Ordering number:ENN6230

N-Channel Silicon MOSFET

2SK3021

DC/DC Converter Applications

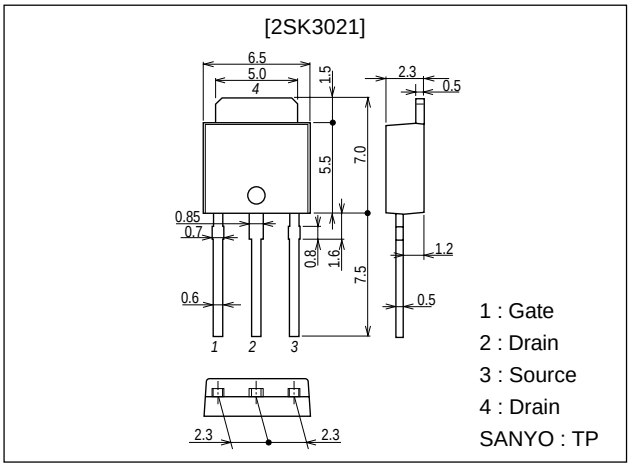
Features

· Low ON-resistance.
· 4V drive.

Package Dimensions

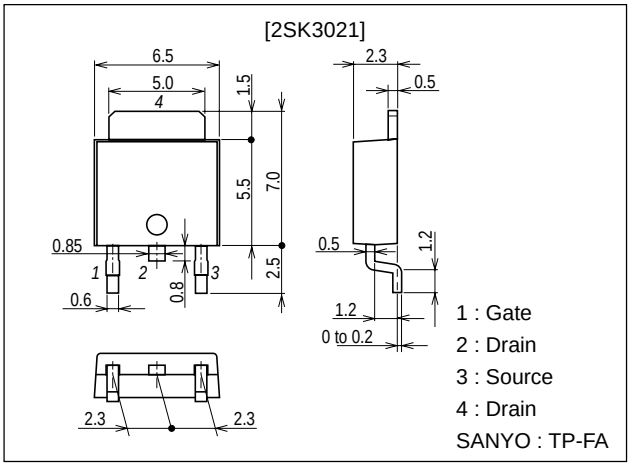
unit:mm

2083B



unit:mm

2092B



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TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Specifications

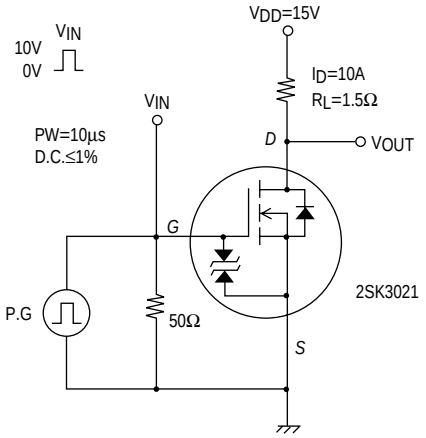
Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		30	V
Gate-to-Source Voltage	V_{GSS}		±24	V
Drain Current (DC)	I_D		20	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	45	A
Allowable Power Dissipation	P_D		1.0	W
		Tc=25˚C	30	W
Channel Temperature	Tch		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

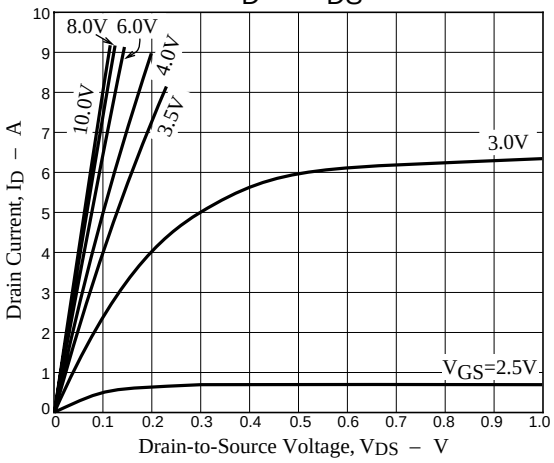
Electrical Characteristics at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0			10	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	1.0		2.4	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=10A	15	20		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=10A, V_{GS}=10V		15	20	mΩ
	R_{DS}(on)2	I_D=10A, V_{GS}=4V		24	33	mΩ
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		1200		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		700		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		280		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		15		ns
Rise Time	t_r	See specified Test Circuit		130		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		150		ns
Fall Time	t_f	See specified Test Circuit		100		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=10V, I_D=20A		38		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=10V, I_D=20A		5		nC
Gate-to-Drain "Miller" Charge	Qgd	V_{DS}=10V, V_{GS}=10V, I_D=20A		8		nC
Diode Forward Voltage	V_{SD}	I_S=20A, V_{GS}=0		0.85	1.2	V

