_{GS}=f(Q_g) : I_D=7A, T_c=25^\circ C$



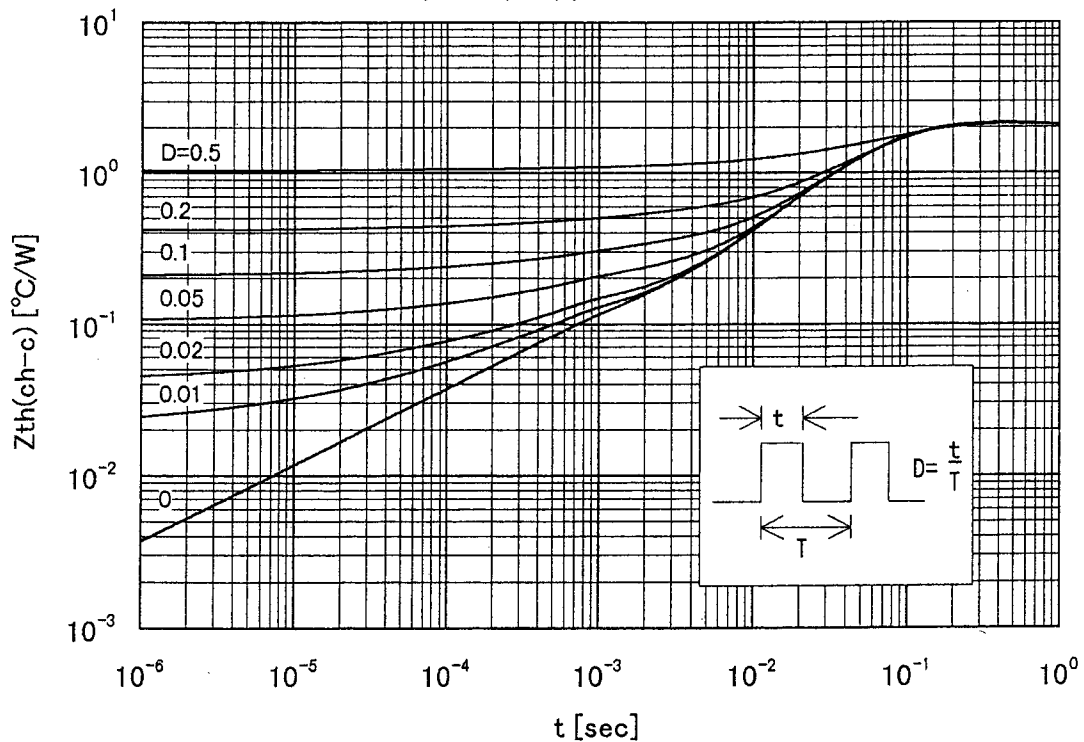
Typical capacitances
 $C=f(V_{DS}) : V_{GS}=0V, f=1MHz$



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

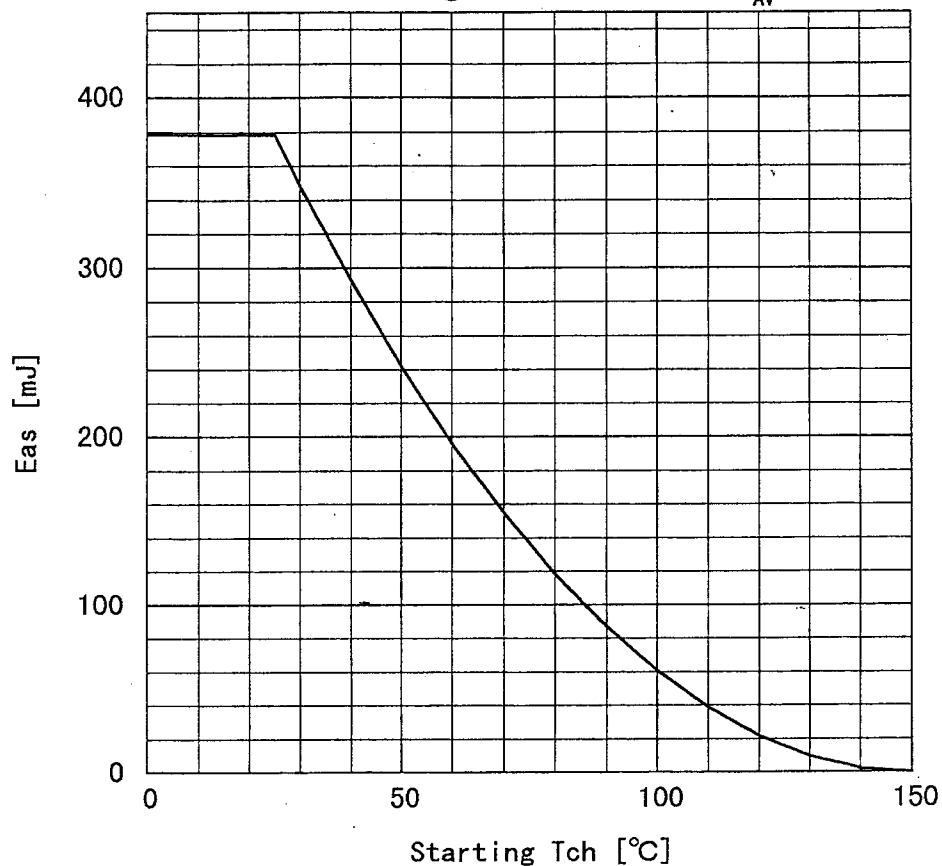


Transient Thermal Impedance
 $Z_{th(ch-c)} = f(t) : D = t/T$



Avalanche energy derating

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



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