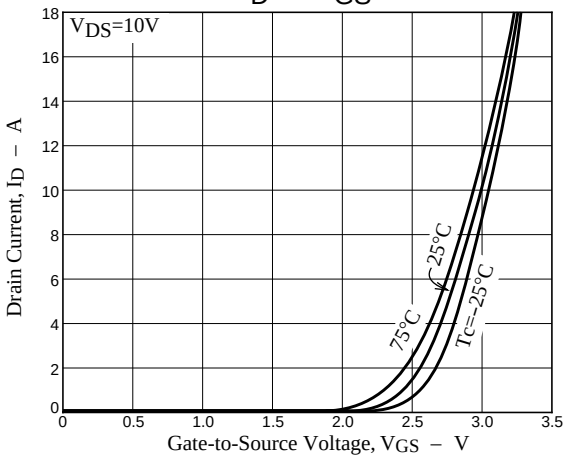
Switching Time Test Circuit



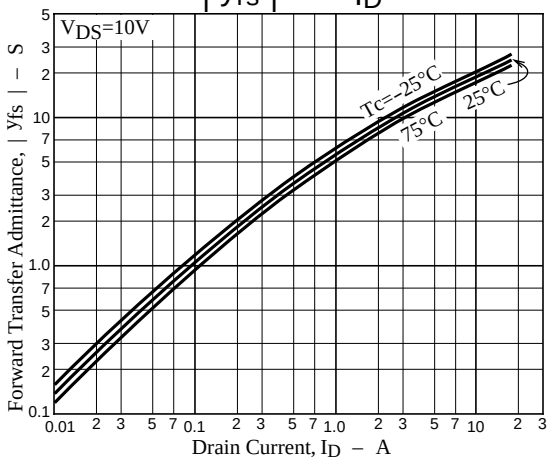
I_D – V_{DS}



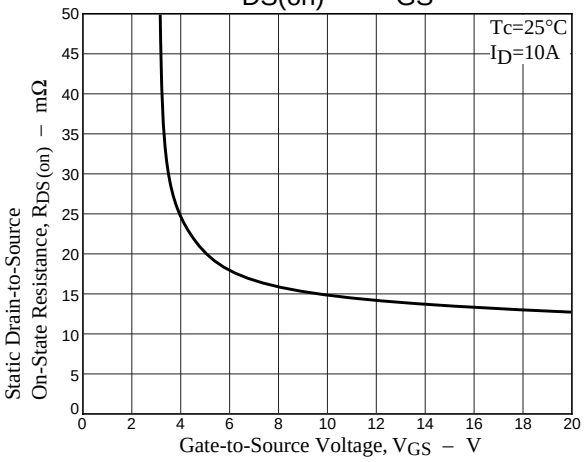
I_D – V_{GS}



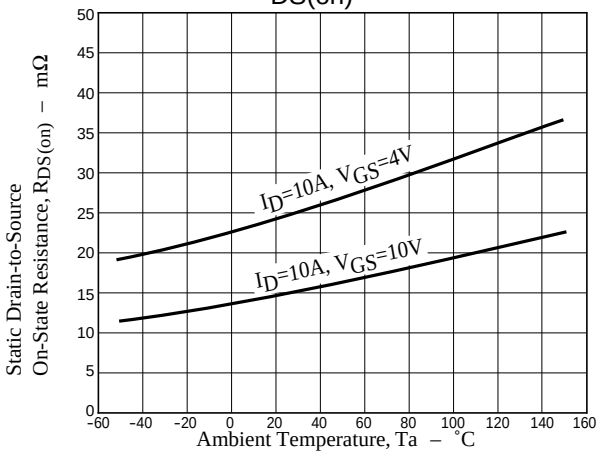
| y_{fs} | – I_D



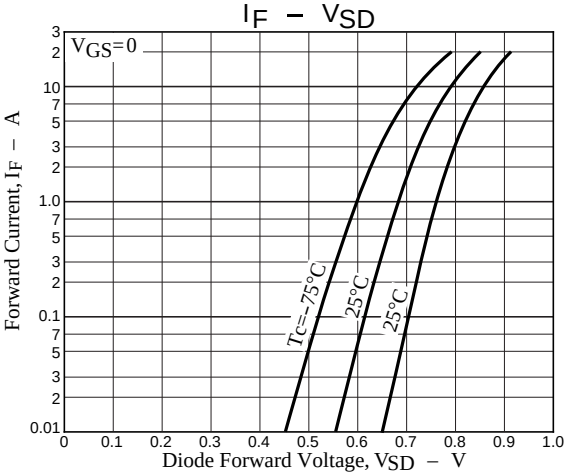
$R_{DS(on)}$ – V_{GS}



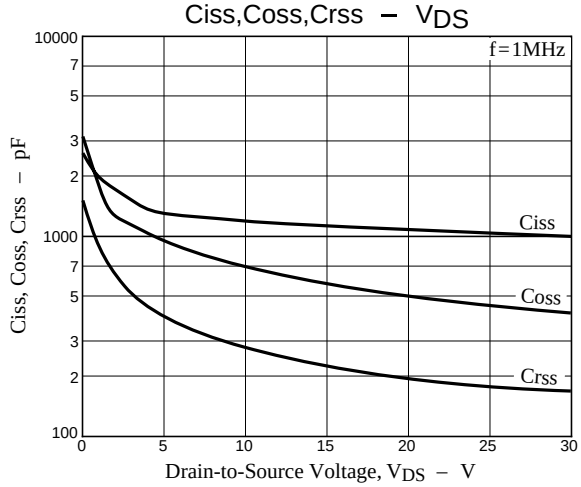
$R_{DS(on)}$ – Tc



I_F – V_{SD}



Ciss,Coss,Crss – V_{DS}



V_{GS} – Qg